

HIPPOCRATES
ON ANCIENT MEDICINE

STUDIES IN ANCIENT MEDICINE

EDITED BY

JOHN SCARBOROUGH

PHILIP J. VAN DER EIJK

ANN HANSON

NANCY SIRAISS

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HIPPOCRATES
ON ANCIENT MEDICINE

Translated with introduction and commentary

BY

MARK J. SCHIEFSKY



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To my parents

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PREFACE

With minor exceptions, the Greek text printed here is that of Jacques Jouanna (Paris: Les Belles Lettres, 1990). I have made no attempt to produce a critical edition; the apparatus indicates only the few places where I have thought it desirable to deviate from Jouanna's text, and the reader must consult his edition for a full apparatus and account of the manuscript evidence. Here it will suffice to note that the main authorities are M (*Marcianus gr.* 269, 10th century AD) and A (*Parisinus gr.* 2253, 11th century AD). While older editions tended to privilege A, careful analysis reveals that neither manuscript is consistently superior; thus each must be given equal weight in deciding on the reading in particular passages (Jouanna 1990, 85–93). The translation aims at clarity and faithfulness to the original rather than elegance; in general all translations are my own unless otherwise indicated. The Commentary is mainly concerned with issues of medical and scientific method; questions of textual criticism are discussed only insofar as they bear on the interpretation of the author's argument. For each chapter the Commentary contains an introductory note that begins with a summary of the chapter's contents, as well as specific notes keyed to particular passages in the text by lemmas in both Greek and English. These lemmatic comments are chiefly intended to offer supporting evidence for the claims made in the introductory notes; I have, however, tried to provide enough cross references so that the reader can use them as a guide to particular passages. The Commentary aims at completeness in the citation and presentation of evidence, especially on questions of terminology. This is justified by the radical claims that have sometimes been made on the basis of the author's use of certain terms; I hope that it will also make the work of value to future writers of commentaries on other Hippocratic texts. The Introduction offers an account of the argument of VM as a whole, attempts to place the work in its intellectual context, and addresses the general issues of its date, reception, and authorship; it naturally draws heavily on the analyses presented in the individual Commentary chapters. Finally, the two Appendices explore some of

the affinities and differences between VM, Plato and Aristotle, and later medical thought.

The basic lines of interpretation argued for in this book were sketched out in my 1999 Harvard dissertation, *Technê and method in the Hippocratic treatise 'On Ancient Medicine'*; nevertheless in terms of coverage, the amount of documentation provided, and its presentation in commentary form, this is for all intents and purposes a new work. In concerns and spirit it is closest to Festugière (1948), though I have attempted to distinguish more carefully and systematically than he sometimes does between the author's views and those of Plato and Aristotle. Among more recent Hippocratic scholarship I have been particularly inspired by the commentaries of Lonie on the treatises *On the Seed*, *On the Nature of the Child*, and *Diseases IV* (1981) and Craik on *Places in Man* (1998); the reader will find many references to these works throughout. In the summer of 2000 I had the privilege of reading a then forthcoming study of VM by John Cooper, which has since appeared under the title 'Method and science in *On Ancient Medicine*' (2002). This paper has been most valuable to me in revising the dissertation, both by confirming my views on certain issues and prompting me to rethink some others; I am in fundamental agreement with it on many key points of interpretation, though of course not on all. Finally, there is hardly a page that does not reflect the beneficial influence of Jacques Jouanna's edition, which has been the basis of all my work on VM; I hope the book proves to be a worthy companion to it.

There remains only the pleasant task of thanking the many individuals and institutions who have assisted me during the writing of this book; none of them, of course, can be held in any way responsible for its defects. I am most grateful to Jacques Jouanna and Les Belles Lettres for granting me permission to reprint his text; this has greatly added to whatever value the book might otherwise have had. I thank Philip van der Eijk and Ann Hanson for accepting the manuscript for publication in the *Studies in Ancient Medicine* series, and for their extremely helpful and acute comments on earlier versions; Michiel Klein Swormink of Brill Academic Publishers saw the book through production with admirable patience and tolerance. John Murdoch and Heinrich von Staden served as dissertation advisors and have both provided crucial advice and assistance of many kinds; I thank them both warmly. At various times while working on this book I have enjoyed the support of the Max Planck Institute for the History of Science in Berlin; I thank Jürgen Renn and Peter Damerow of Department I for their generosity,

hospitality, and firm friendship. I am grateful to all my colleagues in the Department of the Classics at Harvard University, and especially to its current chair, Richard Thomas, and immediate past chair, Gregory Nagy, for their encouragement and support of my research. Many other friends, colleagues, and students have helped to shape my thinking about ancient medicine and endured with stalwart resolve my preoccupation with the subject; special thanks are due to Jenny Attiyeh, Bridget Balint, Malcolm Hyman, Prudence Jones, Elahéh Kheirandish, Mitzi Lee, and Corinne Pache. Last but by no means least, I would like to acknowledge the crucial assistance I received in correcting the proofs and preparing the indices from two devoted students of the *Hippocratics*: David Camden and Valeria Sergueenkova.

My greatest debt is to Gisela Striker, who as dissertation advisor, colleague, and friend has guided and inspired my work on ancient philosophy and science at every stage for the past eleven years. Without her acute criticism, profound learning, and constant encouragement, this book would have taken even longer to complete, and its deficiencies would be still more pronounced. The book is dedicated to my parents, Mary Ann and Donald J. Schiefsky, with love and gratitude for the unstinting support they have given to all my efforts for as long as I can remember.

Cambridge
January 2005

ABBREVIATIONS AND EDITIONS

The abbreviations used throughout are those of H.G. Liddell, R. Scott, and H.S. Jones, *A Greek-English Lexicon* (henceforth 'LSJ'). For works not included in LSJ, titles and abbreviations are as given by the *Thesaurus Linguae Graecae Canon of Greek Authors and Works* (3rd ed., Oxford 1990) and the *Oxford Classical Dictionary* (3rd ed. rev., Oxford 2003). References to sources included in H. Diels and W. Kranz, *Die Fragmente der Vorsokratiker* (6th ed., Berlin 1952) are given using the abbreviation 'DK'. References to VM are to the section, page, and line numbers of Jouanna's text, followed by 'J.'. In quoting and referring to other Hippocratic works I have made use of both the Budé (Paris: Les Belles Lettres) and *Corpus Medicorum Graecorum* (CMG) series. The following editions (each of which is listed in the bibliography) have been used for individual works:

Genit., *Nat. Puer.*, *Morb.* IV: Joly 1970 (Budé XI).

Acut., *Acut. (Sp.)*, *Alim.*: Joly 1972 (Budé VI 2).

Carn.: Joly 1978 (Budé XIII).

Vict.: Joly 1984 (CMG I 2, 4).

Nat. Hom.: Jouanna 1975 (CMG I 1, 3).

Flat., *De Arte*: Jouanna 1988 (Budé V 1).

Aer.: Jouanna 1996 (Budé II 2).

Loc. Hom.: Craik 1998.

Morb. Sacr.: Jouanna 2003 (Budé II 3).

In referring to these works I give the page and line numbers of the edition used along with the volume and page number of Littré's edition (1839–1861; henceforth 'L.'). For all other Hippocratic works I have used Littré's text and refer to the volume, page, and line numbers of his edition (e.g. 'L. 6.208.7–15'). References to works of Galen are to the volume, page, and line numbers of Kühn's edition (1821–1830; e.g. 'K. 1.353.13') and to more recent editions where available.

INTRODUCTION

The Hippocratic treatise *On Ancient Medicine* (VM) is a key text in the history of early Greek thought.¹ The author of VM attacks a group of thinkers who attempted to systematize medicine by reducing it to the interaction of one or more of the opposites hot, cold, wet, and dry, factors which had played an important role in much of early Greek natural philosophy. The opponents attacked in VM claimed that all diseases were caused by one or more of these four factors, which the author calls ὑποθέσεις (hypotheses), and that medical practice was a matter of determining the cause of a disease and prescribing its opposite as the cure. The author responded that medicine had no need of a ὑπόθεσις such as hot, cold, wet and dry. It was already a well established τέχνη, an ancient and genuine art, consisting of a body of discoveries that had been made over a long period of time by following a methodical procedure. VM is the first evidence in the history of Greek medicine of a sustained reaction against the attempt to base medical practice on theories drawn from natural philosophy. Moreover it is also the first attempt in the history of Greek thought to give a detailed account of the development of a science from a starting point in observation and experience. The dispute between the author and his opponents thus raises issues that involve more than just medical method, issues of broad significance for the history of scientific method in general.

Because it raises issues of such wide significance for the history of medicine and the history of science, VM has probably been the focus of more specialized studies than any other Hippocratic work. However, such studies have tended to adopt one or more of the following three approaches, each of which is based on questionable methodological assumptions.

First, ever since the work of Émile Littré in the nineteenth century, VM has figured prominently in attempts to answer what has tradition-

¹ The Greek title is Περί ἀρχαίας ἰατρικῆς, but I refer to the text throughout as VM, the customary abbreviation of the Latin designation *De vetere medicina*.

ally been known as the ‘Hippocratic question’: the question which of the works in the Hippocratic Corpus was written by Hippocrates himself. Littré was a strong advocate of the view that VM was a genuine work of Hippocrates, and it accordingly stands at the head of his ten-volume edition of 1839–1861. In 1911 Gomperz offered a vigorous defense of Littré’s view; on the other hand, Pohlenz, Capelle, and Festugière all argued vehemently against the Littré-Gomperz position.² Attempts to identify the historical Hippocrates as the author of certain works or the source of certain views sometimes give the impression of being no more than a search for those Hippocratic works or views that the scholar in question finds admirable: whatever was good about Greek medicine, it is assumed, must have been inspired by the great Hippocrates. In any case it is doubtful whether it will ever be possible to offer a convincing reconstruction of the doctrines of the historical Hippocrates on the basis of the extant evidence, which amounts to a brief account in the *Anonymous Londinensis* papyrus, a few scattered references in Plato and Aristotle, and the famous passage in Plato’s *Phaedrus* (269e–272b) in which Socrates makes a lengthy comparison between correct method in rhetoric and the recommendations of ‘Hippocrates and right reason’ about correct method in medicine. There are, then, grounds for radical scepticism about the possibility of answering the Hippocratic question as traditionally posed.³ Any study of VM motivated primarily by the desire to answer the traditional Hippocratic question is likely to reach conclusions that are dubious at best.

A second characteristic of many scholarly studies of VM is a preoccupation with the question of influence, whether of philosophy on medicine or the reverse. A prime exponent of this approach is Hans Diller, who after explicitly setting aside the traditional Hippocratic question at the beginning of his 1952 article ‘Hippokratische Medizin und Attische Philosophie’ goes on to cite Werner Jaeger’s *Diokles von Karystos* (1938) as a paradigm of method. Just as Jaeger tried to prove that Diocles was dependent on Aristotle for his theory of method and much else, so Diller attempted to show that the author of VM was dependent on Plato for the most fundamental features of his intellectual outlook.⁴ Although Diller’s thesis was never widely accepted, the

² Gomperz 1911; Pohlenz 1918; Capelle 1922; Festugière 1948, 63.

³ Edelstein 1967a, 173–191; Lloyd 1975.

⁴ Diller 1952, 393 (=1973, 55): ‘Die Vorstellungen, die der Verfasser von *Technē*,

tendency to view VM and other medical writings as derivative of philosophy has been remarkably persistent. Ludwig Edelstein, too, advocated the view that Greek medical writers simply took over doctrines wholesale from the philosophers. As far as VM is concerned, Edelstein argued that the author was a representative of ‘Hippocratic empiricism’, a methodological stance characterized by the rejection of all generalizations and resulting from the influence of Protagorean relativism on medical thought.⁵ Others have attempted to trace influence in the opposite direction, from medicine to philosophy: thus James Longrigg has argued that VM influenced Protagoras, rather than the other way around.⁶ A common weakness of all these interpretations is the assumption that intellectual affinity implies intellectual influence, as though it were impossible for two thinkers to adopt similar positions on similar questions without one of them being familiar with the work of the other. Moreover, affinity of language has often been confused with affinity of thought. For example, arguments for Protagorean influence on VM or the reverse rely largely on the author’s use of the term μέτρον in chapter 9. But a close examination of the passage reveals that the author’s position cannot be characterized as relativist in any philosophically meaningful sense of the term (cf. p. 48 below). To be convincing, a claim of intellectual influence must be based on affinities of thought, not just language, and affinities that cannot plausibly be explained in any other way. Whether any of the affinities between VM and other thinkers are best explained in terms of influence remains to be seen; but such a conclusion must be based on a thorough analysis of the author’s thought on its own terms, one that does not begin from the presumption that influence is there to be found.

Finally, determining the identity of the theorists attacked in VM has sometimes taken precedence over the study of the author’s own position. Thus G.E.R. Lloyd in his 1963 article ‘Who is attacked in *On Ancient Medicine*?’ argues that VM is attacking the Pythagorean Philolaus or medical theorists strongly influenced by him.⁷ Such an approach involves some of the same pitfalls as the traditional Hippocratic ques-

Methoden, Hypothese hat, und darüber hinaus sein methodisches Bewußtsein als solches sind ohne Platon nicht denkbar.’

⁵ Edelstein 1967a, 195–203; cf. Kühn 1956, 26–27.

⁶ Longrigg 1963; 1983.

⁷ Lloyd 1963 (reprinted with new intro. in Lloyd 1991, 49–69). Similarly, Vegetti 1998 argues that Empedocles is the direct and specific target of the author’s attack.

tion. Given the vast amount of early medical literature that has not survived, it would be quite remarkable if we could pinpoint the specific thinker or work attacked by a Hippocratic author in a particular passage, even if we could be sure that the author in question had a specific target in mind. Nor is this approach free of a preoccupation with influence and a reliance on verbal similarities that do not imply genuine intellectual affinities. For example, Lloyd lays great weight on the point that the author of VM uses the term ὑπόθεσις in the sense ‘assumption’, a use that has no exact parallel in fifth-century sources. Because a number of passages in Plato suggest that the term was used in this sense by fifth-century mathematicians (cf. *Meno* 86e–87b, *R.* 510b–511e), Lloyd proposes that the author of VM (or his opponents) may have been influenced by the use of ὑποθέσεις in mathematics.⁸ But there is no reason to think that the use of ὑπόθεσις to mean ‘assumption’ originated in a single specialized context and then spread to other disciplines; moreover the use of ὑποθέσεις attacked in VM in fact bears very little resemblance to the term’s specialized mathematical uses, insofar as these can be determined from the extant evidence.⁹ The identity of the author’s opponents is an intriguing and problematic question, but it should not be allowed to take precedence over the study of his own position.

What is needed in order to make progress on the questions that have dominated earlier studies of VM is a sustained examination of the author’s argument, free of presuppositions about his identity and intellectual affiliations. In section 1 below I attempt to set out the background of the argument by clarifying both the areas of common ground between the author and his opponents, and the points on which they differ. Section 2 gives a brief account of the argument itself, drawing heavily on the analyses presented in the Commentary. In section 3 I turn to the questions of VM’s audience, intellectual context, and date, and the closely related issues of reception and authorship.

⁸ Lloyd 1991, 51–53.

⁹ See the Commentary on ch. 1, esp. 1.1 ὑπόθεσιν ... ὑποθέμενοι τῷ λόγῳ (pp. 120–126).

1. *Background*1.1. *τέχνη and τύχη*

In approaching the argument of VM it is crucial to recognize that despite the vehemence of the author's attack on his opponents, he and they actually share a good deal of common ground. In particular, they share a conception of τέχνη (art, craft, or science) as a set of procedures organized in a highly systematic fashion and based on knowledge of the nature or φύσις of its subject matter. In the case of medicine, τέχνη requires knowledge of the nature (φύσις) of the human body and the causes (αἰτίαι) of health and disease. This conception of τέχνη was adopted by Plato and Aristotle and came under intense scrutiny in the debate between the Rationalist and Empiricist doctors of the Hellenistic period.¹⁰ But the evidence suggests that it first emerged within medicine itself, for a number of reasons.

That the author and his opponents share this conception of τέχνη emerges clearly from chapters 1–2 and 20–21, where the contrast between their positions comes into sharp focus. The opponents attacked in chapter 1 conceive of medicine as a highly systematic body of procedures based on knowledge of the cause of disease. The author criticizes them for 'narrowing down the primary cause of diseases and death for human beings' to one or two principles (ὑποθέσεις) such as hot, cold, wet, and dry; their view is that medical practice requires determining the cause of a disease and prescribing its opposite, on the assumption that opposites are the cure for opposites (cf. 13.1). The author represents the opponents as attempting to set medicine on a new foundation (ὑπόθεσις) in order to give it the systematic character it needs to qualify as a genuine τέχνη. His response is that medicine is already a solidly established τέχνη: practitioners differ in competence from one another, which would not be the case if nothing had been discovered in medicine and the affairs of the sick were governed by chance (τύχη) (1.2). Practitioners have an ability that allows them to bring about certain outcomes in a reliable fashion; the implication is that this involves the knowledge of causal connections. In chapter 2 the author responds to the opponents' attempt to introduce ὑποθέσεις into medicine not by denying that medicine needs a systematic foun-

¹⁰ Cf. Appendix 1.

dation, but by claiming that it already *has* one: a principle (ἀρχή) and a method (ὁδός) that have made it possible to make great discoveries over a long period of time (2.1). Chapter 20 turns to a group of opponents who claim that medical practice must be based on a certain kind of knowledge of human nature (φύσις): according to them, in order to treat patients correctly the doctor needs to know how human beings were originally formed from a small set of elementary constituents like the four elements of Empedocles. For these opponents, such theories were the basis of highly systematic accounts of the causes and cures of disease. The author rejects this kind of knowledge of human φύσις as irrelevant to medical practice, but then goes on to set out a view of what the good doctor does need to know about human φύσις in order to practice medicine. The doctor must know what the human being is in relation to foods, drinks, and other practices, i.e. what specific effect each of these factors will have on the human being (20.3). It is not enough just to know *that* cheese is harmful: the doctor must know exactly what harm it causes and *why* (διὰ τί 147.3 J.). Chapter 21 goes on to explain that this knowledge is crucial to avoiding serious mistakes in treatment. Elsewhere the author frequently stresses the need for the doctor to have knowledge of causes (cf. 2.2, 11.1, 14.2, 23.1); a substantial part of the text is devoted to arguing that hot and cold are relatively unimportant as causes of disease (15–19). Throughout the text the author is concerned with both knowledge of human nature (φύσις) in general and knowledge of the nature or constitution (φύσις) of the individual patient. The concept of φύσις plays a key role in the account of the discovery of medicine in chapters 3–8, an account which culminates in a general theory of human φύσις (14.4) that provides the kind of explanatory knowledge demanded of the doctor in chapter 20.

For both the author and his opponents, then, medicine is a τέχνη because it is based on general, explanatory knowledge of human φύσις. To understand why this conception of τέχνη arose in medical circles, we need to consider the opposition between τέχνη and τύχη, chance or luck, which was common in Greek thought from the fifth century BC on. In chapter 1 of VM τέχνη is opposed to τύχη and associated with the notion of discovery: if medicine were not a τέχνη and nothing had been discovered in it, practitioners would all be equally incompetent and the affairs of the sick would be governed by chance (τύχη) (1.2). In chapter 12 the author insists that medicine is a τέχνη that has been discovered by following a systematic method; its discovery was the result of reasoning (λογισμός), not chance (τύχη) (12.2). τέχνη, then, results

from investigation and the application of human intelligence, and it provides the ability to control the affairs of the sick. Similar ideas are expressed in other Hippocratic works, notably *Places in Man* (*Loc. Hom.*) and *On the Art* (*De Arte*). The author of *Loc. Hom.* conceives of medicine as a body of knowledge (ἐπιστήμη) that has been completely discovered; a person with this knowledge would be able to succeed both with and without luck (τύχη). Knowledge brings control and mastery, while luck is ungovernable:

In my view, medicine has all been discovered, medicine of this kind which teaches in each case both its inherent character and proper treatment. The man who has this understanding of medicine least depends on luck (τύχη); but whether with or without luck his actions would succeed. For all medicine has advanced, and its finest established techniques seem to have very little need of luck. For luck is absolute in power and is ungovernable, and it is not its way to come in response to one's wish. But knowledge (ἐπιστήμη) is governable and brings success when the one with knowledge wishes to use it.¹¹

The author goes on to argue that τύχη has no place in medicine, appealing to the idea of a regular connection between cause and effect: if there really are drugs that promote health, they will do so both with and without luck; if luck is necessary, then there is no reason why they should be considered drugs at all.¹² The point that τέχνη provides control and mastery through knowledge of general causal connections is made quite clearly in *De Arte*, a text devoted to defending medicine's status as a genuine τέχνη against a concerted attack. The first argument the author addresses is that the successes of medicine are due to chance (τύχη) rather than art (τέχνη), because not all people who are treated by doctors are cured.¹³ In response, the author claims that he has no intention of depriving τύχη of its influence in medicine. But in fact he does just that, by arguing that success (εὐτυχίη) generally follows upon good treatment and failure (ἀτυχίη) upon bad treatment.¹⁴ If patients have

¹¹ *Loc. Hom.* 46, 84.17–24 Craik (L. 6.342). Translation Craik.

¹² *Loc. Hom.* 46, 84.25–29 Craik (L. 6.342).

¹³ *De Arte* 4, 227.8–12 Jouanna (L. 6.6).

¹⁴ *De Arte* 4, 227.12–15 Jouanna (L. 6.6). The author plays on the double meaning of εὐτυχίη ('good luck', 'success') and ἀτυχίη ('bad luck', 'failure'). Cf. the closely similar argument at *Loc. Hom.* 46, 84.30–86.3 Craik (L. 6.342–344): good luck is equated with success (ἐπιτυχάνειν) and bad luck with failure (ἀτυχεῖν); hence good luck goes with knowledge and bad luck with ignorance. Though the author of *Loc. Hom.*, like the author of *De Arte*, claims that he is not attempting to exclude τύχη from medicine, the

made use of medicine and then recovered, how can they credit anything other than medicine for their recovery?¹⁵ The author next considers the argument that many people recover without medical treatment.¹⁶ In his view such people have ‘chanced upon medicine’ (ἡτρουκῇ περιτυχεῖν): they have done certain things and refrained from doing others; had they consulted a doctor, he would have recommended the same course of action that they in fact followed. What distinguishes the doctor from the lay person is his knowledge of what is beneficial and harmful. Hence mistakes in treatment are just as sure an indication of the reality of medicine as successes; it is the existence of a distinction between correct and incorrect practice that is the sure sign of the existence of a τέχνη.¹⁷ The argument is based on the idea that certain actions taken in certain circumstances will reliably bring about certain effects; the doctor is simply the one who knows what those actions and effects are. The author goes on to deny that spontaneity (τὸ αὐτόματον) can be blamed (αἰτιήσασθαι) for the recovery of patients who do not go to a doctor.¹⁸ In fact, spontaneity is really nothing but a name:

Indeed the spontaneous (τὸ αὐτόματον), upon examination, manifestly turns out to be nothing at all: for everything that occurs will be found to do so on account of something (διὰ τι), and in virtue of this ‘on account of something’ (διὰ τι) it is manifest that spontaneity has no existence (οὐσίη) except that of a name. Medicine, however, manifestly has and will always have existence (οὐσίη) in the things that come about on account of something, and in the things that can be seen in advance.¹⁹

Medicine consists in knowledge of causal connections, which enables it to predict the future.

net effect is to collapse the distinction between τέχνη and τύχη by equating the latter with the successful results produced by the former. Cf. Pl. *Euthd.* 279d–280b.

¹⁵ *De Arte* 4, 227.15–228.5 Jouanna (L. 6.6). As Gomperz pointed out (1910, 111), this argument is not as inadequate as it might appear. If people submit to medical treatment and then recover, they are in no position to *know* that they would also have recovered without treatment.

¹⁶ *De Arte* 5, 228.6–8 Jouanna (L. 6.6).

¹⁷ *De Arte* 5, 228.8–230.2 Jouanna (L. 6.6–8). Cf. esp. 229.14–15 Jouanna (L. 6.8): ‘And yet where correct and incorrect each has its limit, how could there not be an art?’ (Καίτοι ὅπου τό τε ὀρθὸν καὶ τὸ μὴ ὀρθὸν ὅρον ἔχει ἐκάτερον, πῶς τοῦτο οὐκ ἂν τέχνη εἴη;).

¹⁸ *De Arte* 6, 230.3–15 Jouanna (L. 6.8–10).

¹⁹ *De Arte* 6, 230.15–20 Jouanna (L. 6.10): Τὸ μὲν γὰρ αὐτόματον οὐδὲν φαίνεται ἐὼν ἐλεγχόμενον· πᾶν γὰρ τὸ γινόμενον διὰ τι εὐρίσκειτ’ ἂν γινόμενον, καὶ ἐν τῷ διὰ τι τὸ αὐτόματον οὐ φαίνεται οὐσίην ἔχον οὐδεμίαν ἄλλ’ ἢ ὄνομα· ἡ δὲ ἡτρουκὴ καὶ ἐν τοῖσι διὰ τι καὶ ἐν τοῖσι προνοεμένοισι φαίνεται τε καὶ φανεῖται αἰεὶ οὐσίην ἔχουσα.

In *De Arte* the opposition between τέχνη and τύχη is connected with issues of responsibility. Can doctors, or medicine in general, take credit for the recovery of patients, or are such results due only to chance? And should doctors be considered incompetent, or should medicine be considered as failing to meet the standards of a genuine τέχνη, if doctors fail to cure their patients? In chapter 7 the author confronts the argument that medicine is not a τέχνη because some patients do not recover after treatment. This is erroneous because it lays blame on the physician rather than the patient: surely it is more likely that the patient failed to obey his instructions than that the doctor made a mistake.²⁰ In chapter 8 the author responds to the claim that doctors only treat patients who would get better without intervention, and refuse to treat really difficult cases. This is to blame the τέχνη for failing to achieve what is beyond its power. The inability of medicine to handle certain cases is not a deficiency in the art or the doctor; rather it is due to the patient's φύσις or the φύσις of the disease, which set limits on what the τέχνη can achieve.²¹ A similar concern with responsibility is apparent in *On Diseases (Morb.)* I. Instead of banishing τύχη from medicine altogether like the authors of *De Arte* and *Loc. Hom.*, the author of this text attempts to establish clear boundaries between the realms of τέχνη and τύχη. In chapter 7 he describes a number of phenomena, both beneficial and harmful, that take place spontaneously in disease; he stresses that these are due not to the ignorance (ἄμαθίη) or knowledge (σοφίη) of the practitioner, but rather to spontaneity (τὸ αὐτόματον) and good luck (ἐπιτυχίη).²² Chapter 8 lists a number of beneficial and harmful outcomes of medical treatment that are due to the good luck (ἐπιτυχίη) or bad luck (ἄτυχίη) of the doctor, respectively. The author stresses that the doctor should not be blamed for outcomes due to bad luck, though he often is. People blame doctors for outcomes that are in fact necessary and unavoidable, out of ignorance; doctors tend to take the blame when cases turn out badly, without getting the credit when things go well.²³

It is clear from both *De Arte* and *Morb.* I that the relationship between τέχνη and τύχη was a topic on which a practitioner would often be called on to defend his position, either in a specific therapeutic situation

²⁰ *De Arte* 7, 231.1–232.11 Jouanna (L. 6.10–12).

²¹ *De Arte* 8, 232.12–234.9 Jouanna (L. 6.12–14).

²² *Morb.* I 7, L. 6.152.9–154.4.

²³ *Morb.* I 8, L. 6.154.5–156.13.

or a more public context of competitive debate. The dispute in *De Arte* is only the medical version of a more general debate that involved other disciplines as well.²⁴ The author of *Morb.* I states that anyone wishing to engage in a debate about medicine must know which of the successful results that doctors achieve are due to good luck (ἐπιτυχίη).²⁵ Both texts indicate how the concern with responsibility and the need to defend one's τέχνη from attack could motivate doctors to develop the idea that medicine must be based on causal knowledge. To confront the claim that the successes of medicine were due to τύχη, not τέχνη, it was necessary to do more than just point to successful results; the doctor also had to be able to show that those results were actually due to medical treatment. Hence he needed knowledge of causes, knowledge which would enable him to explain and justify his practice and so establish a direct connection between that practice and a successful outcome—or explain why he was not at fault in cases of failure. The importance of the concept of φύσις in this context results from the close association between the notions of φύσις and cause. With φύσις was associated the notion of the regularity of nature, the idea that phenomena had natural causes that could at least in principle be discovered by human beings and that were not due to arbitrary divine intervention. This emerges especially clearly in *On the Sacred Disease* (*Morb. Sacr.*), which opens by insisting that epilepsy is not caused by divine influence but has both a nature (φύσις) and a cause (πρόφασις).²⁶ Knowledge of φύσις brought with it the knowledge of causes, and hence the ability to explain and justify medical practice.²⁷ Moreover in *De Arte*, as noted above, φύσις is understood as setting limits on what the τέχνη can achieve; hence knowledge of φύσις could enable the physician to escape blame in cases of failure.²⁸

²⁴ The arguments that (1) people often attain success without making use of a τέχνη, and that (2) often those who make use of what is claimed to be a τέχνη do not achieve their goal, were frequently adduced in connection with rhetorical or sophistic education. Those who claimed that they were in a position to impart a genuine τέχνη to their pupils were called on to explain both (1) why many of their pupils seemed not to derive any benefit from instruction, and (2) why many who did not undergo instruction were nevertheless successful. Cf. Pl. *Prt.* 319a–320c, Isoc. *In soph.* 14, *Dissoi Logoi* 6.5–6, and Heinimann 1961, 125nn92–93.

²⁵ *Morb.* I 1, L. 6.140.8–9.

²⁶ *Morb. Sacr.* 1, 2.1–4 Jouanna (L. 6.352).

²⁷ On the connection between the notions of nature (φύσις) and cause in the Hippocratic writers cf. Lloyd 1979, 49–55.

²⁸ *De Arte* 8, 232.20–233.2 Jouanna (L. 6.12–14); above, p. 9.

The pressure that some doctors evidently felt to defend the status of their τέχνη against attack reflects the social situation of Hippocratic medicine. The Hippocratic doctors were in direct competition with numerous other kinds of healers, among them root-cutters (ῥιζοτόμοι), drug sellers (φαρμακοπῶλαι), midwives, and itinerant purifiers such as those attacked in *Morb. Sacr.*²⁹ As Temkin pointed out in his 1953 article ‘Greek medicine as science and craft’, exclusive focus on the literary remains of Greek medicine ignores the substantial number of practitioners who left no written record of their activity and by and large followed traditional methods of healing without attempting to systematize them on theoretical principles. Temkin calls such traditional medicine ‘leechcraft’ and plausibly supposes that its practitioners (‘leeches’) were present at all times and places in the history of Greek medicine. The leeches possessed a body of practical knowledge that enabled them to treat diseases by means of various drugs and simple dietetic measures; this knowledge changed little over the course of time and did not have a basis in any systematic medical theory. We can get some idea of the nature of this kind of traditional practice from passages in Plato’s *Laws* (720a–e, 857c–e) that mention two types of medical practitioners, free doctors and their slave assistants. The former are described as questioning their patients in a way that is almost philosophical and basing their treatment on a theory of the cause of disease; the latter, by contrast, rely solely on rough generalizations or rules of thumb. It is clear from these passages that the distinction between the two types of practitioners was partly a social one. In part, then, doctors were motivated to adopt general theories of human φύσις by the need to differentiate themselves from others with whom they were in direct competition or who belonged to a lower social class.

More importantly, however, there were also motivations arising directly from the nature of the medical profession and medical practice itself. General theories of human φύσις provided the doctor with a body of stable generalizations that could be transmitted orally to other practitioners or recorded in written form; a τέχνη was something that could be *taught*. Above all, general, explanatory knowledge was important in adapting therapy to the peculiarities of individual cases. Temkin rightly emphasizes the limitations of medical practice without theory:

²⁹ On the diversity of healing and healers in the Hippocratic period see Lloyd 1979, 37–49 and Lloyd 1983, 119–135.

The leech may know very much, but his knowledge will always consist of a certain number of skills. Beyond this number he cannot go, that is to say he cannot deal with what is unfamiliar to him and he cannot individualize his treatment. And while he may go in quest of new recipes and manipulations, he has no principle of research.³⁰

Without a body of highly general, explanatory knowledge, a practitioner will have difficulty dealing with the peculiarities of individual cases and with new situations that do not fall under any of the precepts that make up his craft. It should therefore come as no surprise that Plato in the two passages of the *Laws* mentioned above states that it is the free doctor, the one whose practice is based on a theory of human φύσις, who has the ability to tailor his practice to the peculiarities of the individual case.³¹ The author of VM displays both a keen awareness of the differences between different foods and individuals and also a clear recognition of the point that a highly general, explanatory theory is necessary for dealing with these differences (cf. esp. ch. 20 and Commentary, pp. 295–297).

It is against this complex background of social and intellectual factors that we must view the agreement between the author and his opponents on the need for the medical τέχνη to be based on a theory of human φύσις. Both the author and his opponents are under pressure to distinguish the realm of τέχνη from that of τύχη. Both want to distance themselves from the leeches, as well as from practitioners of magical healing such as the itinerant purifiers attacked in *Morb. Sacr.* It is surely no accident that the author of *Morb. Sacr.*, who insists that the disease known as ‘sacred’ is natural as well, also claims that it can be treated by one who knows how to regulate the balance of hot, cold, wet, and dry in a person’s diet.³² That is, systematization in terms of these four factors stands in opposition to magical healing as well as to non-theoretical secular healing. VM’s opponents claimed that without a foundation in a small number of principles (ὑποθέσεις) medicine was no more explanatory than leechcraft, no more capable of being grasped by human understanding than magical rituals. The author fired back with a vengeance, determined to show that he was no leech or itinerant purifier, and that medicine without ὑποθέσεις could meet the high standards of a genuine τέχνη as well as anything his opponents had to offer.

³⁰ Temkin 1953, 219–220.

³¹ Cf. Appendix 2.

³² *Morb. Sacr.* 18, 32.15–33.4 Jouanna (L. 6.396).

Part of what these standards demanded was the ability to deal with the peculiarities of individual cases and situations, and this in turn meant that the doctor would have to be, to some degree, a student of human φύσις.

1.2. τέχνη and ἀκρίβεια

This leads directly to a further quality closely associated with τέχνη in Greek thought: ἀκρίβεια, exactness or precision. It was a widespread view that a τέχνη needed to be able to achieve ἀκρίβεια, and any discipline that could claim only limited ἀκρίβεια ran the risk of not being recognized as a τέχνη at all. That the author of VM shared this view is clear from chapters 9–12, which are concerned with the degree of ἀκρίβεια attainable in medicine. In chapter 9 the author acknowledges that the ‘ancient’ medicine he so prizes can attain only a limited degree of ἀκρίβεια; in chapter 12 he insists that despite this, it should not be dismissed as failing to qualify as a genuine τέχνη (12.2).

The etymology of ἀκρίβεια is uncertain, but it seems likely that the term originally denoted a quality of the products of crafts such as carpentry or building. When used of a concrete object ἀκρίβεια tends to refer to the exactness or precision of the fit between different components. In such contexts it is regularly accompanied by the verb ἀρμόζω ‘to fit together’ (an activity characteristic of the builder or carpenter).³³ In a craft like carpentry or sculpture, work that is finished to a high standard often shows a high degree of detail; hence ἀκρίβεια is frequently opposed to terms or phrases meaning schema or outline.³⁴ ἀκρίβεια conveys an ideal of finish or detail corresponding exactly to what is demanded in a given craft: a piece of sculpture that reproduces its model faithfully would display ἀκρίβεια, or a piece of woodworking that fits exactly into the place allotted to it. This notion of ἀκρίβεια as finished craftsmanship emerges clearly in a passage of Plato’s *Laws*:

³³ Cf. Th. 4.100.2, Eub. fr. 70, Ar. *Ec.* 273–274, X. *Mem.* 3.10.15, Hp. *Medic.* 12 (L. 9.218.4–6), with the remarks of Kurz 1970, 5–8. In all but the second of these passages the verb ἀρμόζω is used; for the association of this term with building or carpentry cf. Hom. *Od.* 5.162, 247, 248, 361. For the connection between ἀκρίβεια and building or carpentry cf. also Pl. *Phdr.* 234e8 (ἀκριβῶς ... ἀποτετόργενται), Arist. *Cael.* 287b15 (κατ’ ἀκριβείαν ἔντονος), and esp. Pl. *Phlb.* 55e1–56c7 (discussed below in the text). On the etymology see Kurz 1970, 8–9.

³⁴ Cf. Pl. *R.* 414a7, 504d6–e3, 548c9–d4, *Phl.* 268c6–8, *Lg.* 768c7; Arist. *Top.* 101a21, *HA* 491a9, *EN* 1104a2, *Metaph.* 1025b7, 1030a16.

So let us not treat God as less skilled than a mortal craftsman, who applies the same expertise (τέχνη) to all the jobs in his own line whether they're big or small, and gets more finished (ἀκριβέστερα) and perfect (τελεώτερα) results the better he is at his work.³⁵

The better the craftsman, the more ἀκρίβεια his works display. The association between ἀκρίβεια and τέχνη is widespread in fifth- and fourth-century literature. In Euripides' *Suppliants* Tydeus is said to be inferior to his brother Meleager in intellect (γνώμη), but to make up for this with military skill (τέχνη): he possesses a 'precise art' (ἀκριβῆ μουσικήν) in his shield (905–906). A number of Platonic passages associate ἀκρίβεια with craftsmen or their knowledge.³⁶ In the *Nicomachean Ethics* Aristotle makes the point that the same degree of ἀκρίβεια cannot be attained in giving an account of all subjects, just as it is impossible to attain the same degree of ἀκρίβεια in all the products of art (1094b11–14); later he refers back to this passage and mentions the builder or τέκτων and the geometer as examples (1098a26–33).³⁷ Finally, ἀκρίβεια is sometimes associated with banausic activity: a free gentleman, Aristotle says, should be familiar with liberal studies up to a point, but to pursue any discipline with excessive ἀκρίβεια is illiberal.³⁸

The attainment of ἀκρίβεια was often associated with the use of precision tools to make exact quantitative measurements. The clearest example of this is a passage of Plato's *Philebus* (55e1–56c7). After a lengthy discussion of the claims of pleasure to constitute the good life, Socrates and his interlocutor Protarchus turn their attention to knowledge. Socrates begins by ranking the τέχναι according to the degree of ἀκρίβεια they can attain and their use of quantitative methods. τέχναι that make no use of counting (ἀριθμητική), measuring (μετρητική), or weighing (στατική) have an inferior status: they proceed not by the use of a measure (μέτρον), but through a kind of informed conjecture (στοχασμός) that results solely from experience and practice (ἐμπειρία καὶ τιμὴ τριβῆ). Such disciplines (among which Socrates includes music,

³⁵ Pl. *Ig.* 902e4–7. Translation as in Cooper 1997.

³⁶ Cf. *R.* 395c1 (the Guardians are to be δημιουργοὺς ἐλευθερίας ... πάννυ ἀκριβεῖς), *Ig.* 846d7 (it is impossible to practice two τέχναι in a way that is ἀκριβὲς), and especially *Phdr.* 270e3, 271a5, and *Ig.* 720c6, where ἀκρίβεια is a quality of the doctor's knowledge or the rhetorician's (which is modeled on it).

³⁷ Cf. *EN* 1141a9–12: 'Wisdom (σοφία) in the arts we ascribe to their most finished exponents (τοῖς ἀκριβεστάτοις τὴν τέχνην), e.g. to Phidias as a sculptor and to Polyclitus as a maker of statues, and here we mean nothing by wisdom except excellence in art (ἀρετὴ τέχνης)' (tr. Barnes).

³⁸ *Pol.* 1337b15–17. Cf. *Metaph.* 995a10, [Pl.] *Amat.* 135d–136a.

medicine, farming, navigation, and generalship) are commonly *called* τέχναι, but in fact they hardly deserve the name because of their limited precision and reliability.³⁹ The idea seems to be that without the ability to make use of quantitative methods a practitioner must rely on educated guesswork or rules of thumb, based solely on experience of what has worked in the past. In contrast, the craft of building or carpentry (τεκτονική) achieves more ἀκρίβεια—and therefore has a better claim to be considered a τέχνη—because it makes use of tools such as the builder’s straightedge or κανών.⁴⁰ These function both as tools of measurement and tools of judgment: the κανών, for example, was marked with units of measurement so that it could be used to measure lengths as well as to assess straightness.⁴¹

Immediately after this passage Socrates goes on to claim that the use of mathematics in building is inferior in ἀκρίβεια to more abstract or pure mathematics, which is concerned not with counting or measuring physical objects but with the relations between abstract mathematical units (56d–57a). Dialectic is the purest form of knowledge and has the most ἀκρίβεια, even more than pure mathematics (57e–59b). These ideas are distinctively Platonic. But the notion that a lack of quantitative precision leads to limited ἀκρίβεια, and thereby undermines a discipline’s claim to be considered a genuine τέχνη, is not a Platonic invention. This is suggested within the *Philebus* itself by the fact that Protarchus readily agrees to Socrates’ claim that τεκτονική is a more genuine τέχνη than music or medicine, though he is at first somewhat puzzled by Socrates’ further remarks about mathematics and dialectic (cf. 56d3–8, 57e8). More generally, a large body of evidence indicates that from the fifth century on, measure, number, and weight were widely viewed as a canonical triad and as reliable means of attaining

³⁹ *Phlb.* 55e1–56b3. Cf. esp. the description of music at 56a3–7 (accepting the transposition of μουσική at 56a3 and αὐτῆς αὐλητικῆς at 56a5): ‘To start with, flute playing is full of this (sc. conjecture), since it creates what is harmonious not by using a measuring tool (μέτρον) but by conjecture (στοχασμός) that results from practice; in general music tries to find the measure (μέτρον) of each moving string by conjecture (στοχάζεσθαι). So there is a lot of imprecision (τὸ μὴ σαφές) mixed up in it and very little reliability (τὸ βέβαιον)’ (translation as in Cooper 1997, slightly modified).

⁴⁰ *Phlb.* 56b4–c7; cf. 56b6 τεχνικωτέραν.

⁴¹ On the κανών and its use see Oppel 1937, 9–13. In addition to the κανών Socrates mentions the τόνοος (a tool for drawing circles, probably a pin on the end of a string; also a lathe), διαβήτης (a rule or compass), στάθμη (carpenter’s line or rule), and προσαγώνιον (carpenter’s square).

precise results and settling disputes.⁴² Several fifth-century accounts of the discovery of the τέχναι emphasize the importance of the discovery of measure, number, and weight.⁴³ In Plato's *Euthyphro* Socrates contrasts the certainty that can be attained in questions involving measuring, counting, and weighing with the disagreement that obtains where matters of ethics are concerned: disagreement about which of two numbers is the greater can be settled by appeal to calculation, and similarly for lengths and weights, but there is no reliable way to decide what is just or unjust, beautiful or ugly, good or bad.⁴⁴ In the *Protagoras* Socrates envisions a science of practical reason, an 'art of measurement' (μετρητική τέχνη) that will employ techniques for assessing pleasure and pain analogous to weighing and counting.⁴⁵ The ideal of precision and reliability implicit in these passages was widespread enough to be a point of reference for Aristophanic humor. Just before the poetic contest between Aeschylus and Euripides in Aristophanes' *Frogs*, a slave pokes fun at the fact that precision instruments such as the κανών are about to be brought out to assess the competence of the two poets; later in the scene Aeschylus calls for an actual balance (σταθμός) to be brought on stage.⁴⁶ Underlying the joke is the idea that correct or incorrect procedure in a genuine τέχνη can be assessed with precision instruments such as those used in τεκτονική; what is absurd is only the notion of applying the actual tools used in that τέχνη to decide a poetic contest.⁴⁷ The ability of measure, number, and weight to overcome τύχη, implicit in their association with precision and reliability, is well expressed by Plutarch's

⁴² See Heinimann 1975, passim and 194 on the *Philebus* passage in particular: 'Platon hat die Scheidung zwischen den unexakten und den mit Zahl und Mass arbeitenden Künsten offenbar übernommen, er differenziert aber weiter und stuft die Künste nach ihrem zunehmenden Gehalt an Mathematik und der dementsprechend höheren Eignung zur Seinerkenntnis.'

⁴³ Cf. Sophocles fr. 432.2; Gorg., *Pal.* 30. At Euripides *Ph.* 541–2 measure, number, and weight are said to be the offspring of equality (ἰσότης), suggesting that their role is to settle disputes and guarantee fairness.

⁴⁴ Pl. *Euthphr.* 7b–d. Cf. Xenophon *Mem.* 1.1.9, which reports that Socrates thought it impious to consult the gods on questions that could be decided by measuring, numbering, and weighing—i.e., those which could be settled in a reliable way. Cf. also Pl. *Alc.* 1, 126c–e, *R.* 602d–603b, and Festugière 1948, 41–43.

⁴⁵ *Prt.* 356a–357b.

⁴⁶ Ar. *Ra.* 797–802, 1365–1369. In addition to the κανών, the former passage mentions the τάλαντον (balance), πῆχυς (cubit measure), πλαίσιον σύμπτυκτον (folding rectangular frame), διάμετρος (mitre square), and σφήν (wedge) as tools for judging the poetic contest.

⁴⁷ Cf. Heinimann 1975, 191.

comment that the practitioners of crafts such as building and sculpture ‘everywhere make use of straightedges, weights, measures, and numbers, so that what is random and haphazard may nowhere come about in their works.’⁴⁸

All this evidence indicates that by the end of the fifth century BC there had developed a widespread conception of what might be called an exact τέχνη: an art that could achieve full ἀκρίβεια by using precision tools to make exact quantitative measurements. These τέχνηαι could attain an ideal of detailed, finished workmanship with a high degree of reliability, and they set a standard that other disciplines claiming the status of τέχνη were sometimes required to meet. This background helps to explain the importance of the concept of ἀκρίβεια throughout the history of Greek medicine. It is significant that the earliest known instance of the adjective ἀκριβής occurs in a medical context: a fragment of the sixth-century BC poet Arctinus of Miletus that describes the different abilities of the Homeric physicians Machaon and Podaleirius. According to this fragment, Poseidon made Machaon nimble with his hands so that he could deftly pull arrows from the flesh and heal wounds; in Podaleirius’ breast he placed ‘all that was precise’ (ἀκριβέα πάντα), giving him the ability to ‘recognize the invisible and treat the untreatable’ (ἄσκοπὰ τε γινῶναι καὶ ἀναλθέα ἰήσασθαι). As a result Podaleirius is able to diagnose and treat mysterious conditions such as the madness of Ajax.⁴⁹ Since ἀκριβής does not normally occur in epic poetry, the use of the term in this fragment suggests that it was closely associated with medicine. In the Hippocratic Corpus the concept of ἀκρίβεια is associated with various aspects of the doctor’s intellectual and practical activity. In a number of passages ἀκρίβεια seems to convey the ideas of regularity and periodicity; thus the adjective ἀκριβής is used of a diet that is strict or undeviating, and of diseases that manifest exactly the same symptoms at regular intervals.⁵⁰ In connection with prognosis, a key area of Hippocratic medicine, ἀκρίβεια conveys

⁴⁸ Plu. *De fortuna* 99b: κανόνι καὶ σταθμοῖς καὶ μέτροις καὶ ἀριθμοῖς πανταχοῦ χρῶνται, ἵνα μηδαμοῦ τὸ εἰκῆ καὶ ὡς ἔτυχε τοῖς ἔργοις ἐγγένηται. Cf. Heinimann 1975, 187.

⁴⁹ Arctinus fr. 5 Allen, from the *Iliou Persis* (schol. B T Eust. on *Iliad* 11.515; Homeri Opera V, OCT, 139). Cf. Herter’s gloss of the phrase ἀκριβέα πάντα as ‘alle geistigen Mittel, die so präzise sind, daß sie schwierigen Tatbeständen adäquat beikommen’ (1963a, 249 [=1975, 177]). The distinction between Machaon’s and Podaleirius’ abilities probably reflects an emerging recognition of the distinction between surgery and dietetics or internal medicine (cf. the scholiast’s introductory remarks).

⁵⁰ For ἀκριβεια as a quality of diet (δίατα ἀκριβής) cf. *Fract.* 8, L. 3.446.15; *Mochl.* 35,

both the precision or detail of prognostic forecasts and the reliability of prognostic signs.⁵¹ Several texts provide more explicit evidence of the central place of ἀκριβεία in conceptions of the medical τέχνη. The author of *Morb.* I writes that anyone who wishes to engage in a debate about medicine must be able to discuss what is said and done with ἀκριβεία in the art; several passages in various works indicate that the doctor should display ἀκριβεία in his practice.⁵² According to the author of *Vict.*, those who interpret divinely sent dreams possess a ‘precise art’ (ἀκριβῆ τέχνην); dreams arising from the human soul can also be interpreted, but they are sometimes interpreted correctly and sometimes not.⁵³ The author of *Epid.* III says that a doctor who has ἀκριβής knowledge of the character of diseases and of weather conditions will be able to treat patients correctly.⁵⁴ Finally in two texts, VM and *Vict.*, ἀκριβεία is associated with making a dietary prescription that is precisely suited to the distinctive peculiarities of an individual patient. Both authors connect ἀκριβεία with the determination of measure, number, and weight, thus indicating their awareness of the concept of an exact τέχνη; both also (though for different reasons) reject the ideal of quantitative precision as unattainable in medicine.⁵⁵

L. 4.378.9; *Aph.* 1.4, L. 4.460.7; 1.5, L. 4.462.6–8; 1.6, L. 4.462.10–11. For ἀκριβεία as periodicity in disease cf. the references to the ‘exact tertian’ fever (τριταῖος ἀκριβής) at *Epid.* I 4, L. 2.618.9; I 11, L. 2.674.11; *Aph.* 4.59, L. 4.522.15; *Coac.* 144, L. 5.614.6; see also *Morb.* I 5, L. 6.148.9–16. Cf. Kurz 1970, 63–69, 79.

⁵¹ Cf. *Prorrh.* II 4 (L. 9.14.10–11, 9.20.11, and 9.20.14) for ἀκριβεία as the (in the author’s opinion excessive) detail of prognostic forecasts. For ἀκριβεία as the reliability of a prognostic sign see *Epid.* VII 112 (L. 5.460.15); cf. Euripides *El.* 367–368, complaining that there is no reliable sign of nobility because of the confusion in human nature (οὐκ ἔστ’ ἀκριβὲς οὐδὲν εἰς εὐανδρίαν· ἔχουσι γὰρ ταραγμὸν αἱ φύσεις βροτῶν). On ἀκριβεία in prognosis see Kurz 1970, 72–74.

⁵² *Morb.* I 1, L. 6.140.12–13: ὁκόσα ἀκριβῶς ποιεῖται ἐν τῇ τέχνῃ καὶ λέγεται. For ἀκριβεία as a quality of the doctor’s actions cf. *Acut.* 20.2, 44.23 Joly (L. 2.268); *Aff.* 13, L. 6.220.15–17. See the Commentary on 9.3 Διότι πολλὸν ποικιλώτερά ... διὰ πλείονος ἀκριβείης ἐστὶ (pp. 192–193).

⁵³ *Vict.* 87, L. 6.642.1–2, 218.15–16 Joly (though Joly would delete ἀκριβῆ).

⁵⁴ *Epid.* III 16, L. 3.100.7–102.10; the same passage occurs at *Dieb. Judic.* 1, L. 9.298.1–9. See the Commentary on 9.3 οὕτω καταμαθεῖν ἀκριβῶς ... ἐνθα ἢ ἐνθα (pp. 201–202).

⁵⁵ VM 9.2; *Vict.* 2, 124.17–24 Joly (L. 6.470); *Vict.* 67, 194.3–16 Joly (L. 6.592–594). See the Commentary on chapter 9, pp. 186–189.

1.3. *Medicine and the ‘inquiry into nature’*

The author and his opponents share the view that medicine must be based on a general, explanatory theory of human φύσις; they also agree that medicine must be able to attain ἀκρίβεια. Where they differ is on the issue of the *kind* of theoretical foundation that medicine needs to satisfy these criteria. In both chapter 1 and chapter 20, the author indicates that the opponents attempted to draw on the tradition of the Presocratic ‘inquiry into nature’ (περὶ φύσεως ἱστορία) to give medicine the theoretical foundation it needed to qualify as a genuine τέχνη. By the ‘inquiry into nature’ I mean the project of what may be called cosmological investigation that began with Thales, Anaximander, and Anaximenes in sixth-century Miletus and whose most prominent representatives in the latter part of the fifth century were thinkers such as Empedocles, Anaxagoras, Diogenes of Apollonia, and Democritus. Though these thinkers adopted different positions on a number of issues, all of them were engaged in what was broadly speaking the same enterprise: the attempt to give an account of the universe as an ordered cosmos (κόσμος) and of the place of human beings in it. Characteristic of this enterprise was a concern with questions of origin and development: to give an account of a thing’s nature or φύσις was to explain how it came to be the thing it is, in keeping with the etymological meaning of φύσις as origin or growth. Hence cosmology was largely framed in terms of cosmogony: the story of the original formation of the cosmos, how it came to be as it is, and (in some cases) how it will eventually perish. Accounts of human φύσις were set in the wider framework of the development of the cosmos as a whole, and focused on the formation and development of the human being. These features are apparent in the thought of Empedocles, whom the author of VM mentions in chapter 20 as illustrating the kind of approach to the study of human φύσις taken by his opponents.⁵⁶ A well-known passage of Plato’s *Phaedo* in which Socrates recounts an early stage in his own intellectual biography provides further important evidence of the methods and concerns of the inquiry into nature:

When I was a young man I was wonderfully keen on that wisdom (σοφία) which they call the inquiry into nature (περὶ φύσεως ἱστορία). For I thought it a splendid thing to know the causes (αἰτίαι) of each thing, why it comes to be, why it perishes, and why it exists. And I often went

⁵⁶ See the Commentary on ch. 20, esp. 20.1 καθάπερ Ἐμπεδοκλέης (pp. 302–304).

back and forth in my examination of questions such as these, in the first instance: Are living creatures nurtured when the hot and the cold produce a kind of putrefaction (σηπεδών), as some say? Do we think with blood, or air, or fire; or with none of these, but it is rather the brain that provides our senses of hearing and sight and smell, from which come memory and opinion and from memory and opinion which has become stable, comes knowledge? Then again, as I investigated how these things perish and what happens to things in the sky and on the earth (τὰ περὶ τὸν οὐρανὸν τε καὶ τὴν γῆν πάθη), finally I became convinced that I have no natural aptitude at all for that kind of investigation.⁵⁷

The inquiry Socrates describes involves three main topics: the origin of living things, the operation of the sense organs and the mind, and celestial and terrestrial phenomena. The focus is on giving explanations of origin and development: why each thing comes to be, why it exists, why it passes away. The program of the Presocratic inquiry into nature found perhaps its ultimate and most influential expression in Plato's *Timaeus*, which presents a sweeping account of the origin and development of the universe that culminates with an account of the formation of the human being and of human physiology and pathology.⁵⁸

A number of Hippocratic treatises provide clear evidence of the impact of the Presocratic inquiry into nature on medicine. To the cosmologists' focus on the origin and development of the universe corresponds a concern in the medical writers to base medicine on a theory of human origins and development, whether this is understood as embryology or anthropogony (i.e. the original formation of the human being from its elementary constituents during the development of the universe). The author of *Vit.* argues that the study of human diet and regimen must be based on knowledge of the original constituents of the human being:

I maintain that one who is going to write correctly of human regimen must first acquire knowledge and discernment (γινῶναι καὶ διαγινῶναι) of the nature (φύσις) of the entire human being—knowledge of its

⁵⁷ Pl. *Phd.* 96a–c.

⁵⁸ See Kahn 1960, 199ff. for a similar characterization of the Presocratic inquiry into nature, emphasizing its concern with questions of origin and development; on the *Phaedo* passage cf. Jouanna 1992, 95–96 and 1999, 277. For φύσις as origin or growth in the Presocratics cf. Parmenides DK 28 B 10, Empedocles DK 31 B 7; for the etymology see Kahn 1960, 201n2. Cf. also Euripides fr. 910 (= DK 59 A 30) where, despite some textual uncertainty, the focus on origin and development is clear. As Kahn notes, Aristotle is the first Greek thinker who attempts to sever the link between cosmology and cosmogony in a systematic way (1960, 202–203).

original constituents (ἀπὸ τίνων συνέστηκεν ἐξ ἀρχῆς) and discernment of the components by which it is dominated (ὑπὸ τίνων μερέων κεκράτηται). For if he is ignorant of the original constitution (τὴν ἐξ ἀρχῆς σύστασιν), he will be unable to gain knowledge of their (i.e. the constituents') effects; if he cannot discern what dominates (τὸ ἐπικρατέον) in the body, he will not be able to administer to the human being what is suitable.⁵⁹

The author goes on to set out a theory of two elemental constituents, fire and water, which make up all living things (ch. 3); in his view, knowledge of the original constitution of a human being is knowledge of the particular kinds of fire and water that went into it at birth. Much of the first book is concerned with issues related to the origin and development of the human being. Chapters 6–10 deal with human generation from a highly speculative point of view, stressing the idea that the human body is formed by imitation of the universe; it is often unclear whether the topic is embryology or anthropogony.⁶⁰ After a long interlude discussing how the various τέχναι imitate human φύσις (chh. 11–24), the author resumes his account of human generation and offers a more straightforward treatment of such embryological topics as sex differentiation, twins, and superfetation (chh. 27–31). He then proceeds to a discussion of the different types of fire and water that may enter into the original constitution of the human being, distinguishing them by such qualities as fineness, moistness, rarity, and density (ch. 32).⁶¹ As the above-quoted passage indicates, this knowledge of the patient's *original* constitution must be supplemented by knowledge of whatever 'dominates' in his body in the present.⁶² But in book 1 at least the author clearly displays the concern with origin and development that is characteristic of the inquiry into nature. An even more striking example of the impact of the inquiry into nature on medicine is provided by *On Fleashes* (*Carn.*). The author begins by situating his work in relation to past and contemporary authorities and explaining its subject matter:

⁵⁹ *Vit.* 2, 122.22–27 Joly (L. 6.468).

⁶⁰ For the notion that the human body is formed by 'imitation of the Whole' (ἀπομίμησιν τοῦ ὅλου) see ch. 10, 134.5ff. Joly (L. 6.484–486); cf. Jouanna 1999, 276–277.

⁶¹ Chapter 32 concludes with a clear reference back to the notion of the 'original constitution' introduced in chapter 2: περὶ μὲν οὖν φύσιος διαγνώσις οὕτω χρὴ διαγνώσκειν τῆς ἐξ ἀρχῆς συστάσις (150.9–10 Joly, L. 6.510).

⁶² Cf. ch. 67, 194.10–14 Joly (L. 6.592); ch. 69, 200.30–202.2 Joly (L. 6.606).

In this account I make use of opinions common to others, my predecessors, as well as my own: for it is necessary to lay down (ὑποθέσθαι) a common starting point (ἀρχή) in composing this account of the medical art (τέχνη). About things in the sky (τὰ μετέωρα) I have no need to speak, except insofar as I shall show in regard to human beings and other living things how they originated and came to be, and what soul is, and what health and disease are, and what is good and bad in the human being, and why a human being dies. But now I myself set forth my own opinions.⁶³

The passage makes it quite clear that the author is composing a treatise about *medicine*, not offering a sweeping cosmological theory in the tradition of the inquiry into nature. But in fact the program he sets out here—and goes on largely to fulfill in the rest of the treatise—is quite similar to the one that Socrates describes in the *Phaedo*. Chapter 2 describes the original separation of the four great cosmic masses of earth, water, ἀήρ and αἰθήρ under the action of the hot (τὸ θερμόν). This leads directly into a lengthy account of the formation of the various human tissues and organs by the action of the hot on two fundamental principles, the fatty (τὸ λιπαρόν) and the glutinous (τὸ κολλῶδες) (chh. 3–14). The way in which the hot acts on the fatty and the glutinous is conceived of as a kind of cooking, and the first step in the formation of the tissues is putrefaction—the same process Socrates mentions as typical of the explanations of the origin of living things that caused him so much puzzlement.⁶⁴ Chapters 15–18 discuss the sense organs and their operation, another key concern of the inquiry into nature as described by Socrates in the *Phaedo*. The author of *Carn.* claims to be making a distinctive contribution on the questions he discusses, and there is no reason to doubt him on this score. But the very fact that he focuses on *these* questions in a treatise on *medicine* testifies to the profound impact of the inquiry into nature on medical writers' conception of their activity.⁶⁵ Even treatises that focus more closely on what might be considered strictly medical topics often betray a concern with human origins and development. The author of *Nat. Hom.* begins

⁶³ *Carn.* 1, 188.1–11 Joly (L. 8.584).

⁶⁴ For cooking in *Carn.* cf. ἐξοπτῆθ' 189.16 Joly, L. 8.586; ἐξωπτῆθ' 189.21 Joly, L. 8.586. For putrefaction cf. σηπεδόνας 189.3 Joly, L. 8.586; σηπεδόνοσ 189.5 Joly, L. 8.586. Cf. σηπεδόνα at Pl. *Phd.* 96b2 (quoted above, pp. 19–20).

⁶⁵ On the writer's stance towards the inquiry into nature cf. his remark in ch. 15 that those 'writers on nature' (οἱ φύσιν συγγράφοντες) who claim that sound echoes off the brain are in error (197.26–198.5 Joly, L. 8.604). Cf. also Jouanna 1992, 96–99 and 1999, 277–282.

his argument against the thesis that the human being is composed of a single substance by claiming that such a view makes generation impossible.⁶⁶ His own account of the humors emphasizes that they are congenital constituents of the human being, limits their number to four, and describes their influence in the body as varying with the seasons in an endless cycle. Each of these features has a close parallel in Empedocles' conception of elemental constituents.⁶⁷

In chapter 20 of VM the author takes a clear stand against the attempt to base medicine on theories of the origin and development of the human being. The opponents are described as claiming that the doctor must know 'what the human being is and how it originally came to be (ὅπως ἐγένετο πρῶτον) and from what things it was compounded (ὅπόθεν συνεπάγη)' in order to treat patients correctly. The use of the past tense (ἐγένετο) suggests the kind of anthropogony presented in *Carn.*: an account of the origin and development of the human being from a small number of elementary constituents, set in the context of an account of the development of the cosmos as a whole. A few lines later the author uses the term ἰστορίη to refer to the kind of knowledge of human φύσις on which his opponents attempt to base medical practice (20.2): 'I mean this science (ἰστορίη) that consists in knowing what a human being is and by what causes it comes to be (δι' οἷας αἰτίας γίνεται) and all the rest, with precision.' Here the present tense (γίνεται) suggests an account of human development in the present, i.e. embryology rather than anthropogony; as we have seen in the case of *Vict.*, the distinction between these was not always clear. The use of the term ἰστορίη, as well as the concern to give an explanatory account of human development, are closely paralleled by Socrates' description of the inquiry into nature in the *Phaedo*. In chapter 1 of VM the author makes a thinly veiled reference to another aspect of the Presocratic inquiry into nature in remarking that the use of ὑποθέσεις is necessary when discussing 'things in the sky and under the earth' (περὶ τῶν μετεώρων ἢ τῶν ὑπὸ γῆν 1.3; see Commentary *ad loc.*). The principles hot,

⁶⁶ *Nat. Hom.* 3, 170.8–172.12 Jouanna (L. 6.36–38).

⁶⁷ For the humors as congenital constituents see *Nat. Hom.* 5, 178.5–9 Jouanna (L. 6.42–44); for their variation with the seasons see ch. 7, 182.4–186.12 Jouanna (L. 6.46–50). Similar ideas underlie the humoral theory of *Morb.* IV; see Lonie 1981, 54–62. As 'roots' (ῥιζώματα), Empedocles' elements are both the origin of all things and that to which all things return when destroyed (DK 31 B 6.1); for their cyclical variation see DK 31 B 17.27–35. Cf. Commentary on 20.1 καθάπερ Ἐμπεδοκλέης (pp. 302–304).

cold, wet, and dry, which are consistently associated with the opponents in chapters 1–19, had played an important role in Greek cosmological theorizing since its beginnings.⁶⁸ Thus the argument of VM as a whole may be viewed as opposing the attempt to place medicine on a theoretical foundation drawn from contemporary cosmology, the inquiry into nature.

It might be objected that this interpretation elides a significant difference between the opponents attacked in chapters 1–19 and chapter 20. The main thesis that characterizes the former group is causal reductionism, the claim that all diseases are caused by the same one or two factors. The author does not say that these opponents attempted to base their medical practice on a theory of human φύσις, nor does he associate the use of the term ὑπόθεσις with the opponents attacked in chapter 20. But the distinction between the polemic of chapters 1–19 and that of chapter 20 is largely a matter of emphasis. In chapters 1–19 the author focuses on the aspect of the opponents' theorizing that has the most direct implications for medical practice, the reduction of the causes and cures of disease to a small number of factors; in chapter 20 he steps back to discuss more generally the kind of φύσις theory on which such a position was typically based.⁶⁹ In general the attempt to offer an account of the elementary constituents of the human being went hand in hand with the attempt to reduce the causes of health and disease to a small number of factors. A striking example of this is the fourth-century doctor Philistion, who makes hot, cold, wet, and dry the principal causes of disease and adopts the Empedoclean doctrine of elements, correlating each of the four qualities with one of the elements.⁷⁰ The theory of disease presented by Plato in the *Timaeus* is based on a theory of elements; similarly, for Aristotle hot, cold, wet, and dry are the primary causes of disease as well as the fundamental contraries underlying the elements earth, air, fire, and water.⁷¹ Both causal reductionism and the attempt to base medicine on a theory of human φύσις that gave an account of the origin of the human being from a small number

⁶⁸ On the role of these four opposites in early Greek thought see Kahn 1960, 126–133; Solmsen 1960, 342ff.

⁶⁹ Cf. Kühn's remark that the polemic of ch. 20 is 'ein Schlußwort, das sich gegen die Methoden der gegnerischen Medizin im allgemeinen, nicht bloß auf dem Gebiet der Krankheitsätiologie, richtet' (1956, 20). Cooper reaches a similar conclusion (2002, 33–34).

⁷⁰ *Anon. Lond.* XX 25–30. Cf. below, p. 61.

⁷¹ *Pl. Ti.* 82a, *Arist. PA* 648b2–10.

of elementary constituents resulted from the same impulse: the desire to draw on contemporary cosmology, the inquiry into nature, to give medicine the theoretical foundation it needed to qualify as a genuine τέχνη.

2. *Argument*

The argument of VM falls into three main parts. In the first (chh. 1–19), the author makes his response to the proponents of ὑποθέσεις. The core of this response is an account of the discovery of medicine (chh. 3–8) that culminates in the discovery of a theory of human φύσις as a blend or κρῆσις of large number of fluid substances or humors (ch. 14). Chapters 20–24 widen the scope of the author's attack to include the kind of φύσις theory on which the opponents' highly reductive conception of the cause of disease is based, and also provide important information about the character of the author's own theory and his conception of the method used to discover it. Finally chapters 9–12, in which the author responds to the charge that 'ancient' medicine fails to qualify as a genuine τέχνη because it can attain only limited ἀκρίβεια, constitute a kind of digression within the main argument of chapters 1–19. The argument of these chapters can only be fully understood in light of the author's physiological theory, which is not presented until chapter 14; I therefore discuss chapters 9–12 last.

2.1. *Chapters 1–19*

As noted above (sec. 1.1), the author's basic strategy in responding to the proponents of ὑποθέσεις is to argue that medicine already *has* the systematic character it needs to qualify as a genuine τέχνη. Medicine's character as a genuine τέχνη depends on the existence of a body of discoveries that enable doctors to attain success in treatment and also account for differences in competence between them (ch. 1). Hence it has no need of a 'newfangled hypothesis' (καινή ὑπόθεσις), like the study of 'things in the sky and under the earth'—a subject in which it is necessary to make use of a ὑπόθεσις in order to give any account at all, and reliable knowledge can never be attained. The emphasis on medicine as an established τέχνη continues in chapter 2. Medicine has long since been in possession of both an ἀρχή and a ὁδός, a principle and a method, which have enabled it to make discoveries over a long

period of time. All remaining discoveries will eventually be made by following the same method, and discoveries cannot be made in any other way (2.1–2).

To support the claim that medicine has a method of discovery, the author gives an account of its origin and development in chapters 3–8. He traces the origin of medicine back to the discovery of a regimen beneficial for the sick, and in particular to the observation that the same foods do not benefit both the healthy and the sick. In fact he claims that the origin of medicine can be traced even further back, to the discovery of a regimen suitable for healthy individuals and the observation that the same foods are not beneficial for human beings and animals (3.1–3). In a description that shares a number of features with fifth-century accounts of the origins of culture, the author relates how primitive human beings originally subsisted on a brutish and savage diet, identical to that of animals. Because of the suffering caused by this diet, people were compelled to develop techniques for preparing foods suitable for healthy human beings. Though not commonly recognized as such, this discovery is entirely worthy of the name of medicine (3.4–6); moreover it constitutes a genuine τέχνη, albeit one that is so widely shared that there are no specialized experts in it (ch. 4). By stressing that the discovery of medicine was motivated by necessity and pushing the origin of medicine back to the very beginnings of human culture, the author emphasizes medicine's antiquity and importance and draws a sharp contrast with the opponents' attempted innovation. His account also effectively praises medicine as the τέχνη whose discovery lifted human beings from savagery to civilization.

At the same time, the account of chapters 3–8 establishes a close methodological parallel between cooking (understood as the preparation of food beneficial for the healthy) and medicine. Both discoveries begin from a fact of the same kind, the different reactions of different individuals to the same foods, and both result from the application of the same two procedures. The first step in the discovery of cooking is to recognize that human beings have a nature or constitution (φύσις) distinct from that of animals, because they are less able to endure a diet of raw foods. What distinguishes one φύσις from another is its δύναμις or capacity to assimilate foods, a capacity which is assessed by observation. Next, procedures are developed for modifying foods so that they can be assimilated by the human constitution (3.5). The common element in all these procedures is the mixing and blending of foods to diminish their strength or concentration. The only difference between

the discovery of cooking and of medicine is that the latter requires drawing more distinctions between types of foods and classes of individuals (ch. 5). The end result of both discoveries is that the practitioner acquires mastery of a set of procedures for preparing foods and also the ability to identify the class of individuals to whom those foods should be administered. From this point of view the discoveries of cooking and medicine are really identical (ch. 7). Moreover, by arguing that both medicine and cooking were discovered by following the same method and that the former developed out of the latter, the author supports the claim made in chapter 2 that all discoveries in medicine will one day be made if research continues to be pursued according to the established method (ch. 8).

After the digression of chapters 9–12 the author resumes his attack on the opponents' use of ὑποθέσεις and attempts to refute their position with a kind of thought experiment. Adopting for the purposes of argument the opponents' assumptions that the cause of all diseases is one of the ὑποθέσεις hot, cold, wet, or dry and that the cure in each case is the opposite of the cause, he describes an imaginary situation in which a person changes his diet from cooked to raw food. It is clear that this person will suffer greatly from such a change, and also that his suffering will be alleviated if he returns to the original diet of cooked food. But the opponents are committed to saying that the cause of the trouble is one of the ὑποθέσεις and that the cure is the opposite of the cause. On their theory, the change from raw to cooked must be understood as a simple change between opposites. The author mocks such a response as inadequate to capture the complexity of cooking, a process in which the original raw food loses some of its qualities and gains others by mixing and blending (13.3). Each kind of food has a distinctive set of capacities (δυνάμεις) to affect the human being, depending on how it has been prepared, and the doctor must have knowledge of these capacities (14.1–2). The need for such knowledge demands a theoretical account of human φύσις, which the author now goes on to provide. According to this account, the human being contains a blend or ῥοῆσις of a large number of fluid substances or humors, each one of which possesses a quality such as sweet or bitter. When these are well mixed and blended, a person is healthy, but when one of them separates from the others and becomes concentrated on its own, it causes pain and disease. The same humors are present in foods and explain their effects on human beings: foods that cause harm contain a concentrated or unblended humor (14.4–6). This theory enables the author to explain

and justify medical practice, and so to answer the opponents' charge that medicine without a foundation in a small number of ὑποθέσεις is unsystematic. The effects of a particular food on a particular individual can be explained as the result of the interaction of the distinctive blend of humors in the food with the distinctive blend of humors in the individual. The δύναμις associated with an individual constitution (φύσις) or food turns out to be a complex set of capacities, each humor contributing its own δύναμις to the overall blend in proportion to its quantity and concentration. Though based on observation of the effects of foods on human beings, this theory goes substantially beyond observation. In part, it rests on the widespread idea that nutrition occurs by the assimilation of like to like: the ability of foods to affect the human body thus requires the same fluid substances to be present in the body and in foods. The theory also rests on an analogy between foods and the human body: just as foods are harmful to the body only if they contain strong or unblended humors, so the humors in the body cause harm only when they are strong or unblended. The author starts from the evident importance of mixing and blending in cooking and applies this model to understanding the behavior of the humors in the body.

The refutation continues in a similar vein in chapters 15–19. In chapter 15 the author argues that the opponents are at a loss when they attempt to treat patients in accordance with their ὑποθέσεις. Since there is no food that is purely hot, cold, wet, or dry, any food they prescribe to a patient will also possess a quality such as sweet or bitter. But it is *these* qualities, not hot or cold, that have the capacity to bring about serious effects on the human being. Chapter 16 presents a number of examples drawn from common experience in both health and disease to show that hot and cold counteract one another spontaneously in the body, without any need for external interference or medical aid. The example of fever (16.7–8) leads directly to an apparent counterexample in chapter 17: in the case of some diseases fever persists, which seems to indicate that the hot is not always spontaneously counteracted by the cold. But the author effectively turns this argument on its head, by claiming that the persistence of fever is in fact a reliable sign that the hot is *not* the sole cause of the harm in such cases: there must be some other active factor that accounts for the presence of the hot and sustains it. Chapters 18 and 19 present a continuous argument against the claim that hot and cold play an important role as causes of disease. The basic idea is that recovery from disease comes about not when there is a change from hot to cold or vice versa, but rather when

the humors undergo blending (ζοῆσις) and coction (πέψις); thus the factor responsible is not hot or cold, but an unblended or concentrated humor. The view that πέψις plays a crucial role in recovery from disease is expressed by a wide variety of Hippocratic authors, and no doubt had a solid foundation in medical experience. But the importance of πέψις in the author's theory also reflects the close analogy he draws between medicine and cooking ('cooking' being a common meaning of the term πέψις).⁷² Just as the task of the cook is to bring about πέψις in foods outside the body, so the task of the doctor is to bring about πέψις of the humors inside the body: as the account of chapters 3–8 suggests, medicine really is a kind of cooking. Such a conception of the doctor's task is quite distinct from the simplistic idea that the doctor should treat opposites with opposites, one of the opponents' basic therapeutic principles.

In assessing the argument of chapters 1–19 we must keep in mind that the disagreement between the author and his opponents concerns the *kind* of physiological theory that should be adopted as a foundation for medicine, not the question *whether* medicine should be based on such a theory. From this point of view his argument must be regarded as a brilliant success. The author rejects the opponents' simplistic assumptions about the cause and cure of disease. Instead of a closed system that attempts to reduce all of medicine to the interaction of one or two principles, he offers an open-ended framework—the theory of human φύσις as a blend or ζοῆσις of a large number of humors—that acknowledges the vast diversity of medical phenomena yet offers the possibility of accounting for them in a systematic manner. In chapters 13–19 the author makes a good case that his theory is closer to medical experience than the opponents' and also better able to explain it. The theory is based on observation of the effects of foods, along with the assumption that nutrition occurs by the assimilation of like to like and the analogy between cooking and medicine. This analogy builds on medical experience, which recognized the importance of processes such as ζοῆσις and πέψις in disease, and on common usage, in which πέψις often referred to cooking. Various other Hippocratic authors appeal to cooking as a model for understanding obscure processes inside the body.⁷³ But the elaboration of the cooking model in

⁷² Cf. Commentary on ch. 19, pp. 281–282.

⁷³ Cf. Jouanna 1999, 319–320 and the Commentary on ch. 19, esp. 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι (pp. 285–286 below).

VM goes far beyond anything comparable in the Hippocratic writings; indeed the author's entire response to his opponents in chapters 1–19 revolves around the parallel between cooking and medicine. Cooking supplies the author with a familiar, readily intelligible point of reference for explaining the origin and development of medicine and the character of its method, as well as the nature of the processes taking place in the body. And it also provides him with an effective means of turning the tables on his opponents, as chapter 13 illustrates in particular. Far from being the first to give medicine a systematic foundation, as they probably claimed to be, they cannot even give a coherent explanation of the simple therapeutic fact that cooked food is healthy whereas raw food is not—a fact that is obvious to anyone with experience in the kitchen.

2.2. *Chapters 20–24*

The argument of chapters 20–24 confirms this account and provides further information about the author's position on a number of crucial points. Chapters 20 and 21 are closely linked. In chapter 20 the author rejects a certain sort of knowledge of human φύσις as irrelevant to medicine and explains the character of the knowledge that he thinks *is* needed to treat patients correctly; in chapter 21 he describes the therapeutic consequences of the failure to possess this knowledge. At the beginning of chapter 20 the author dismisses theories of human φύσις associated with Empedocles and the Presocratic inquiry into nature as irrelevant to medical practice: in his view such theories tend towards philosophy (φιλοσοφία) and have more to do with the art of writing (γραφική) than with medicine. Remarkably, however, he does not say that this knowledge is unattainable; instead he claims that it *can* be attained, but only if one begins from medicine (20.2). With a skillful rhetorical flourish the author once again turns his opponents' argument on its head. They insist that medicine must be based on an Empedoclean-style theory of human φύσις; he responds that any such theory must be based on medicine. But this claim is no mere bluff. The argument of chapters 1–19 has already suggested that experience in the τέχνη of cooking is the starting point for developing theories of human φύσις; in chapter 22 the author will recommend such a procedure explicitly. In general terms, the author's claim in section 20.2 is that medical experience is the only reliable starting point for attaining the knowledge of human origins and development that thinkers such as

Empedocles attempted to provide on the basis of their sweeping cosmological theories. As far as medicine itself is concerned, the author's position is that the doctor needs to know what the human being is in *relation* to the various components of regimen: foods, drinks, and other practices (20.3). Instead of a theory of the origin and development of the human being from a small number of elementary constituents, what the doctor needs is a theory that will enable him to relate human beings to their regimen in a systematic way. The doctor needs both general knowledge of the effects of different foods on the substances and organs in the body and specific knowledge of the constitution of the patient he is treating; this is the upshot of the well-known cheese example with which the chapter ends (20.5–6).

So understood, the author's theory of human φύσις contrasts with his opponents' theories in terms of both scope and method. The theory is strictly limited to explaining the effects of regimen on human beings; it does not address questions of development at all. True, the author does give an account of the fluid substances of which the human being is composed. But he does not place the humors in a wider context of generation and cyclical variation, as does the author of *Nat. Hom.* (cf. above, pp. 22–23). In VM the humors are identified by their smell or taste; each one possesses its own δύναμις or capacity to affect, and indeed the author sometimes writes as though the humors themselves *are* δυνάμεις.⁷⁴ These are all indications that the role of the humors in VM is solely to explain the *effects* of foods or other components of regimen on the human body. As far as method is concerned, the crucial point is that the author's theory is reached by starting from observation of the effects of foods, rather than from general cosmological considerations.

Chapters 22 and 23 extend the scope of the author's φύσις theory beyond the humors to include bodily structures. Roughly speaking the term 'structure' (σχῆμα) refers to the internal organs, but it also includes any part of the body that has a distinctive shape such as the head or neck. Chapter 22 discusses the capacities of various structures to affect and be affected by fluids and air in the body. Again there is a contrast of both scope and method with theories inspired by the Presocratic inquiry into nature. Instead of giving an account of the development of the internal organs, like Empedocles and the author

⁷⁴ See the Commentary on 14.6 ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυνάμιων (pp. 252–254 below).

of *Carn.*, or of their normal mode of operation (cf. *Carn.* 15–18), the author of VM focuses solely on their capacities to affect and be affected by substances in the body. In his view these are the only features of the internal organs relevant to the prescription of regimen. As far as method is concerned, it is clear once again that knowledge of these capacities is to be attained by starting from observation and experience rather than by appealing to a grand cosmological theory. But chapter 22 goes substantially beyond the author's earlier remarks on method in its explicit recommendation of the use of analogies with familiar objects as a means of learning about the unobservable. The author asks which structures have the strongest capacity to attract fluids; he responds that it is those that are hollow and tapering, and that this must be learned by a consideration of evident phenomena outside the body. Two examples are cited to support the generalization that hollow and tapering things have the most attractive power: first, it is easier to suck liquids into the mouth if a straw or tube is used; second, cupping instruments, which are designed to draw liquids from the body, are hollow and tapering (22.2–4). Throughout the rest of chapter 22 the author follows this method consistently, drawing various conclusions about the capacities of the internal organs from prior knowledge of their shape, texture, or consistency in combination with generalizations based on observation of similar visible objects.

In drawing analogies with phenomena familiar from daily life or technical experience to suggest hypotheses about matters that cannot be observed directly, the author follows a method that was characteristic of early Greek philosophy and science. The use of analogy in connection with biological and physiological phenomena in particular was pioneered by Empedocles, as illustrated by his well-known comparisons of the eye to a lantern and the process of respiration to the operation of a clepsydra (DK 31 B 84, B 100). But two features at least distinguish the author's use of the analogical method from Empedocles'. First, the author uses analogy to gain knowledge about matters concerning which he already knows a great deal. He already has a substantial amount of knowledge about the shape, texture, and consistency of the internal organs; he uses the analogical method to learn about their behavior in relation to fluids and air in the body. In contrast, Empedocles' analogies of the lantern and clepsydra both require the postulation of entities for which there is no evidence aside from the analogies themselves: in the former case, fire in the eye and invisible passages in the membrane surrounding it; in the latter, invisible pores in the skin or nasal cavity.

Second, the hypotheses that the author formulates using the analogical method are confirmed by his medical experience and also serve to explain that experience. Thus after stating that the bladder, head, and womb have the most attractive power because of their hollow and tapering shape, the author goes on to say that it is evident that these parts are often filled with liquid attracted from elsewhere (22.4). VM's carefully controlled appeal to analogy to extend medical knowledge and explain facts of medical experience stands apart from Empedocles' use of the analogical method to elucidate obscure physiological processes that arguably have no relevance to the practice of medicine.⁷⁵

Chapter 23 states that the doctor must have knowledge of the affections caused by variation in bodily structures; as in chapter 20, the implication is that the doctor needs both highly general knowledge and specific, detailed knowledge of the peculiarities of the individual he is treating. Finally, chapter 24 widens the scope of the author's φύσις theory still further to include knowledge of the ways in which the humors change into one another of their own accord (i.e., rather than by mixing and blending). Again, this knowledge is to be acquired by considering evident phenomena outside the body, such as the way in which sweet wine spontaneously changes into vinegar. The author emphasizes that the doctor must engage in an active, directed search for such phenomena; this suggests that in his view the analogical method could involve the deliberate modification of situations familiar from ordinary or technical experience.

2.3. *Chapters 9–12*

As presented so far, the author's argument focuses on the character of the theoretical knowledge needed for medical practice and on the method used to discover that knowledge. The doctor needs both highly general knowledge and specific knowledge of the constitution of the individual patient in order to prescribe the right treatment. In chapters 9–12, which discuss the degree of ἀκριβεία that can be attained in medicine, the difficulty of applying the doctor's general knowledge to the treatment of individual cases comes to the fore. Chapter 9 begins with the claim that medicine is more complex than simply diminishing the strength of a patient's diet, as the account of chapters 3–8 might

⁷⁵ On the author's use of analogy see the Commentary on ch. 22, pp. 321–327.

suggest; a diet that is too weak is no less harmful than one that is too strong. Because of this medicine requires greater ἀκρίβεια: the doctor must aim at a μέτρον, a mean or due measure for a particular patient. This is a complex goal that involves the quantity, quality, and timing of foods. In order to make such a prescription, the doctor needs precise knowledge of the patient's φύσις: knowledge of the distinctive blend of humors in the individual's body and the distinctive features of his internal organs. The difficulty of attaining such precise knowledge of an individual constitution explains why the doctor who makes only small mistakes is worthy of high praise (9.3–4). The author consistently treats ἀκρίβεια as a quality of the doctor's knowledge; it is distinguished from τὸ ἀτρεχές, which refers to the accuracy of the doctor's therapeutic prescriptions. But the two concepts are closely linked: the greater the ἀκρίβεια of the doctor's knowledge, the closer his prescription will come to perfect accuracy (τὸ ἀτρεχές). In part, the author's point in section 9.3 is that it is impossible to specify fixed dietary prescriptions that are adequate for all patients: such prescriptions cannot possibly capture the degree of variation between different individuals. But what is more remarkable is his positive claim that medicine *does* have a μέτρον, a tool that can be used for attaining precise (ἀκριβής) knowledge of the patient's constitution: the 'feeling of the body' (τοῦ σώματος τὴν αἴσθησιν). The meaning of this phrase has been much disputed, but it is best taken to refer to the reaction of the patient's body to treatment as perceived by the patient himself (cf. Commentary, pp. 196–200). The point, then, is that in the effort to gain precise knowledge of the patient's constitution, the doctor has nothing to rely on but his reaction to treatment. But the patient's reaction is not the kind of tool that could enable complete ἀκρίβεια to be attained: it provides only indirect access to the state of the patient's humors and internal organs and cannot yield exact quantitative measurements. Thus medicine falls short of the precision and reliability characteristic of an exact τέχνη. Yet it should not be dismissed as failing to meet the standards of a genuine τέχνη altogether, since it *does* have a μέτρον and can attain a high degree of ἀκρίβεια. The author's justification of medicine's ability to attain only limited ἀκρίβεια thus relies crucially on his physiological theory: because the subject matter of medicine, the human constitution or φύσις, is highly complex and varied, and because the tools at the doctor's disposal for attaining knowledge of an individual constitution can provide only a limited degree of precision, it is difficult to gain the kind of knowledge that would make it possible to prescribe exactly the right treatment.

Chapters 10–12 confirm the central importance of the individual φύσις in the author's discussion of ἀκρίβεια. Chapter 10 presents examples drawn from medical experience to support the claim that a deficient regimen is no less harmful than an excessive one. Some people suffer serious harm from taking an extra meal, while others suffer if they miss a meal; the harm in the latter case is no less than in the former. The author is careful to stress that the individuals in question have adopted their regimen because it is beneficial for them, i.e. because it is required by their φύσις. Chapter 11 explains the reaction of these individuals as due to differences in their digestive capacities, i.e. differences in φύσις. Chapter 12 opens by stressing the sensitivity of certain constitutions to any deviation from the ideal regimen (the καιρός); the sick are even more sensitive to such deviations. This leads directly to the point that the high degree of ἀκρίβεια required in medicine makes it difficult to attain perfect accuracy in treatment (τὸ ἀτρεκέστατον) (12.2). Again medicine's need for ἀκρίβεια and the difficulty of achieving it are traced back to the human φύσις, in particular its sensitivity to any deviation from the ideal regimen.

The discussion of ἀκρίβεια in chapters 9–12 is best regarded as a digression from the author's main argument against the proponents of ὑποθέσεις. Though the opponents attacked in chapters 1–19 probably criticized medicine without ὑποθέσεις as unsystematic, it is unlikely that they also criticized it for its inability to attain complete ἀκρίβεια in therapy. For that would imply a claim on their part that medicine based on ὑποθέσεις *could* attain complete ἀκρίβεια, a claim that would have been difficult to defend in a debate with a medical practitioner. As we have seen, the requirement that a τέχνη must be able to achieve ἀκρίβεια was a quite widespread one (cf. above, section 1.2). It therefore seems best to suppose that in chapters 9–12 the author is anticipating an objection to medicine's status as a τέχνη that might come from a source other than his opponents; in these chapters he goes beyond what is required to establish that 'ancient' medicine fulfills the standards *they* set for a genuine τέχνη.

In conclusion, the author of VM presents a remarkably unified and coherent argument. He sets out a theory of human φύσις that contrasts sharply with the theories adopted by his opponents and presents a sophisticated and original method for discovering it. There is an impressive degree of agreement between the author's methodological recommendations and the theory he presents; moreover this theory also

gives him a strong response to the charge that ‘ancient’ medicine fails to qualify as a genuine τέχνη because it cannot attain complete ἀκρίβεια. A common theme that runs through the entire argument is the connection between art and nature, τέχνη and φύσις. The author conceives of τέχνη as a highly systematic set of procedures grounded in a body of discoveries. These provide general, explanatory knowledge of human nature (φύσις), which is closely linked to experience in two ways. First, it is acquired by reflecting on experience in medicine and in daily life. Second, it can immediately be put into practice in the treatment of patients—unlike theories based on ὑποθέσεις or the Presocratic inquiry into nature, which are irrelevant to medical practice. The relationship between τέχνη and φύσις is thus a reciprocal one. Knowledge of φύσις gives τέχνη its systematic character. But τέχνη is also the basis for attaining knowledge of φύσις, since it is by reflecting on experience in medicine that the knowledge of human φύσις that is essential for medical practice can be discovered. As well as giving medicine its systematic character, φύσις also accounts for the limits on medicine’s ability to attain success: it is because human φύσις is highly complex and varied that medicine cannot attain the degree of ἀκρίβεια that is characteristic of an exact τέχνη.

3. Context

3.1. Audience

There is ample evidence to suggest that VM was originally intended for oral delivery. That the author was familiar with both oral discourses and written works on medicine is clear from the opening sentence, which refers to ‘all those who have attempted to speak (λέγειν) or write (γράφειν) about medicine’; similarly, chapter 20 refers to ‘whatever has been said (λέγειν) or written (γράφειν) about nature by a sophist or doctor’ (20.2). In light of these passages it is significant that the author frequently refers to himself as speaking (using verbs such as λέγειν and φημί) but *never* as writing (γράφειν). In two passages the author uses the verb ἐπιδείκνυμι to refer to his own activity (2.2, 20.1); this term evokes the public displays of rhetorical skill (ἐπιδείξεις) that were common practice among the fifth-century Sophists.⁷⁶ A number

⁷⁶ The verb ἐπιδείκνυμι and the related noun ἐπιδείξις refer to the public display

of passages indicate the author's close familiarity with a situation of live dialectical debate.⁷⁷ In chapter 13 he asks rhetorically whether a person who returns to health by changing his diet from raw to cooked food has been helped by a change from hot to cold or the reverse, and remarks that he has 'created a fine dilemma for the one who is asked this question' (13.3). At the beginning of chapter 17 he introduces the objection of an imaginary opponent with the words 'Someone might say' (Εἶποι ἄν τις). Chapter 1 refers to discussions of 'things in the sky and under the earth' that take place before an audience; in such discussions 'it would be clear neither to the speaker himself (τῷ λέγοντι) nor to his listeners (τοῖσιν ἀκούουσιν) whether what he says is true or not' (1.3). Other passages refer to discussions between doctors and patients (2.3, 15.2). The notion that VM was intended for oral delivery also helps to explain a number of the text's distinctive rhetorical and stylistic features. The tone is confident and authoritative throughout, and is reinforced by the frequent use of first-person-singular verbs and pronouns. While the first person singular can have different functions in different contexts, its use here—generally in emphatic statements of the author's own opinion—is best understood as an attempt to assert competence and authority before an audience.⁷⁸ The first person plural is used to establish a bond between speaker and audience.⁷⁹ Frequent direct questions enhance the vivacity of the style and suggest the immediacy of spoken discourse (3.6, 5.1, 7.1, 7.3, 13.2 *bis*, 16.7, 16.8, 18.2, 19.1, 19.6, 22.1, 22.2). The author shows a tendency towards lengthy periods and anacolouthon (3.4, 3.5, 9.1, 9.4, 15.3, 20.2) as well as a fondness for such stylistic affectations as the coupling of synonymous or complementary terms (ἐξηπάτηται καὶ ἐξαπατάται 2.2, νοσέουσιν τε

of proficiency in a particular τέχνη; this might involve either an oral discourse or a practical demonstration of one's skill (e.g. Pl. *La.* 179e; cf. Demont 1993). The author of *De Arte* refers to ἐπιδείξεις of the art in deeds as well as words (ch. 13, 241.16–242.4 Jouanna, L. 6.26). On the Sophistic ἐπίδειξις see Guthrie 1971, 41–44.

⁷⁷ Cf. Lloyd 1979, 95.

⁷⁸ Lloyd connects the use of the first person singular with claims of authorial innovation (1987, 61ff.; cf. 65–67 on VM in particular). Von Staden interprets the frequent use of the first person in the *Oath* as 'a way of underscoring the oath taker's profound, constant, binding personal responsibility for his every personal commitment' (1997, 174). Van der Eijk notes that the first person is often used to support empirical claims by appeal to personal observation (1997, 115–116).

⁷⁹ Cf. σκεπώμεθα 5.1, 123.18 J.; χρεώμεθα 7.1, 126.7 J.; ταρασσόμεθα 14.5, 136.20 J.; χρεώμεθα 15.2, 137.19 J.; ἐσμέν τε καὶ ἐσόμεθα 18.1, 142.8 J.; ἡμέων 18.2, 142.9 J.; οἶδαμεν 20.4, 147.10 J.

καὶ πονέουσιν 2.3, etc.), antithesis (3.6, 6.1), homoeoteleuton (3.5, 22.1), and asyndeton (10.4).⁸⁰ These features suggest spoken discourse and a concern with the text's impact on a listener.

To these considerations may be added substantial evidence from other Hippocratic texts indicating that public debate on medical topics was a common feature of intellectual life in the fifth and fourth centuries BC. The opening of *Morb.* I introduces the work as a manual for a person who needs to know how to ask and respond to questions pertaining to medicine: 'Anyone who wishes to pose a proper question (ἔρωτᾶν) about healing, and on being asked (ἔρωτῶντι) to reply and rebut (ἀντιλέγειν) correctly, must consider the following: first, whence all diseases in human beings arise.'⁸¹ The author goes on to mention a number of other topics including the length and outcome of diseases, what doctors achieve by luck, what is done by conjecture in medicine, what is done and said with precision (ἀκριβῶς), and which τέχνη medicine resembles and which it does not. He concludes the opening section of the work as follows:

When one has considered these questions, one must pay careful attention in discussions (λόγοι), and when someone makes an error in one of these points in his assertions, questions, or answers ... then one must catch him there and attack him in one's rebuttal (ἀντιλογία).⁸²

The author envisions a kind of semi-formalized debate between practitioners involving question, answer, and rebuttal; his work purports to set out the medical knowledge necessary to succeed in such a debate. It is evidently this kind of debating situation that the author of VM has in mind when he remarks that he has 'created a fine dilemma for the one who is asked this question (ἔρωτηθέντι)' (13.3) or anticipates an opponent's objection (17.1). The opening of *Nat. Hom.* makes it clear that debates on such general topics as the nature (φύσις) of the human being took place before large audiences. The author begins by dismissing rival accounts as irrelevant to medicine: 'He who is accustomed to listen to (ἀκούειν) speakers discussing human nature (φύσις) beyond what is relevant to medicine will not find the present account suitable for the hearing (ἀκούειν).'⁸³ The author's opponents adopt monistic theories of the nature of the human being: one argues that the human being is all fire,

⁸⁰ Cf. Jouanna 1990, 12–14 for an exhaustive catalogue of these features.

⁸¹ *Morb.* I 1, L. 6.140.1–3.

⁸² *Morb.* I 1, L. 6.142.7–12. Translation Potter, modified.

⁸³ *Nat. Hom.* 1, 164.3–5 Jouanna (L. 6.32).

another water, another earth, another air. The fact that they all adopt the same basic idea (monism) but reach different conclusions shows that none has any genuine knowledge:

The best way to realize this is to be present at their debates (ἀντιλέγουσιν). Given the same debaters (ἀντιλέγοντες) and the same audience (ἀκροατέων), the same man never wins in the discussion three times in succession, but now one is victor, now another, now he who happens to have the most glib tongue in the face of the crowd (ῥχλον). Yet it is right that a man who claims correct knowledge about the facts should maintain his own argument victorious always, if his knowledge be knowledge of reality and if he set it forth correctly. But in my opinion such men by their lack of understanding overthrow (καταβάλλειν) themselves in the words of their very discussions, and establish the theory of Melissus.⁸⁴

The description suggests a kind of verbal wrestling match in which victory is secured by a triple knock-down of one's opponent; it is relevant to note that the Sophist Protagoras was supposed to have written a work entitled Καταβάλλοντες, 'knock-downs'.⁸⁵ The opponents attacked here are not doctors (ἱητροί), for at the beginning of the next chapter the author moves on to discuss the views of doctors and indicates that in doing so he is turning to a new group of opponents.⁸⁶ But these doctors are also said to adopt monistic theories; the only difference is that they choose blood, phlegm, or bile as the sole constituent of the human being rather than one of the four elements. The opening of *Nat. Hom.* thus sheds substantial light on the context lying behind VM's dismissal of anything said or written about human φύσις by a 'sophist or doctor' as irrelevant to medicine (20.1–2). And the author's claim that his opponents refute themselves provides a close parallel for one of VM's key argumentative strategies, the attempt to turn the opponents' own claims against them (e.g. 13, 15, 16, 17, 20.2). It is generally agreed that at least two other Hippocratic works, *Flat.* and *De Arte*, were also composed for oral delivery in a context of competitive public debate. Comparable in length to VM, these works are intensely polemical, make frequent use of the first person in emphatic statements of the author's opinion, show a high degree of audience awareness, and deploy a wide range of stylistic affectations. And like VM they discuss general issues concern-

⁸⁴ *Nat. Hom.* 1, 166.2–11 Jouanna (L. 6.32–34). Translation Jones.

⁸⁵ On the image of the wrestling match see Jouanna 1999, 83–84; for Protagoras' Καταβάλλοντες see DK 80 B 1.

⁸⁶ *Nat. Hom.* 2 *init.*, 166.12 Jouanna (L. 6.34): Περί μὲν οὖν τούτων ἀρκεῖ μοι τὰ εἰρημένα· τῶν δὲ ἱητροῶν ...

ing the character and method of medicine, rather than (for example) setting out detailed recommendations for the treatment of specific diseases.⁸⁷

Several features of VM suggest that it was intended primarily for a lay audience.⁸⁸ In general the author bases his argument on common experience and does not presuppose extensive specialized knowledge on the part of his audience. The analogy he draws between cooking and medicine can be understood in part as a rhetorical strategy for making the argument intelligible to as wide an audience as possible; as the author himself remarks, *all* people have some knowledge of cooking (4.1). The same can be said for the method of drawing conclusions about the sick from the behavior of the healthy (8, 10). Chapter 16 gives a number of examples from the everyday experience of healthy individuals to illustrate the way in which hot and cold spontaneously counteract one another in the body; only at the end of the chapter is there an example involving the sick, and it is the quite common condition of a fever brought on by a chill. Similarly, the series of examples presented in 18–19 begins with *ῥόγυζα* or nasal flux, a condition ‘which we all often experience and will continue to experience in the future’ (18.1). Here the first person plural refers to human beings in general rather than doctors in particular, as becomes clear when the author goes on to include himself among the potential sufferers (*ἡμέων* 18.2, 142.9 J.). At 14.5, 136.20 J. the remark that ‘we are disturbed’ (*ταρασσόμεθα*) by the strong qualities in foods refers to the experience of all human beings; at 15.2, 137.18–19 J. the foods ‘that we all use’ (*οἷσι πάντες χρεώμεθα*) are the foods ‘that we (human beings) all consume’ rather

⁸⁷ Festugière characterizes VM, *Morb. Sacr.*, *Nat. Hom.*, *De Arte*, and *Flat.* as ‘discours-programmes’ (1948, viii–xiii). Jaeger (1944, 12n23) distinguishes between ‘speeches of medical lecturers on general topics, in rhetorical prose’ (*De Arte*, *Flat.*) and ‘works written in a simple factual style but also addressed to the general public’ (VM, *Morb. Sacr.*, *Nat. Hom.*). Jouanna (1999, 80–82) distinguishes between two types of works intended for oral delivery: ‘courses’ of lectures addressed to students and specialists (e.g. *Aer.*, *Morb. Sacr.*, *Genit.*, *Nat. Puer.*, *Morb.* IV) and ‘discourses’ intended for a broader audience (VM, *Nat. Hom.*, *De Arte*, *Flat.*). For detailed argument that *Morb. Sacr.* was a ‘sophistic protreptic speech’ intended for oral delivery in a public context see Laskaris 2002.

⁸⁸ In section 2.3 the author remarks that when discussing the art of medicine it is necessary to speak in a way that can be understood by lay people (*δημόται*). This has sometimes been taken as proof in itself that VM was directed at a lay audience. In fact, however, it probably refers to consultation between doctors and laymen, rather than the occasion of a public speech on medicine like VM; see the Commentary *ad loc.*

than the foods ‘that we (doctors) all prescribe’. At 19.5, 144.11–12 J. the author mentions ‘a certain bitterness ... which we call (καλέομεν) yellow bile’. From passages in non-medical authors such as Thucydides and Plato it appears that the names of different kinds of bile were considered a matter of professional knowledge; thus the ‘we’ here should probably be understood as ‘we doctors’.⁸⁹ But the fact that the author is concerned to flag the technical usage with καλέομεν suggests that he is attempting to communicate with a lay audience unfamiliar with such designations.⁹⁰ Finally at 20.4, 147.9–10 J. (‘as for the things in the human being that it [sc. wine] is especially able to affect in this way, we know [οἶδαμεν] what they are’) the first person plural might refer to doctors; it is more likely, however, that the author has in mind the quite common experience that the effects of wine are felt most strongly in the head.⁹¹

It might be thought that the author’s concern to describe the kind of knowledge that a good doctor needs to have (cf. 14.1–2, 20.3–6, 21–24) indicates that VM was composed primarily for an audience of medical practitioners. But other texts in the Hippocratic Corpus provide evidence of substantial interest in the topic of what a good doctor needs to know among lay people in the fifth and fourth centuries BC, and substantial effort on the part of medical writers to communicate such knowledge to a wider public. The opening of *On Affections* (*Aff.*), for example, makes it clear that the work is directed in part at a lay audience:

Any man who is intelligent must, on considering that health is of the utmost value to human beings, have the personal understanding necessary to help himself in diseases, and be able to understand and to judge

⁸⁹ Cf. Th. 2.49.3 (‘purgings of all the kinds of bile that have been named by doctors’), Pl. *Ti.* 83b–c.

⁹⁰ On the use of καλέω to flag a technical or specialized term cf. Festugière 1948, 68–69. He notes that the author of *De Arte* writes of the thorax as ὁ καλεόμενος θώραξ (ch. 10, 236.7 Jouanna, L. 6.18) while VM does not qualify the term (e.g. 145.1 J.); similarly he contrasts the remark ‘flesh ... which *they* call muscle’ (ἦν μὲν καλεοῦσιν) in *De Arte* 10 (235.15–236.1 Jouanna, L. 6.16) with VM’s use of the first person plural καλέομεν in the present passage. Festugière infers that the author of VM is a doctor while the author of *De Arte* is not. But even if this is right, it would not imply that VM was addressed exclusively or even primarily to an *audience* of doctors.

⁹¹ Cf. Commentary *ad loc.* The use of the second person singular suggests a similar conclusion. While ‘you’ sometimes refers to the doctor (9.3, 128.12–13 J.), it is also used of a notional reader or listener with no specialized competence. Cf. προσφέρεις 18.2, 142.14 J.; ἀνασπάσαις 22.3, 149.17 J., 150.2 J.; ἀνασπάσεις 22.3, 150.1 J.

(διαγινώσκειν) what physicians say and what they administer to his body, being versed in each of these matters to a degree reasonable for a layman (ιδιώτης). Now a person would best be able to understand such things by knowing and applying the following: all human diseases arise from bile and phlegm ... when ... one of them becomes too moist, too dry, too hot, or too cold ... All diseases in human beings, then, arise from these things. The layman must understand as much about them as befits a layman; and what it is fitting for the expert (χειροτέχνης) to understand, to administer; and to manage, about these matters, both what is said and what is done, let the layman be able to contribute an opinion with a certain amount of judgment.⁹²

The text goes on to present a quite detailed account of various diseases and their treatments that at first glance might seem useful only to a doctor. But the author himself claims that acquiring the detailed knowledge of medicine he sets out will have several benefits for the layman: he will gain the ability to help himself in disease, to contribute his own judgment in consultation with a physician, and to avoid lapsing into incurable diseases.⁹³ Moreover he will be able to understand and pass judgment on the physician's statements and actions. In the absence of any legally recognized qualification for the practice of medicine it was important for lay people to be able to judge a practitioner's competence; this gave them a strong motivation to acquire the kind of detailed knowledge set out in *Aff.* On the other hand, practitioners had a strong motive to display their mastery of the subject to a wide audience in order to establish their own competence and superiority to rivals. In part, then, the author's claim that the knowledge he sets out will be *useful* to a lay person is a kind of sales pitch designed to attract the attention of a prospective reader. There is in any case no reason to suppose that a work like *Aff.* cannot have been intended for a general audience simply because of its apparently technical content.⁹⁴ Still less should we conclude that a work like VM must have been meant for specialists simply because it attempts to set out a conception of what the good doctor needs to know. As the author himself notes, the

⁹² *Aff.* 1, L. 6.208.1–20. Translation Potter. The opening sentence of *Aff.* is identical to the closing sentence of *On Regimen in Health*, which purports to set out a diet suitable for the lay person (*Salubr.* 9, L. 6.86; cf. 1, L. 6.72).

⁹³ For the last point see *Aff.* 33, L. 6.244.10–11.

⁹⁴ Here I am in agreement with van der Eijk (1997, 86–88), as against Potter (1988, 4–5).

distinction between good and bad practitioners was often unclear to lay people (9.5).⁹⁵ One of the text's principal aims is to *make* that difference clear to such an audience.

The growth of interest in medicine among lay individuals in the fifth and fourth centuries BC also reflects a more general phenomenon: the increasing importance of what may be called higher education in Greek culture from the time of the Sophists. As is clear from texts such as Plato's *Protagoras*, the fifth-century Sophists offered instruction on a wide variety of topics to lay individuals who had no professional aspirations. The distinction between Sophistic education and professional training is clearly made at *Prt.* 312a–b, where the young Athenian Hippocrates blushes when Socrates suggests that his purpose in seeking instruction from Protagoras might be to become a professional sophist (ἐπὶ τέχνῃ), rather than to acquire the kind of education that is appropriate for a lay person (ἐπὶ παιδείᾳ). Later in the dialogue Hippias is described as answering questions posed to him 'about nature and things in the sky' (περὶ φύσεώς τε καὶ τῶν μετεώρων, 315c), and Protagoras remarks (with gentle criticism) that Sophists such as Hippias offer their listeners instruction in various τέχναι such as astronomy, music and poetry (μουσική), and mathematics (318e). Prodicus is credited by Galen with a treatise on the nature of human beings that discussed the nature of phlegm; Antiphon's *On Truth* dealt with various medical topics including the cause of diseases and embryology.⁹⁶ The speech of the doctor Eryximachus in Plato's *Symposium* (185e–188e) attests to an interest in medical theory (albeit of a rather superficial kind) in fifth-century aristocratic circles. In a section of the *Memorabilia* dealing with Socrates' attitude towards individuals who prided themselves on their culture (παιδεία) and wisdom (σοφία) Xenophon writes of a young man, Euthydemus, who possesses a large collection of books (γράμματα) on

⁹⁵ Cf. *Acut.* 6, 38.6–18. Joly (L. 2.234–238) and the Commentary on 9.5 ἀμαρτάνοντες οὐ καταφανείς ... πᾶσι καταφανής (p. 207 below).

⁹⁶ For Prodicus' work on the nature of human beings see DK 84 B 4 = Gal. *Nat. Fac.* 2.9, 3.195 Helmreich (K. 2.130). At Ar. *Nub.* 361 Prodicus is called a μετεωροσοφιστής; Ar. 692 implies that he had a reputation for cosmological theorizing. Dover calls him 'the most distinguished and respected intellectual of the day' (1968, lv). On medicine in Antiphon see Pendrick 2002, in particular fr. 29a on the aetiology of disease (from an Arabic translation of Galen's *On Medical Names*) and fr. 33–39 on embryology. Cf. also Ar. *Nub.* 332, where ἰατροτέχναι ('medical experts') are listed along with musicians, seers, and philosophers as examples of σοφισταί ('experts' or 'intellectuals') nourished by the Clouds. Lloyd rightly emphasizes the wide range of the Sophists' interests (1979, 87n146; 1987, 92n152). Cf. Commentary, p. 299.

subjects such as architecture, geometry, astronomy, and medicine, and is eager to acquire more. But he is quite surprised when Socrates asks if his purpose in collecting medical books is to become a doctor.⁹⁷

With the growing importance of the kind of higher education pioneered by the Sophists came an increasing recognition that lay individuals could acquire the ability to judge the work of professionals in any discipline. The Platonic dialogues tend to emphasize that only a genuine expert in a given τέχνη can assess the competence or incompetence of its practitioners.⁹⁸ But Aristotle recognizes as a separate class those individuals who, though not expert in a given subject, nonetheless have enough knowledge to pass judgment on an account of it. At the beginning of the *De Partibus Animalium* he introduces a discussion of the proper method to be followed in the study of living things with some general remarks on this kind of person:

There are, as it seems, two ways in which a person may be competent in respect of any study or investigation, whether it be a noble one or a humble: he may have either what can rightly be called a scientific knowledge (ἐπιστήμη) of the subject; or he may have what is roughly described as an educated person's competence (παιδεία). For it is characteristic of the educated person (πεπαιδευμένος) to be able to judge correctly which parts of an exposition are satisfactory and which are not. That, in fact, is the sort of person we take the 'man of general education' (πεπαιδευμένος) to be; his 'education' consists in the ability to do this. In this case, however, we expect to find in the one individual the ability to judge of almost all subjects, whereas in the other case the ability is confined to some special science; for of course it is possible to possess this ability for a limited field only.⁹⁹

The person who is educated in a certain field (the πεπαιδευμένος) has the ability to judge whether an account of that subject follows the proper method; this ability is distinct from possessing full knowledge of the subject itself. At *Politics* 1282a1–7 Aristotle says that there are three types of individual with the ability to judge in medical matters: the ordinary craftsman or δημιουργός, the master craftsman or ἀρχιτεκτονικός (i.e. the practitioner with knowledge of medical theory; cf. *Metaph.* 981a30–b6), and the person who is 'educated in the art' (ὁ πεπαιδευμένος περὶ τὴν τέχνην). It is the existence of this third class that Aristotle is particularly concerned to stress here, for he is attempting to show

⁹⁷ X. *Mem.* 4.2.1–11, esp. 4.2.8–10. Cf. Jaeger 1944, 13–15.

⁹⁸ E.g. *Ion* 531d–532b, 538a.

⁹⁹ Arist. *PA* 639a1–13. Translation Peck, modified.

that the opportunity to judge in matters of politics should be granted to people other than professional politicians. He states that there are such educated individuals in relation to practically every τέχνη—remarkable evidence of the degree to which the kind of education introduced by the Sophists had permeated Greek culture by the middle of the fourth century BC. But the fact that he chooses a medical example to make the point suggests that the person with a general education in medicine was a particularly common type.¹⁰⁰ It is just this sort of person—a lay individual with a general interest in medical theory and the ability to pass judgment on questions of method in particular—at whom VM seems to be directed.¹⁰¹

What are the implications of the conclusion that VM was originally intended for oral delivery before a lay audience? To be sure, recognizing that works such as *Flat.* and *De Arte* were composed for such a context helps to explain their tendencies towards rhetorical embellishment and somewhat superficial argument. These works should not be dismissed as sophistic trifles; their authors may well have been practicing physicians, and they make up an important strand in Hippocratic medicine. But in comparison to such works, VM stands out for its rejection of highly reductive accounts of the cause of disease and comparatively restrained rhetorical style. Recognition of the competitive context for which VM was composed helps to explain what motivated the author to differentiate himself so sharply from his opponents, and indeed to propose his own theory of human φύσις in response to theirs. But it by no means diminishes the force of his criticisms, the impressive degree of consistency between his methodological recommendations and methodological practice, or the interest and originality of the theory of human φύσις that he presents. VM provides important evidence that the competitive context of ancient medicine helped to stimulate not just a tendency towards self-advertisement or exaggerated claims of competence, but also highly coherent arguments and sophisti-

¹⁰⁰ So rightly Jaeger 1944, 14. Cf. Aristotle's remark at *EN* 1094b23–27 that it is characteristic of the educated person (παιδευμένος) to seek only so much ἀξιότητα in a particular field as its subject matter admits.

¹⁰¹ On the social level of the audience see Demand 1996, 99. She finds in the Attic orators a 'prevailing negative or ambivalent attitude toward doctors' as well as a 'lack of interest in their debates and philosophical theories', and concludes that 'the ordinary people of Athens did not provide an audience for the sophistic Hippocratic treatises.' Like those who went to the Sophists for instruction, the audiences of treatises like VM, *De Arte*, and *Flat.* will have been drawn from the upper classes.

cated discussions of medical and scientific method. And it also suggests that the audiences who attended those debates were prepared to give their attention not just to a speaker with a glib tongue—as the author of *Nat. Hom.* put it—but also to one whose discourse was rich in content and subtle in argument.¹⁰²

3.2. *Intellectual context*

Any attempt to place a work such as VM in its intellectual context must draw a clear distinction between affinity and influence. While there are many affinities between the ideas and concerns of VM and those of various medical and philosophical writers, it is far from clear how these similarities are to be explained. As noted above (pp. 2–3), scholars have tended to approach the problem of VM's relationship to its intellectual context in terms of a narrow model of influence, according to which the similarities of thought between VM and some other text or thinker X are taken to imply that the author was familiar with X and was consciously referring to, adapting, or responding to him, or vice versa. One major problem with this model in the case of a text like VM is raised by the state of the evidence for early Greek thought. Given the vast amount of early philosophical and medical literature that has not survived, as well as the importance of oral transmission in the dissemination of medical knowledge, the conclusion that the author of VM was influenced by a particular text or thinker would only be justified if we could point to quite specific and detailed similarities between them. Though there is every reason to think that the author was thoroughly familiar with the major intellectual trends of his time, we have no *a priori* reason to suppose that he was influenced by any particular text or thinker.¹⁰³ Hence we must always reckon with the possibility that the author has been influenced by a text that has not survived, or that a fuller picture of early Greek medicine and philosophy would reveal the similarities between VM and a particular thinker to be much less specific and distinctive than might at first appear. But a more fundamental problem is that this narrow model of influence is by no means

¹⁰² On the general character of late fifth-century medical debates I am in fundamental agreement with Thomas (1993, 233–234): '... this is oratory which does not simply indulge in kaleidoscopic word-play of the kind which brought the sophists so much discredit, but it uses rhetorical skills to promote or debate philosophical or medical issues: this is rhetoric for the pursuit of knowledge as well as persuasion.'

¹⁰³ On the significance of the reference to Empedocles in ch. 20 see below, p. 55.

the only possible explanation of the intellectual affinities between different thinkers and texts in a period such as the fifth and fourth centuries BC. Such affinities may also be understood as the result of a common attempt to draw on a shared background of ideas, or as independently conceived responses to similar problems. Only a careful examination of the evidence, free of the presupposition that affinity is to be explained as the result of direct influence, can yield a satisfactory picture of the author's intellectual context and his relation to it.¹⁰⁴

With these preliminary points in mind we may consider some of the attempts that have been made to argue for the influence of specific thinkers on VM. Diller's extreme claim that VM was influenced by Plato—by which he meant that the author had a close familiarity with Plato's later dialogues such as the *Philebus* and was directly responding to them—never found widespread acceptance among scholars; indeed Diller himself largely withdrew it in response to the criticisms of Kühn and Herter.¹⁰⁵ Many of the alleged intellectual affinities between VM and Plato to which Diller pointed were really only verbal. Cases in which there is a genuine similarity of thought between VM and Plato (e.g. VM 9 and *Philebus* 55e1–56c7) are better explained as the result of drawing on a common background of ideas (in this case, the concept of an exact τέχνη discussed in section 1.2 above). A decisive objection to Diller's extreme view is the absence of any sign in VM of the Platonic distinction between τέχνη and ἐμπειρία, understood as a body of limited generalizations based entirely on perception and memory. The author does not share the epistemological concerns that motivate this distinction; for him τέχνη is opposed to τύχη, not ἐμπειρία.¹⁰⁶ To be sure, there are some general intellectual affinities between Plato and VM—most notably in the conception of τέχνη as a systematically organized set of procedures based on theoretical knowledge of the nature of its subject matter. But as already noted (section 1.1), this was a quite widespread conception that probably arose within medicine itself.¹⁰⁷

¹⁰⁴ On the methodological issues raised in this paragraph cf. Kühn 1956, 84 (stressing problems of evidence); Lonie 1981, 62–64 (on criteria for influence); von Staden 1992, 233–234; van der Eijk 1996, 243ff. (on alternative models to influence).

¹⁰⁵ Diller 1952; Diller 1975, 92–93 (claiming that VM 'unter den geistigen Anregungen stand, die von der Sophistik zum attischen Denken des 4. Jhs. führten'); Kühn 1956, 46ff.; Herter 1963a.

¹⁰⁶ See Appendix 1.

¹⁰⁷ On the possible influence of VM on Plato's *Phaedrus* see below, sec. 3.5.

Closer and more specific parallels can be drawn with a number of pre-Platonic thinkers. But here too the tendency has been towards premature contextualization on the basis of dubious similarities. (1) The author's claim in chapter 9 that the doctor's only 'measure' (μέτρον) in adapting treatment to the individual patient is the 'feeling of the body' (τοῦ σώματος τὴν αἴσθησιν) has often been taken as evidence that VM was influenced by Protagoras' famous dictum that 'man is the measure (μέτρον) of all things' (DK 80 B 1). Accordingly, the author has been characterized as a relativist or an 'individualist', i.e. as rejecting all generalizations about human nature.¹⁰⁸ A fundamental problem with all these interpretations is that it is quite unclear what Protagoras actually meant in proclaiming man the measure of all things; it is quite possible that he did not intend to advocate any positive views at all on the nature of knowledge. Aside from that, the author's position cannot be characterized as relativist in any philosophically meaningful sense. Certainly he is acutely aware of individual differences and the difficulty of adapting treatment to the needs of the individual patient. But his point in chapter 9 is not that the efficacy of treatment is *determined* by the patient's reaction to it—as though a food were healthy simply because the patient *perceived* it to be so. The point, rather, is that the patient's reaction to treatment is the only tool or standard (μέτρον) by which the doctor can judge the efficacy of treatment. It is the effect of a food on the patient's constitution (φύσις) that determines whether it is beneficial or harmful for him; the patient's reaction provides only indirect access to the state of his constitution. Talk of relativism—Protagorean or otherwise—should simply be dropped from further discussion of VM.¹⁰⁹ (2) Wellmann pointed to similarities between VM's theory of health and disease and the views of Alcmaeon of Croton (fl. ca. 500 BC), and argued that the author was writing to defend an ancient tradition of Pythagorean dietetics from the newfangled innovations of Empedocles.¹¹⁰ But Wellmann ignored the quite significant differences between the author's theory and Alcmaeon's. And though it is not implausible that the early Pythagoreans accorded great importance to dietetics, given their concern with leading a particular way of life and with principles such as number and harmony, the actual evidence for this is rather thin; they surely had no monopoly

¹⁰⁸ Cf. Kühn 1956, 26–27; Edelstein 1967a, 195–203, esp. 199.

¹⁰⁹ Cf. Commentary, pp. 191–192.

¹¹⁰ Wellmann 1930, supported by Wanner 1939, 54ff.

on the field.¹¹¹ (3) The author's theory of human φύσις as a blend of a large number of fluid substances bears a superficial resemblance to the physical theory of Anaxagoras, which is based on the principle that 'in everything there is a portion of everything'; moreover Anaxagoras like VM gives a prominent role to the concept of separation or ἀπόκρισις.¹¹² Scholars such as Vlastos and Longrigg have pointed to these similarities as indicating the influence of Anaxagoras on VM or the reverse.¹¹³ But there is no reason to suppose that the author endorsed the claim that 'in everything there is a portion of everything', and other Hippocratic texts in fact provide closer parallels for his theory of a large number of fluid substances in the body (cf. especially *Morb.* IV, discussed on p. 53 below). Furthermore, ἀπόκρισις is a concept that plays an important role in a wide variety of contexts in early philosophy and medicine. The author's theory of human φύσις is best regarded not as an application of Anaxagorean physics but as an independent response to the need to give a systematic account of the effects of foods on human beings—a response that draws on concepts and assumptions that were widely shared in early philosophy and medicine, such as ἀπόκρισις and the idea that nutrition occurs by the assimilation of like to like.¹¹⁴ (4) Of all pre-Platonic thinkers, it is Democritus whose influence on VM

¹¹¹ For some differences between Alcmaeon's theory of health (DK 24 B 4) and VM's see Festugière 1948, 71–73; though Alcmaeon shares with VM the notion of health as a blend (ζοήσις) of different powers he also seems to have emphasized the importance of hot, cold, wet, and dry. Wellmann pointed to two passages from Iamblichus claiming that the early Pythagoreans (1) paid particular attention to medicine (along with music and prophecy) and especially to dietetics, were the first to 'recognize the signs of symmetry (συμμετρία) between foods and drinks and rest', emphasized the use of plasters or poultices (καταπλάσματα) over drugs, and minimized the use of cutting and burning (Iamb. *VP* 163 = DK 58 D 1, I 467.1–12); and (2) that they emphasized the diversity of foods, claimed that each kind of food brought about a particular effect, cited the example of wine as producing a particularly important effect, stressed the difficulty of knowing the quality and quantity of foods that should be administered, and said that such knowledge was formerly attributed to Apollo and Paian, now to Asclepius (Iamb. *VP* 207–208 = DK 58 D 8, II 475.18–33). These passages probably go back to the late fourth-century *Pythagorean Sayings* of Aristoxenus of Tarentum. On the value of Aristoxenus' testimony cf. Burkert 1972, 106–108; he finds that already in the fourth century the sources dealing with Pythagoreanism are characterized by 'shifting claims to Pythagorean tradition apparently already in a state of flux'. There is of course no doubt that Croton was a flourishing medical center in the late sixth and early fifth centuries, as the career of Democedes attests (Hdt. 3.131; cf. Burkert 1972, 262ff.).

¹¹² ἐν παντί παντὸς μοῖρα ἔνεστιν: DK 59 B 11, 12. For ἀπόκρισις see DK 59 B 4, 12.

¹¹³ Vlastos 1955, 67n2 (=1995, 115n4); Longrigg 1963; Longrigg 1983.

¹¹⁴ On all these points cf. the Commentary on chapters 14 and 15, esp. the notes on 14.4 ἐνι γάρ ἐν ἀνθρώπῳ ... καὶ ἄλλα μυρία, 14.4 ἀποκριθῆ, and 15.1 αὐτὸ τι ἐφ' ἑωυτοῦ.

has been most widely alleged.¹¹⁵ The author's account of the origin and gradual development of medicine as a response to necessity shows some close similarities to the account of the history of culture (*Kulturgeschichte*) that has been attributed to Democritus on the basis of later sources.¹¹⁶ Several titles of Democritean works suggest that he took a more than passing interest in medicine; moreover the account of his theory of sense perception given by Theophrastus in the *De Sensibus* indicates that he attempted to explain a number of medically relevant effects of different humors on the body by using the concepts of *κρῆσις* and *δύναμις* in a way that is quite similar to VM.¹¹⁷ It is not implausible that the author was familiar with Democritus' work. Still, the evidence that Democritus had a formative impact on the development of ancient *Kulturgeschichte* remains problematic and controversial; in the absence of more evidence for fifth-century thought, we cannot know for certain just how distinctive his contribution was. What should be emphasized is that there can be no question of the author's simply *copying* his account of the origin and development of medicine from Democritus or any other source. The account is precisely tailored to the needs of his argument, as indicated by its focus on the transition from raw to cooked food and lack of concern with other topics characteristic of ancient *Kulturgeschichte* (such as the discovery of fire or agriculture). At most, then, the Democritean influence on VM would amount to supplying a general framework for understanding cultural development, which the author brilliantly adapted to the purpose of defending his *τέχνη* against an unjustified attack.¹¹⁸

The much fuller evidence for early Greek medicine substantially enriches the picture of VM's intellectual background and affinities. The ideas and concerns of VM show clear points of contact with a number of Hippocratic works. (1) We have already seen the importance of *De Arte* for understanding the concept of *τέχνη* shared by the author

¹¹⁵ In support of Democritean influence of one sort or another: Miller 1949; Herter 1963b; Stükelberger 1984, 81–85; Nickl 1996. *Contra*: Jouanna 1990, 45ff.

¹¹⁶ Cole 1967 is the classic recent attempt to reconstruct the Democritean account.

¹¹⁷ Cf. the following titles of Democritean works reported by Diogenes Laertius (9.45–49 = DK 68 A 33): *On the Nature of Human Beings* (or *On Flesh*) (Περὶ ἀνθρώπου φύσεως, ἢ Περὶ σαρκός), *On Humors* (Περὶ χυμῶν), *Prognosis* (Πρόγνωσις), *On Regimen, or Dietetics* (Περὶ διαίτης ἢ Διατητικῶν), and *Medical Judgment* (Ἱητρικὴ γνώμη). For Democritus' account of humors or juices (χυμοί) and their effects on the body cf. Thphr. *Sens.* 65–68 (= DK 68 A 135, II 118.5–119.2) and the Commentary on 14.4 ἀλμυρὸν ... πλαδαρὸν (p. 245) and 14.4 μεμυγμένα καὶ κεκορημένα (pp. 248–249).

¹¹⁸ See the Commentary on ch. 3, introductory note (pp. 157–160).

of VM and his opponents (above, pp. 7–9). But here we may note an important difference in emphasis between the two works. While *De Arte* is entirely concerned with defending the claim of medicine in general to be considered a genuine τέχνη, VM's purpose is to show that traditional or 'ancient' medicine meets those standards. Hence the only *general* argument the author makes for the claim that medicine is a τέχνη comes in section 1.2; his purpose in making it is to demonstrate that the opponents' innovation is unnecessary. The reason for the different emphases of the two works is presumably that *De Arte* is responding to a general attack on medicine coming from outside the subject, while VM responds to an attack on traditional medicine that arose within medicine itself.¹¹⁹ (2) VM shares with *Loc. Hom.* a concern with issues such as the τέχνη-τύχη contrast and the importance of discovery in medicine (above, p. 7). The two works also share a basic conception of medicine as aiming at the prescription of an appropriate amount of nutriment (the καὶρός); moreover both emphasize the difficulty of attaining this goal.¹²⁰ But the similarities are not so close and distinctive as to warrant the conclusion that *Loc. Hom.* was known to the author of VM or vice versa; in general the two works differ significantly in form, style, subject matter, and intended audience.¹²¹ (3) As noted above (pp. 21–22), *Carn.* offers an excellent illustration of the kind of approach to medicine that is attacked in VM 20: the author begins what he says is an account of the medical τέχνη with a brief cosmogony, then goes on to present an account of the origin and development of the human being based on it. But from a more general point of view, *Carn.* and VM share some basic similarities. Like VM, the author of *Carn.* is concerned to define the place of medicine in relation to the Presocratic inquiry into nature, or as he puts it, knowledge of 'things in the sky' (τὰ μετέωρα); he emphatically states at the opening of the work that he will discuss such matters only to a limited extent.¹²² And though the author remains within the general framework of the Presocratic inquiry into nature, he claims to be able to make his own distinctive contribution

¹¹⁹ *De Arte* opens by mentioning people who make a τέχνη out of vilifying the τέχνηαι; these people are evidently not practitioners of any of the arts they attack. On the other hand, the opponents of VM probably claimed that medicine without a foundation in a small number of ὑποθέσεις failed to qualify as a genuine τέχνη; see the Commentary on ch. 1, introductory note (p. 115).

¹²⁰ Cf. *Loc. Hom.* 44, 82.1–19 Craik (L. 6.338–340).

¹²¹ On the affinities between VM and *Loc. Hom.* cf. Craik 1998, 231–233.

¹²² *Carn.* 1, 188.6–11 Joly (L. 8.584).

to that inquiry, at least as far as human φύσις is concerned.¹²³ In this respect *Carn.* provides a close parallel for VM's claim in chapter 20 that the only way to attain the kind of knowledge of human φύσις at which the Presocratic inquiry into nature aims is to begin from medicine. (4) Though *Vict.* and VM disagree sharply on the question of the *kind* of theory of human φύσις that should serve as the foundation of medicine (above, sec. 1.3), they share the general assumption that medicine must be based on such a theory. *Vict.* also shares VM's focus on dietetics and conception of medicine as a systematic body of knowledge that takes into account all the relevant factors in human diet and regimen. Further affinities include a concern to set individual contributions against the background of a long tradition of past discoveries (*Vict.* 1 ~ VM 2), the recommendation to use analogies to study human φύσις (*Vict.* 11–24 ~ VM 22), reflection on the limited ἀκριβεία attainable in medicine (*Vict.* 2 ~ VM 9), and extensive use of the concept of δύναμις to relate the various components of human regimen to the human constitution or φύσις. On all these points, however, there are substantial differences of detail between the two texts.¹²⁴ (5) The vigorous rejection of certain philosophically-inspired theories of human φύσις as irrelevant to medicine at the opening of *Nat. Hom.* provides a close parallel to VM's rejection of ὑποθέσεις and Empedoclean-style φύσις theory. Like VM, *Nat. Hom.* rejects one kind of φύσις theory as irrelevant to medicine only to propose another as the essential foundation of medical practice (*Nat. Hom.* 3ff. ~ VM 20.3ff.). Like both *Vict.* and VM, *Nat. Hom.* closely associates the concepts of φύσις and δύναμις.¹²⁵ But in limiting the number of humors to four and associating their variation in the body with the seasons, the author goes substantially beyond what VM would have tolerated; in these respects he is much closer to the thinkers VM attacks than to the author himself. (6) Finally, the three closely related treatises *Genit.*, *Nat. Puer.*, and *Morb.* IV provide striking parallels to VM on a number of points of doctrine and method. Though the author of *Morb.* IV limits the number of humors in the body to four, he has a conception of humoral equilibrium that is quite similar to VM's notion of

¹²³ Cf. Jouanna 1992; Jouanna 1999, 277–282.

¹²⁴ For example, the author of *Vict.* has the notion of a δύναμις that is not natural, but artificial or acquired. Cf. ch. 2, 124.1–2 Joly (L. 6.468); ch. 39, 162.9–10 Joly (L. 6.534); and the Commentary on 13.3 ὅν ἕκαστον ἰδίην δύναμιν καὶ φύσιν ἔχει (pp. 226–228). On the question of ἀκριβεία see the Commentary on ch. 9, esp. 9.3 οὕτω καταμαθεῖν ἀκριβῶς ... ἔνθα ἢ ἔνθα (pp. 201–202).

¹²⁵ Cf. Commentary on 13.3 ὅν ἕκαστον ἰδίην δύναμιν καὶ φύσιν ἔχει (pp. 226–228).

καρῆσις.¹²⁶ Both *Nat. Puer.* and *Morb.* IV endorse theories of plant nutrition that posit the existence of a vast number of fluid substances in the earth, on the assumption that nutrition occurs by the assimilation of like to like; similar ideas underlie VM's theory of human φύσις as a blend of a vast number of humors.¹²⁷ All three treatises make extensive use of analogies with observable processes (especially cooking) to elucidate hidden processes inside the body, thus offering numerous illustrations of the method advocated in VM 22. On the terminological side *Nat. Puer.* and *Morb.* IV also provide the closest parallels for VM's use of δύναμις to refer to a concentrated fluid substance in the body.¹²⁸ On the other hand, the three treatises taken together might be viewed as illustrating just the kind of view that VM attacks in chapter 20: the notion that knowledge of the origin and development of the human being (*Genit.*, *Nat. Puer.*) is the foundation of a general account of medicine (*Morb.* IV).

In the present state of scholarship it is impossible to be certain whether the author of VM had direct knowledge of any one of these texts, or indeed of *any* of the texts in the Hippocratic Corpus.¹²⁹ But it should be evident that however much the author's argument may reflect a common background of ideas and concerns shared with these other medical authors, it stands out as his own distinctive intellectual creation. Moreover, it is clear that there was a substantial degree of overlap between the ideas and concerns of the medical writers and those of other early thinkers traditionally classed as 'philosophers' (e.g. Empedocles, Democritus, and Anaxagoras) or 'sophists' (e.g. Protago-

¹²⁶ Cf. Commentary on ch. 19, esp. 19.7 Τὰ δ' ἄλλα πάντα ... καὶ βελτίονα (pp. 292–293).

¹²⁷ Cf. Commentary on ch. 14, esp. 14.4 ἐνὶ γὰρ ἐν ἀνθρώπῳ ... καὶ ἄλλα μυρία (pp. 240–245).

¹²⁸ Cf. Commentary on 14.6 ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυνάμιων (pp. 252–254).

¹²⁹ The striking similarities in both content and language between two passages of VM and *Acut.* have long been recognized, and they led Littré for one to conclude that the two works were written by the same author (Hippocrates himself). But the issue is by no means so straightforward, and it is at least as likely that VM and *Acut.* were drawing upon a common source as it is that either work was known to the author of the other. In fact a close examination of the relevant passages in their respective contexts reveals a distinct difference of emphasis: while *Acut.* stresses the importance of habit, VM emphasizes the importance of the individual constitution or φύσις (cf. Commentary on ch. 10). While *Acut.* and VM share a number of concerns, such as an emphasis on the importance of barley gruel in therapy as well as knowledge of the cause of disease, *Acut.* does not offer anything comparable to the general explanatory theory presented in VM. There are also notable differences in vocabulary and usage between the two texts; cf. Jouanna 1990, 72n1.

ras). Such topics as the contrast between τέχνη and τύχη, the importance of discovery, and *Kulturgeschichte* were discussed by intellectuals such as Protagoras and Democritus as well as various medical writers. Notions such as blending (ζοῆσις) and separation (ἀπόζοισις) played an important role in the theories of Democritus and Anaxagoras as well as various medical theories; the use of analogy as a means of learning about the obscure was also part of the common heritage of early philosophy and medicine. This overlap is not surprising in view of the lack of fixed boundaries between different areas of intellectual activity in the fifth century BC. As chapter 20 makes clear, the author of VM was writing in a context in which any ‘sophist or doctor’ might pronounce an opinion on a topic such as the φύσις of the human being. During the fifth century and well into the fourth, the term σοφιστής covered both those who came eventually to be regarded as natural philosophers (φυσιολόγοι in Aristotelian parlance) as well as the Sophists of Plato’s dialogues, travelling teachers such as Protagoras, Gorgias, and Hippias.¹³⁰ As noted above (pp. 43–44), there is good evidence that a number of leading fifth-century Sophists advanced theories on such topics as the φύσις of the human being. True, the author attempts in chapter 20 to mark off his own activity from what he calls ‘philosophy’ (φιλοσοφία). But the degree to which he has to *insist* on this distinction indicates that he is attempting to establish a boundary where no definite one yet existed. The author has as much claim to pronounce on the subject of human φύσις as a thinker like Empedocles, Democritus, or Anaxagoras; like the authors of *Carn.* and *Nat. Hom.*, he emphatically asserts his right to do so.

The intellectual context in which VM was composed was characterized by a large number of common concepts and methods, flexible boundaries between different areas of intellectual activity, and a variety of modes for the exchange of ideas including a strong oral component as well as the circulation of written texts. All this suggests that VM’s relationship to its intellectual context is best understood not in terms of the ‘influence’ on the author of particular written texts—Hippocratic or otherwise—but rather in terms of the creative adaptation of a common body of ideas to respond to a particular challenge in a context of oral debate. Faced with what he saw as an unjustified and dangerous attack on the ancient and established τέχνη of medicine, the author drew on a

¹³⁰ Cf. Commentary on 20.1 σοφισταί (p. 299).

common background of ideas to make a highly coherent and distinctive response, one that deserves the closest study on its own terms.

3.3. *The identity of the author's opponents*

Similar methodological considerations to those raised above (pp. 46–47) apply in connection with the problem of identifying the target of the author's attack. Here the mention of Empedocles in chapter 20 at least provides a reliable starting point. But in order to conclude that VM was attacking a particular thinker we would have to point to quite close and distinctive similarities between the views of that thinker and the position the author attributes to his opponents. By this standard, the attempt to identify a specific target of the author's attack has not yielded convincing results. Thus Lloyd has suggested that the author was attacking Philolaus or medical thinkers influenced by him; more recently Vegetti has argued that VM was directed at Empedocles himself.¹³¹ But chapter 20 makes it clear that the author is not attacking Empedocles himself, but rather the views of certain 'sophists and doctors' who have been inspired by his approach to the study of human φύσις; the name of Empedocles is mentioned in order to clarify the nature of their theories. Whatever healing practices he may have engaged in, it is not Empedocles' activity *qua* healer that the author attacks, but rather the attempt to base medicine on the kind of account of human φύσις that was characteristic of his thought. As for Philolaus, while it is clear that he gave an account of the development of the human being out of a single constituent, the hot, and also proposed a theory of the causes of disease, the resemblance between these views and the position attacked in VM is not in fact exceptionally close or distinctive when viewed in a wider context (cf. note 152 below). The attempt has also been made to show that the author of VM was attacking specific texts in the Hippocratic Corpus; here a leading candidate has been *Vict.* ever since the influential work of Fredrich.¹³² But while there are certainly points of intellectual contact between VM and *Vict.*, others have argued with equal vigor that *Vict.* was attacking VM rather than the other way around.¹³³ Once again the loss of so much written medical literature, as well as the fact that the

¹³¹ Lloyd 1963; Vegetti 1998.

¹³² Fredrich 1899, 171ff.

¹³³ Jaeger 1944, 33ff.

author directs his attack in both chapter 1 and chapter 20 at all who have *spoken* or written about medicine, makes it unlikely that any of the texts we now possess was the *direct* and *specific* object of his criticism.¹³⁴

In fact I think it is possible to go further. A strong case can be made that the difficulty of pinpointing the target of the author's attack is due to the fact that he is not criticizing a specific text or thinker at all, but rather a general trend or tendency in the medicine of his time. That the author regularly refers to the opponents in the plural (1.1, 13.1, 15.1–2, 20.1) and directs his argument at all who have spoken or written about medicine (1.1, 20.1) suggests a desire to encompass as wide a range of opponents as possible. The author attacks all those who adopt as a ὑπόθεσις for their account hot or cold or wet or dry 'or anything else they want' (ἢ ἄλλο τι ὃ ἂν θέλωσιν 118.3.J.), suggesting that he is criticizing the general tendency of the opponents to reduce the cause of disease to a small number of factors as much as the specific *content* of their theories.¹³⁵ It is true that the argument of chapters 1–19 focuses on the four opposites hot, cold, wet, and dry, and within this group on the former pair in particular (16–19). But substantial evidence from the Hippocratic Corpus as well as other sources indicates a widespread tendency to reduce the causes of disease to these four opposites, and especially to hot and cold alone. Contrary to what has sometimes been claimed, it is not in fact very difficult to find close parallels to the position the author attacks in chapters 1–19. Moreover, a consideration of the relationship between the positions criticized in chapters 1–19 and chapter 20 reveals that the two parts of the author's attack amount to a coherent criticism of a widespread general trend in early medicine.

Chapters 1–19 are directed at a group of opponents committed to the assumptions that the 'primary cause' (τὴν ἀρχὴν τῆς αἰτίας 1.1) of

¹³⁴ Cf. Kühn 1956, 84: 'Die Neigung, innerhalb der wenigen überlieferten Schriften der Antike immer wieder direkte Bezugsverhältnisse herstellen zu wollen, ist verständlich und berechtigt. Andererseits muß die Fülle der Arbeiten, die sich mit medizinischen Fragen beschäftigten, so groß gewesen sein, daß es ein grosser Zufall wäre, wenn die mehr oder minder zufällige Auswahl unserer Überlieferung gerade die Schriften erhalten hätte, welche aufeinander Bezug nahmen. Daher bleibt nichts anderes übrig, als in den erhaltenen hippokratischen Schriften nur Repräsentanten einer viel reicheren Literatur zu sehen, die stellvertretend ihre Gruppe charakterisieren, im einzelnen aber eine gewisse Spielbreite haben.' Further difficulties with the effort to pinpoint the specific targets of such polemics are raised by van der Eijk (1996, 244–245).

¹³⁵ Cf. also the remark in 14.3 that the first discoverers of medicine did not consider the cause of disease to be the hot, the cold, the wet, the dry, 'or any other such thing' (οὐδὲ ἄλλο τοῦτων, 136.1.J.).

all diseases is one or more of a small number of principles such as hot, cold, wet, and dry, and that opposites are the cure for opposites (13.1). Both views find ample illustration in the Hippocratic Corpus. The idea of cure by opposites is stated or implied in a wide range of Hippocratic texts (though some authors also endorse cure by similars).¹³⁶ Scattered passages in texts such as *Morb. Sacr.* and *Loc. Hom.* identify hot, cold, wet, and dry as the cause of pathological conditions and indicate the need to employ them in treatment.¹³⁷ Evidence of systematic theories identifying hot, cold, wet, and dry as the primary causes of disease is provided by *Nat. Hom.* In chapter 2 the author describes the doctors (ἱητροί) he is attacking as holding the view that the human being is composed of a single substance such as blood, phlegm, or bile, which ‘changes its form (ἰδέη) and power (δύναμις) under the compulsion of the hot and the cold (ἀναγκαζόμενον ὑπὸ τε τοῦ θερμοῦ καὶ τοῦ ψυχροῦ), and becomes sweet, bitter, white, black, and so on.’¹³⁸ He goes on to state that ‘most people adopt such views or something quite similar.’¹³⁹ While the author adamantly rejects these monistic theories, his own view also emphasizes the causal importance of hot, cold, wet, and dry: ‘there are many things in the body which, when they are abnormally heated or cooled or moistened or dried by one another, produce diseases.’¹⁴⁰ In chapter 3 he writes of the hot, the cold, the wet, and the dry as the constituents of human beings and all other things: in order for generation to occur the hot must blend with the cold and the dry with the wet; each of these enters into the human body when it is formed, each retains its own power (δύναμις) when mixed with the others in the body, and each returns to its like when the human being dies.¹⁴¹ At the beginning of chapter 4 the author states his humoral theory: the human being contains blood, phlegm, yellow bile, and black bile; a person is healthy when these are well mixed and suffers pain

¹³⁶ Cf. Commentary on 13.2 τῷ ὑπεναντίῳ προσήκει λῦσαι (pp. 225–226).

¹³⁷ Cf. *Morb. Sacr.* 14, 26.9–13 Jouanna (L. 6.388); *Morb. Sacr.* 18, 32.15–33.4 Jouanna (L. 6.396); *Loc. Hom.* 9, 46.30–48.23 Craik (L. 6.290–292) (with the remarks of Craik 1998, 131–133).

¹³⁸ *Nat. Hom.* 2, 166.15–168.2 Jouanna (L. 6.34).

¹³⁹ *Nat. Hom.* 2, 168.3–4 Jouanna (L. 6.34): οἱ μὲν οὖν πλεῖστοι τοιαῦτά τινα ἢ ὅτι ἐγγύτατα τούτων ἀποφαίνονται.

¹⁴⁰ *Nat. Hom.* 2, 168.6–8 Jouanna (L. 6.36): πολλὰ γὰρ ἐστὶν ἐν τῷ σώματι ἐνεόντα, ἃ, ὅταν ὑπ’ ἀλλήλων παρὰ φύσιν θερμαίνηται τε καὶ ψύχεται, καὶ ξηραίνηται καὶ ὑγραίνηται, νοῦσους τίττει.

¹⁴¹ *Nat. Hom.* 3, 170.8–172.12 Jouanna (L. 6.36–38).

when one of them separates from the mixture.¹⁴² But he continues to emphasize the causal importance of the four qualities in the sequel.¹⁴³ The exact relationship between the four humors and the four qualities in *Nat. Hom.* is far from clear. But the author certainly associates the origin of disease with changes in the hotness, coldness, wetness, and dryness of the humors, and he conceives of these four qualities as active factors with the power (*δύναμις*) to bring about such changes. A strong case could be made that on his view hot, cold, wet, and dry are the primary causes of disease.¹⁴⁴ Another Hippocratic treatise, *Aff.*, presents a general theory of the cause of disease that at first sight might seem quite different from the view attacked in VM 1–19:

All human diseases arise from bile and phlegm. Bile and phlegm produce diseases whenever, inside the body, one of them becomes too moist, too dry, too hot, or too cold. Bile and phlegm become this way from foods and drinks, from exertions and wounds, from smell, sound, sight, and sexual intercourse, and from the hot and the cold. This happens whenever any of the things mentioned is applied to the body either at the wrong time, contrary to what is customary, in too great an amount and too strong, or in too small an amount and too weak.¹⁴⁵

This passage states clearly that all diseases are due to bile and phlegm. But it is equally clear that these humors cause disease only when they become too hot, too cold, too wet, or too dry. The implication is that the various other factors mentioned, such as foods, drinks, exercise, and wounds, exert their effects by heating, cooling, moistening, or drying the phlegm and bile in the body. In such a system hot, cold, wet, and dry could certainly be viewed as the primary causes of disease. Throughout the text the author consistently adheres to the doctrine stated in this passage; he also emphasizes the importance of hot, cold,

¹⁴² *Nat. Hom.* 4, 172.13–174.10 Jouanna (L. 6.40).

¹⁴³ Chapter 5 states that the humors are not all equally hot, cold, dry, or wet, and associates these differences with differences in *δύναμις* (176.5–9 Jouanna, L. 6.42). Chapter 7 describes how changes in the seasons bring about changes in the humors: thus winter causes phlegm (which is cold and moist) to increase in the body, while the coming of spring brings about an increase in blood (which like spring is warm and moist) (182.4–186.12 Jouanna, L. 6.46–50).

¹⁴⁴ Cf. the summary of Polybus' theory at *Anon. Lond.* XIX 1–18, which is probably based on *Nat. Hom.*: the human body is constituted of two elements, hot and cold, and disease is produced when there is a change between them; disease can also be produced by changes in the four humors. On the concept of *δύναμις* in *Nat. Hom.* and the writer's conception of hot, cold, wet, and dry as active powers cf. Plamböck 1964, 70–74.

¹⁴⁵ *Aff.* 1, L. 6.208.7–15.

wet, and dry in therapy.¹⁴⁶ There is good reason to believe that his view of the cause of disease was widely shared. *Aff.* itself is explicitly directed at a lay audience (cf. above, pp. 41–42); moreover a very similar doctrine is stated by the author of *Morb.* I:

Now all diseases arise either from things inside the body, bile and phlegm, or from things outside it: from exertions and wounds, and from heat that makes it too hot and cold that makes it too cold [and dryness that makes it too dry and wetness that makes it too wet]. Bile and phlegm come into being together with the human being, and are always present in the body in greater or lesser amounts. They produce diseases, however, partly as a result of foods and drinks, and partly as a result of heat that makes them too hot and cold that makes them too cold.¹⁴⁷

Here we have a clear distinction between phlegm and bile, the internal causes of disease, and external causes such as exercise and wounds; phlegm and bile are also said to be congenital constituents of the body. Despite some differences of emphasis, it is reasonable to conclude that *Morb.* I and *Aff.* share the same basic doctrine of the cause of disease: diseases come about when phlegm and bile are set in motion by a variety of factors, each of which exerts its effect by heating, cooling, drying, or moistening.¹⁴⁸ The increasing dissemination and adoption of such a view could well have provoked the kind of reaction we see in VM.¹⁴⁹

¹⁴⁶ Ch. 27 offers a clear example of the author's analysis of external causes such as foods and drinks in terms of their effects on phlegm and bile in the body: cases of cholera or diarrhoea that arise from excessive eating and drinking come about 'when the food and drink enter the belly in greater quantity than is customary, and these things from outside, which are prone to heat the body excessively, set bile and phlegm in motion' (L. 6.240.1–4). Cf. ch. 4, L. 6.212.17; ch. 7, L. 6.214.21–23; ch. 17, L. 6.224.23–226.2; ch. 24, L. 6.236.5–11; ch. 28, L. 6.240.10–14. For the importance of hot, cold, wet, and dry in therapy see ch. 39, L. 6.248.16–20 (quoted below, p. 225).

¹⁴⁷ *Morb.* I 2, L. 6.142.13–20. The text translated is that of Littré; the bracketed words correspond to καὶ τοῦ ξηροῦ ὑπερξηραίνοντος καὶ τοῦ ὑγροῦ ὑπερυγραινόντος at L. 6.142.16–17, which are deleted by R. Wittern in her 1974 edition of the text.

¹⁴⁸ Cf. Lonie 1965, 24ff.

¹⁴⁹ It is true that none of the texts discussed in this paragraph uses the term ὑπόθεσις, which the author associates so closely with his opponents in chapters 1–19. But these texts certainly illustrate the kind of highly reductive approach to aetiology and therapy that he criticizes, as well as the tendency to identify the specific principles hot, cold, wet, and dry as the primary causes of all diseases. Moreover, the author's use of the term ὑπόθεσις is not as distinctive as has sometimes been supposed. While there is no exact parallel in fifth-century literature for ὑπόθεσις in the sense of 'assumption', this meaning emerges clearly enough from the text of VM itself; the term remains close to its etymological sense of 'basis' or 'foundation'. Moreover there are close if not exact parallels for the author's usage in other Hippocratic texts (e.g. *Carm.* 1, *Flat.* 15). For

The account of pre-Aristotelian medical theories in the *Anonymous Londinensis* papyrus (conveniently designated the *Menoneia* because of its reliance on the history of medicine composed by Aristotle's pupil Meno) provides important further evidence of the widespread tendency to reduce the causes of disease to one or more of the four opposites hot, cold, wet, and dry. (1) At VII 13–15 the writer says that 'Hippocrates himself' (as opposed to Hippocrates as described by 'Aristotle', i.e. Meno) held that diseases are caused by the chilling or heating of bile and phlegm; though the immediately preceding part of column VII is badly mutilated, the view summarized here seems to be that of *Morb.* I 2.¹⁵⁰ (2) A closely similar theory is attributed to Dexippus of Cos, a pupil of Hippocrates, at XII 8–36: diseases are caused by bile and phlegm when they are set in motion by untimely or excessive nutriment; changes in bile and phlegm take place 'on account of an excess of everything: of heat or chill or similar things.'¹⁵¹ (3) According to Hippon of Croton (XI 22–42) the body contains an innate moisture (ὕγρότης) that accounts for perception and life; diseases arise when this moisture is altered by excessive heat or cold and becomes moister or drier or thicker or thinner or changes in other respects. (4) The theory attributed to Thrasy machus of Sardis at XI 42–XII 8 provides a good example of the kind of theory attacked in *Nat. Hom.* 2. Disease is caused by blood when it changes into phlegm, bile, or putrefaction under the influence of excessive heat or chill; blood is a simple constituent, while these other substances are complex and account for the variety of diseases. Several other thinkers, all of whom are classified by the writer of the *Menoneia* as tracing the cause of disease back to the elements (στοιχεῖα) of which the body is composed, ascribe an important and perhaps a fundamental role to one or more of the four opposites hot, cold, wet, and dry. (5) The account of Polybus' theory (XIX 1–18) has already been mentioned in connection with *Nat. Hom.* (above, n. 144). (6) According to Menecrates (XIX 18–XX 1) the human body is constituted by four elements (στοιχεῖα), two hot (blood and bile) and two cold (pneuma and phlegm); diseases come about when these elements

full discussion of the author's use of the term ὑπόθεσις and its significance see the Commentary on ch. 1 (pp. 111–115 and 120–126).

¹⁵⁰ Cf. VI 38–40, where the writer remarks that according to Meno's account Hippocrates held that diseases are caused by alteration in breath or wind (ψῦσα), and that this alteration takes place either in the direction of excessive heat or excessive cold.

¹⁵¹ *Anon. Lond.* XII 15–18: μεταβάλλειν δὲ οἶεται καὶ δι' ὑπερβολὴν πάντων· καὶ γὰρ θερμότητος καὶ ψύξεως ἢ τοιούτων παραπλησίων.

quarrel (σπασιάζειν) with one another. (7) The view ascribed to Petron of Aegina (XX 1–24) is that the human body is composed of two elements, the hot and the cold; ‘corresponding’ (ἀντίστοιχον) to these elements are the dry and the wet. Diseases come about either from residues of nourishment or from the elements when they are out of balance with one another. It seems likely that Petron understood the effects of residues as disturbing the balance of the elements hot and cold. (8) Philistion (XX 25–50) held that the human body is constituted of the four elements earth, air, fire and water; to each of these corresponds one of the ‘powers’ (δυνάμεις) hot, cold, wet and dry. Diseases are due either to (a) the elements, i.e. excess or deficiency of the hot and the wet; (b) external causes, such as wounds, excessive heat or cold, or change from hot to cold or the reverse; or (c) the condition of the body, understood as the ability of the breath to pass through pores in the skin. Though nothing in the text suggests it, it is certainly possible that Philistion envisioned explaining both (b) and (c) by reference to the action of the δυνάμεις hot, cold, wet, and dry. (9) Finally, Philolaus of Croton held that the human body is composed of the hot alone (XVIII 8–29), but that diseases arise from blood, phlegm, and bile (XVIII 30–47). The writer of the papyrus concludes his report by remarking that ‘these things (sc. the humors blood, phlegm, and bile) he supposes to be the starting points (ἀρχαί) of disease, while contributing factors (συνεργά) are excess or deficiency of heat, cold, nutriment, and similar things’ (XVIII 47–XIX 1). It is certainly possible, as Lloyd has argued, that Philolaus conceived of each of the humors as a different manifestation of the hot; if so, then he would certainly count as one thinker who viewed the hot as the primary cause of disease in the sense relevant to the argument of VM 1–19. But it must be admitted that the evidence that Philolaus held this view is really no stronger than in the case of theorists such as Philistion, Petron, or indeed the author of *Nat. Hom.* itself (i.e. Polybus).¹⁵²

¹⁵² Pace Lloyd 1963, 119ff. (= 1991, 63ff.). Building on Lloyd’s argument Huffman (1993, 78ff.) sees the report in the *Menoneia* as evidence that Philolaus adopted a sophisticated method of ἀρχαί, which involved laying down the minimum number of starting points or principles (ἀρχαί) necessary to explain a certain set of phenomena. But while it is not implausible that a thinker such as Philolaus played an important role in the development of medical theory and methodology, even if Lloyd and Huffman are correct we would still not be justified in concluding that Philolaus was the *direct* and *specific* object of VM’s attack, given (1) the substantial evidence for other theories reducing the cause of disease to hot and cold alone, and (2) the evidence in the Hippocratic Corpus for a level of methodological sophistication that corresponds quite well to the method VM attacks. See the Commentary on ch. 1, esp. pp. 121–123.

All these theories illustrate the tendency to reduce the cause of disease to a small number of factors, in particular hot, cold, wet, and dry. In chapter 20 of VM the author widens the scope of his attack beyond causal reductionism to include all those who adopt an Empedoclean-style theory of human φύσις as a foundation for medicine. At a maximum, this would involve the attempt to base medical practice on a full-blown account of human origins and development, a tendency we can observe in texts such as *Carn.* and *Vict.* (above, pp. 20–23). At a minimum, however, it might involve only the attempt to base medical practice on a theory of the constituents from which the human being was originally formed. From this point of view, all the highly reductive theories we have discussed fall within the scope of the author's attack in chapter 20. For all these theories attempt not only to reduce the cause of disease to a small number of opposites but also to give an account of the original constituents of the human being. In some of these theories the constituents are actually the hot, cold, wet, and dry themselves, yielding a perfect correspondence between causal reduction and element theory. But even texts such as *Aff.* and *Morb.* I, which treat phlegm and bile as congenital constituents of the human body, attempt to reduce the cause of disease to the four opposites; similarly the theorists attacked in *Nat. Hom.* 2 hold that the human being is composed of a single humor but that disease is caused by hot and cold. The drive towards identifying a small number of primary causes of disease went hand in hand with the drive to set out a theory of the original constituents of the human being; both were motivated by the desire to give medicine the systematic foundation it needed to qualify as a genuine τέχνη (above, pp. 24–25).

The two parts of the author's argument can thus be understood as making a coherent criticism of a widespread general trend in medical theory. The focus on hot, cold, wet, and dry in chapters 1–19 is not an indication that the author has a specific target in mind; rather, it reflects a widespread tendency among medical theorists to identify these opposites as the primary causes of disease. And Empedocles was the ideal figure to illustrate the *kind* of approach to the study of human φύσις that the author rejects as irrelevant to medicine. The answer to the question 'Who is attacked in *On Ancient Medicine*?' is not a specific text or thinker, but—as the author himself says—*all* those who attempted to reduce the cause of disease to a small number of factors, and to base their medical practice on a theory of the original constituents of the human being.

3.4. *Date*

A wide range of dates have been proposed for VM, spanning roughly a century from 440 to around 350 BC.¹⁵³ It must be emphasized at the start that there can be no question of assigning an exact date to a treatise such as VM, whose authorship and intellectual affiliations are so difficult to define with precision. The reference to Empedocles in chapter 20 establishes a reasonably secure *terminus post quem*; assuming that Empedocles lived ca. 490–430 it would be difficult to imagine criticism of his impact on medical theory much before 440.¹⁵⁴ There is no comparably reliable *terminus ante quem*. Even if we accept the conclusion that VM shows no sign of Platonic influence, we cannot be certain that the author was writing before Plato: he might simply have been unaware of Plato's work or unconcerned to respond to it. But it certainly seems unlikely that VM could have been written much after Plato had introduced the τέχνη-ἐμπειρία distinction in the *Gorgias*, a work that has with some plausibility been dated to between 390 and 380 BC.¹⁵⁵ And there are a number of considerations which, taken together, strongly suggest a date in the late fifth century. (1) The way in which the author refers to Empedocles as the inspiration of the method he attacks suggests a date not too long after his *floruit*. While the author *might* have referred to Empedocles in this way long after his death, this is surely less likely than the alternative that he was writing at most a generation later, i.e. by 400 at the latest. The influence of Empedocles is particularly marked in *Nat. Hom.*, a treatise which is usually dated to around 400.¹⁵⁶ (2) The author's concern with discovery, his notion of continual progress, and his confident optimism about the benefits of technology are all characteristic of late fifth-century thought.¹⁵⁷ The basic idea underlying his account of the origin and development of medicine—the notion that humanity rose from an original brutish and savage existence through the development of technology—finds numerous parallels in fifth-century texts such as Sophocles' *Antigone*

¹⁵³ Festugière (1948, 60) opts for a date of 440–430, though he also admits it may be as late as 420; Diller (1952) argues for a date in the middle of the fourth century.

¹⁵⁴ Guthrie suggests 492–432 for the dates of Empedocles' life (1962–1981, 2:128).

¹⁵⁵ Dodds 1959, 18–30.

¹⁵⁶ If *Nat. Hom.* was written by Polybus, then it may reliably be dated to around 400 (Lonie 1981, 55); Jouanna dates it to 410–400 (1975, 59–61).

¹⁵⁷ On differences between fifth- and fourth-century attitudes to such questions see Dodds 1973, 13ff.

and the *Prometheus Bound*. And whether or not the author was familiar with a Democritean account of cultural history, the *use* he makes of *Kulturgeschichte* to defend his τέχνη from attack was characteristic of the age of the Sophists, if we can judge from texts such as Plato's *Protagoras*.¹⁵⁸ (3) The author was writing at a time when the boundaries between disciplines were not sharply defined, and felt the need to assert the existence of medicine as an independent discipline. This fits very well into the picture of late fifth-century intellectual life that can be constructed from other sources; a similar concern to assert the independence of medicine is characteristic of other Hippocratic works that have been dated to the late fifth century, such as *Carn.* and *Nat. Hom.*¹⁵⁹ (4) The author's description of the ἰστορίη that he rejects as irrelevant to medicine in section 20.2 is very similar to the inquiry described by Socrates in the *Phaedo* (96a–c), which itself reflects the concerns and approaches of late fifth-century thinkers such as Archelaus.¹⁶⁰ (5) From texts such as Aristophanes' *Clouds* (first produced in 424) and Plato's *Apology* it is evident that interest in 'things in the sky and under the earth' (τὰ μετέωρα, τὰ ὑπὸ γῆν) was part of the stock characterization of intellectuals in the late fifth century. Moreover, the question of the relationship of medicine to 'meteorology' is very much an issue in Hippocratic texts usually dated to that period, such as *Aer.* and *Carn.*¹⁶¹ (6) Finally there are the close affinities in method, doctrine, style of argument, and terminology with the treatises *Gen.*, *Nat. Puer.*, and *Morb.* IV, which have been dated on grounds of both style and content to around 420.¹⁶²

All these considerations suggest a date in the late fifth century, and there is no compelling reason to prefer a later date. The affinities with Democritus (*fl.* ca. 420), as well as the Hippocratic treatises mentioned above (point 6), suggest a date not much before 420. On balance, then, we may conclude with some confidence that VM was written during the last quarter of the fifth century BC. In the present state of knowledge it seems impossible to be any more precise.

¹⁵⁸ See the Commentary on ch. 3, introductory note (pp. 159–160).

¹⁵⁹ On the dating of *Carn.* see Deichgräber 1935, 28.

¹⁶⁰ Above, section 1.3; cf. Archelaus DK 60 A 4 and Burnet 1911, 100.

¹⁶¹ Cf. the Commentary on chapter 1, esp. 1.3 περὶ τῶν μετεώρων ἢ τῶν ὑπὸ γῆν.

¹⁶² Cf. Lonie 1981, 71; he recognizes that the date 'may be as much as 20 years later.'

3.5. *Reception and authorship*

While VM has occupied a central position in modern discussions of Hippocratic medicine, there is not much direct evidence of its impact in antiquity. The glossator Erotian, writing in the first century AD, considered VM a genuine work of Hippocrates and grouped it with *On the Art*, *Law*, and the *Oath* as a treatise dealing with the art of medicine.¹⁶³ Chapter 20 of VM may be the ultimate source of the ancient tradition that Hippocrates was the first to separate medicine from philosophy, an idea prominent in Celsus' account of the early history of medicine.¹⁶⁴ The Empiricist doctors of the Hellenistic period, who were among the first to write commentaries on the works of the Hippocratic Corpus, probably found in VM's polemic against the use of ὑποθέσεις a key source of Hippocratic authority for their own distinctive epistemological and methodological views—though in fact the author's position was very far from an Empiricist one.¹⁶⁵ The Empiricists rejected all attempts to base medicine on an explanatory theory and tried to show that experience or ἐμπειρία, understood as a body of limited generalizations correlating observable phenomena of disease, was entirely sufficient for the discovery and practice of medicine. We know from sources such as Celsus and Galen that they gave an account of the origin of medicine that began in a way quite similar to VM's account: cures were discovered by observing what was helpful and what was harmful in disease, rather than by speculating on the nature of the human body.¹⁶⁶ And they probably appealed to VM 9 to support their view that the doctor's knowledge was limited to what could be grasped by sense perception (αἴσθησις). Unfortunately the only direct evidence for Empiricist appeals to VM is a brief passage from Galen's commentary on book II of the *Epidemics*, preserved only in Arabic:

In my view it makes no difference if I also mention those who have interpreted this passage in a way contrary to Hippocrates' opinion. They say that the words of Hippocrates in this passage are the same as those in the treatise entitled *On Ancient Medicine*, and the author has here only shortened and confirmed them: namely, one cannot, according to his words, take hot, cold, wet, and dry as bases (*Grundlagen*) in the healing of

¹⁶³ Erotian, p. 9 Nachmanson.

¹⁶⁴ Celsus, *Med. prooem.* 8: *primus ... a studio sapientiae disciplinam hanc separavit.*

¹⁶⁵ For a full comparison between the author's position and the Empiricists' see Appendix 1.

¹⁶⁶ Gal. *Sect. Intr.* ch. 2; Celsus, *Med. prooem.* 33–35. Cf. Deichgräber 1930, fr. 43a–b.

diseases—as if we did not find Hippocrates in his book *On the Nature of Man* and the *Aphorisms* and the other genuine writings declaring that the nature of man is made up of these things.¹⁶⁷

This passage provides a tantalizing glimpse of the ways in which the Empiricists made use of VM in their attempts to elucidate the words of ‘Hippocrates’.¹⁶⁸ As far as Galen himself is concerned, it is remarkable that this is the only explicit reference to VM in all that remains of his vast *oeuvre*—though several entries in his lexicon of Hippocratic terms indicate that he was familiar with the work.¹⁶⁹ From this passage it is evident that Galen did not consider VM a genuine work of Hippocrates, a fact that should come as no surprise in view of the fundamental role of hot, cold, wet, and dry in his own physiological and pathological theories. For Galen it was *Nat. Hom.*, with its doctrine of the four qualities and the four humors, that defined the core of Hippocrates’ teaching; any treatise attempting to show that the four qualities were unimportant in medicine would have to be dismissed as unworthy of the great Hippocrates, or better yet consigned to oblivion by a determined policy of silence. Galen’s reluctance to mention VM is all the more striking given that he might have appealed to the use of the term *στοχάζεσθαι* in chapter 9 to gain Hippocratic authority for his notion that the practice of medicine requires a kind of rational conjecture or *στοχασμός*.¹⁷⁰

Galen’s dominant role in shaping the Hippocratic tradition assured that VM would receive relatively little attention in the Middle Ages. With the rise of a critical attitude towards Galen in the Renaissance came a rejection of his view of Hippocrates and a new interest in VM as a possible source of authentic Hippocratic doctrine. In general Hippocrates was hailed for his emphasis on observation and experience as opposed to Galen’s philosophical and theoretical pretensions. J.B. van Helmont (1577–1644) found support in VM for his attack on

¹⁶⁷ Galen *In Hipp. Epid. II comment.*, CMG V 10 1, 220.6–17. The translation is from the German of the editor, Pfaff, and based on that of Smith (1979, 209–210).

¹⁶⁸ The passage in question is indeed enigmatic: ‘One must say that in hemorrhage patients develop a greenish color, and one can find many other such things related to moistening, drying, heating, and cooling’ (*Epid. II* 2.12, L. 5.88.18–20; tr. Smith, modified).

¹⁶⁹ The glosses that certainly refer to VM are at *Ling. s. dict. exolet. expl.* K. 19.80.16 (ἀνευλήματα), K. 19.85.4–5 (ἀπίστων), K. 19.133.5 (προμυλλήνας), K. 19.153.10 (φορῶξαντες); for full presentation of the evidence see Jouanna 1990, 97–99.

¹⁷⁰ Cf. Appendix 2, pp. 370–373.

Galen's humoral theory and praised Hippocrates for his recognition that 'diseases are not hot or cold, but something acid, sharp, bitter, or biting.'¹⁷¹ The French physician P.J.G. Cabanis (1757–1808) saw in Hippocrates an exponent of his own sensualist philosophy, which attempted to reduce all knowledge to collections of sensory perceptions. In his influential *Du degré de certitude de la médecine* of 1798 Cabanis adopts a position similar to that of the ancient Empiricists and adduces VM 9 as support for his view that the doctor's sensation of the patient is the only real guide to treatment.¹⁷² The ideas of Cabanis and others who claimed to be followers of Hippocrates in early nineteenth-century Paris were not without influence on Émile Littré (1801–1881), an advocate of the positivism of August Comte and the scholar most responsible for thrusting VM to the center of the modern discussion of Hippocratic medicine. For Littré Hippocrates was very much a living ideal, a model for the medicine of his own day.¹⁷³ He found in VM a rejection of all hypotheses that attempted to depart from the 'faits positifs' and 'observations réelles et positives' that made up the foundation of medicine, but also 'un sage emploi de raisonnement' and a systematic doctrine—that of coction and *κοήσις*—that because of its solid basis in observation was in no way 'hypothetical'.¹⁷⁴ Littré thought he had proved that VM was the work to which Plato was referring in the famous passage of the *Phaedrus* where the method of Hippocrates is discussed (269c–272b), and therefore that it must have been written by Hippocrates himself.¹⁷⁵ Accordingly VM stands at the head of his edition of the Hippocratic Corpus (1839–1861), a position it retained in the more recent editions of Kühlewein (1894) and Jones (1923). In 1911 Gomperz offered a spirited defense of Littré's case that Plato was refer-

¹⁷¹ van Helmont 1648, 191: *Rectius quam Galenus ergo Hippoc. dixit: Non calidum aut frigidum, &c. sunt morbi: sed acidum, acre, amarum, & ponticum*. The reference is noted and the passage translated by Smith (1979, 18).

¹⁷² Cabanis 1798, 117: 'En médecine, tout, ou presque tout dépendant du coup d'œil et d'un heureux instinct, les certitudes se trouvent plutôt dans les sensations mêmes de l'artiste, que dans les principes de l'art.' In a footnote to this remark he offers the following translation of the key passage of VM 9 (128.11–13 J.): 'Vous ne trouverez aucune mesure, aucun poids, aucune forme de calcul à laquelle vous puissiez rapporter vos jugements pour leur donner une certitude rigoureuse. Il n'y a d'autre certitude dans notre art que les sensations.' Cf. Lesky 1954, 163–164; Ackerknecht 1967, 4.

¹⁷³ On Littré and his attitude to Hippocrates see Smith 1979, 31–35.

¹⁷⁴ L. 1.557–561.

¹⁷⁵ L. 1.294–320.

ring to VM in the *Phaedrus*; in general, however, scholars have tended to reject the possibility. The author of VM, a ‘positivist’, ‘relativist’, or ‘individualist’, could hardly have been held up by Plato, the supreme rationalist and idealist, as a model of method. Moreover on some interpretations the *Phaedrus* passage attributes to Hippocrates the view that the doctor needs to have knowledge of the cosmos as a whole, an idea that VM firmly rejects.¹⁷⁶

A careful consideration of the argument of VM shows that many of the objections that have been raised against its being the work to which Plato refers in the *Phaedrus* are quite ill-founded. The author is not an ‘individualist’, if this means that he rejects all generalizations; he is not a ‘positivist’, if this entails the rejection of all theory. Instead, very much like Socrates in the *Phaedrus*, the author takes the position that the doctor needs a general theory of human φύσις in order to treat patients in a systematic way. In the passage of the *Phaedrus* that leads up to the mention of Hippocrates Socrates describes a person who has mastered a set of procedures for bringing about various effects on the body but does not know when or to whom they should be applied (268a–b). No one would say that such a person is a genuine doctor. At 270b it becomes clear that what this person lacks is knowledge of the φύσις of the human body. The methods of rhetoric and medicine are the same, Socrates says, because both the doctor and the rhetorician must have knowledge of the nature (φύσις) of the subject matter of their respective arts in order to act in accordance with genuine τέχνη:

In both (sc. medicine and rhetoric) we need to determine the nature (διελέσθαι φύσιν) of something—of the body in medicine, of the soul in rhetoric. Otherwise, all we’ll have will be an empirical and artless practice (τριβὴ μόνον καὶ ἐμπειρία). We won’t be able to supply, on the basis of art (τέχνη), a body with the medicines and diet that will make it healthy and strong, or a soul with the reasons and customary rules for conduct that will impart to it the convictions and virtues we want.¹⁷⁷

Although the author of VM does not distinguish between τέχνη and ἐμπειρία, he certainly agrees with Socrates that the doctor needs more than just mastery of a few effective procedures: he needs to know when, to whom, and to what extent he should apply those procedures,

¹⁷⁶ In support of Littré: Gomperz 1911, Steckerl 1945. *Contra*: Pohlenz 1918; Capelle 1922; Wanner 1939, 75–78; Festugière 1948, 63. Cf. Jouanna 1990, 77–81.

¹⁷⁷ Pl. *Phdr.* 270b4–9. Translation as in Cooper 1997, slightly modified.

and this requires him to have an explanatory theory of human φύσις. Socrates goes on to attribute to Hippocrates a method that is similar in a number of respects to the method of discovery recommended in VM:

Consider, then, what both Hippocrates and the true argument say about nature (περὶ φύσεως). Isn't this the way to think systematically about the nature (φύσις) of anything? First, we must consider whether the object regarding which we intend to become experts and capable of transmitting out expertise is simple or complex. Then, if it is simple, we must investigate its power (δύναμις): What things does it have what natural power of acting upon? By what things does it have what natural disposition to be acted upon? If, on the other hand, it takes many forms (εἶδη), we must enumerate them all and, as we did in the simple case, investigate how each is naturally able to act upon what and how it has a natural disposition to be acted upon by what.¹⁷⁸

The method Socrates describes involves the systematic enumeration of the different types (εἶδη) of a single nature (φύσις) and investigation of their powers (δυνάμεις), both to affect other things and to be affected. At 270d–272b Socrates explains what this amounts to in the case of rhetoric: the rhetorician must set out the different types of soul and different types of speeches, and he must know what effect each kind of speech will have on each kind of soul and why it will have that effect (cf. esp. 271c10–272b2). The medical analogue would be the enumeration of different constitutional types and their capacities to affect and be affected by different drugs and foods.¹⁷⁹ So understood, the method Socrates describes has a close parallel in VM 20.3, where the author remarks that the doctor needs to know what the human being is in relation to foods, drinks, and other practices. The cheese example in sections 20.5–6 illustrates the need to distinguish between different constitutions (φύσεις) based on their capacity (δύναμις) to assimilate cheese.¹⁸⁰ In fact, however, the parallel extends well beyond chapter 20. The method of discovery that the author sets out in chapter 3 and chapter 5 involves a two-stage procedure similar to the one Socrates describes: (1) distinguishing between different types (εἶδη) of constitution (φύσις) or condition (διάθεσις) based on their capacity (δύναμις) to assimilate

¹⁷⁸ Pl. *Phdr.* 270c9–d7. Translation as in Cooper 1997.

¹⁷⁹ Cf. Jouanna 1977, 24–25; Jaeger 1944, 22–23.

¹⁸⁰ The parallel between VM 20 and the *Phaedrus* was taken by Littré as proof of VM's Hippocratic authorship (1.301 ff.). Cf. Gomperz 1911, 213–218; Jouanna 1977, 26–27.

different foods, and (2) developing a beneficial regimen for each type by assessing the effects of foods on individuals belonging to that type. The end result of the process is that the doctor knows exactly how each type of constitution or condition will be affected by each component of regimen, and can therefore make the right prescription for the right individual. Certainly a number of Hippocratic works imply that the doctor needs to know how different constitutional types will affect and be affected by different kinds of foods or drugs. But only in VM do we find an *explicit* recommendation of something like the method Socrates describes as a method of investigating human φύσις.¹⁸¹

To conclude that Hippocrates was the author of VM would be rash. Plato's reference to Hippocrates is oblique and allusive, and the parallel between the method Socrates sets out and the method described in VM is not exact.¹⁸² The description of Hippocrates' views in the *Menoneia* raises further serious difficulties, which I will not attempt to discuss here. But I do think we are justified in drawing a somewhat weaker conclusion. No other Hippocratic work is as preoccupied as VM with questions of method, and no other work emphasizes so strongly the systematic character of τέχνη—which is Plato's primary concern in this

¹⁸¹ Socrates introduces the first passage quoted above by remarking that all important arts require 'lofty discourse about nature' (μετεωρολογία φύσεως περί); this is illustrated by Pericles, who acquired the ability to engage in such discourse from Anaxagoras and so became a successful orator (269e4–270a9). And in between the two passages quoted above in the text, Socrates credits Hippocrates with the rather mysterious idea that it is impossible to know about the nature of the body without knowing 'the nature of the whole' (τῆς τοῦ ὅλου φύσεως) (270c1–8). These remarks have led to a great deal of confusion. Both have been taken to imply that the doctor needs knowledge of the nature of the cosmos as a whole, or of all relevant factors in the ambient environment, in order to treat patients correctly—in which case the method Socrates describes would indeed be quite different from the method described in VM. However, the remark about 'the nature of the whole' is best taken as referring to the 'whole' of the matter under discussion, i.e. in the case of medicine, the nature of the human body in general (cf. Edelstein 1931, 131ff.; Jouanna 1977, 20–23). Similarly, Socrates' introductory remarks concerning 'lofty discourse about nature' imply only that knowledge of the φύσις of one's subject is necessary for genuine technical expertise (cf. Jouanna 1977, 18–20). See Jouanna 1977 for a full and lucid defense of this interpretation of the passage.

¹⁸² Three differences may be mentioned: (1) what Socrates describes is a dialectical method, while VM is describing a method of empirical investigation; (2) in the *Phaedrus* the division of a φύσις into its different types seems to *precede* the investigation of its δυνάμεις, while in VM the division is made on the *basis* of a thing's δυνάμεις; (3) the *Phaedrus* has a clear idea of a passive δυνάμεις as a capacity to be affected in a certain way, while in VM and the Hippocratic works more generally δυνάμεις tends to refer to an *active* capacity to affect.

section of the *Phaedrus*. Moreover no other Hippocratic work *explicitly* sets out a method of discovery that is so similar to the method described at *Phaedrus* 270c. *If* Plato had in mind any of the texts that make up the present Hippocratic Corpus, surely it was VM. That, it seems, is as far as we will probably ever be able to go.

TEXT AND TRANSLATION

Note

M	<i>Marcianus gr. 269</i> (10th century AD)
M ²	manus posteriores
A	<i>Parisinus gr. 2253</i> (11th century AD)
A ²	manus posterior
[]	indicates editorial deletion
⟨ ⟩	indicates editorial insertion

ΠΕΡΙ ΑΡΧΑΙΗΣ ΙΗΤΡΙΚΗΣ

- 118 J. 1 **1. 1** Ὅκοσοι μὲν ἐπεχείρησαν περὶ ἱητρικῆς λέγειν ἢ
γράφειν ὑπόθεσιν αὐτοὶ ἐωυτοῖσιν ὑποθέμενοι τῷ λόγῳ
θερμὸν ἢ ψυχρὸν ἢ ὑγρὸν ἢ ξηρὸν ἢ ἄλλο τι ὃ ἂν θέλωσιν,
ἐς βραχὺ ἄγοντες τὴν ἀρχὴν τῆς αἰτίας τοῖσιν ἀνθρώποι-
5 σι τῶν νούσων τε καὶ τοῦ θανάτου καὶ πᾶσι τὴν αὐτὴν
ἐν ἢ δύο ὑποθέμενοι, ἐν πολλοῖσι μὲν καὶ οἷσι λέγουσι
καταφανεῖς εἰσιν ἀμαρτάνοντες· μάλιστα δὲ ἄξιον μέμ-
ψασθαι, ὅτι ἀμφὶ τέχνης εὐούσης ἢ χρεώνται τε πάντες
ἐπὶ τοῖσι μεγίστοισι καὶ τιμῶσι μάλιστα τοὺς ἀγαθοὺς
10 χειροτέχνας καὶ δημιουργοὺς. **2** Εἰσὶ δὲ δημιουργοὶ οἱ
μὲν φλαῦροι, οἱ δὲ πολλὸν διαφέροντες· ὅπερ, εἰ μὴ ἦν
ἱητρικὴ ὅλως μὴδ' ἐν αὐτῇ ἔσκεπτο μὴδ' εὖρητο μὴδέν,
οὐκ ἂν ἦν, ἀλλὰ πάντες ἂν ὁμοίως αὐτῆς ἅπειροί τε καὶ
ἀνεπιστήμονες ἦσαν, τύχη δ' ἂν πάντα τὰ τῶν καμνόντων
119 J. 1 διοικεῖτο. Νῦν δ' οὐχ οὕτως ἔχει, ἀλλ' ὥσπερ καὶ τῶν
ἄλλων τεχνέων πασέων οἱ δημιουργοὶ πολλὸν ἀλλήλων
διαφέρουσι κατὰ χεῖρα καὶ κατὰ γνώμην, οὕτω δὲ καὶ
ἐπὶ ἱητρικῆς. **3** Διὸ οὐκ ἡξιούν αὐτὴν ἔγωγε καινῆς
5 ὑποθέσιος δεῖσθαι, ὥσπερ τὰ ἀφανέα τε καὶ ἀπορεόμενα·
περὶ ὧν ἀνάγκη ἦν τις ἐπιχειρῇ τι λέγειν ὑποθέσει
χρησθαι, οἷον περὶ τῶν μετεώρων ἢ τῶν ὑπὸ γῆν· ἃ εἴ
τις λέγοι καὶ γινώσκῃ ὥς ἔχει, οὐτ' ἂν αὐτῷ τῷ λέγοντι
οὔτε τοῖσιν ἀκούουσι δηλαδὲ ἂν εἴη, εἴτε ἀληθέα ἐστὶν εἴτε
10 μὴ· οὐ γάρ ἐστι πρὸς ὃ τι χρὴ ἐπανενέγκαντα εἰδέναι
τὸ σαφές.

I.570 L.

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- 2. 1** Ἱητρικῇ δὲ πάλαι πάντα ὑπάρχει, καὶ ἀρχὴ καὶ
ὁδὸς εὖρημένη, καθ' ἣν καὶ τὰ εὖρημένα πολλὰ τε καὶ
καλῶς ἔχοντα εὖρηται ἐν πολλῷ χρόνῳ καὶ τὰ λοιπὰ
15 εὖρεθήσεται, ἦν τις ἱκανὸς τ' ἐὼν καὶ τὰ εὖρημένα εἰδὼς
ἐκ τούτων ὁρμώμενος ζητῇ. **2** Ὅστις δὲ ταῦτα ἀποβαλὼν
καὶ ἀποδοκιμάσας πάντα ἐτέρῃ ὁδῷ καὶ ἐτέρῳ σχήματι
ἐπιχειρεῖ ζητεῖν καὶ φησὶ τι ἐξευρηγένηαι, ἐξηπάτηται καὶ

On Ancient Medicine

1. 1 All those who have undertaken to speak or write about medicine, having laid down as a hypothesis for their account hot or cold or wet or dry or anything else they want, narrowing down the primary cause of diseases and death for human beings and laying down the same one or two things as the cause in all cases, clearly go wrong in much that they say. But they are especially worthy of blame because their errors concern an art that really exists, one which all people make use of in the most important circumstances and whose good craftsmen and practitioners all hold in special honor. **2** Some practitioners are bad, while others are much better. This would not be the case if medicine did not exist at all and if nothing had been examined or discovered in it; rather, all would be equally lacking in both experience and knowledge of it, and all the affairs of the sick would be governed by chance. But in fact this is not the case: just as practitioners of all the other arts differ greatly from one another in manual skill and in judgment, so too in the case of medicine. **3** For this reason I have deemed that medicine has no need of a newfangled hypothesis, as do obscure and dubious matters. Concerning these things it is necessary to make use of a hypothesis if one undertakes to say anything at all about them—for example, about things in the sky or under the earth. If anyone should recognize and state how these things are, it would be clear neither to the speaker himself nor to his listeners whether what he says is true or not, for there is nothing by referring to which one would necessarily attain clear knowledge.

2. 1 But medicine has long since had everything it needs, both a principle and a discovered method, by which many admirable discoveries have been made over a long period of time and those that remain will be discovered, if one who is adequate to the task and knows what has been discovered sets out from these things in his investigation. **2** But anyone who casts off and rejects all these things, tries to investigate in another way and another manner, and says that he has discovered

- ἐξαπατᾶται· ἀδύνατον γάρ. Δι' ἃς δὲ ἀνάγκας ἀδύνατον,
 120 J. 1 ἐγὼ πειρήσομαι ἐπιδείξαι λέγων καὶ ἐπιδεικνύων τὴν
 τέχνην ὃ τι¹ ἐστίν. Ἐκ δὲ τούτου καταφανὲς ἔσται ἀδύνατα
 ἔοντα ἄλλως πῶς τούτων εὐρίσκεισθαι. 3 Μάλιστα δέ μοι
 δοκεῖ περὶ ταύτης δεῖν λέγοντα τῆς τέχνης γνωστὰ λέγειν
 5 τοῖσι δημότησιν· οὐ γὰρ περὶ ἄλλων τινῶν οὔτε ζητεῖν
 οὔτε λέγειν προσήκει ἢ περὶ τῶν παθημάτων ὧν αὐτοὶ
 οὔτοι νοσέουσιν τε καὶ πονέουσιν. Αὐτοὺς μὲν οὖν τὰ
 σφέων αὐτῶν παθήματα καταμαθεῖν, ὥς τε γίνεται καὶ
 παύεται καὶ δι' οἷας προφάσιας αὔξεταί τε καὶ φθίνει,
 10 δημότας ἔοντας οὐ ῥηϊδίον, ὑπ' ἄλλου δὲ εὐρημένα καὶ
 λεγόμενα εὐπετές· οὐδὲν γὰρ ἕτερον ἢ ἀναμνησκειται
 ἕκαστος ἀκούων τῶν ἑωυτῷ συμβαινόντων. Εἰ δέ τις τῆς
 τῶν ιδιωτέων γνώμης ἀποτεύξεται καὶ μὴ διαθήσει τοὺς
 ἀκούοντας οὕτως, τοῦ ἔοντος ἀποτεύξεται. Καὶ διὰ ταῦτα
 15 οὖν ταῦτα οὐδὲν δεῖ ὑποθέσιος.

574 L.

3. 1 Τὴν γὰρ ἀρχὴν οὐτ' ἂν εὐρέθῃ ἡ τέχνη ἢ ἱητρικὴ
 οὐτ' ἂν ἐζητήθῃ—οὐδὲν γὰρ αὐτῆς ἔδει—εἰ τοῖσι
 κάμνουσι τῶν ἀνθρώπων τὰ αὐτὰ διαιτωμένοις τε καὶ
 προσφερομένοις ἅπερ οἱ ὑγιαίνοντες ἐσθίουσιν τε καὶ
 121 J. 1 πίνουσι καὶ τᾶλλα διαιτέονται συνέφερον καὶ μὴ ἦν
 ἕτερα τούτων βελτίω. 2 Νῦν δὲ αὕτη ἡ ἀνάγκη ἱητρι-
 κὴν ἐποίησεν ζητηθῆναι τε καὶ εὐρεθῆναι ἀνθρώποις,
 ὅτι τοῖσι κάμνουσι ταῦτα προσφερομένοις ἅπερ οἱ
 5 ὑγιαίνοντες οὐ συνέφερον, ὥς οὐδὲ νῦν συμφέρει. 3 Ἔτι
 δὲ ἀνθρώπῳ ἔγωγε ἀξιῶ οὐδ' ἂν τὴν τῶν ὑγιαίνόντων
 δίαιτάν τε καὶ τροφήν, ἣ νῦν χρέωνται, εὐρεθῆναι, εἰ
 ἐξήρκει τῷ ἀνθρώπῳ ταῦτα ἐσθίοντι καὶ πίνοντι βοῖ τε
 καὶ ἵπῳ καὶ πᾶσιν ἐκτὸς ἀνθρώπου, οἷον τὰ ἐκ τῆς γῆς
 10 φυόμενα, καρπούς τε καὶ ὕλην καὶ χόρτον· ἀπὸ τούτων
 γὰρ καὶ τρέφονται καὶ αὔξονται καὶ ἄπονοι διάγουσιν
 οὐδὲν προσδεόμενοι ἄλλης διαίτης. Καὶ τοι τὴν γε ἀρχὴν
 ἔγωγε δοκέω καὶ τὸν ἀνθρώπον τοιαύτη τροφή κεχρη-
 σθαι· τὰ δὲ νῦν διαιτήματα εὐρημένα καὶ τετεχνημένα
 15 ἐν πολλῷ χρόνῳ γεγενῆσθαι μοι δοκεῖ. 4 Ὡς γὰρ
 ἔπασχον πολλὰ τε καὶ δεινὰ ὑπὸ ἰσχυρῆς τε καὶ

576 L.

¹ 120.2 J. ὅτι A, Jouanna: ὅτι M: ὃ τί M².

something, has been deceived and continues to deceive himself: for this is impossible. And I shall try to show why it is necessarily impossible by stating and showing what the art is. From this it will be evident that discoveries cannot be made by any means other than these. **3** Above all, I believe that in speaking about this art one must say things that can be understood by lay people. For it is not fitting either to investigate or to speak about anything other than the affections of these very people when they are sick and suffering. Now for them to learn about their own affections, how they come about and cease and on account of what causes they grow and diminish, is not easy, since they are lay people; but when these things have been discovered and stated by another, it is easy. For nothing is involved other than each person recalling the things that are happening to him when he hears them. But if someone misses the capacity of lay people to understand and does not put his listeners into such a state, he will miss the truth. And so for this same reason, medicine has no need of a hypothesis.

3. 1 For the art of medicine would never have been discovered to begin with, nor would anyone have sought for it—for there would have been no need for it—if it were beneficial for the sick to follow the same regimen and diet as the healthy, taking the same foods and drinks and following the same regimen in other respects, and if there were not other things better than these. **2** But in fact necessity itself caused medicine to be sought for and discovered by human beings, for it was not beneficial for the sick to take the same foods as the healthy, just as it is not beneficial for them to do so today. **3** And, to go still further back, I hold that not even the regimen and nourishment that the sick make use of today would have been discovered if it were sufficient for the human being to eat and drink the same things as an ox and a horse and all the animals other than man—for example, the things that grow from the earth: fruits, brush, and grass. For from these things they are nourished, grow, and lead their lives free of trouble, having no need of any other regimen. And indeed I believe that in the beginning, human beings too made use of such nourishment; as for our current regimen, I believe that it arose through a process of discovery and artful elaboration over a long period of time. **4** For human beings endured much terrible suffering because

θηριώδους διαίτης ὥμά τε καὶ ἄκρητα καὶ μεγάλας
 δυνάμεις ἔχοντα ἐσφερόμενοι, οἷά περ ἂν καὶ νῦν
 ὑπ' αὐτῶν πάσχοιεν πόνοισί τε ἰσχυροῖσι καὶ νοῦσοισι
 20 περιπίπτοντες καὶ διὰ τάχους θανάτοισιν—ἦσσαν μὲν
 οὖν ταῦτα τότε εἰκὸς ἦν πάσχειν διὰ τὴν συνήθειαν,
 122 J. 1 ἰσχυρῶς δὲ καὶ τότε, καὶ τοὺς μὲν πλείστους τε καὶ
 ἀσθενεστέρην φύσιν ἔχοντας ἀπόλλυσθαι εἰκὸς, τοὺς δὲ
 τούτων ὑπερέχοντας πλείω χρόνον ἀντέχειν, ὥσπερ καὶ
 νῦν ἀπὸ τῶν ἰσχυρῶν βρωμάτων οἱ μὲν ῥῆϊδίως ἀπαλ-
 5 λάσσονται, οἱ δὲ μετὰ πολλῶν πόνων τε καὶ κακῶν—,
 διὰ δὴ ταύτην τὴν χρεῖν καὶ οὗτοί μοι δοκέουσι ζητῆσαι
 τροφὴν ἀρμόζουσαν τῇ φύσει καὶ εὐρεῖν ταύτην ἢ νῦν
 χρεώμεθα. 5 Ἐκ μὲν οὖν τῶν πυρῶν βρέξαντές σφας καὶ
 πτίσαντες καὶ καταλέσαντές τε καὶ διασήσαντες καὶ
 10 φορύξαντες καὶ ὀπτήσαντες ἀπετέλεσαν μὲν ἄρτον, ἐκ
 δὲ τῶν κριθῶν μάζαν· ἄλλα | τε συχνὰ περὶ ταύτην
 προηγματευσάμενοι, ἤψησάν τε καὶ ὥπτησαν καὶ ἔμειξαν
 καὶ ἐκέρασαν τὰ ἰσχυρὰ τε καὶ ἄκρητα τοῖσιν ἀσθενεστε-
 ροῖσι, πλάσσοντες πάντα πρὸς τὴν τοῦ ἀνθρώπου φύσιν
 15 τε καὶ δύναμιν, ἡγεύμενοι ὥς, ἃ μὲν ἂν ἰσχυρότερα ἦ,
 οὐ δυνήσεται κρατεῖν ἢ φύσις ἦν ἐσφέρεται, ἀπὸ τούτων
 123 J. 1 τε αὐτῶν πόνους τε καὶ νοῦσους καὶ θανάτους ἐσεσθαι,
 ὁπόσων δ' ἂν δύνηται ἐπικρατεῖν, ἀπὸ τούτων τροφὴν τε
 καὶ αὔξησιν καὶ ὑγίειαν. 6 Τῷ δὲ εὐρῆματι τούτῳ καὶ
 ζητήματι τί ἂν τις ὄνομα δικαιότερον ἢ προσήκον
 5 μᾶλλον θείῃ ἢ ἡτρωκίῃ, ὅ τι γε εὖρηται ἐπὶ τῇ τοῦ
 ἀνθρώπου ὑγείῃ τε καὶ σωτηρίῃ καὶ τροφῇ, ἀλλαγμα
 κείνης τῆς διαίτης ἐξ ἧς οἱ πόνοι καὶ νοῦσοι καὶ θάνατοι
 ἐγίνοντο;

578 L.

4. 1 Εἰ δὲ μὴ τέχνη αὕτη νομίζεται εἶναι, οὐκ
 10 ἀπεικός· ἥς γὰρ μηδεὶς ἐστὶν ιδιώτης ἀλλὰ πάν-
 τες ἐπιστήμονες διὰ τὴν χρῆσιν τε καὶ ἀνάγκην, οὐ
 προσήκει ταύτης οὐδένα τεχνίτην καλεῖσθαι. 2 Ἐπεὶ |
 τό γε εὖρημα μέγα τε καὶ πολλῆς σκέψιός τε καὶ τέχνης·
 ἔτι γοῦν καὶ νῦν οἱ τῶν γυμνασίων τε καὶ ἀσκησίων
 15 ἐπιμελόμενοι αἰεὶ τι προσεξευρίσκουσι κατὰ τὴν αὐτὴν
 ὁδὸν ζητέοντες ὅ τι ἔδων τε καὶ πίνων ἐπικρατήσῃ τε
 αὐτοῦ μάλιστα καὶ ἰσχυρότατος αὐτὸς ἐωυτοῦ ἔσται.

580 L.

of their strong and brutish regimen, consuming foods that were raw, unblended, and possessing great powers—suffering like that which they would experience from these foods today as well, falling into severe pains and diseases followed by a speedy death. Now it is likely that they suffered these things less at that time because of habituation, but that even then their suffering was violent; and it is likely that the majority, those with a rather weak constitution, perished, while those who were more robust held out for a longer time—just as today as well some people easily cope with strong foods while others do so only with much pain and trouble. It was on account of this need, I believe, that these people sought for nourishment suited to their constitution and discovered that which we make use of today. **5** From wheat, by moistening, winnowing, grinding, sifting, kneading, and baking it they made bread, and from barley they made barley cake. And performing many other operations to prepare this nourishment, they boiled and baked and mixed and blended the strong and unblended things with the weaker, molding everything to the constitution and power of the human being; for they considered that if foods that are too strong are ingested, the human constitution will be unable to overcome them, and from these foods themselves will come suffering, diseases, and death, while from all those foods that the human constitution can overcome will come nourishment, growth, and health. **6** To this discovery and search what more just or fitting name could one give than medicine, since it was discovered for the sake of the health, preservation, and nourishment of the human being, in place of that regimen which led to suffering, diseases, and death?

4. 1 But it is not unreasonable if this is not considered an art: for in the case of an art in which no one is a lay person but all are knowledgeable because they must make use of it, it is not fitting for anyone to be called a professional. **2** And yet the discovery was a great one and the result of much examination and artful contrivance. Indeed even today those in charge of gymnastic exercises and training continue to make further discoveries by the same method, seeking out which foods and drinks a person will best overcome and so become as strong as possible.

5. 1 Σκεψόμεθα δὲ καὶ τὴν ὁμολογουμένως ἱητρικὴν
τὴν ἀμφὶ τοὺς κάμνοντας εὐρημένην ἢ καὶ ὄνομα καὶ
124 J. 1 τεχνίτας ἔχει· ἥρά τι καὶ αὐτὴ τῶν αὐτῶν ἐθέλει καὶ
πόθεν ποτὲ ἦρκεται; Ἐμοὶ μὲν γάρ, ὅπερ ἐν ἀρχῇ εἶπον,
οὐδ' ἂν ζητῆσαι ἱητρικὴν δοκεῖ οὐδεὶς, εἰ ταῦτά διαιτη-
ματα τοῖσι τε κάμνουσι καὶ τοῖσιν ὑγιαίνουσιν ἤρμοζεν.
5 2 Ἐτι γοῦν καὶ νῦν ὅσοι ἱητρικῇ μὴ χρέωνται, οἱ τε
βάρβαροι καὶ τῶν Ἑλλήνων ἔνιοι, τὸν αὐτὸν τρόπον
ὄνπερ οἱ ὑγιαίνοντες διαιτέονται πρὸς ἡδονὴν καὶ οὐτ' ἂν
ἀπόσχονται οὐδενὸς ὧν ἐπιθυμέουσιν, οὐδ' ὑποστεύουσιν
ἂν. 3 Οἱ δὲ ζητήσαντές τε καὶ εὐρόντες ἱητρικὴν τὴν
10 αὐτὴν κείνοισι διάνοιαν ἔχοντες περὶ ὧν μοι ὁ πρότερος
λόγος εἴρηται, πρῶτον μὲν, οἶμαι, ὑφείλον τοῦ πλήθους
τῶν σιτίων αὐτῶν τούτων καὶ ἀντὶ πλεόνων ὀλίγιστα
ἐποίησαν. 4 Ἐπεὶ δὲ αὐτοῖσι τοῦτο ἔστι μὲν ὅτε πρὸς
τινας τῶν καμνόντων ἦρκεσε | καὶ φανερόν ἐγένετο
15 ὠφελῆσαν, οὐ μέντοι πᾶσι γε ἀλλ' ἥσάν τινες οὕτως
ἔχοντες ὥς μὴδ' ὀλίγων σιτίων δύνασθαι ἐπικρατεῖν,
ἀσθενεστεροῦ δὲ δὴ τινος οἱ τοιοῖδε ἐδόκεον δεῖσθαι,
εὗρον τὰ ῥυφήματα μίξαντες ὀλίγα τῶν ἰσχυρῶν πολλῶ
τῷ ὕδατι καὶ ἀφαιρέόμενοι τὸ ἰσχυρὸν τῇ κρήσει τε καὶ
20 ἐψήσει. 5 Ὅσοι δὲ μὴδὲ τῶν ῥυφημάτων ἐδύναντο
125 J. 1 ἐπικρατεῖν, ἀφείλον καὶ ταῦτα καὶ ἀφίκοντο ἐς πόματα,
καὶ ταῦτα τῆσι τε κρήσει καὶ τῷ πλήθει διαφυλάσσοντες
ὥς μετρίως ἔχοι μήτε πλείω τῶν δεόντων μήτε ἀκρη-
τέστερα προσφερόμενοι μὴδὲ ἐνδεέστερα.

582 L.

- 5 6. 1 Εὖ δὲ χρὴ τοῦτο εἰδέναι, ὅτι τοῖσι τὰ ῥυφήματα
ἐν τῇσι νούσοισιν οὐ συμφέρει ἀλλ' ἀντικρυς, ὅταν ταῦτα
προσαίρωνται, παροξύνονται σφισιν οἱ τε πυρετοὶ καὶ τὰ
ἀλγήματα, καὶ δῆλον τοῦτο τὸ προσενεχθὲν τῇ μὲν νούσῳ
τροφῇ τε καὶ αὔξησις γινόμενον, τῷ δὲ σώματι φθίσις
10 τε καὶ ἀρρωστίη. 2 Ὅσοι δ' ἂν τῶν ἀνθρώπων ἐν αὐτῇ
τῇ διαθέσει ἔοντες προσενέγκονται ξηρὸν σίτιον ἢ μάζαν
ἢ ἄρτον, καὶ ἦν πάνυ σμικρόν, δεκαπλασίως ἂν μᾶλλον
καὶ ἐπιφανέστερον κακωθεῖεν ἢ ῥυφέντες δι' οὐδὲν ἄλλο
ἢ διὰ | τὴν ἰσχὺν τοῦ βρώματος πρὸς τὴν διάθεσιν.
15 3 Καὶ ὅτῳ ῥυφεῖν μὲν συμφέρει, ἐσθίειν δ' οὐ, εἰ πλείω
φάγοι, πολὺ ἂν μᾶλλον κακωθεῖν ἢ (εἰ) ὀλίγα, καὶ εἰ
ὀλίγα δέ, πονήσειεν ἂν. Πάντα δὴ τὰ αἷτια τοῦ πόνου

584 L.

5. **1** Let us examine also the acknowledged art of medicine, the one discovered for the sick, which has both a name and professionals: does it also aim at one of these ends, and what was its origin? In my opinion, as I said at the beginning, no one would even have sought for medicine if the same regimen were suitable for both the sick and the healthy. **2** And indeed even today all those who make no use of medicine—barbarians and some Greeks—follow whatever regimen they please just as the healthy do, and would not abstain from any of the things they desire nor even take less of them. **3** But those who sought for and discovered medicine, since they had the same intention as those people about whom I spoke earlier, first of all, I think, diminished the number of solid foods themselves, and instead of much food gave very little. **4** But since they found that this was sometimes adequate and manifestly beneficial for some of the sick, but not indeed for all—for there were some in such a condition that they were unable to overcome even a small amount of food, and such people seemed to require something weaker—they discovered gruels by mixing small amounts of strong foods with much water and removing their strength by blending and boiling. **5** But for all those who were not even able to overcome gruels, they did away with these as well and passed to drinks, taking care that these should be moderate in both blend and quantity, and making prescriptions that were neither excessive in quantity nor too unblended, nor indeed too deficient.

6. 1 It is necessary to know this well: those of the sick to whom gruels are not beneficial, but rather opposed, see their fever and pains become more acute if they take them, and it is clear that what they have taken provides nourishment and growth for the disease, but wasting and weakness for the body. **2** All people in this condition who take dry food, either barley cake or bread, even if it is only very little, would be harmed ten times more severely and more manifestly than if they took gruels, for no other reason than the strength of the food in relation to their condition. **3** As for the person for whom gruels are beneficial but eating solid food is not, if he were to eat a lot of it he would be harmed much more than if he ate a little, and even

126 J. 1 ἐς τὸ αὐτὸ ἀνάγεται, τὰ ἰσχυρότατα μάλιστα τε καὶ
ἐπιφανέστατα λυμαίνεσθαι τὸν ἄνθρωπον καὶ τὸν ὑγίεια
ἐόντα καὶ τὸν κάμνοντα.

7. 1 Τί οὖν φαίνεται ἑτεροῖον διανοηθεῖς ὁ καλεόμε-
νος ἱητρός καὶ ὁμολογουμένως χειροτέχνης ὃς ἐξεῦρε
5 τὴν ἀμφὶ τοὺς κάμνοντας δίαίτάν τε καὶ τροφήν ἢ κείνος
ὁ ἀπ' ἀρχῆς τοῖσι πᾶσιν ἀνθρώποισι τροφήν ἢ νῦν
χρεώμεθα ἐξ ἐκείνης τῆς ἀρχῆς τε καὶ θηριώδους διαίτης
εὐρών τε καὶ παρασκευασάμενος; 2 Ἐμοὶ μὲν γὰρ
φαίνεται οὗτος τρόπος καὶ ἐν καὶ ὅμοιον τὸ εὖρημα· ὁ
10 μὲν, ὅσων μὴ ἐδύνατο ἡ φύσις ἢ ἀνθρωπίνη ὑγιαίνουσα
ἐπικρατεῖν ἐμπίπτόντων διὰ τὴν θηριότητά τε καὶ τὴν
ἀκρησίην, ὁ δέ, ὅσων ἡ διάθεσις ἐν οἷῳ ἂν ἐκάστοτε
ἕκαστος τύχῃ διακείμενος μὴ δύνηται ἐπικρατεῖν, ταῦτα
ἐξήγησεν ἀφελεῖν. 3 Τί δὴ τοῦτ' ἐκείνου διαφέρει ἀλλ' ἢ
15 πλέον τό γε | εἶδος καὶ ὅτι ποικιλωτέρων καὶ πλείονος
πρηγματεῖς; Ἀρχὴ δὲ ἐκείνῃ ἢ πρότερον γενομένη.

586 L.

8. 1 Εἰ δέ τις σκέπτοιο τὴν τῶν καμινόντων δίαίταν
πρὸς τὴν τῶν ὑγαινόντων, εὖροι ἂν οὐ βλαβερωτέρην
ἢ περ ἢ τῶν ὑγαινόντων πρὸς τὴν τῶν θηρίων τε καὶ
20 πρὸς τὴν τῶν ἄλλων ζώων. 2 Ἀνὴρ γὰρ κάμνων νοσή-
127 J. 1 ματι μήτε τῶν χαλεπῶν τε καὶ ἀφόρων μήτε αὖ τῶν
παντάσασιν εὐηθέων ἀλλ' ἢ αὐτῷ ἐξαμαρτάνοντι μέλλει
ἐπίδηλον ἔσεσθαι, εἰ ἐθέλοι καταφαγεῖν ἄρτον καὶ κρέας
ἢ ἄλλο τι τῶν οἱ ὑγιαίνοντες ἐσθίοντες ὠφελέονται, μὴ
5 πολὺ ἀλλὰ πολλῷ ἔλασσον ἢ ὑγιαίνων ἂν ἐδύνατο,
ἄλλος τε τῶν ὑγαινόντων φύσιν ἔχων μήτε παντάσασιν
ἀσθενέα μήτ' αὖ ἰσχυρήν, φαγὼν τι ὧν βοῦς ἢ ἵππος
φαγὼν ὠφελείτο τε καὶ ἰσχύοι, ὀρόβους ἢ κριθὰς ἢ
ἄλλο τι τῶν τοιούτων, μὴ πολὺ ἀλλὰ πολλῷ μείον ἢ
10 δύναιτο, οὐκ ἂν ἦσσαν ὁ ὑγιαίνων τοῦτο ποιήσας
πονήσειέ τε καὶ | κινδυνεύσειε κείνου τοῦ νοσέοντος ὃς
τὸν ἄρτον ἢ τὴν μάζαν ἀκαίρως προσηγέγκατο. 3 Ταῦτα
δὴ πάντα τεκμήρια ὅτι αὕτη² ἢ τέχνη πᾶσα ἡ ἱητρικὴ
τῇ αὐτῇ ὁδῷ ζητεομένη εὐρίσκειτο ἂν.

588 L.

² 127.13 J. αὕτη A: αὐτὴ M, Jouanna.

if he ate a little, he would suffer. Accordingly, all the causes of suffering can be reduced to the same thing, namely that it is the strongest foods that harm the human being most severely and most manifestly, in both health and sickness.

7. 1 What difference, then, is to be seen between the reasoning of the one who is called a doctor and is agreed to be a craftsman, who discovered the regimen and nourishment of the sick, and that of the person who originally discovered and prepared for all human beings the nourishment we make use of today from that savage and brutish regimen? **2** To me it is evident that the method was identical and the discovery one and the same. The one sought to do away with all those foods which, when ingested, the human constitution in health could not overcome on account of their brutish and unblended character, while the other sought to do away with those foods which each sick person, in whatever condition he happened to be, could not overcome. **3** How, then, does the latter pursuit differ from the former, except that it has more aspects, is more complex, and requires more diligent effort? But the starting point was the former, the one that arose first.

8. 1 If one were to examine the regimen of the sick in comparison to that of the healthy, he would discover that it is no more harmful than the regimen of the healthy in comparison to that of beasts and other animals. **2** Take a man suffering from a disease that is neither difficult and unbearable nor again entirely mild, but one in which, if he makes an error in regimen, it will become quite clear to him; and suppose he were to take it into his head to eat bread and meat, or any other food beneficial to healthy people, not in great quantity but much less than he would have been able to eat when healthy. And take another man who is healthy, with a constitution neither completely weak nor again strong, and suppose him to eat one of the foods that would benefit and strengthen an ox or a horse—vetch or barley or something else of this kind—not in great quantity, but much less than it could. The healthy man who did this would not suffer less or be in less danger than the sick man who took bread or barley cake at an inopportune time. **3** All these things are indications that this art of medicine can be discovered in its entirety if it is sought by the same method.

- 15 **9. 1** Καὶ εἰ μὲν ἦν ἀπλοῦν, ὥσπερ ὑφήγηται—ὅσα
μὲν ἦν ἰσχυρότερα, ἔβλαπτεν, ὅσα δ' ἦν ἀσθενέστερα,
ὠφέλει τε καὶ ἔτρεφεν καὶ τὸν κάμνοντα καὶ τὸν
128 J. 1 ὑγιαίνοντα—, εὐπετέες ἂν ἦν τὸ πρῆγμα· πολλὸν γὰρ
τοῦ ἀσφαλούς ἂν ἔδει περιλαμβάνοντας ἄγειν ἐπὶ τὸ
ἀσθενέστατον. **2** Νῦν δὲ οὐκ ἔλασσον ἀμάρτημα οὐδὲ
ἦσσαν λυμαίνεται τὸν ἀνθρώπον, ἦν ἐλάσσονα καὶ
5 ἐνδεέστερα τῶν ἱκανῶν προσφέρηται· τὸ γὰρ τοῦ λιμοῦ
μένος ἰσχυρῶς ἐνδύνεται ἐν τῇ φύσει τοῦ ἀνθρώπου καὶ
γυῖῳ καὶ ἀσθενέα ποιῆσαι καὶ ἀποκτείνει. Πολλὰ δὲ
καὶ ἄλλα κακὰ ἑτεροῖα μὲν τῶν ἀπὸ πληρώσιος, οὐχ
ἦσσαν δὲ ἀμὰ δεινά, καὶ ἀπὸ κενώσιος. **3** Διότι πολλὸν
10 ποικιλώτερά τε καὶ διὰ πλείονος ἀκριβεῖς ἐστί. Δεῖ γὰρ
μέτρον τινὸς στοχάσασθαι· μέτρον δὲ οὐδὲ ἀριθμὸν οὔτε
σταθμὸν ἄλλον πρὸς ὃ ἀναφέρων εἴση τὸ ἀκριβές, οὐκ |
ἂν εὖροις ἄλλ' ἢ τοῦ σώματος τὴν αἴσθησιν. Διὸ ἔργον
οὕτω καταμαθεῖν ἀκριβῶς, ὥστε σμικρὰ ἀμαρτάνειν ἔνθα
15 ἢ ἔνθα. **4** Κἂν ἐγὼ τοῦτον τὸν ἡτρὸν ἰσχυρῶς ἐπαινέοιμι
τὸν σμικρὰ ἀμαρτάνοντα—τὸ δὲ ἀτρεκές ὀλιγάκις ἐστί
κατιδεῖν. Ἐπεὶ οἱ πολλοὶ γε τῶν ἡτρῶν τὰ αὐτὰ μοι
δοκέουσι τοῖσι κακοῖσι κυβερνήτησι πάσχειν. Καὶ γὰρ
ἐκεῖνοι, ὅταν ἐν γαλήνῃ κυβερνῶντες ἀμαρτάνωσιν, οὐ
129 J. 1 καταφανεῖς εἰσιν, ὅταν δ' αὐτοὺς κατάσχη χειμῶν τε
μέγας καὶ ἄνεμος ἐξώσσης, φανερώς πᾶσιν ἤδη ἀνθρώ-
ποισι δι' ἀγνωσίην καὶ ἀμαρτίην δῆλοί εἰσιν ἀπολέσαντες
τὴν ναῦν· **5** οὕτω δὲ καὶ οἱ κακοὶ τε καὶ πλείστοι ἡτροί,
5 ὅταν μὲν θεραπεύωσιν ἀνθρώπους μηδὲν δεινὸν ἔχοντας,
ἐς οὓς ἂν τις τὰ μέγιστα ἐξαμαρτάνων οὐδὲν δεινὸν
ἐργάσαιτο—πολλὰ δὲ τὰ τοιαῦτα νοσήματα καὶ πολλόν
τι πλείω τῶν δεινῶν ἀνθρώποισι συμβαίνει—, ἐν μὲν δὴ
τοῖσι τοιοῦτοισι ἀμαρτάνοντες οὐ καταφανεῖς εἰσι τοῖσιν
10 ἰδιώτησιν, ὅταν δ' ἐντύχωσι μεγάλῳ τε καὶ ἰσχυρῷ καὶ
ἐπισφαλεῖ νοσήματι, τότε σφέων τὰ τε ἀμαρτήματα καὶ
ἢ ἀτεχνίη πᾶσι καταφανής· οὐ γὰρ ἐς μακρὸν αὐτῶν
ἐκατέρου αἱ τιμωρίαι, ἀλλὰ διὰ τάχους πάρευσιν.

590 L.

- 10. 1** Ὅτι δ' οὐδὲν ἐλάσσους ἀπὸ κενώσιος ἀκαίρως
15 κακοπάθειαι γίνονται τῷ ἀνθρώπῳ ἢ ἀπὸ πληρώσιος,
καταμανθάνειν καλῶς ἔχει ἐπαναφέροντας ἐπὶ τοὺς
ὕγιαίνοντας. Ἔστι γὰρ οἷσιν αὐτῶν συμφέρει μονοσιτεῖν

9. 1 Now if it were as simple as has been suggested, and stronger foods harmed while weaker ones benefited and nourished both the sick and the healthy, then things would be easy: for it would simply be necessary to lead a patient towards the weakest diet, and one could do so with a good deal of security. **2** But in fact the error is no less, nor does it harm the human being less, if one administers food deficient in quantity and quality to what is needed: for the might of hunger penetrates forcefully into the human constitution to lame and weaken and kill. And many other ills, different from those arising from repletion but no less serious, also arise from depletion. **3** For this reason the doctor's tasks are much more varied and require more precision. For one must aim at a measure; but you will find no measure—nor number nor weight besides—by referring to which you will know with precision, except the feeling of the body. Hence it is difficult to acquire knowledge so precise that one errs only slightly in one direction or the other. **4** And I would strongly praise this doctor, the one who makes only small errors; perfect accuracy is rarely to be seen. For I think that most doctors are in the same situation as bad helmsmen. These people, when they err while steering in a calm sea, are not revealed; but when a great storm and a driving wind takes hold of them, it is manifest to all that they have lost their ship through ignorance and error. **5** The same holds for bad doctors, who make up the great majority: when they treat patients suffering from a condition that is not serious, patients who would not be seriously harmed even if one were to make the greatest errors—there are many such diseases, and they come upon people much more often than serious ones—in such cases their errors are not evident to laymen. But whenever they meet with a great, powerful, and dangerous disease, then their errors and incompetence are evident to all. In both cases retribution is not far off, but swiftly at hand.

10. 1 That the troubles that come upon human beings from inopportune depletion are no less severe than those that come from repletion can be learned quite well by referring to people in health. For there are some who benefit by taking only one meal a day, and they have

—καὶ τοῦτο διὰ τὸ συμφέρον οὕτως αὐτοὶ συνετά-
 ξαντο—, ἄλλοισι τε ἀριστᾶν διὰ τὴν αὐτὴν ἀνάγκην.

- 130 J. 1 Οὕτω γὰρ | αὐτοῖσι συμφέρει, καὶ μὴ τοῦτοισιν οἱ
 δι' ἡδονὴν ἢ δι' ἄλλην τινὰ συγκυρίην ἐπετήδευσαν
 ὁπότερον αὐτῶν. 2 Τοῖσι μὲν γὰρ πλείστοισι τῶν ἀνθρώ-
 πων οὐδὲν διαφέρει, ὁπότερον ἂν ἐπιτηδεύσωσιν εἴτε
 5 μονοσιτεῖν εἴτε ἀριστᾶν, τούτῳ τῷ ἔθει χρῆσθαι· εἰσὶ
 δέ τινες οἱ οὐκ ἂν δύναιτο ἔξω τοῦ συμφέροντος
 ποιέοντες ῥηϊδίως ἀπαλλάσσειν, ἀλλὰ συμβαίνει αὐτῶν
 ἐκατέροισι παρ' ἡμέρην μίαν καὶ ταύτην οὐχ ὅλην
 μεταβάλλουσιν ὑπερφυῆς κακοπάθεια. 3 Οἱ μὲν γὰρ, ἦν
 10 ἀριστήσωσι μὴ συμφέροντος αὐτοῖσιν, εὐθὺς βαρεῖς
 καὶ νωθροὶ καὶ τὸ σῶμα καὶ τὴν γνώμην χάσμις τε καὶ
 νυσταγμοῦ καὶ δίψης πλήρεις· ἦν δὲ καὶ ἐπιδειπνήσωσι,
 καὶ φῦσα καὶ στρόφος καὶ ἡ κοιλίη καταρρήγνυται καὶ
 15 τὰ αὐτὰ σιτία ἃ μεμαθήκεσαν ἅπαξ ἀναλίσκειν ταῦτα
 δις προσενέγκονται καὶ μηδὲν πλείω. 4 Τοῦτο δέ, ἦν
 ἀριστᾶν μεμαθηκώς τις καὶ οὕτως αὐτῷ συμφέρον μὴ
 ἀριστήσῃ, ὅταν τάχιστα παρέλθῃ ἡ ὥρη, εὐθύς ἀδυναμίη
 131 J. 1 δεινή, τρόμος, ἀψυχίη· ἐπὶ τοῦτοισιν ὀφθαλμοὶ κοῖλοι,
 οὖρον χλωρότερον καὶ θερμότερον, στόμα πικρόν, καὶ τὰ
 σπλάγχνα δοκεῖ οἱ κρέμασθαι, σκοτοδινίη, δυσθυμίη,
 5 δυσεργίη· ταῦτα δὲ πάντα· καὶ ὅταν δειπνεῖν ἐπιχειρήσῃ,
 ἀηδέστερος μὲν ὁ σίτος, ἀναλίσκειν δὲ οὐ δύναται ὅσα
 ἀριστιζόμενος πρότερον ἐδείπνει· ταῦτα δὲ αὐτὰ μετὰ
 στρόφου καὶ ψόφου καταβαίνοντα συγκαίει τὴν κοιλίην,
 δυσκοιτεύουσί τε καὶ ἐνυπνιάζουσι τεταραγμένα τε καὶ
 10 θορυβώδεα· πολλοῖσι δὲ καὶ τούτων αὕτη ἀρχὴ νούσου
 ἐγένετο.

592 L.

594 L.

II. 1 Σκέψασθαι δὲ χρὴ διὰ τίνας προφάσις αὐτοῖσιν
 ταῦτα συνέβη. Τῷ μὲν οἶμαι μεμαθηκότη μονοσιτεῖν ὅτι
 οὐκ ἀνέμεινεν τὸν χρόνον τὸν ἱκανὸν μέχρι αὐτοῦ ἡ κοιλίη
 τῶν τῇ προτεραίῃ προσενηνεγμένων σιτίων ἀπολαύση
 15 τελῶς καὶ ἐπικρατήσῃ καὶ λαπαχθῇ τε καὶ ἡσυχάσῃ
 ἀλλ' ἐπὶ ζέουσάν τε καὶ ἐξυμωμένην καινὰ ἐπεσηνέγκατο·
 αἱ δὲ τοιαῦται κοιλίαι πολλῶ τε βραδύτερον πέσσουσι
 καὶ πλέονος δέονται ἀναπαύσιός τε καὶ ἡσυχίης. 2 Ὁ δὲ
 132 J. 1 μεμαθηκώς ἀριστιζεσθαι ὅτι οὐκ, ἐπειδὴ τάχιστα ἐδεήθη

adopted this practice because it is beneficial; for others it is beneficial to take lunch as well, on account of the same necessity. For all these people it is beneficial to proceed in the way they do, unlike those who follow one or the other practice on account of pleasure or some other incidental reason. **2** Now for most people it makes no difference which habit they adopt—whether they take only one meal a day or also have lunch. But there are some who cannot easily recover if they deviate from what is beneficial for them; whichever of these two habits they have adopted, they suffer tremendous distress if they make a change for a single day, indeed even part of a day. **3** The former group, if they take lunch when it is not beneficial for them, at once become heavy and sluggish in both body and mind and are overcome with yawning, drowsiness, and thirst. If they also take a second meal, there is flatulence and colic and violent diarrhea; for many this turns out to be the beginning of a serious disease, even if in the two meals together they take the same amount of food as they normally consume in a single meal and no more. **4** On the other hand, if a person is accustomed to taking lunch and this is beneficial for him, but he does not do so, as soon as the hour is past he experiences terrible weakness, trembling, and faintness. Hollowness of the eyes follows; his urine becomes yellower and hotter, his mouth bitter, and his viscera seem to hang; there is dizziness, depression, and inability to work. These are all the symptoms. And when he tries to have dinner, the food is rather unpleasant and he is unable to digest what he would normally dine on when he also took lunch. The foods themselves descend and inflame the belly, accompanied by colic and noise; such people sleep badly and have disturbed, turbulent dreams, and for many of them as well this turns out to be the beginning of disease.

11. 1 It is necessary to examine the reasons why these things happen to them. As for the person accustomed to taking only one meal a day, I think it is because he did not allow enough time for his belly to derive full profit from the food taken on the previous day, to overcome it, be emptied, and come to rest; instead he took fresh food into his belly while it was in a state of boiling and fermentation. In such individuals the belly digests much more slowly and needs more relaxation and rest. **2** As for the person accustomed to having lunch, the reason is that his

τὸ σῶμα τροφῆς καὶ τὰ πρότερα κατανάλωτο καὶ οὐκ
εἶχεν οὐδεμίαν ἀπόλαυσιν, εὐθέως αὐτῷ προσεγένετο
καινὴ τροφή· φθίνει δὲ καὶ συντήκεται ὑπὸ λιμοῦ· πάντα
5 γὰρ ἃ λέγω πάσχειν τὸν τοιοῦτον ἄνθρωπον λιμῷ
ἀνατίθηναι. **3** Φημὶ δὲ καὶ τοὺς ἄλλους ἀνθρώπους
ἅπαντας οἵτινες ἂν ὑγιαίνοντες ἄσιτοι δύο ἡμέρας ἢ τρεῖς
γένωνται ταῦτά πείσεσθαι οἷά περ ἐπὶ τῶν ἀναρίστων
γινομένων εἴρηκα. |

596 L.

- 10 **12. 1** Τὰς δὲ τοιαύτας φύσις ἔγωγέ φημι τὰς ταχέως
τε καὶ ἰσχυρῶς τῶν ἀμαρτημάτων ἀπολανούσας ἀσθε-
νεστέρας εἶναι τῶν ἐτέρων. Ἐγγύτατα δὲ τοῦ ἀσθενέοντος
ἐστὶν ὁ ἀσθενής, ἔτι δὲ ἀσθενέστερος ὁ ἀσθενέων, καὶ
μᾶλλον αὐτῷ προσήκει, ὅ τι ἂν τοῦ καιροῦ ἀποτυγχάνη,
15 πονεῖν. **2** Χαλεπὸν δὲ τοιαύτης ἀκριβείης ἐούσης περὶ
τὴν τέχνην τυγχάνειν αἰεὶ τοῦ ἀτρεκεστάτου. Πολλὰ δὲ
εἶδεα κατ' ἱητρικὴν ἐς τοσαύτην ἀκριβειαν ἥκει, περὶ ὧν
εἰρήσεται. Οὐ φημὶ δὲ δεῖν διὰ τοῦτο τὴν τέχνην ὥς οὐκ
133J. 1 ἐοῦσαν οὐδὲ καλῶς ζητεομένην τὴν ἀρχαίην ἀποβα-
λέσθαι, εἰ μὴ ἔχει περὶ πάντα ἀκριβειαν, ἀλλὰ πολὺ
μᾶλλον διὰ τὸ ἐγγὺς οἶμαι τοῦ ἀτρεκεστάτου ὁμοῦ
δύνασθαι ἥκειν λογισμῷ | ἐκ πολλῆς ἀγνωσίης θαυμάζειν
5 τὰ ἐξευρημένα ὥς καλῶς καὶ ὀρθῶς ἐξεύρεται καὶ οὐκ
ἀπὸ τύχης.

598 L.

- 13. 1** Ἐπὶ δὲ τὸν τῶν καινὸν τρόπον τὴν τέχνην
ζητεύντων ἐξ ὑποθέσιος λόγον ἐπανελθεῖν βούλομαι. Εἰ
γὰρ τί ἐστὶ θερμὸν ἢ ψυχρὸν ἢ ξηρὸν ἢ ὑγρὸν τὸ
10 λυμαινόμενον τὸν ἄνθρωπον καὶ δεῖ τὸν ὀρθῶς ἱητρεύοντα
βοηθεῖν τῷ μὲν θερμῷ ἐπὶ τὸ ψυχρὸν, τῷ δὲ ψυχρῷ ἐπὶ
τὸ θερμὸν, τῷ δὲ ξηρῷ ἐπὶ τὸ ὑγρὸν, τῷ δὲ ὑγρῷ ἐπὶ τὸ
ξηρὸν, ἔστω μοι ἄνθρωπος μὴ τῶν ἰσχυρῶν φύσει, ἀλλὰ
τῶν ἀσθενεστερῶν· οὗτος δὲ πυροὺς ἐσθιέτω οὓς ἂν ἀπὸ
15 τῆς ἄλλω ἀνέλη ὠμούς καὶ ἀργούς καὶ κρέα ὠμά καὶ
πινέτω ὕδωρ· ταύτη χρεώμενος τῇ διαίτῃ εὖ οἶδ' ὅτι
πείσεται πολλὰ καὶ δεινὰ· καὶ γὰρ πόνους πονήσει καὶ
τὸ σῶμα ἀσθενὲς ἔσται καὶ ἡ κοιλία φθαρήσεται καὶ ζῆν
πολλὸν χρόνον οὐ δυνήσεται. **2** Τί δὴ χρὴ βοήθημα
20 παρασκευάσασθαι ὧδ' ἔχοντι; θερμὸν ἢ ψυχρὸν ἢ ξηρὸν
134J. 1 ἢ ὑγρὸν; Δῆλον ὅτι τούτων τι· εἰ γὰρ τὸ λυμαινόμενον

body did not immediately receive fresh nutriment as soon as it was needed, when it had used up its previous food and could no longer derive any profit from it. He wastes and melts away through hunger; for I ascribe to hunger all the things I say such a person suffers. **3** And I say that all other people as well, who though healthy remain without food for two or three days, will suffer the same effects as I have just mentioned in connection with those individuals who miss their usual lunch.

12. 1 I say that such constitutions, those which swiftly and strongly feel the effects of errors, are weaker than the others. The weak man is very close to the sick man, but the sick man is still weaker, and he is apt to suffer more from any deviation from the due measure. **2** It is difficult when such precision is required by the art always to attain perfect accuracy. Yet many aspects of medicine, about which something will be said later, have arrived at such precision. So I deny that the ancient art should be cast aside on the ground that it does not exist or that it is not being investigated in an admirable way, if it does not possess precision in everything; rather, since it has been able to come, by means of reasoning, from profound ignorance close to perfect accuracy, I think it is much more appropriate to marvel at its discoveries as having been made admirably, correctly, and not by chance.

13. 1 But I wish to return to the account of those who pursue their researches in the art according to the new method, from a hypothesis. For if it is something hot or cold or dry or wet that harms the human being, and if the one who treats correctly must render aid with the hot against the cold, the cold against the hot, the dry against the wet, and the wet against the dry, give me a person whose constitution is not strong, but rather weak. Let this person eat wheat he picks up from the threshing floor, raw and unprepared, and raw meats, and let him drink water. If he follows this regimen I know very well that he will suffer many terrible things: for he will experience pains, his body will be weak, his digestion will be ruined, and he will not be able to live for long. **2** Now what assistance should be prepared for a person in such a state? Hot or cold or dry or wet? One of these, clearly: for if what

ἐστι τούτων τὸ ἕτερον, τῷ ὑπεναντίῳ προσήκει λῦσαι,
ὥς ὁ ἐκείνων λόγος ἔχει. Τὸ μὲν γὰρ βεβαιότατόν τε καὶ
προφανέστατον φάρμακον ἀφελόντα τὰ διαιτήματα οἷσιν
5 ἐχρήτο, ἀντὶ μὲν τῶν πυρῶν ἄρτον διδόναι, ἀντὶ δὲ τῶν
ὤμων κρεῶν ἐφθά, πιεῖν τε ἐπὶ τούτοις οἶνον· ταῦτα
μεταβάλλοντα οὐχ οἷόν τε μὴ οὐχ ὑγιέα γενέσθαι, ἣν γε
μὴ παντάπασιν ἢ διεφθαρμένος ὑπὸ χρόνου τε καὶ τῆς
διαίτης. Τί δὴ φήσομεν; Πότερον αὐτῷ ὑπὸ ψυχροῦ
10 κακοπαθέοντι θερμὰ ταῦτα προσενέγκαντες ὠφέλησαν
ἢ τάναντία; 3 Οἶμαι γὰρ ἔγωγε πολλὴν ἀπορίην ἐρωτη-
θέντι παρασχεῖν. Ὁ γὰρ τὸν ἄρτον παρασκευάζων τῶν
πυρῶν τὸ θερμὸν ἢ τὸ ψυχρὸν ἢ τὸ ξηρὸν ἢ τὸ ὑγρὸν
ἀφείλετο; ὁ γὰρ καὶ πυρὶ <δέδοται> καὶ ὕδατι δέδεται
15 καὶ ἄλλοις πολλοῖσιν εἴργασται, ὧν ἕκαστον ἰδίην
δύναμιν καὶ φύσιν ἔχει, τὰ μὲν τῶν ὑπαρχόντων ἀπο-
βέβληκεν, ἄλλοις δὲ κέκρηται τε καὶ μέμικται.

600 L.

135J. 1 14. 1 Οἶδα μὲν γὰρ καὶ τάδε δήπου ὅτι διαφέρει ἐς
τὸ σῶμα τοῦ ἀνθρώπου καθαρὸς ἄρτος ἢ συγκομιστὸς
ἢ ἀπίστων πυρῶν ἢ ἐπισιμένων ἢ πολλῶ ὕδατι πεφυ-
ρημένος ἢ ὀλίγῳ <ἢ> ἰσχυρῶς πεφυρημένος ἢ ἀφύ-
5 ρητος ἢ ἔξοπτos ἢ ἔνωμος, ἄλλα τε πρὸς τούτοις μυρία.
Ὡς δ' αὐτως καὶ περὶ μάξης· καὶ αἱ δυνάμεις δὲ μεγάλαι
τε ἑκάστου καὶ οὐδὲν ἡ ἑτέρα τῇ ἑτέρῃ ἔοικυα. 2 Ὅστις
δὲ ταῦτα οὐκ ἐπέσκεπται ἢ σκεπτόμενος οὐκ οἶδε, πῶς
ἂν τι οὗτος δύνατο τῶν κατὰ τὸν ἀνθρώπον παθημάτων
10 εἰδέναι; Ὑπὸ γὰρ ἑνὸς ἑκάστου τούτων πάσχει τε καὶ
ἐτεροιοῦται ὠνθρωπος ἢ τοῖον ἢ τοῖον, καὶ διὰ τούτων
πᾶς ὁ βίος καὶ ὑγιαίνουντι καὶ ἐκ νούσου ἀνατρεφομένῳ
καὶ κάμνοντι. Οὐκ ἂν οὖν ἕτερα τούτων χρησιμώτερα
οὐδ' ἀναγκαιότερα εἴη εἰδέναι δήπου, (3) ὥς δὲ καλῶς καὶ
15 λογισμῷ προσήκοντι ζητήσαντες πρὸς τὴν τοῦ ἀνθρώπου
φύσιν εὗρον αὐτὰ οἱ πρῶτοι εὐρόντες, καὶ ᾗθησαν ἀξίην
τὴν τέχνην θεῷ | προσθεῖναι, ὥσπερ καὶ νομίζεται. Οὐ
γὰρ τὸ ξηρὸν οὐδὲ τὸ ὑγρὸν οὐδὲ τὸ θερμὸν οὐδὲ τὸ
136J. 1 ψυχρὸν οὐδὲ ἄλλο τούτων οὐδὲν ἡγησάμενοι οὔτε λυμαί-
νεσθαι οὔτε προσδεῖσθαι οὐδενὸς τούτων τὸν ἀνθρώπον
ἀλλὰ τὸ ἰσχυρὸν ἑκάστου καὶ τὸ κρέσσον τῆς φύσεως
τῆς ἀνθρωπίνης, οὗ μὴ ἡδύνατο κρατεῖν, τοῦτο βλάπτειν
5 ἡγήσαντο καὶ τοῦτο ἐζήτησαν ἀφελεῖν. Ἰσχυρότατον

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causes the harm is one or another of these, it must be removed by its opposite, as their account has it. In fact the surest and most obvious remedy is to do away with the regimen he was following and to give him bread instead of wheat, boiled meat instead of raw, and then some wine to drink. These changes must restore him to health, at least if his condition has not been completely ruined by following the bad regimen for a long time. What then are we to say? That his suffering was due to the cold and they helped him by administering these hot things, or the reverse? **3** I think I have created a fine dilemma for the one who is asked this question. Has the person who prepares bread removed from the wheat the hot, the cold, the dry, or the wet? For that which has been given over to fire, moistened with water, and treated in many other ways, each of which has its own power and nature, has lost some of its properties but gained others through blending and mixing.

14. 1 Now I know this too, of course, that it makes a difference to the human body whether bread is made from pure or unsifted flour, from unwinnowed or winnowed wheat, whether it is kneaded with much water or with little, thoroughly kneaded or not kneaded at all, well-baked or undercooked, and myriad other differences in addition to these. The same holds for barley cake as well; the powers of each kind are great and no power is at all like any other. **2** But how could the person who has not examined these matters, or who despite his examination is ignorant of them, have any knowledge of the affections that come upon the human being? For by each one of these things the human being is affected and altered in one way or another, and a person's whole life depends on them, whether he is healthy, recovering from illness, or sick. Surely, then, there could be nothing more useful or necessary to know than these things, **(3)** and how the first discoverers, by seeking in an admirable way with appropriate reasoning directed at the constitution of the human being, discovered them and thought that the art deserved to be ascribed to a god, as is commonly believed even now. For since they thought that it is not the dry or the wet or the hot or the cold or any other of these things that harms the human being—or that the human being has any need of them—but rather the strength of each thing and that which is more powerful than the human constitution, they regarded as harmful that which the human constitution was unable to overcome, and this they sought to remove. And the strongest of the sweet

δ' ἐστὶ τοῦ μὲν γλυκέος τὸ γλυκύτατον, τοῦ δὲ πικροῦ
τὸ πικρότατον, τοῦ δὲ ὀξεύς τὸ ὀξύτατον, ἐκάστου δὲ
πάντων τῶν ἐνεόντων ἡ ἀκμή. **4** Ταῦτα γὰρ ἐώρων καὶ
ἐν τῷ ἀνθρώπῳ ἐνεόντα καὶ λυμαινόμενα τὸν ἄνθρωπον·
10 ἔνι γὰρ ἐν ἀνθρώπῳ καὶ ἄλμυρον καὶ πικρὸν καὶ γλυκὺ
καὶ ὀξύ καὶ στρυφνὸν καὶ πλαδαρὸν καὶ ἄλλα μυρία
παντοίας δυνάμεις ἔχοντα πληθὺς τε καὶ ἰσχύ· ταῦτα
μὲν μεμιγμένα καὶ κεκρημένα ἀλλήλοισιν οὔτε φανερά
ἐστὶν οὔτε λυπεῖ τὸν ἄνθρωπον, ὅταν δέ τι τούτων
15 ἀποκριθῇ καὶ αὐτὸ ἐφ' ἑωυτοῦ γένηται, τότε καὶ φανερόν
ἐστὶ καὶ λυπεῖ τὸν ἄνθρωπον. **5** Τοῦτο δὲ τῶν βρωμάτων
ὅσα ἡμῖν ἀνεπιτήδεια ἐστὶ καὶ λυμαίνεται τὸν ἄνθρω-
πον ἐσπεσόντα τούτων ἐν ἑκάστῳ ἢ πικρὸν ἐστὶν καὶ
ἀκρητον ἢ ἄλμυρον ἢ ὀξύ ἢ ἄλλο τι ἀκρητόν τε καὶ
20 ἰσχυρόν, καὶ διὰ τοῦτο ταρασσόμεθα ὑπ' αὐτῶν, ὥσπερ
καὶ ὑπὸ τῶν ἐν | τῷ σώματι ἀποκρινομένων. **6** Πάντα
137 J. **1** δὲ ὅσα ἄνθρωπος ἐσθίει ἢ πίνει τὰ τοιαῦτα βρώματα
ἥκιστα τοιοῦτου χυμοῦ ἀκρήτου τε καὶ διαφέροντος δηλὰ
ἐστὶν μετέχοντα, οἷον ἄρτος τε καὶ μάζα καὶ τὰ ἐπόμενα
τούτοις οἷσιν εἴθισται ὥνθρωπος πλείστοις τε καὶ αἰεὶ
5 χρῆσθαι, ἔξω τῶν πρὸς ἡδονὴν τε καὶ κόρον ἡρτυμένον
τε καὶ ἐσκευασμένων. Καὶ ἀπὸ τούτων πλείστον ἐσιόντων
ἐς τὸν ἄνθρωπον τάρachός τε καὶ ἀπόκρισις τῶν ἀμφὶ τὸ
σῶμα δυνάμειν ἥκιστα γίνεται, ἰσχύς δὲ καὶ αὔξησης καὶ
τροφῆς μάλιστα, δι' οὐδὲν ἕτερον ἢ ὅτι εὖ τε συγκέκρηται
10 καὶ οὐδὲν ἔχει οὔτε ἀκρητον οὔτε ἰσχυρόν, ἀλλ' ὅλον ἐν
τε γέγονε καὶ ἀπλοῦν [καὶ ἰσχυρόν].

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15. 1 Ἀπορέω δ' ἔγωγε οἱ τὸν λόγον ἐκεῖνον λέγοντες
καὶ ἄγοντες ἐκ ταύτης τῆς ὁδοῦ ἐπὶ ὑπόθεσιν τὴν τέχνην
τίνα ποτὲ τρόπον θεραπεύουσι τοὺς ἀνθρώπους ὥσπερ
15 ὑποτίθενται· οὐ γὰρ ἐστὶν αὐτοῖσιν, οἶμαι, ἐξευρημένον
αὐτὸ τι ἐφ' ἑωυτοῦ θερμὸν ἢ ψυχρὸν ἢ ξηρὸν ἢ ὑγρὸν
μηδενὶ ἄλλῳ εἶδει κοινωνέον. **2** Ἀλλ' οἶμαι ἔγωγε ταῦτα
βρώματα καὶ πόματα αὐτοῖσιν ὑπάρχειν οἷσι πάντες
χρεώμεθα· προστιθέασι δὲ τῷ μὲν εἶναι θερμῷ, | τῷ δὲ
138 J. **1** ψυχρῷ, τῷ δὲ ξηρῷ, τῷ δὲ ὑγρῷ· ἐπεὶ ἐκεῖνό γε ἄπορον
προστάξαι τῷ κάμνοντι θερμόν τι προσενέγκασθαι· εὐθύς
γὰρ ἐρωτήσει· τί; ὥστε ληρεῖν ἀνάγκη ἢ ἐς τούτων τι
τῶν γνωσκομένων καταφεύγειν. **3** Εἰ δὲ δὴ τυγχάνει τι

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is the sweetest, of the bitter the bitterest, of the acid the most acidic, and of each one of all the things present, the extreme degree. **4** For they saw that these things are also in the human being and cause it harm: for there is in the human being salty and bitter and sweet and acid and astringent and insipid and myriad other things having powers of all kinds in quantity and strength. These, when mixed and blended with one another, are neither manifest nor cause the human being pain; but when one of them separates off and comes to be on its own, then it is both manifest and causes the human being pain. **5** On the other hand, all foods that are unsuitable for us and that harm the human being when ingested are in each case either bitter and unblended or salty or acid or something else unblended and strong, and for this reason we are disturbed by them, just as we are also disturbed by the things that separate off in the body. **6** But all things that people regularly eat or drink clearly share least of all in any such unblended, predominant flavor, such as bread and barley cake and other similar foods, which people are accustomed to use all the time in very large quantities (leaving aside those foods that are seasoned and prepared with a view to pleasure and satiety). These foods, even when ingested in very great quantities, lead least of all to disturbance and separation of the powers associated with the body, but most of all to strength, growth, and nourishment, for the sole reason that they are well blended and possess nothing unblended or strong, but have become a single, simple whole.

15. 1 But I am at a loss to see how those who state that other view and lead the art from this method to a hypothesis can possibly treat people in accordance with their hypothesis. For they have not, I think, discovered anything that is in itself purely hot or cold or dry or wet and shares in no other kind. **2** But I think that they have at their disposal the same foods and drinks that we all use; only they assign to one the quality of being hot, to another cold, to another dry, and to another wet. For it is no use to tell a sick person to eat something hot, since at once he will ask 'What?' So one will either have to talk nonsense or resort to one of these foods that is recognized to be hot. **3** But if one

- 5 θερμόν ἐδὸν στρυφνόν, ἄλλο δὲ θερμόν ἐδὸν πλαδαρόν,
 ἄλλο δὲ θερμόν ἄραδον ἔχον—ἔστι γὰρ καὶ ἄλλα πολλὰ
 θερμὰ καὶ ἄλλας πολλὰς δυνάμεις ἔχοντα ἑωυτοῖσιν
 ὑπεναντίας—, ἣ διοίσει τι αὐτῶν προσενεγκεῖν τὸ θερμόν
 καὶ στρυφνόν ἢ τὸ θερμόν καὶ πλαδαρόν ἢ ἅμα τὸ
 10 ψυχρὸν καὶ στρυφνόν—ἔστι γὰρ καὶ τοιοῦτο—ἢ τὸ
 ψυχρὸν τε καὶ πλαδαρόν. 4 Ὡς μὲν γὰρ ἐγὼ οἶδα, πᾶν
 τοῦναντίον ἅψ' ἐκατέρου αὐτῶν ἀποβαίνει, οὐ μόνον ἐν
 ἀνθρώπῳ, ἀλλὰ καὶ ἐν σκύτει καὶ ἐν ξύλῳ καὶ ἐν ἄλλοις
 πολλοῖσιν ἃ ἔστιν ἀνθρώπου ἀναισθητότερα. Οὐ γὰρ τὸ
 15 θερμόν ἐστι τὸ τὴν μεγάλην δύναμιν ἔχον, ἀλλὰ τὸ
 στρυφνὸν καὶ τὸ πλαδαρὸν καὶ τᾶλλα ὅσα μοι εἴρηται
 139J. 1 καὶ ἐν τῷ ἀνθρώπῳ καὶ ἔξω τοῦ ἀνθρώπου καὶ ἐσθιόμενα
 καὶ πινόμενα καὶ ἔξωθεν ἐπιχριόμενά τε καὶ προσπλα-
 σόμενα.

16. 1 Ψυχρότητα δ' ἔγωγε καὶ θερμότητα πασέων
 5 ἥκιστα τῶν δυνάμεων νομίζω δυναστεύειν ἐν τῷ σώματι
 διὰ τὰςδε τὰς προφάσεις· ὃν μὲν ἂν δήπου χρόνον
 μεμιγμένα αὐτὰ ἑωυτοῖσιν ἅμα τὸ ψυχρὸν τε καὶ θερμόν
 ἐνῇ, οὐ λυπεῖ· κρῆσις γὰρ καὶ μετριότης τῷ μὲν ψυχρῷ
 γίνεται ἀπὸ τοῦ θερμοῦ, τῷ δὲ θερμῷ ἀπὸ τοῦ ψυχροῦ·
 10 ὅταν δ' ἀποκριθῇ χωρὶς ἐκάτερον, τότε λυπεῖ. 2 Ἐν δὲ
 δὴ τούτῳ τῷ καιρῷ, ὅταν τὸ ψυχρὸν ἐπιγένηται καὶ τι
 λυπήσῃ τὸν ἄνθρωπον, διὰ τάχεος πρῶτον δι' αὐτὸ τοῦτο
 πάρεστι τὸ θερμόν αὐτόθεν ἐκ τοῦ ἀνθρώπου, οὐδεμιῆς
 βοηθείης οὐδὲ παρασκευῆς δεόμενον· καὶ ταῦτα καὶ ἐν
 15 ὑγιαίνουσι τοῖσιν ἀνθρώποισιν ἀπεργάζεται καὶ κάμνου-
 σιν. 3 Τοῦτο μὲν εἴ τις θέλει ὑγιαίνων χειμῶνος διαψῦξαι
 τὸ σῶμα ἢ λουσάμενος ψυχρῷ ἢ ἄλλῳ τῷ τρόπῳ, ὅσῳ
 ἂν ἐπὶ πλεον αὐτὸ ποιήσῃ, καὶ ἦν γε μὴ παντάπασιν
 παγῇ τὸ σῶμα, ὅταν εἴματα λάβῃ καὶ ἔλθῃ ἐς τὴν σκέπην,
 20 ἔτι μᾶλλον καὶ ἐπὶ πλεον θερμαίνεται τὸ σῶμα. 4 Τοῦτο
 140J. 1 δὲ εἰ ἐθέλοι ἐκθερμανθῆναι ἰσχυρῶς ἢ λουτρῷ θερμῷ ἢ
 πυρὶ πολλῷ, ἐκ δὲ τούτου τωὐτὸ εἶμα ἔχων ἐν τῷ αὐτῷ
 χωρίῳ τὴν διατριβὴν ποιεῖσθαι ὥσπερ διεψυγμένος, πολὺ
 φανέται καὶ ψυχρότερος καὶ ἄλλως φρικαλεώτερος. 5 Ἡ
 5 (εἰ) ῥιπιζόμενός τις ὑπὸ πνίγεος καὶ παρασκευαζόμενος
 αὐτὸς ἑωυτῷ ψῦχος ἐκ τούτου τοῦ τρόπου διαπαύσασθαι
 τοῦτο ποιέων, δεκαπλάσιον ἔσται τὸ καῦμα καὶ πνίγος

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hot thing happens to be astringent, another insipid, and yet another causes disturbance—for there are also many other hot things, which have many other powers opposed to one another—surely it will make a difference which of them is administered: the hot and astringent, or the hot and insipid, or that which is at once cold and astringent (for there is also such a thing), or cold and insipid. **4** For I know well that the completely opposite effect will result from each member of such a pair, not only in the human being but also in leather and wood and many other things less sensitive than the human being. For it is not the hot that has great power, but the astringent and the insipid and all the other things I have mentioned, both inside and outside the human being, whether taken as foods and drinks or applied externally as ointments and plasters.

16. 1 I consider that of all the powers cold and heat exercise the least power in the body, for the following reasons. As long as the cold and the hot are mixed together with one another in the body they do not cause pain, for blending and moderation come to the cold from the hot and to the hot from the cold. But whenever either is separated and stands apart, then it causes pain. **2** Now at this critical moment, when the cold comes upon the human being and causes it some pain, swiftly for this very reason the hot, coming right from the human being, presents itself in the first line, needing neither assistance nor preparation. And it does this in the healthy as well as the sick. **3** For example, if a person in good health wishes to cool his body thoroughly in winter either by taking a cold bath or in some other way, the more strongly he does this—at least if his body is not completely frozen—the more intensely and strongly he is warmed when he puts on his clothes and returns to shelter. **4** On the other hand, if he wishes to warm himself strongly by means of either a hot bath or a large fire, and then puts on the same clothing and spends some time in the same place as he was when chilled, he will obviously be much colder and more prone to shivering as well. **5** Or again, if a person who is fanning himself because of stifling heat and cooling himself in this manner ceases to do this, the burning and stifling heat will be ten times worse than for one who

ἢ τῷ μηδὲν τοιοῦτο ποιέοντι. **6** Τὸ δὲ δὴ καὶ πολὺ μείζον·
 ὅσοι ἂν διὰ χιόνος ἢ ἄλλου ψύχους βαδίσαντες ῥιγώσωσι
 10 διαφερόντως πόδας ἢ χεῖρας ἢ κεφαλὴν, οἷα πάσχουσιν
 ἐς τὴν νύκτα, ὅταν περισταλέωσί τε καὶ ἐν ἀλῇ γένωνται,
 ὑπὸ καύματος καὶ κνησμοῦ· καὶ ἔστιν οἷσι φλύκταιναι
 ἀνίστανται ὥσπερ τοῖσιν ἀπὸ πυρὸς κατακεκαυμένοις·
 καὶ οὐ πρότερον τοῦτο πάσχουσιν πρὶν ἢ θερμανθῶσιν.

15 Οὕτως ἐτοιμῶς ἐκάτερον αὐτῶν ἐπὶ θάτερον παραγίνεται.
 Μυρία δ' ἂν καὶ ἄλλα ἔχοιμι εἰπεῖν. **7** Τὰ δὲ κατὰ τοὺς
 νοσέοντας, οὐχὶ ὅσοισιν ἂν ῥίγος γένηται τούτοιςιν

141 J. 1 ὀξύτατος ὁ πυρετὸς ἐκλάμπει—καὶ οὐχὶ οὕτως ἰσχυρὸς
 ἀλλὰ καὶ παυόμενος δι' ὀλίγου καὶ ἄλλως τὰ πολλὰ
 ἀσινής; Καὶ ὅσον ἂν χρόνον παρῇ, διάθερμος καὶ διεξιὼν
 διὰ παντὸς τελευτᾷ ἐς τοὺς πόδας μάλιστα οὔπερ τὸ

5 ῥίγος καὶ | ἢ ψύξις νηνικωτάτη καὶ ἐπὶ πλεῖον
 ἐνεχρόνισεν. Πάλιν τε ὅταν ἰδρώσῃ τε καὶ ἀπαλλαγῇ ὁ
 πυρετός, πολὺ μᾶλλον διέψυξεν ἢ εἰ μὴ ἔλαβε τὴν ἀρχήν.

8 Ὡς οὖν διὰ τάχους οὕτω παραγίνεται τὸ ἐναντιώτατόν
 τε καὶ ἀφαιρεόμενον τὴν δύναμιν ἀπὸ ταῦτομάτου, τί ἂν
 10 ἀπὸ τούτου μέγα ἢ δεινὸν γένοιτο; ἢ τί δεῖ πολλῆς ἐπὶ
 τοῦτο βοηθείης;

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17. 1 Εἴποί ἂν τις· ἀλλ' οἱ πυρεταίνοντες τοῖσι
 καύσοισί τε καὶ περιπλευμονίῃσι καὶ ἄλλοις ἰσχυροῖσι
 νοσήμασιν οὐ ταχέως ἐκ τῆς θερμῆς ἀπαλλάσσονται,
 15 οὐδὲ πάρεστιν ἐνταῦθα ἐπὶ τὸ θερμὸν τὸ ψυχρὸν. **2** Ἐγὼ
 δὲ τοῦτο μοι μέγιστον τεκμήριον ἡγεῖμαι εἶναι ὅτι οὐ
 διὰ τὸ θερμὸν ἀπλῶς πυρεταίνουσιν οἱ ἄνθρωποι οὐδὲ
 τοῦτ' εἴη τὸ αἷτιον τῆς κακώσεως μοῦνον, ἀλλ' ἔστι καὶ
 πικρὸν καὶ θερμὸν τὸ αὐτὸ καὶ ὄξυ καὶ θερμὸν καὶ

142 J. 1 ἄλμυρόν καὶ θερμὸν καὶ ἄλλα μυρία,—καὶ πάλιν γε
 ψυχρὸν μετὰ δυναμίων ἐτέρων. **3** Τὰ μὲν οὖν λυμαινόμενα
 ταῦτ' ἐστί· συμπάρεστι δὲ καὶ τὸ θερμὸν ῥώμης μετέχον,
 ὥς ἂν τὸ ἡγεύμενον, καὶ παροξυνόμενον καὶ αὐξανόμενον
 5 ἅμα κείνῳ, δύναμιν δὲ οὐδεμίαν πλείω τῆς προσηκούσης.

18. 1 Δῆλα δὲ ταῦτα ὅτι ὥδε ἔχει ἐπὶ τῶνδε τῶν
 σημείων· πρῶτον μὲν ἐπὶ τὰ φανερώτατα ὧν πάντες
 ἔμπειροι πολλάκις ἐσμέν | τε καὶ ἐσόμεθα. **2** Τοῦτο
 μὲν γὰρ ὅσοιςιν ἂν ἡμέων κόρυζα ἐγγένηται καὶ ῥεῦμα

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does nothing of the kind. **6** Here is a further, much stronger point: all those who after walking through snow or other cold are exceedingly chilled in their feet or hands or head—how they suffer in the night from burning and itching when they return to a warm place and wrap themselves up! And on some people blisters appear just as they do on those who have been burned by fire; and they do not suffer this until they have warmed up. Such is the readiness with which each of these powers presents itself against the other. But I could give myriad other examples. **7** As for the sick, is it not in those who suffer from shivering that fever blazes forth most acutely—and a fever that is even so not so strong, but which both ceases in a short time and is for the most part harmless in other respects? And as long as the fever is present, it is very hot, and passing through the whole body it ends up in most cases in the feet, just where the shivering and the chill were the most intense and lasted for the longest time. Again, when the patient has broken into a sweat and the fever has departed, he is chilled much more than if the fever had never seized him in the first place. **8** Now how could anything great or terrible come from something that is swiftly met in this way by what is most opposed to it and takes away its power spontaneously? Or what need is there for much assistance against it?

17. 1 Someone might say: 'But those whose fevers are due to *causus*, pneumonia, or other serious diseases are not quickly relieved of the heat, nor in such cases does the cold present itself against the hot.' **2** But I think this is my strongest piece of evidence that it is not simply because of the hot that people are feverish, and that this is not the only cause of the harm; rather, one and the same thing is both bitter and hot, acid and hot, salty and hot, and myriad other combinations—and again cold, too, is conjoined with other powers. **3** Now it is these things that are harmful; the hot is present as an auxiliary, having strength in accordance with the strength of the leading factor and increasing and growing stronger together with it, but having no power greater than that which is proper to it.

18. 1 It is clear that this is so from the following examples. First let us take the most obvious cases, which we all often experience and will continue to experience in the future. **2** In the first place, when we have caught a cold and there is a movement of flux through the nostrils, this

- 10 κινήθῃ διὰ τῶν ῥινῶν, τοῦτο ὥς τὸ πολὺ δριμύτερον τοῦ
 πρότερον γινομένου τε καὶ ἰόντος ἐκ τῶν ῥινῶν καθ' ἐκά-
 στην ἡμέρην καὶ οἰδεῖν μὲν ποιεῖ τὴν ῥίνα καὶ συγκαίειν
 θερμὴν τε καὶ διάπυρον ἐσχάτως, ἣν δὲ τὴν χεῖρα
 προσφέρει καὶ πλείω χρόνον παρῇ, καὶ ἐξελκοῦται τὸ
 15 χωρίον ἄσαρκόν τε καὶ σκληρὸν ἐόν. Παύεται δὲ πῶς τό-
 γε καῦμα ἐκ τῆς ῥίνος; Οὐχ ὅταν τὸ ῥεῦμα γίνηται
 καὶ ἡ φλεγμονὴ ᾗ, ἀλλ' ἐπειδὴν παχύτερόν τε καὶ ἥσσον
 δριμύ ῥέῃ καὶ πέπον καὶ μεμιγμένον μᾶλλον τῷ πρό-
 20 τερον γινομένῳ, τότε δὲ ἤδη καὶ τὸ καῦμα πέπνυται.
 143J. 1 3 Ἄλλ' οἷσι [δὲ] ὑπὸ ψύχεος φανερώς αὐτοῦ μόνου γίνε-
 ται, μηδενὸς ἄλλου συμπαραγενομένου, πᾶσιν αὕτη ἡ
 ἀπαλλαγὴ, ἐκ μὲν τῆς ψύξιος διαθερμανθῆναι, ἐκ δὲ τοῦ
 καύματος διαψυχθῆναι, καὶ ταῦτα ταχέως παραγίνεται
 καὶ πέψιος οὐ|δεμιῆς προσδεῖται. 4 Τὰ δ' ἄλλα πάντα,
 ὅσα διὰ χυμῶν δριμύτητος καὶ ἀκρησίας φημί ἔγωγε
 5 γίνεσθαι, τὸν αὐτὸν τρόπον ἀποκαθίσταται πεφθέντα καὶ
 κρηθέντα.

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19. 1 Ὅσα τε αὖ ἐπὶ τοὺς ὀφθαλμοὺς τρέπεται τῶν
 ῥευμάτων, ὥς ἰσχυρὰς καὶ παντοίας δριμύτητος ἔχοντα,
 ἔλκοι μὲν βλέφαρα, κατεσθίει δ' ἐνίων γνάθους τε καὶ τὰ
 10 ὑπὸ τοῖσιν ὀφθαλμοῖσιν, ἐφ' ὃ τι ἂν ἐπιρροῇ, ῥήγνυνσι δὲ
 καὶ διεσθίει τὸν ἄμφι τὴν ὄψιν χιτῶνα. Ὅδυναι δὲ καὶ
 καῦμα καὶ φλογμὸς ἐσχατος κατέχει μέχοι τίνος; Μέχοι
 ἂν τὰ ῥεῦματα πεφθῇ καὶ γένηται παχύτερα καὶ λήμη
 ἀπ' αὐτῶν ᾗ. Τὸ δὲ πεφθῆναι γίνεται ἐκ τοῦ μιχθῆναι
 15 καὶ κρηθῆναι ἀλλήλοισι καὶ συνεψηθῆναι. 2 Τοῦτο δὲ ὅσα
 ἐς τὴν φάρυγγα ἀφ' ὧν βράγχοι γίνονται καὶ κυνάγχαι
 ἐρυσσιπέλατά τε καὶ περιπλευμονίαι, πάντα ταῦτα τὸ μὲν
 πρῶτον ἄλμυρά τε καὶ ὕγρὰ καὶ δριμέα ἀφίει—καὶ ἐν
 τοῖσι τοιοῦτοισιν ἔρρωται τὰ νοσήματα—, ὅταν δὲ
 20 παχύτερα καὶ πεπαίτερα γένηται καὶ πάσης δριμύτητος
 144J. 1 ἀπληλαγμένα, τότε ἤδη καὶ οἱ πυρετοὶ παύονται καὶ
 τᾶλλα τὰ λυπέοντα τὸν ἄνθρωπον. 3 Δεῖ δὲ δήπου
 ταῦτα αἷτια ἐκάστου ἡγεῖσθαι εἶναι, ὧν παρεόντων μὲν
 τοιουτότροπον ἀνάγκη γίνεσθαι, μεταβαλλόντων δ' ἐς
 5 ἄλλην κρηῖσιν παύεσθαι. 4 Ὅκόσα τε οὖν ἀπ' αὐτῆς τῆς
 θέρμης εἰλικρινέος ἡ ψύξιος γίνεται καὶ μὴ μετέχει ἄλλης
 δυνάμει μηδεμιᾶς, οὕτω παύοιτ' ἂν ὅταν μεταβάλλῃ ἐκ

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is generally more acrid than what occurred before and passed from the nostrils every day, and it makes the nose both swollen and inflamed, so that it is hot and burning to an extreme degree; and if you put your hand to it and the flux is present for a long time the place even becomes ulcerated, since it is without flesh and hard. How does the burning heat in the nose come to an end? Not while there is flux and inflammation, but when the running is thicker and less acrid, ripe and better mixed with what occurred before—only then is the burning heat at an end.

3 But in all cases where such a condition obviously arises from chill alone with no other reinforcement, this is the relief: to be warmed thoroughly after the chill and cooled thoroughly after the burning heat. These things come about quickly without the need for any coction.

4 All other cases, which I say come about because of the acridness and unblended character of the humors, cease in the same manner when these have been concocted and blended.

19. 1 Next, those fluxes that turn towards the eyes, since they possess strong acridities of all sorts, cause ulcers on the eyelids; in some cases they eat into the cheeks and the area under the eyes, wherever they flow, and they rupture and eat through the covering of the eyeball. Pains and burning heat and extreme inflammation grip the patient, and for how long? Until the fluxes are concocted and become thicker and rheum is formed from them. And coction comes from their being mixed and blended with one another and boiled together. **2** Then those fluxes that turn towards the throat, leading to hoarseness and sore throat, quinsy, erysipelas, and pneumonia—all these at first send forth salty and moist and acrid discharges (and in such things diseases have their strength), but when they become thicker and more ripe and free of all acridness, then and only then do the fevers cease as well as the other things that harm the human being. **3** One must of course consider these fluxes to be the cause of each condition, since their presence is necessarily accompanied by that condition in a certain form, while when they change into another blend it ceases. **4** Accordingly, all cases that arise from pure heat or chill alone and have no share in any other power cease in the following way: by a change from hot to cold or

- τοῦ θερμοῦ ἐς τὸ ψυχρὸν καὶ ἐκ τοῦ ψυχροῦ ἐς τὸ θερμόν· μεταβάλλει δὲ ὅνπερ προεῖρηται μοι τρόπον. 5 Ὅτι τοίνυν
- 10 τᾶλλα ὅσα κακοπαθεῖ ὄνθρωπος, πάντα ἀπὸ δυναμίων γίνεται. Τοῦτο μὲν γάρ, ὅταν πικρότης τις ἀποχυθῇ, ἦν δὴ χολὴν ξανθὴν καλέομεν, οἷα ἄσαι καὶ καύματα καὶ ἀδυναμίαι κατέχουσιν· ἀπαλλασσόμενοί τε τούτου, ἐνίστε καὶ καθαιρόμενοι ἢ αὐτόματοι ἢ ὑπὸ φαρμάκου
- 15 ἦν ἐν καιρῷ τι αὐτῶν γίνηται, φανερώς καὶ τῶν πόνων καὶ τῆς θερμῆς ἀπαλλάσσονται· ὅσον δ' ἂν χρόνον ταῦτα μετέωρα ἦ καὶ ἄπεπτα καὶ ἄκρητα, μηχανὴ οὐδεμία οὔτε τῶν πόνων παύεσθαι οὔτε τῶν πυρετῶν. Καὶ ὅσοισι δὲ ὀξύτητες προσίστανται δρμεῖαί τε καὶ ἰώδεις, οἷα λύσ-
- 145 J. 1 σαι καὶ δήξεις σπλάγχνων καὶ θώρηκος καὶ ἀπορίῃ· οὐ παύεται τε τούτου πρότερον πρὶν ἢ ἀποκαθαρθῇ τε καὶ καταστορεσθῇ καὶ μυχθῇ τοῖσιν ἄλλοισιν. 6 Πέσσεσθαι δὲ καὶ μεταβάλλειν καὶ λεπτύνεσθαι τε καὶ παχύνεσθαι
- 5 ἐς χυμῶν εἶδος διὰ πολλῶν εἰδέων καὶ παντοίων,—διὸ καὶ αἱ κρίσιες καὶ οἱ ἀριθμοὶ τῶν χρόνων ἐν τοῖσι τοιούτοις μέγα δύνανται,— πάντων δὴ τούτων ἥκιστα προσήκει θερμῷ ἢ ψυχρῷ πάσχειν. Οὔτε γὰρ ἂν τοῦτο γε σαπεῖν οὔτε παχυνθεῖν. Τί γὰρ αὐτὸ φήσομεν εἶναι,
- 10 κρήσιας αὐτῶν ἄλλην πρὸς ἀλλήλας³ ἐχούσας δύναμιν, ἐπεὶ | ἄλλω γε οὐδενὶ τὸ θερμὸν μυχθὲν παύσεται τῆς θερμῆς ἢ τῷ ψυχρῷ, οὐδέ γε τὸ ψυχρὸν ἢ τῷ θερμῷ; 7 Τὰ δ' ἄλλα πάντα τὰ περὶ τὸν ἄνθρωπον, ὅσῳ ἂν πλείοσι μίσσηται, τοσούτῳ ἡπιώτερα καὶ βελτίονα. Πάντων
- 15 δ' ἄριστα διάκειται ὄνθρωπος ὅταν πέσσηται καὶ ἐν ἡσυχίῃ ἢ μηδεμίαν δύναμιν ἰδίην ἀποδεικνύμενα.

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20. 1 Περὶ μὲν οὖν τούτων ἱκανῶς μοι ἡγεῦμαι ἐπιδεδείχθαι. Λέγουσι δέ τινες καὶ ἱητροὶ καὶ σοφισταὶ
- 146 J. 1 ὥς οὐκ εἴη δυνατόν ἱητρικὴν εἰδέναι ὅστις μὴ οἶδεν ὅ τι ἐστὶν ἄνθρωπος, ἀλλὰ τοῦτο δεῖ καταμαθεῖν τὸν μέλλοντα ὀρθῶς θεραπεύσειν τοὺς ἀνθρώπους. Τείνει τε αὐτοῖσιν ὁ λόγος ἐς φιλοσοφίην καθάπερ Ἐμπεδοκλέης
- 5 ἢ ἄλλοι οἱ περὶ φύσιος γεγράφασιν ἐξ ἀρχῆς ὅ τι ἐστὶν ἄνθρωπος καὶ ὅπως ἐγένετο πρῶτον καὶ ὁπόθεν συνε-

³ 145.10 J. ἄλληλα AM: ἄλλα Jouanna: ἀλλήλας Plamböck.

cold to hot, a change which occurs in the way I have already said. **5** Moreover, all the other ills that the human being suffers come from powers. For on the one hand, whenever a bitterness is poured out, the one which we call yellow bile, what nausea and burning heat and weakness grip the patient! And when they get rid of this—sometimes even by purging, whether spontaneously or by means a drug, if one of these things takes place at the right moment—they manifestly get rid of both their pains and the heat. But as long as these humors are in an excited state, unconcocted, and unblended, there is no way to be rid of either the pains or the fevers. On the other hand, when acrid and greenish acidities come upon people, what frenzy they suffer, what gnawings of the viscera and the chest, what distress! And they are not free of this condition until the acidity is either purged away or calmed down and mixed with the other things in the body. **6** But undergoing coction, changing, thinning or thickening into a kind of humor through kinds many and varied—for which reason both crises and the reckoning of time are of great importance in such diseases—such modifications hot and cold are the least likely of all these things to undergo: for in this case there could be neither putrefaction nor thickening. How then can we say that there are blends of them that are different, the one from the other, each with its own power, since the hot will not lose its heat except when mixed with the cold, nor indeed will the cold lose its coldness except when mixed with the hot? **7** But as for all the other powers in the human being, the greater the number of things with which they are mixed, the milder and better they become. And the human being is in the best possible condition whenever these are concocted and at rest, displaying no power of their own.

20. 1 Now concerning these matters I think that I have given an adequate exposition of my views. But some doctors and sophists say that it is impossible for anyone to know medicine who does not know what the human being is; anyone who is going to treat patients correctly must, they say, learn this. Their account tends towards philosophy, just like Empedocles or others who have written about nature from the beginning, what the human being is and how it originally came to be

πάγη. **2** Ἐγὼ δὲ τοῦτο μὲν ὅσα τινὶ εἴρηται ἢ σοφιστῇ
 ἢ ἱητροῦ ἢ γέγραπται περὶ φύσιος ἥσσον νομίζω τῇ
 ἱητρικῇ τέχνῃ προσήκειν ἢ τῇ γραφικῇ, νομίζω δὲ περὶ
 10 φύσιος | γινῶναι τι σαφὲς οὐδαμόθεν ἄλλοθεν εἶναι ἢ ἐξ
 ἱητρικῆς. Τοῦτο δὲ οἷόν τε καταμαθεῖν ὅταν αὐτὴν τις
 τὴν ἱητρικὴν ὀρθῶς πᾶσαν περιλάβῃ, μέχρι δὲ τούτου
 πολλοῦ μοι δοκεῖ δεῖν—λέγω δὲ ταύτην τὴν ἱστορίην,
 εἰδέναι ἄνθρωπος τί ἐστι καὶ δι' οἷας αἰτίας γίνεται καὶ
 15 τᾶλλα ἀκριβέως. **3** Ἐπεὶ τοῦτό γέ μοι δοκεῖ ἀναγκαῖον
 εἶναι ἱητροῦ περὶ φύσιος εἰδέναι καὶ πάννυ σπουδάσαι ὥς
 εἴσεται, εἴπερ τι μέλλει τῶν δεόντων ποιῆσειν, ὃ τι τέ
 ἐστὶν ἄνθρωπος πρὸς τὰ ἐσθιόμενά τε καὶ πινόμενα καὶ
 ὃ τι πρὸς τὰ ἄλλα ἐπιτηδεύματα καὶ ὃ τι ἀφ' ἐκάστου
 147 J. 1 ἐκάστῳ συμβήσεται, καὶ μὴ ἀπλῶς οὕτως ἵκνηρόν
 ἐστὶ βρῶμα τυρός· πόνον γάρ παρέχει τῷ πληρωθέντι
 αὐτοῦ, ἀλλὰ τίνα τε πόνον καὶ διὰ τί καὶ τίνι τῶν ἐν
 τῷ ἀνθρώπῳ ἐνεόντων ἀνεπιτήδειον. **4** Ἔστι γάρ καὶ
 5 ἄλλα πολλὰ βρώματα καὶ πόματα πονηρά, ἃ διατίθῃσι
 τὸν ἄνθρωπον οὐ τὸν αὐτὸν τρόπον. Οὕτως οὖν μοι ἔστω
 οἷον οἶνος ἄκρητος πολλὸς ποθεῖς διατίθῃσί πως τὸν
 ἄνθρωπον· καὶ ἅπαντες ἂν ἰδόντες τοῦτο γνοίησαν ὅτι
 αὕτη ἡ δύναμις οἶνου καὶ αὐτὸς αἴτιος· καὶ οἷσί γε τῶν
 10 ἐν τῷ ἀνθρώπῳ τοῦτο δύναται γε μάλιστα οἶδαμεν.
 5 Τοιαύτην δὲ βούλομαι ἀλήθειαν καὶ περὶ τῶν | ἄλλων
 φανῆναι. Τυρός γάρ, ἐπειδὴ τούτῳ σημείῳ ἐχρησάμην,
 οὐ πάντας ἀνθρώπους ὁμοίως λυμαίνεται, ἀλλ' εἰσὶν
 οἵτινες αὐτοῦ πληρούμενοι οὐδ' ὅτιοῦν βλάπτονται, ἀλλὰ
 15 καὶ ἰσχὺν οἷσιν ἂν συμφέρῃ θαυμασίως παρέχεται, εἰσὶ
 δ' οἱ χαλεπῶς ἀπαλλάσσουν. **6** Διαφέρουσιν οὖν τούτων
 αἱ φύσεις, διαφέρουσι δὲ κατὰ τοῦτο ὅπερ ἐν τῷ σώματι
 ἐνεσσι πολέμιον τυροῦ καὶ ὑπὸ τούτου ἐγείρεται τε καὶ
 κινεῖται. Οἷσιν ὁ τοιοῦτος χυμὸς τυγχάνει πλείων ἐνεῶν
 20 καὶ μᾶλλον ἐνδυναστεύων ἐν τῷ σώματι, τούτους μᾶλλον
 148 J. 1 κακοπαθεῖν εἰκός· εἰ δὲ πάσῃ τῇ ἀνθρωπίνῃ φύσει ἦν
 κακόν, πάντας ἂν ἐλυμαίνετο.

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and from what things it was compounded. **2** But I hold that whatever has been said or written about nature by a sophist or doctor pertains less to the art of medicine than to the art of writing, and also that it is impossible to have any clear knowledge about nature from any other source than medicine. This knowledge can be acquired when one has correctly grasped medicine itself in its entirety, but until then it is impossible—I mean this science that consists in knowing what the human being is and by what causes it comes to be and all the rest, with precision. **3** For this I think is what it is necessary for a doctor to know about nature and to make every effort to know, if he is going to do any of the things that he must: what the human being is in relation to foods and drinks, and what it is in relation to other practices, and what will be the effect of each thing on each individual—not simply that ‘cheese is harmful food, for it causes trouble to one who has eaten too much of it’, but rather what trouble, and why, and which of the things in the human being it is inimical to. **4** For there are many other harmful foods and drinks that affect the human being differently. Accordingly, let me take this example: ‘unmixed wine, drunk in large quantities, affects the human being in a certain way’. All who see this state would recognize that this is the power of wine and that it alone is responsible; as for the things in the human being that it is especially able to affect in this way, we know what they are. **5** This is the sort of truth that I want to be revealed about other things as well. For cheese (since I have made use of this example) does not harm all human beings in the same way: there are some who can eat their fill of it without being harmed at all, and it even provides a wondrous strength to those whom it benefits; but there are others who have difficulty coping with it. **6** Hence the natures of these people differ, and the difference concerns the very thing in the body that is hostile to cheese and is stirred up and set in motion by it. Those in whom such a humor happens to be present in greater quantity and to exert more power in the body will naturally suffer more. But if cheese were bad for human nature in general, it would harm all people.

- 2-3 Ταῦτα δ' εἴ τις εἰδείη, οὐκ | ἄν πάσχοι
 (21. 1) τάδε·⁴ ἐν τῇσιν ἀνακομιδῇσι τῇσιν ἐκ τῶν
 5 νούσων, ἔτι δὲ καὶ ἐν τῇσι νούσοισι τῇσι μακροῇσι γίνονται
 πολλαὶ συνταράξεις, αἱ μὲν ἀπὸ ταῦτομάτου, αἱ δὲ καὶ
 ἀπὸ τῶν προσενηχθέντων τῶν τυχόντων. 2 Οἶδα δὲ τοὺς
 πολλοὺς ἱητροὺς ὥσπερ τοὺς ἰδιώτας, ἦν τύχῳσι περὶ
 τὴν ἡμέρην ταύτην τι κεκαινουργηκότες ἢ λουσάμενοι ἢ
 10 περιπατήσαντες ἢ φαγόντες τι ἑτεροῖον, ταῦτα δὲ πάντα
 βελτίῳ προσενηγεγμένα ἢ μὴ, οὐδὲν ἥσσαν τὴν αἰτίην
 τούτων τινὶ ἀναπιθέντας, τὸ μὲν αἴτιον ἀγνοεῦντας, τὸ
 δὲ συμφορώτατον, ἦν οὕτω τύχῃ, ἀφαιρεῦντας. 3 Δεῖ δὲ
 οὐ· ἀλλ' εἰδέναι τί λουτρὸν ἀκαίρως | προσγενόμενον
 15 ἐργάσεται ἢ τί κόπος. Οὐδέποτε γὰρ ἡ αὐτὴ κακοπάθεια
 τούτων οὐδετέρου· οὐδέ γε ἀπὸ πληρώσιος οὐδ' ἀπὸ
 βρώματος τοίου ἢ τοίου. Ὅστις οὖν ταῦτα μὴ εἴσεται
 ὡς ἕκαστα ἔχει πρὸς τὸν ἄνθρωπον, οὔτε γινώσκειν τὰ
 γινόμενα ἀπ' αὐτῶν δυνήσεται οὔτε χρῆσθαι ὀρθῶς.

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- 149 J. 1 22. 1 Δεῖν δέ μοι δοκεῖ καὶ ταῦτ' εἰδέναι ὅσα τῷ
 ἀνθρώπῳ παθήματα ἀπὸ δυναμίων γίνεται καὶ ὅσα ἀπὸ
 σχημάτων. Λέγω δὲ τί τοῦτο; Δύναμιν μὲν εἶναι τῶν
 χυμῶν τὰς ἀκρότητάς τε καὶ ἰσχύν, σχήματα δὲ λέγω
 5 ὅσα ἔνεστιν ἐν τῷ ἀνθρώπῳ, τὰ μὲν κοιλὰ τε καὶ ἐξ
 εὐρέος ἐς στενὸν συνηγμένα, τὰ δὲ καὶ ἐκπεπταμένα, τὰ
 δὲ στερεά τε καὶ στρογγύλα, τὰ δὲ πλατέα τε καὶ
 ἐπικρεμάμενα, τὰ δὲ διατεταμένα, τὰ δὲ μακρά, τὰ δὲ
 πυκνά, τὰ δὲ μανά τε καὶ τεθηλότα, τὰ δὲ σπογοειδέα
 10 τε καὶ ἀραιά. 2 Τοῦτο μὲν οὖν ἐλκύσαι ἐφ' ἑωυτὸ καὶ
 ἐπισπάσασθαι ὑγρότητα ἐκ τοῦ ἄλλου σώματος πότερον
 τὰ κοιλὰ τε καὶ ἐκπεπταμένα ἢ τὰ στερεά τε καὶ
 στρογγύλα ἢ τὰ κοιλὰ τε καὶ ἐς στενὸν ἐξ εὐρέος
 συνηγμένα δύναιτ' ἂν μάλιστα; Οἶμαι μὲν τὰ τοιαῦτα τὰ
 15 ἐς στενὸν συνηγμένα ἐκ κοίλου τε καὶ εὐρέος. 3 Κατα-
 μαθάνειν δὲ δεῖ ταῦτα ἔξωθεν ἐκ τῶν φανερῶν. Τοῦτο
 μὲν γὰρ τῷ στόματι κεχηνῶς ὑγρὸν οὐδὲν ἀνασπάσαι·
 προμυλλήνας δὲ καὶ συστείλας πιέσας τε τὰ χεῖλεα,
 150 J. 1 ἀνασπάσεις· καὶ ἐπὶ τε αὐλὸν προσθέμενος, ῥηϊδίως

⁴ 148.3-4 J. πάσχοι· τὰ δ' A² M: πάσχοι. Tὰ δ' Jouanna: πάσχοι τάδε· ἐν Gomperz.

Whoever knows these things would not suffer the following. (21. 1) In recovery from disease as well as in diseases of long duration many disturbances come about, some spontaneously, others from things that just happen to be administered. 2 I know that the majority of doctors, like lay people, if patients happen to have done anything unusual on a particular day, either by bathing or walking or eating something different—whether all these things are better done or not—none the less assign the responsibility to one of them, not knowing the cause and perhaps depriving the patient of what is most beneficial. 3 One must not do this, but rather know what will be the effect of an additional bath taken at the wrong time or of fatigue. For the same suffering never arises from either of these, nor indeed from repletion nor from food of one kind or another. Whoever does not know how each of these things stands in relation to the human being will be able neither to recognize their effects nor to make correct use of them.

22. 1 I hold that one must also know which affections come upon the human being from powers and which from structures. What do I mean by this? By ‘power’ I mean the acuity and strength of the humors; by ‘structures’ I mean all the parts inside the human being, some hollow and tapering from wide to narrow, others also extended, others solid and round, others broad and suspended, others stretched, others long, others dense, others loose in texture and swollen, others spongy and porous. 2 Now which structures would best be able to attract and draw moisture to themselves from the rest of the body: the hollow and extended, the solid and round, or those that are hollow and tapering from wide to narrow? I think it is these, the ones that taper from wide and hollow to narrow. 3 But one must learn these things from evident things outside the body. For example, if you hold your mouth wide open you will not be able to draw up any fluid, while if you thrust your lips forward and contract and compress them, you will draw some up; and indeed, if you go on to

ἀνασπάσαις ἂν ὃ τι θέλοις. Τοῦτο δὲ αἰ σικύαι προσβα-
 λόμεναι ἔξ | εὐρέος ἔς στενότερον συνηγμέναι πρὸς τοῦτο
 τετεχνέεται πρὸς τὸ ἔλκειν ἐκ τῆς σαρκὸς καὶ ἐπισπᾶ-
 5 σθαι, ἄλλα τε πολλὰ τοιούτοτροπα. **4** Τῶν δὲ ἔσω τοῦ
 ἀνθρώπου φύσις καὶ σχῆμα τοιοῦτον· κύστις τε καὶ
 κεφαλὴ καὶ ὑστέραι γυναιξίν. Καὶ φανερώς ταῦτα
 μάλιστα ἔλκει καὶ πλήρεά ἐστιν ἐπακτοῦ ὑγρότητος αἰεὶ.
5 Τὰ δὲ κοῖλα καὶ ἐκπεπταμένα ἐπεσρυνεῖσαν μὲν ἂν
 10 ὑγρότητα μάλιστα δέξαιτο πάντων, ἐπισπάσαιοτο δ' ἂν
 οὐχ ὁμοίως. Τὰ δέ γε στερεὰ καὶ στρογγύλα οὐτ' ἂν
 ἐπισπάσαιοτο οὐτ' ἂν ἐπεσρυνεῖσαν δέξαιτο· περιολισθάνοι
 τε γὰρ ἂν καὶ οὐκ ἔχοι ἔδρην ἐφ' ἧς μένοι. **6** Τὰ δὲ
 σπογγοειδέα τε καὶ ἄραια, οἷον σπλήν τε καὶ πνεύμων
 15 καὶ μαζοί, προσκαθεζόμενα μάλιστα ἀναπίοι, καὶ σκλη-
 ρυνθεῖη ἂν καὶ αὐξηθεῖη ὑγρότητος προσγενομένης ταῦτα
 μάλιστα. Οὐδὲ γὰρ ἂν, | ὥσπερ ἦν ἐν κοιλίῃ ἐνῇ τὸ
 151 J. **1** ὑγρὸν ἔξω τε περιέχῃ αὕτη ἢ κοιλίῃ, [καὶ] ἐξαγγίζοιτο
 ἂν καθ' ἐκάστην ἡμέρην· ἀλλ' ὅταν πῖν καὶ δέξηται
 αὐτὸς ἔς ἐωυτὸν τὸ ὑγρὸν, τὰ κενὰ καὶ ἄραια ἐπληρώθη
 καὶ τὰ σμικρὰ πάντη, καὶ ἀντὶ μαλθακοῦ τε καὶ ἄραιου
 5 σκληρός τε καὶ πυκνὸς ἐγένετο, καὶ οὐτ' ἐκπέσσει
 οὐτ' ἀφήσι. Ταῦτα δὲ πάσχει διὰ τὴν φύσιν τοῦ
 σχήματος. **7** Ὅσα δὲ φύσιν τε καὶ ἀνειλήματα ἀπεργά-
 ζονται ἐν τῷ σώματι, προσήκει ἐν μὲν τοῖσι κοίλοις τε
 καὶ εὐρυχωρέσιν, οἷον κοιλίῃ τε καὶ θώρηκι, ψόφον τε
 10 καὶ | πάταγον ἐμποιεῖν· ὃ τι γὰρ ἂν μὴ ἀποπληρώσῃ
 οὕτως ὥστε στῆναι ἀλλ' ἔχῃ μεταβολάς τε καὶ κινήσεις,
 ἀνάγκη ὑπ' αὐτῶν καὶ ψόφον καὶ καταφανέας κινήσεις
 γίνεσθαι· ὅσα δὲ σαρκώδεά τε καὶ μαλθακά, ἐν τοῖσι
 τοιούτοις νάρκας τε καὶ πληρώματα, οἷα ἐν τοῖσιν
 152 J. **1** ἀποφραγεῖσι γίνεται. **8** Ὅταν δ' ἐγκύρῃ πλατεῖ τε καὶ
 ἀντικεμένῳ καὶ πρὸς αὐτὸ ἀντιπῆσῃ καὶ φύσει τοῦτο
 τύχῃ ἐὼν μήτε ἰσχυρὸν ὥστε δύνασθαι ἀνέχεσθαι τὴν
 βίην καὶ μηδὲν κακὸν παθεῖν μήτε μαλθακὸν τε καὶ
 5 ἄραιον ὥστ' ἐκδέξασθαι τε καὶ ὑπεῖξαι, ἀπαλὸν δὲ καὶ
 τεθιγλὸς καὶ ἔναμιον καὶ πυκνόν, οἷον ἥπαρ, διὰ μὲν τὴν
 πυκνότητα καὶ πλατύτητα ἀνθέστηκέ τε καὶ οὐχ ὑπεῖκει
 —φῦσα δ' ἐπιχειομένη αὔξεταί τε καὶ ἰσχυροτέρῃ γίνεται
 καὶ ὁρμᾷ μάλιστα πρὸς τὸ ἀντιπαῖον—, διὰ δὲ τὴν
 10 ἀπαλότητα καὶ τὴν ἐναμιότητα οὐ δύναται ἄνευ πόνων

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apply a tube to them, you will easily draw up whatever you like. Again, cupping instruments that are applied to the skin and taper from wide to narrow have been crafted for the purpose of attracting and drawing fluid from the flesh; and there are many other examples of this kind. **4** Of the structures inside the human being the following have such a nature and shape: the bladder, the head, and (in women) the womb. These manifestly attract most of all and are always filled with acquired moisture. **5** The hollow and extended parts are best of all at receiving moisture when it flows toward them, but cannot draw it to themselves in like manner. The solid and round parts can neither draw moisture to themselves nor receive it when it flows toward them, for it slips around them and has no seat upon which to remain. **6** The spongy and porous parts, such as the spleen, the lung, and the breasts, readily drink up what is in contact with them, and they become especially hard and large on the addition of moisture. For they cannot be emptied every day, as in a case where the fluid is in a cavity and this cavity surrounds it on the outside. But whenever one of these parts drinks up the fluid and receives it into itself, the hollow and porous spaces, even the small ones, are everywhere filled; instead of soft and porous it becomes hard and dense, and it neither concocts away nor discharges the fluid. It suffers these things on account of the nature of its structure. **7** All that produces wind and flatulent colic in the body is apt to bring about noise and rumbling in the hollow and spacious parts such as the belly and the chest: for if the wind does not fill up a part so as to come to rest, but is able to shift its place and move about, this necessarily gives rise to both noise and evident movements. As for parts that are fleshy and soft, in them it brings about numbness and obstruction, such as occur in parts that are blocked off. **8** When the wind encounters something broad and resistant and falls upon it, and it happens that this part is by nature neither strong so as to be able to withstand the force and suffer no ill effects, nor soft and porous so as to receive it and yield, but tender and swollen and bloody and dense, like the liver, then on account of its denseness and breadth this part stands firm and does not yield—while the wind streaming towards it grows and strengthens and rushes violently against the obstacle—but on account of its tenderness and bloodiness

εἶναι· καὶ διὰ ταύτας τὰς προφάσις ὁδύναται τε ὀξύταται
καὶ πυκνότεραι πρὸς τοῦτο τὸ χωρίον γίνονται ἐμπυή-
ματά τε καὶ φύματα | πλείστα. **9** Γίνεται δὲ καὶ ὑπὸ
φρένας ἰσχυρῶς, ἥσσον δὲ πολλόν· διάτασις μὲν γὰρ
15 φρενῶν πλατεΐη καὶ ἀντικεμένη, φύσις δὲ νευρωδεστέρα
τε καὶ ἰσχυροτέρα· διὸ ἥσσον ἐπώδυνά ἐστιν, γίνεται
δὲ καὶ περὶ ταῦτα καὶ πόνοι καὶ φύματα.

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23. 1 Πολλὰ δὲ καὶ ἄλλα καὶ ἔσω καὶ ἔξω τοῦ
σώματος εἶδεα σχημάτων ἃ μεγάλα ἀλλήλων διαφέρει
153J. 1 πρὸς τὰ παθήματα καὶ νοσέοντι καὶ ὑγιαίνουντι, οἷον
κεφαλαὶ σμικραὶ ἢ μεγάλαι, τράχηλοι λεπτοὶ ἢ παχεῖς,
μακροὶ ἢ βραχεῖς, κοιλίαι μακροὶ ἢ στερογγύλαι, θώρη-
κος, πλευρῶν πλατύτητες ἢ στενότητες, ἄλλα μυρία·
5 ἃ δεῖ πάντα εἰδέναι ἢ διαφέρει, ὅπως τὰ αἷτια ἐκάστων
εἰδὼς ὀρθῶς φυλάσσεται.

24. 1 Περὶ δὲ δυναμίων, χυμῶν αὐτῶν τε ἕκαστος
ὅ τι δύναται ποιεῖν τὸν ἄνθρωπον ἐσκέφθαι, ὥσπερ καὶ
πρότερον εἴρηται, καὶ τὴν συγγένειαν ὡς ἔχουσι πρὸς
10 ἀλλήλους. Λέγω δὲ τὸ τοιοῦτον· εἰ γλυκὺς χυμὸς
ἐὼν μεταβάλλοι ἐς ἄλλο εἶδος, μὴ ἀπὸ συγκρήσιος
ἀλλ' αὐτὸς ἐξιστάμενος, ποῖός τις ἂν πρῶτος γένοιτο;
πικρὸς ἢ ἄλμυρὸς ἢ στρυφνὸς ἢ ὀξύς; Οἶμαι μὲν, ὀξύς.
Ὁ ἄρα ὀξύς χυμὸς ἂν ἐπιτήδειος προσφέρειν ἂν τῶν
15 λοιπῶν εἴη μάλιστα, εἴπερ ὁ γλυκὺς γε τῶν πάντων
ἐπιτηδειότατος. **2** Οὕτως εἴ τις δύναται ζητέων ἔξωθεν
ἐπιτυγχάνειν, καὶ δύναται ἂν πάντων ἐκλέγεσθαι αἰεὶ τὸ
βέλτιστον· βέλτιστον δὲ ἐστὶν αἰεὶ τὸ προσωτάτω τοῦ
ἀνεπιτηδείου ἀπέχον.

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it cannot be free from suffering. And for these reasons very sharp and frequent pains occur in this region, as well as abscesses and tumors in very great numbers. **9** These things also occur with violence under the diaphragm, but much less intensely; for while its extension is broad and resistant, its nature is more sinewy and stronger. Hence the area is less subject to pain, though suffering and tumors do occur there as well.

23. 1 There are also many other types of structures, both inside and outside the body, which differ greatly from one another in relation to the affections suffered by both the sick and the healthy; for example a head that is small or large, a neck that is thin or thick, long or short, a belly that is long or round, the breadth or narrowness of the chest, the sides, and myriad other types. It is necessary to know how all these differ, so that with knowledge of the causes of each affection one may take the proper precautions.

24. 1 Concerning the powers, it is necessary to examine both what each one of the humors in itself is able to do to the human being, as has already been said, and also their kinship with one another. I mean something like the following: if a humor, being sweet, were to change into another kind, not by blending with something else but by changing on its own, what sort would it become first? Bitter or salty or astringent or acid? Acid, I think. Hence an acid humor would be the most suitable to administer of all the others, if indeed sweet is the most suitable of all. **2** If a person could investigate outside the body in this way with success, he would also always be able to choose the best treatment; the best is always that which is furthest from the unsuitable.

COMMENTARY

I

Like a number of Hippocratic texts, VM opens on a polemical note (cf. the openings of *De Arte*, *Acut.*, *Nat. Hom.*). The author launches at once into vigorous criticism of his opponents, who ‘lay down as a hypothesis for their account’ one or two principles such as hot, cold, wet, or dry, and so narrow down ‘the primary cause of diseases and death for human beings’. These people are most worthy of blame, he says, because they go wrong about medicine, a genuine τέχνη that is universally held in high esteem and whose status as a τέχνη is assured by differences in competence between its practitioners. Hence medicine has no need of a hypothesis, as does discussion of ‘things in the sky and under the earth’, in which it is necessary to make use of a hypothesis in order to say anything at all.

The key term in the author’s characterization of his opponents’ method is ὑπόθεσις. English translators have generally rendered it by ‘postulate’ or ‘assumption’, but this is far from adequate to capture all the nuances of the term. The meaning of ὑπόθεσις that emerges most directly from the opening sentence of VM is its etymological one of ‘basis’ or ‘foundation’: ὑπόθεσιν is the object of the verb ὑποτίθεσθαι ‘to place under’, and takes its meaning from it. In saying that his opponents ‘lay down as a hypothesis for their account’ one or more of hot, cold, wet, and dry the author means that they adopt one or more of these factors as a basis or foundation of their account of medicine. Although commentators have denied that the term ὑπόθεσις ever had the sense of basis or foundation, this meaning is implicit in a number of passages in fourth-century authors (Isoc. *Panegyricus* 23, Demosthenes *Ol.* 2.10, Plato *R.* 511b5–6; cf. LSJ s.v. VI.2 and n. below on 1.1 ὑπόθεσιν ... ὑποθέμενοι τῷ λόγῳ). Bonitz gives as the most general meaning of ὑπόθεσις in Aristotle *id quod ponitur tamquam fundamentum* (1870, 796b41). Moreover ὑπόθεσις is commonly used by fourth-century authors of the basic idea of a speech—its subject or thesis (LSJ s.v. II.1)—or a fun-

damental principle of action or life. Cf. Diller 1952, 388 (=1973, 49): ‘ὑπόθεσις als Grundlage der Rede oder auch des Handelns ist gewöhnlicher, aus der Ableitung des Wortes sich ergebender Sprachgebrauch, der z.B. bei Isokrates ständig belegt ist.’ A ὑπόθεσις is something established at the beginning of a process of action or deliberation, and which underlies and guides all subsequent activity: it is ‘the presupposition of an action, that which has been settled before it begins’ (LSJ s.v. IV; cf. LSJ s.v. ὑπόκειμαι II.8). Hence the frequent association between ὑπόθεσις and ἀρχή (e.g. Demosthenes *Ol.* 2.10, 3.2; Isoc. 1.48, 6.90, *epist.* 6.9–10). In the *Eudemian Ethics* Aristotle makes the point that all cases of deliberation presuppose that the agent has already settled on the end (τέλος): ‘just as in the theoretical sciences the ὑποθέσεις are starting points (ἀρχαί), so in the productive sciences the end (τέλος) is the starting point (ἀρχή) and ὑπόθεσις’ (*EE* 1227b28–30; cf. *EE* 1227a9, *EN* 1151a17). A related idea found in several passages of Aristotle’s *Politics* is that of a constitution based on a ὑπόθεσις (ἐξ ὑποθέσεως); in this conception a ὑπόθεσις is a governing assumption according to which all the affairs of the state are organized, and which serves as the end of all deliberation. Thus the ὑπόθεσις of a democratic constitution is freedom (ἐλευθερία), since every democracy aims at securing this end (*Pol.* 1317a40–b3; cf. 1317a35–38, 1314a25–29, 1269a32–33, 1288b28–33). Finally, Isocrates frequently employs the notion of the ὑπόθεσις of a life: a principle or goal adopted at the beginning of one’s life, which guides all subsequent thought and action and without which life would be an unsystematic chaos (*epist.* 6.9–10, *orat.* 1.48, 8.18, 6.90; cf. below, pp. 120–121).

In a fashion quite similar to these fourth-century authors, the author of VM uses ὑπόθεσις of the entities that play a basic or fundamental role in the opponents’ system of medicine. From his remark that the opponents narrow down the ‘primary cause’ (τὴν ἀρχὴν τῆς αἰτίας 1.1, cf. n. below) of disease and death for human beings and hold this cause to be the same one or two things in all cases, we may conclude that ὑποθέσεις function as basic causal principles in their system: they are the ultimate explanation of all cases of disease and death. Furthermore, this knowledge of the cause of disease is also the foundation of the opponents’ therapeutic prescriptions. At the beginning of chapter 13 the author remarks that the opponents, who ‘pursue the τέχνη from a ὑπόθεσις’ are committed to the assumptions that the cause of any disease is one of the ὑποθέσεις (hot, cold, wet, or dry) and that the proper therapy is to treat the cause with its opposite (13.1, 133.7–13 J.).

Hence any disease may be treated simply by determining which of the ὑποθέσεις is its cause and attempting to counteract it by its opposite. To pursue medicine ‘from a hypothesis’ (ἐξ ὑποθέσεως 133.8 J.) is to practice medicine on such assumptions; as Taylor noted (1911, 78), Aristotle’s notion of a constitution ἐξ ὑποθέσεως provides a close parallel. At the beginning of chapter 15 the author implies that the opponents assign qualities such as hot and cold to various foods so that they can prescribe a food that they consider hot in the case of a disease that is supposedly caused by the cold, or vice versa (15.1). Here the attempt to treat patients in conformity with a ὑπόθεσις again involves commitment to an assumption or presupposition, the claim that the cure is one of the ὑποθέσεις. ὑποθέσεις thus underlie all aspects of the opponents’ system of medicine: the identification of the cause of disease, the inference from cause to cure, and the prescription of specific remedies to counteract the cause. The role of ὑποθέσεις in both the aetiology and therapy of the opponents is well captured by the notion of fundamental principle: an entity that guides and is presupposed by all aspects of theoretical and practical activity. This is a natural extension of the sense of basis or foundation of a speech or action that the term ὑπόθεσις carries in the fourth-century sources discussed above.

While the primary meaning of ὑπόθεσις that emerges from the opening of VM is that of fundamental principle, this is not its only meaning in chapter 1. For in denying that medicine has any need of a ὑπόθεσις (1.3) the author cannot mean that it has no need of a foundation or basis, understood as a fundamental principle that gives medicine its systematic character. The thrust of his argument is to claim that medicine already *has* the kind of systematic character that his opponents attempted to provide with their ὑποθέσεις; medicine is already a τέχνη with an established method (1.2, 2.1). The author’s meaning must therefore be that medicine has no need of a foundation *of a certain sort*. The key lies in his remark that the use of ὑποθέσεις is necessary when studying ‘obscure and dubious matters’, such as ‘things in the sky and under the earth’ (1.3). With this phrase, the author makes oblique reference to the Presocratic inquiry into nature (περὶ φύσεως ἱστορία), the project of what may be called cosmological investigation that began in sixth century Miletus and whose prominent representatives in the latter part of the fifth century were thinkers such as Empedocles, Anaxagoras, Democritus, and Diogenes of Apollonia (cf. Introduction, section 1.3). But the phrase ‘things in the sky and under the earth’ is not a neutral reference to the Presocratic inquiry into nature; rather, it is a descrip-

tion that picks out just those topics within that inquiry that were the most remote from human experience and inaccessible to close observation, i.e. 'obscure and dubious matters'. Those who pursued the inquiry into nature offered much more than accounts of 'things in the sky and under the earth'; their aim was to provide a complete account of all of nature (φύσις) and the place of human beings in it. In pointing to the inherent obscurity of 'things in the sky and under the earth' the author echoes such fifth-century thinkers as Gorgias and Euripides (Gorg. *Hel.* 13, E. fr. 913; cf. n. below on 1.3 περὶ τῶν μετεώρων ἢ τῶν ὑπὸ γῆν). But he goes a step further in connecting the obscurity of such matters with the need for a special method of studying them: he evidently thinks that ὑποθέσεις must be used in discussing these matters precisely because they are remote and inaccessible to close observation. His idea seems to be that when discussing matters that are not accessible to close observation an investigator has no choice but to fall back on a ὑπόθεσις, a principle laid down as an assumption or postulate that can guide the development of a system of explanations. Moreover, no clear knowledge about such matters can ever be attained: even if a speaker happens to hit upon the truth when discussing them he cannot know that he has done so, 'for there is nothing by referring to which one would necessarily attain clear knowledge' (1.3). Since it is impossible to confirm or refute theories concerning matters in which ὑποθέσεις are used, a ὑπόθεσις must always remain provisional and can never be elevated to the status of a solidly established principle. This suggests that the author has a conception of what might be called a hypothetical investigation: an inquiry in which all explanations are based on a small number of basic principles that are assumed for the purposes of the investigation and whose validity can never be confirmed or rejected with certainty. The author's conception of a ὑπόθεσις as an assumption or postulate laid down in order to account for a wide variety of phenomena is not unlike the modern notion of a scientific hypothesis. But while a modern scientific hypothesis may eventually be confirmed or rejected on the basis of further investigation, the author relegates ὑποθέσεις to the status of conjectures. In any case, the fundamental reason why *medicine* has no need of a ὑπόθεσις lies in the nature of its subject matter. Medicine is concerned not with the obscure matters in the sky and under the earth but with the affections (παθήματα) from which people suffer in disease (2.3). Concerning such matters, the author thinks, clear knowledge can be attained; hence there is no need to fall back on a ὑπόθεσις when discussing them.

The above analysis suggests the following account of the method the author attributes to his opponents. They are committed to the fundamental importance of principles such as the hot, the cold, the wet, and the dry in medicine and to some general assumptions about these principles: each disease is caused by one such principle, and opposites are a cure for opposites. They use these principles and assumptions to work out a complete system of aetiology and therapy. In doing so they both explain how specific diseases can be traced back to one of the *ὑποθέσεις* as their cause and provide some analysis of the qualities of foods in terms of the *ὑποθέσεις* that allows them to prescribe therapies for specific diseases. The frequency with which the author uses the term *ὑπόθεσις* to characterize the opponents' method suggests that it was a term they also used; furthermore, it seems likely that they had argued that medicine without a *ὑπόθεσις* did *not* qualify as a genuine *τέχνη*, or at least stated explicitly that any account of medicine must be based on a *ὑπόθεσις* (cf. the opening of *Carn.* and Isocrates' remarks on the need to lay down a *ὑπόθεσις* for one's life, discussed below in the n. on 1.1 *ὑπόθεσιν ... ὑποθέμενοι τῷ λόγῳ*). Finally, while it is clear that the author of VM conceives of a *ὑπόθεσις* as a mere assumption or postulate, it does not follow that the opponents themselves understood *ὑποθέσεις* in this way. They were no doubt thoroughly committed to their *ὑποθέσεις* as the only legitimate basis of medical theory and practice, and might well have given reasons to justify and support their view.

(For further discussion of the author's use of the term *ὑπόθεσις* and its alleged affinities with Plato and early mathematics, cf. n. below on 1.1 *ὑπόθεσιν ... ὑποθέμενοι τῷ λόγῳ*).

At the end of section 1.1 the author states that his opponents' worst mistake is that they go wrong about a genuine *τέχνη*, one whose good practitioners are universally held in high esteem. Section 1.2 goes on to *argue* that medicine is a *τέχνη* by appealing to the fact that some practitioners are better than others. If medicine were not a *τέχνη*, then all practitioners would be equally ignorant and inexperienced, and the affairs of the sick would be governed by chance (*τύχη*). But this is not the case: doctors differ from one another in both manual and intellectual ability (*κατὰ χεῖρα καὶ κατὰ γνώμην*), as do practitioners of all the other arts. Differences in competence between different practitioners indicate that the affairs of the sick are not governed by chance, and thus that medicine is a genuine *τέχνη*. The argument is a plausible one if competence is understood as the ability to bring about certain results

in a reliable manner. If some practitioners are reliably better than others at bringing about certain results, it is reasonable to conclude that their actions have something to do with the occurrence of those results; and if there is a connection between what doctors do and what happens to patients, medicine is not simply a matter of chance. At bottom the argument rests on the existence of regular correlations between cause and effect; cf. *De Arte* 5–6, 228.6–230.20 Jouanna (L. 6.6–10) and Introduction, pp. 7–8. The stress on differences in competence gives the argument a more modest character than it might otherwise have: the claim is not that some practitioners are especially good, only that some are better than others. As the author himself indicates (ὥσπερ καὶ τῶν ἄλλων τεχνῶν πασέων 119.1–2 J.), the appeal to differential competence was a highly general argument that was applied to other arts besides medicine—whether the comparison was between the expert and the lay person (e.g. *Pl. Prt.* 319a–d) or (as here) between one expert and another (e.g. [*Pl.*] *Sis.* 390c–d; cf. *Arist. Rh.* 1354a1–11). In the case of arts with clear criteria for assessing professional competence, the argument is relatively unproblematic (cf. *Pl. La.* 185e–186b, *Grg.* 514a5–d2, *Prt.* 319d5–6). In medicine, however, the criteria for assessing professional competence were not always so clear. While there is evidence that ancient physicians sometimes attempted to establish their competence by pointing to reputable teachers or to a large number of patients successfully treated (cf. *Pl. Grg.* 514d3–10; *X. Mem.* 4.2.5), a number of Hippocratic passages emphasize that it was often difficult for lay people to distinguish between good and bad doctors. The author of *VM* himself notes that the difference between good and bad practitioners is often not clear to lay people (9.4–5); the author of *Acut.* goes so far as to claim that differences in practice among doctors often led lay people to conclude that medicine was not a τέχνη at all (*Acut.* 8, 39.10–20 Joly, L. 2.240–244; cf. ch. 6, 38.6–18 Joly, L. 2.234–238). A number of Hippocratic texts insist on the distinction between the good doctor and the quack, suggesting that the difference was far from obvious to their audiences (cf. *Lex* 1, L. 4.638, where false doctors are compared to supernumeraries in tragedies who have the appearance of actors without actually being so). In sum, while the author of *VM* makes a perfectly reasonable appeal to differential competence to support his claim that medicine is a genuine τέχνη, the lack of clear, indisputable criteria for assessing the competence of medical practitioners meant that such an appeal would not have been uncontroversial in the context of the medical profession of his day.

The argument of section 1.2 reveals three key features of the author's conception of professional competence. (1) First, it involves mastery of a body of discoveries, which are the end result of a process of investigation. To say that nothing has been examined (ἔσχεπτο) or discovered (εὑρητο) in medicine amounts to saying that medicine is not a genuine τέχνη and that chance governs the affairs of the sick. Discoveries are what make it possible to treat the sick in a systematic way, and there can be no τέχνη without them. Since discoveries are what give medicine its systematic character, what exactly the author takes them to be and how he thinks they are made emerge as crucial questions to be addressed in the sequel (cf. 3–8 passim, 14.3–4, 22–24). The association between τέχνη and discovery is widespread in the Hippocratic literature, as is the opposition between discovery and chance (*De Arte* 1, *Loc. Hom.* 46, *Vict.* 1, but contrast *Aff.* 45; see n. below on 1.2 εὑρητο). But even against this background, the author's emphasis on research and discovery is remarkable, as is his strong denial that discoveries can be made by chance (cf. 2.1, 12.2; Jouanna [1990, 38–39] notes 23 occurrences of the verb εὐρίσκειν and 16 of ζητέω in VM, many more than in any other Hippocratic work). (2) Professional competence involves both knowledge and experience: if medicine were not a τέχνη, practitioners would all be equally 'inexperienced' (ἄπειροι) and 'ignorant' (ἀνεπιστήμονες). The close association between knowledge and experience is characteristic of the Hippocratics (cf. *Flat.* 1, *Lex* 4, and *Mul.* I 62, discussed below in the n. on 1.2 ἄπειροί τε καὶ ἀνεπιστήμονες) and contrasts sharply with the Platonic attempt to drive a wedge between the two by distinguishing between τέχνη, an art or science based on genuine knowledge, and ἐμπειρία, a knack or routine based on and limited to experience (cf. Appendix 1). (3) Finally, professional competence involves both manual and intellectual ability: medical practitioners differ from one another in both 'head and hand' (κατὰ χεῖρα καὶ κατὰ γνώμην). Again the author echoes a widely shared position; the Hippocratic writers regularly conceive of medical practice as dependent on both manual skill and intellectual ability (cf. esp. *Morb.* I 6, discussed below in the n. on 1.2 κατὰ χεῖρα καὶ κατὰ γνώμην). In the author's view, the existence of discoveries and practitioners with the competence to make use of them gives medicine the systematic character it needs to qualify as a genuine τέχνη. Since medicine is already a genuine τέχνη with a systematic foundation, it has no need of the *new* foundation that the opponents attempt to give it with their ὑποθέσεις.

The author could hardly have rejected more strongly the opponents' attempt to base medicine on ὑποθέσεις. But what was his attitude to the use of ὑποθέσεις in the study of 'meteorology' (i.e. 'things in the sky and under the earth'), and to the study of such subjects in general? Some commentators detect in section 1.3 a tone of sarcasm or irony. In stating that ὑποθέσεις must be used when studying meteorology and that it is impossible to know whether theories concerning such matters are true or not, the author might be taken to be criticizing the study of meteorology itself as worthless (e.g. Lloyd 1963, 125 [= 1991, 67]: the author 'concedes, ironically' that ὑποθέσεις have a place in the study of things in the sky and under the earth). The charge that meteorology amounted to no more than worthless speculation was certainly common enough in the late fifth century (see n. below on 1.3 περὶ τῶν μετεώρων ἢ τῶν ὑπὸ γῆν). On the other hand, the author's primary objection is to the use of ὑποθέσεις in *medicine*; this need not mean that he disapproves of the use of ὑποθέσεις in other subjects or of the study of such subjects in general. Indeed, as noted above (pp. 113–114), the author offers a reason why ὑποθέσεις must be used in the study of meteorology: the remoteness and inaccessibility of its subject matter. His position seems to be that ὑποθέσεις, understood as principles laid down as provisional assumptions or conjectures, are necessary to give an appropriately systematic character to any account of a subject for which a secure foundation in principles confirmed by observation and experience is not available. Since the use of ὑποθέσεις in meteorology is necessitated by its subject matter, we need not suppose that the author disapproves of their use in that field (neither Wasserstein [1972, 9] nor Cooper [2002, 49] detect any irony or sarcasm in the passage).

Furthermore, the author's position vis à vis 'things in the sky and under the earth' is far from a sceptical one. He does not claim that such matters are inherently unknowable; in fact he acknowledges that one might 'recognize and state' (λέγει καὶ γινώσκει) the truth about them. His point is the more limited one that there is no way to know whether or not an account of such matters is correct, 'for there is nothing by referring to which (ἐπανενέγκαντα) one would necessarily attain clear knowledge.' This remark suggests the idea of a criterion or standard by which theories can be assessed: once a theory has been proposed, one 'refers' to a criterion in order to confirm or refute it. What this 'referring' amounts to is not clear: the author might have in mind the deliberate modification of the object under investigation and evaluation of the consequences, i.e. a kind of experiment, or simply

assessing the conformity of a theory or explanation with facts known on the basis of experience. What does seem clear is that the *lack* of such a criterion in the case of ‘things in the sky and under the earth’ results from the fact that they are remote from human experience and not susceptible to close examination. That is, the distinction between theories on meteorological topics and theories on a subject about which clear knowledge can be attained, such as medicine, is that it is possible by appeal to experience to confirm or refute the latter but not the former. What the author expresses here is not a general scepticism about the knowability of ‘things in the sky and under the earth’, but the more restricted view that theories on such subjects are not empirically verifiable. As commentators have noted, the wording of section 1.3 bears a striking resemblance to a fragment of Xenophanes (DK 21 B 34), a text which emphasizes the idea that one may hit upon the truth in discussing certain subjects but be unable to know whether one has done so. It is plausible to suppose that this remark refers in part to meteorological matters; yet Xenophanes did not refrain from proposing a wide range of theories on such subjects. Among later thinkers VM’s position is closely paralleled by that of Epicurus, who denies that there is any way to decide between competing theories about meteorology and explicitly bases this view on the impossibility of subjecting such matters to close examination (for the comparison with Xenophanes and Epicurus see n. below on 1.3 ἂ εἴ τις λέγοι ... εἰδέναι τὸ σαφές). Finally, we may note that the author’s language in section 1.3 contrasts sharply with his description of medicine in chapter 9. There we learn that medicine *has* a criterion that can be used for deciding between theories or explanations, the ‘feeling of the body’ (τοῦ σώματος τὴν αἰσθησιν 128.13 J.). In denying that meteorology has a criterion for distinguishing between true and false theories the author emphasizes that it falls short of the standards of a genuine τέχνη, one hallmark of which was a clear distinction between correct and incorrect practice (cf. *De Arte* 5, 229.14–230.2 Jouanna, L. 6.8 and Heinimann 1961, 129–130). But this means only that meteorology should not be confused with a τέχνη such as medicine, not that it is of no value in its own right as a kind of speculation. In sum, what the author offers in this passage is neither a criticism of the use of ὑποθέσεις in certain subjects nor a criticism of those subjects themselves, but rather an attempt to characterize the subjects in which ὑποθέσεις must be used as speculative and to distinguish them from medicine.

* * *

1.1 ὑπόθεσιν ... ὑποθέμενοι τῷ λόγῳ, ‘having laid down as a hypothesis for their account’: for ὑπόθεσις in the sense ‘basis’ or ‘foundation’ (LSJ s.v. VI.2) cf. Isocrates, *Panegyricus* 23. Here the ὑπόθεσις is a foundation made up of a set of qualities that the city of Athens is agreed to possess; building on this set of qualities, Isocrates will show that Athens is even greater: ‘Now it is agreed that our city is the oldest and greatest and most renowned among all people: since this foundation is so admirable (οὕτω δὲ καλῆς τῆς ὑποθέσεως οὕσης), it is fitting that we should be held in even greater esteem.’ Demosthenes employs a simile that turns on the resemblance between the ὑποθέσεις of actions and the foundations of a structure (*Ol.* 2.10): ‘For just as the lower parts (τὰ κάτωθεν) of a house, and a ship, and other such things must be the strongest, so in my opinion the beginnings (ἀρχαί) and underlying foundations (ὑποθέσεις) of actions must be true and just.’ The meaning ‘foundation’ or ‘basis’ is also implicit in Plato’s remark (*R.* 511b5–6) that the dialectician will make use of ὑποθέσεις not as first principles (ἀρχαί) but as ‘genuine ὑποθέσεις, like steps and sallies’ (τὰς ὑποθέσεις ποιούμενος οὐκ ἀρχὰς ἀλλὰ τῷ ὄντι ὑποθέσεις, οἷον ἐπιβάσεις τε καὶ ὀρμάς). Burnet, who denied that ὑπόθεσις ever had the sense ‘basis’ or ‘foundation’, may be correct that this passage offers ‘a characteristic etymological pun, such as is often introduced by τῷ ὄντι’ (1924, 51). Nevertheless these passages taken together show that fourth-century authors were aware of and sometimes appealed to the etymological meaning of ὑπόθεσις as ‘basis’ or ‘foundation’.

VM’s use of ὑπόθεσις to refer to a fundamental principle of a system of medicine (cf. above, pp. 111–113) finds a close parallel in Isocrates’ notion of the ὑπόθεσις of a life. In *Ad filios Jasonis* (*epist.* 6) 9–10 Isocrates writes that before undertaking any action in life, one must decide some preliminary questions about what goals one ought to pursue. Only after making such decisions can one act sensibly, by referring all actions back to the original ὑποθέσεις (tr. van Hook, slightly modified):

For nothing can be intelligently accomplished unless first, with full forethought, you reason and deliberate how you ought to direct your own future, what mode of life you should choose, what kind of repute you should set your heart upon, and which kind of honors you should be contented with ... and when these things have been determined, then and only then should your daily actions be considered, how they will conform with the principles laid down at the start (ὅπως συντενοῦσι πρὸς

τὰς ὑποθέσεις τὰς ἐξ ἀρχῆς γενομένας). If in this way you seriously search and study, you will take mental aim, as at a mark, at what is expedient for you, and will be the more likely to hit it. But if you make no such plan (ὑπόθεσις), but attempt to act in casual fashion, inevitably you will go astray in your purposes and fail in many undertakings.

Here ὑποθέσεις are unifying principles of life, settled on at the beginning (ἐξ ἀρχῆς) by a process of deliberation. They are the point of reference for everything that one does; when deliberating about any action, one must consider how it will contribute to the original ὑποθέσεις. Isocrates claims that if one does not lay down a ὑπόθεσις at the beginning of life, one is bound to go seriously astray in many matters; VM's opponents probably made an analogous claim about the practice of medicine without ὑποθέσεις. For the point that lack of a ὑπόθεσις makes life a chaos cf. Isoc. *Ad Demonicum* 48: 'Reflect that it is possible for the base to act haphazardly, for they have made such a ὑπόθεσις at the beginning of their life; but it is not possible for the good to neglect virtue, since they have many to rebuke them.' For the idea of a ὑπόθεσις as the reference point of all subsequent deliberation, cf. Isoc. *De pace* 18: 'For if we define these things well and sensibly, by looking towards this ὑπόθεσις we will also deliberate better about other things.' Cf. also Isoc. *Archidamus* 90: concerning the same things not all people deliberate in the same way, but 'according as each makes the ὑπόθεσις of his life at the beginning' (ὥς ἂν ἐξ ἀρχῆς ἕκαστοι τοῦ βίου ποιήσωσιν τὴν ὑπόθεσιν); D. *Ol.* 3.2: in the past it may have been possible for Athens both to take vengeance on Philip and to preserve the security of her own affairs, but now the city must concentrate on saving its allies: 'for if this is firmly set in place, then it will be possible to consider who is to be punished and how it is to be done; but until that foundation (ἀρχή) is truly laid (ὑποθέσθαι), I consider it fruitless to have any discussion of the end.'

Although there is no exact parallel for VM's use of the term ὑπόθεσις in the Hippocratic Corpus, or indeed in Greek literature more generally before the fourth century BC, the author's use of the term is not as distinctive as has sometimes been supposed; the general level of methodological awareness that it presupposes is characteristic of the late fifth century. For the idea that an account of medicine must begin by setting out a small number of basic principles cf. the opening of *Carn.* (188.1–6 Joly, L. 8.584): 'In this account I make use of opinions common to others, my predecessors, as well as my own: for it is necessary to lay down (ὑποθέσθαι) a common starting point (ἀρχή) in composing

this account of the medical art (τέχνη).’ The author goes on to give an account of the origin and development of the human being in a cosmological context that gives primary importance to a single principle, the hot (cf. Introduction, p. 22). Both Diogenes of Apollonia (DK 64 B 1) and the author of *De Arte* (ch. 4, 227.6–8 Jouanna, L. 6.6) recognize the importance of beginning an account from an indisputable starting point or principle (ἀρχή). The opening chapter of *Aff.* sets out a theory of the cause of disease that gives primary importance to hot, cold, wet, and dry; these factors also play a large role in the author’s conception of therapy (*Aff.* 1, L. 6.208; cf. Introduction, pp. 58–59). The only Hippocratic text other than VM in which the term ὑπόθεσις is used is *Flat.*, which makes a systematic attempt to show how all diseases can be explained as due to a single principle, breath or wind (φῦσα). The work begins with some general reflections: medicine is a τέχνη based on knowledge of the cause of diseases; this knowledge is essential for correct treatment, since opposites are the cure for opposites (e.g. food cures hunger, drink cures thirst, depletion cures repletion, and exercise cures rest) (*Flat.* 1, 102.1–105.5 Jouanna, L. 6.90–92). In chapter 2 the author asserts and promises to show that all diseases have a single ‘form’ (ἰδέη) and ‘cause’ (αἰτία) (105.6–11 Jouanna, L. 6.92); this will turn out to be ‘breath’ (φῦσα), defined as air enclosed in the body. Chapter 3 sets out some general considerations attesting to the power of air in the world at large, stressing its cosmological role in causing the seasons, accounting for the motion of sun, moon, and stars, nourishing the fire of the sun, and supporting the earth (105.12–107.9 Jouanna, L. 6.92–94). Chapters 4 and 5 argue specifically that air is the ultimate cause of both health and disease in living things (107.10–109.2 Jouanna, L. 6.96). In chapter 6 the author sets about explaining how all diseases are due to breath: fever and its various symptoms and manifestations (chh. 6–8), intestinal obstructions and colic (ch. 9), flux (ch. 10), lesions and ruptures (ch. 11), dropsy (ch. 12), paralysis (ch. 13), and the so-called ‘sacred disease’ (ch. 14). At the end of the text the author proudly declares that his ὑπόθεσις has been shown to be correct: ἀληθὴς ἡ ὑπόθεσις ἐφάνη (*Flat.* 15, 125.1 Jouanna, L. 6.114; on the MS variant ὑπόσχεσις cf. Jouanna 1988, 150–151). Here ὑπόθεσις refers to the basic, underlying idea of the author’s account, the claim that breath is the cause of all diseases. The parallels with VM’s opponents are striking. Like them, the author of *Flat.* is committed to the medical importance of a single principle, one which is also of great importance in accounting for cosmic phenomena. He is also committed to the claims that that principle is the cause of all

diseases and that opposites are the cure for opposites. He begins with some general considerations to establish the cosmological importance of breath, then sets about ‘narrowing down the primary cause of diseases and death’ by showing how all diseases are due to it. The author says very little about therapy, though he does remark that there is a single treatment for all cases of colic and intestinal obstruction, namely the drawing off of accumulated breath, and goes on to explain the beneficial effects of hot vapor baths as due to the dispersal of breath in the body (ch. 9, 115.13–116.9 Jouanna, L. 6.104). Commentators have argued that the use of ὑπόθεσις in *Flat.* does not provide a close parallel to VM’s use of the term, since it refers to a thesis to be proved rather than a postulate or assumption (e.g. Lloyd 1963, 110n2 [=1991, 55n15]). Yet breath certainly functions as the fundamental principle of medicine for the author of *Flat.* in just the way that hot, cold, wet, and dry function in the system of VM’s opponents. An author such as VM, confronted with a text like *Flat.*, might well have described its author as ‘laying down a hypothesis for his account’ and ‘narrowing down the primary cause of diseases and death for human beings’. Cf. Cooper 2002, 38n20.

These parallels, along with the fact that the meaning of the term ὑπόθεσις in VM emerges clearly from a reading of the text itself, should make us cautious about taking the author’s use of the term as evidence for the date of VM or for interaction between medicine and other fields. As Richard Robinson argues in his discussion of ὑπόθεσις in Plato, the notion of hypothesizing, understood as explicitly laying down a principle or proposition as a basis for further activity, is not an idea tied to any particular specialized context, but one that is likely to appear in any context in which methodological reflection has reached a certain level: the ‘logical notion of hypothesis ... did not originate in any specialized or narrow domain of human thought, such as law or medicine or mathematics, but is a natural and inevitable notion that arises wherever men use any prolonged reflection’ (Robinson 1953, 99). The texts discussed in the previous paragraph provide ample evidence that such a level had been reached in late fifth-century philosophy and medicine.

As for the claims that VM’s use of ὑποθέσεις shows close affinities to Plato’s (e.g. Diller 1952, 388–390 [= 1973, 49–51]) or to early mathematics (e.g. Lloyd 1991, 49–53), such parallels as do exist do not provide convincing evidence of influence or close interaction between medicine and these other fields (with the following remarks cf. Cooper 2002, 34–

39). While the notion of a *ὑπόθεσις* as a proposition or entity that is laid down as the basis of further inquiry is common to Plato and VM (cf. *Phd.* 100b), the method or methods of *using* *ὑποθέσεις* that Plato sets out in various dialogues are quite distinctive. In the *Meno* (86e–87b), Socrates introduces a method of investigating ‘from a hypothesis’ (ἐξ ὑποθέσεως 86e3) that he says is drawn from geometry. Socrates states that when asked if a certain area can be inscribed in a circle as a triangle, the geometers respond by specifying a condition: if the area is of a certain type, it can, but if it is not of that type, it cannot. They then examine whether the area fulfills the specified condition. The mathematical details of the example are obscure, but the application of the method to the investigation into virtue (ἀρετή) is clear enough. Instead of investigating directly whether virtue is teachable, Socrates and Meno first establish that if virtue is knowledge, then it is teachable, and if not, not; they then focus on the question whether virtue is knowledge. On the most plausible interpretation of the passage, the proposition ‘virtue is knowledge’ is itself the *ὑπόθεσις* (cf. Robinson 1953, ch. 8). If so, the term *ὑπόθεσις* is used here not of a proposition assumed by the investigator to be true, but of a condition that implies and is implied by the proposition under investigation; once the condition has been specified, the investigation centers on determining whether or not it holds. Although the use of the phrase ‘on a hypothesis’ (ἐξ ὑποθέσεως) to qualify a particular style of investigation is paralleled in VM (133.8 J.), there is no reason to think that VM’s opponents conceived of *ὑποθέσεις* as conditions or employed such a method of substitution. A further aspect of Plato’s method in both the *Phaedo* and *Parmenides* is the evaluation or testing of *ὑποθέσεις* to determine which should be accepted (*Phd.* 101d3–e1; *Prm.* 135c7–136c5). Commentators have drawn on these discussions to suggest that VM’s opponents should be understood as setting down *ὑποθέσεις* in order to test them, rejecting those that conflict with other beliefs and accepting those that do not (Festugière 1948, 25; cf. Burnet 1924, 46). But as Robinson argues (1953, 112), while the testing of *ὑποθέσεις* is a feature of Plato’s method in certain contexts, this is best viewed as a late and rather specialized development; for Plato a *ὑπόθεσις* is not fundamentally a proposition laid down in order to be tested, but rather a proposition laid down as a basis or foundation for further inquiry of any kind. As far as mathematics is concerned, the passage from the *Meno* discussed above is the primary evidence for the use of *ὑποθέσεις* in early geometry; while this passage does suggest that geometers used the term *ὑπόθεσις* and had a definite conception

of a method that they termed 'hypothetical' (ἐξ ὑποθέσεως), there is (as noted above) no obvious similarity between the use of ὑποθέσεις that Plato attributes to the geometers and their use in medicine. The *Republic* suggests that the term ὑπόθεσις was used by mathematicians for the definition of fundamental notions such as even number or acute angle (510b–511e; cf. Burnyeat 2000, 25–26; Lloyd 1979, 114; Robinson 1953, 103ff.). Socrates criticizes the mathematicians for giving no account of these notions, on the ground that they are clear to all; they simply make use of them as starting points from which to derive a body of propositions or theorems. In contrast, dialectic recognizes that the ὑποθέσεις of mathematics are really only provisional foundations that must eventually be replaced by an 'unhypothetical first principle' (ἀνυπόθετος ἀρχή) (511b3–c2; cf. 533c–d). There are some general similarities between VM's use of ὑποθέσεις and the use that Socrates ascribes to the mathematicians: in both cases ὑποθέσεις play a fundamental role in a theoretical system, and in both cases they are accepted as true, not set down as merely provisional starting points or foundations. But the ὑποθέσεις of VM's opponents are not definitions, and the author does not imply that his opponents failed to give any justification for them. Thus, while it is certainly *possible* that the use of ὑποθέσεις in medicine was influenced by mathematics or vice versa, the evidence we have (which is limited to these Platonic passages) simply cannot establish this with certainty. Both medicine and mathematics were undergoing a gradual process of systematization in the late fifth century, and it is not surprising if a broadly similar concept of ὑπόθεσις arose in both fields.

A common assumption among commentators who have emphasized the similarities between VM and the Platonic and/or mathematical use of ὑποθέσεις is the view that the use of ὑποθέσεις implies a deductive procedure. Cf. Festugière 1948, 26: 'l'auteur réproouve en médecine l'emploi de l'ὑπόθεσις, c'est-à-dire d'un principe fondamental extrinsèque à l'Art et d'où l'on tirerait, *par déduction logique*, des conséquences' (my emph.); for similar remarks see Wasserstein 1972, 9–10 and Lloyd 1991, 51–52. But it is quite mistaken to view the opponents of VM, or indeed the cosmological theorists on whom they apparently drew, as constructing their theories by deduction from their ὑποθέσεις. The opponents are best viewed as using their ὑποθέσεις to work out a medical system that accounts for a wide range of phenomena of health and disease. They are committed to the assumptions that the cause of any specific disease is one of the ὑποθέσεις and that its cure is the opposite of the cause. Using these assumptions they could draw simple deduc-

tions: for any disease, they could deduce immediately that its cause is one or another of the *ὑποθέσεις* and that its cure is the opposite. But what they need to do to work out their system is to explain how it is that a particular disease is caused by a particular principle. What is it that unites this disease with others caused by the same principle, and distinguishes it from those caused by another? To answer these questions, they need to offer an analysis of diseases that reveals their underlying similarities and differences. In some cases little argument may be required to justify the claim that a particular principle is the cause; in others, a substantial amount of justification may be needed. Again *Flat.* provides an excellent illustration of the method the author attacks (cf. above, pp. 122–123 and next n.). It is the search for phenomena that can unite apparently distinct diseases and their symptoms under one or two causal principles, not the drawing of deductive inferences on the model of mathematics, that is at the core of the method VM attacks. Cf. Cooper 2002, 38; he rightly rejects the notion that the opponents' method is a deductive one, and aptly describes their introduction of *ὑποθέσεις* as an attempt to offer 'an illuminating and unifying set of ideas for working through the phenomena in a satisfying way.'

1.1 ἐς βραχὺ ἄγοντες, 'narrowing down': the phrase announces a major theme in the author's argument, viz. the claim that the opponents' theories are too simplistic to account for the diversity of phenomena that are relevant to medicine. Throughout the text the author emphasizes the diversity of effects that different foods have on different individuals, and he mocks the opponents for claiming that the various changes that go on in cooking could be explained by reference to hot, cold, wet, and dry alone (cf. esp. 13.3, 14.1). Of course the author also objects to the opponents' specific choice of principles, and he argues at some length that hot and cold do not play an important role in causing disease (16–19). But his primary objection in the present passage is that the opponents suppose *one or two* factors to be the cause of disease and death in all cases. This criticism of causal reductionism as such is striking in light of the tendency towards highly reductive explanations that characterizes so much ancient Greek philosophy and science. We may consider three examples. (1) The author of *Flat.* makes a systematic attempt to show that all diseases are due to air or wind in the body (cf. above, pp. 122–123). The characteristic feature of his procedure is the search for common features of apparently different diseases or symptoms of a single disease that allow them to be grouped together and explained by

reference to a single cause. As an example we may consider the author's attempt to show how fever and its symptoms are caused by air (chapters 6–8). He first divides fevers into two classes, those that affect all people in a given locality and those that affect only those individuals who follow a particular regimen. Fevers of the former type are said to be caused by impurities (μιάσματα) in the air itself; since all people breathe the same air, it is reasonable for them to be affected in the same way (ch. 6, 109.9–12 Jouanna, L. 6.98). To the objection that such fevers usually affect humans but not animals, the author responds that the effect depends on the nature (φύσις) of the affected creature, and that human φύσις is different from that of animals (ch. 6, 110.2–9 Jouanna, L. 6.98). The author thus explains why air is the cause of such cases of fever by identifying a characteristic feature of air (the same air is breathed in by all), explaining why this feature establishes air's causal role (the cause must be something common to all those affected), and responding to a particular objection against its being the cause. As for the other class of fevers—those caused by bad regimen—the author claims that much air enters the body along with food, citing the evidence of belching (ch. 7, 111.10–112.1 Jouanna, L. 6.100). This air moves throughout the body and cools the bloody parts, leading to shivering, the first symptom of fever. Trembling of the limbs is caused by the motion of the blood to the warmest parts of the body. Yawning is caused by breath that forces the mouth open like a lever; just as steam rises from a kettle of boiling water, breath pushes its way out of the body when the body is heated (ch. 8, 113.11–114.2 Jouanna, L. 6.102). When the blood has collected together, the breath in the body is heated by it, then moves throughout the body and causes the heat that is characteristic of fever (ch. 8, 114.3–8 Jouanna, L. 6.102). Sweating is caused when the air impacts the pores of the body, just as steam rising from boiling water condenses if it strikes a solid surface (ch. 8, 114.9–15 Jouanna, L. 6.102). Headache is caused by blockage of the vessels (φλέβες) in the head by air (ch. 8, 115.1–8 Jouanna, L. 6.102–104). Thus the author succeeds in explaining fever and all its apparently unrelated symptoms by appealing to a few characteristic actions of air, most of them familiar from daily life: the same air is breathed in by all in a given region; air cools and heats; it pushes its way out of closed containers when heated and condenses on solid surfaces; and it can impede the passage of fluids through closed vessels. (2) In *De Generatione et Corruptione* (GC) B 2, Aristotle attempts to show that all tactile qualities other than heavy and light are in fact different forms of hot, cold, wet, and dry. His procedure is based on iden-

tifying certain characteristics that are common to a particular quality and one of these primary qualities. For example, thinness or fineness (τὸ λεπτόν) can be ‘reduced’ (ἀνάγεται) to the wet or moist (τὸ ὑγρόν), because the nature of both is to fill up: ‘For since the moist has no determinate shape, but is readily adaptable and follows the outline of that which is in contact with it, it is characteristic of it to be such as to fill up. Now the fine is such as to fill up. For the fine consists of subtle particles; but that which consists of small particles is such as to fill up, inasmuch as it is in contact whole with whole—and the fine exhibits this character in a superlative degree. Hence it is evident that the fine derives from the moist, while the coarse derives from the dry’ (*GC* 329b34–330a4, tr. Barnes). Since all other qualities can be reduced to hot, cold, wet, or dry, but these cannot be reduced to one another or to any more elementary qualities, they must be the primary qualities of perceptible body: ‘It is clear, then, that all the other differences reduce to (ἀνάγονται) the first four, but that these admit of no further reduction’ (*GC* 330a24–26, tr. Barnes; on Aristotle’s method in this passage cf. Solmsen 1960, 336–339). Aristotle frequently uses the term ἀνάγειν to mean ‘reduce’, in the sense of bringing a diversity of cases under a few general principles. Among other examples are the reduction of all opposites to the great and small (e.g. *Ph.* 189b27; *Metaph.* 983a28, 994b17) and the reduction of all syllogisms to those of the first figure (*A Pr.* 29b1, 23; 40b19, 41); cf. Bonitz 1870 s.v. ἀνάγειν. (3) The author of the Aristotelian *Mechanical Problems* (*Mech.*)—a text that probably dates from the early third century BC—writes that the circle is the ‘primary cause’ (τῆς αἰτίας τὴν ἀρχὴν 847b16–17, cf. next n.) of all mechanical phenomena; the meaning is that all such phenomena can be explained in terms of circular motion: ‘The things that occur with the balance can be reduced (ἀνάγεται) to the circle, the things that occur with the lever to the balance, and practically all other mechanical movements can be reduced to the lever’ (*Mech.* 848a11–14). After discussing the properties of the circle and showing how they explain the balance, the author explains the operation of the lever by analyzing it as a kind of balance, then goes on to analyze a large number of mechanical phenomena familiar from technology and daily life in terms of the operation of the lever. Again the core of the method is the search for common features of apparently different phenomena. This procedure enables the author to explain a wide variety of mechanical phenomena in terms of a single principle, and he nowhere acknowledges that there may be mechanical phenomena that cannot be explained within this framework.

1.1 τὴν ἀρχὴν τῆς αἰτίας, ‘the primary cause’: the phrase builds on a widespread association between the notions of ἀρχή (‘starting point’, ‘principle’) and cause. The most common use of ἀρχή in the Hippocratic writings is in adverbial expressions meaning ‘originally’ or ‘in the beginning’; in VM cf. τὴν ἀρχὴν (3.1, 120.16 J.; 3.3, 121.12 J.; 16.7, 141.7 J.); ἐν ἀρχῇ (5.1, 124.2 J.); ἀπ’ ἀρχῆς (7.1, 126.6 J.). ἀρχή is often opposed to τελευτή or similar terms expressing the idea of end; cf. *Loc. Hom.* 1, 36.1–3 Craik (L. 6.276, tr. Craik): ‘In my view, there is no beginning (ἀρχή) in the body; but everything is alike beginning (ἀρχή) and end (τελευτή). For when a circle has been drawn, its beginning (ἀρχή) is not to be found. And the beginning of ailments comes from all the body alike.’ Just as in the *Iliad* the ‘beginning of the quarrel’ (ἀρχὴ νεῖκεος) between Greeks and Trojans (the abduction of Helen) is both the origin and cause of the Trojan War (*Il.* 22.16; cf. Hdt. 5.97.2), so in the Hippocratics ἀρχή when used of the ‘beginning’ of a disease frequently carries the sense of cause as well. Thus at VM 10.3, 130.14 J., where the author mentions the effects that can result for some individuals when they deviate from their normal diet and says that these effects are the ‘beginning of disease’ (ἀρχὴ νόσου), it is reasonable to suppose that he views them as the cause of the ensuing diseases as well (cf. 10.4, 131.9 J.). More explicitly, the author of *Morb.* I remarks that chill (ῥίγος) is considered to be both the cause (αἴτιον) and beginning (ἀρχή) of pleuritis (ch. 26, L. 6.194.17–18: νομίζουσι δὲ ταύτης τῆς νόσου τὸ ῥίγος αἴτιον εἶναι καὶ ἀρχήν). The author of *Flat.* states that the doctor must know ‘what is the cause (τὸ αἴτιον) of diseases, and what is their beginning (ἀρχή) and source (πηγή)’; he goes on to remark that if one knows the cause (αἰτία) of a disease, one will also know how to cure it (*Flat.* 1, 103.13–104.4 Jouanna, L. 6.92). A number of Hippocratic passages state that the best way to treat a disease is to deal with its ἀρχή: since the ἀρχή of a disease is also its cause, the idea in these passages is simply the common one that the best way to treat a disease is to attack its cause. Cf. *Loc. Hom.* 31, 70.16–19 Craik (L. 6.324); *Loc. Hom.* 1, 36.23–25 Craik (L. 6.278); *Aff.* 25, L. 6.236.19–25. *Morb.* IV illustrates both the connection between ἀρχή and cause and the concern to identify a small number of ἀρχαί as responsible for all diseases. At the beginning of chapter 49 the author announces his intention to give an account of the ἀρχαί of disease, and makes clear that in doing so he will also be giving an account of why human beings fall ill: ‘I wish now to state in greater detail why it is that men become diseased (διότι νοσέουσιν οἱ ἄνθρωποι): in this account I shall state what the initial causes (ἀρχαί) of

disease are and what effects each of them brings about' (*Morb.* IV 49, 104.21–24 Joly, L. 7.578). He identifies three ἀρχαί of disease—plethora (an excess of humor), violence (wounds, contusions, or fatigue), and the weather—and explains their effects on the body in detail (chh. 49–53). The author also uses ἀρχή in a concrete sense of a humor in the body that has the capacity to provoke disease: the presence of a small amount of phlegm in the body is not felt 'provided that no other morbid principle (ἀρχή) remains in the body' (*Morb.* IV 35, 88.20–21 Joly, L. 7.550). Cf. the almost identical statement for bile at ch. 36, 89.22–23 Joly (L. 7.552), with Lonie's remarks (1981, 282, 334–335).

In these passages ἀρχή tends to retain its basic temporal connotation and refer to the *initial* cause of disease. But it is not far from this usage to the notion of ἀρχή as a *primary* cause, i.e. a cause that is not necessarily first in a temporal sequence, but rather fundamental in a conceptual or theoretical sense. It is this idea that is conveyed by the phrase τὴν ἀρχὴν τῆς αἰτίας in the present passage: the opponents take one or more of the ὑποθέσεις hot, cold, wet, and dry to be the primary or fundamental cause of all diseases. The implication is that the effects of any other causal factors that might be invoked, such as weather or diet, can be analyzed in terms of these factors. For ἀρχή as fundamental or primary cause cf. *Epid.* II 4.5, L. 5.126.13–14: 'but one must proceed to the evident cause (πρόφασις), and of the evident cause (πρόφασις), the origin (ἀρχή)' (ἀλλ' ἐπὶ τὴν πρόφασιν δεῖ ἐλθεῖν καὶ τῆς προφάσιος τὴν ἀρχήν). A close parallel to VM's language and thought is again provided by the Aristotelian *Mechanical Problems*, which states that the circle is the 'primary cause' (τῆς αἰτίας τὴν ἀρχήν) of all mechanical phenomena (*Mech.* 847b16–17; cf. p. 128 above). On ἀρχή as 'principle' cf. n. on 2.1 ἀρχή (pp. 147–148 below).

1.1 ἀμφὶ τέχνης ἐούσης, 'concern an art that really exists': for similar use of the participle ἐούσα to stress existence cf. *De Arte* 2, 225.9–10 Jouanna (L. 6.2): 'Now I think, to speak generally, that there is no art that does not exist' (Δοκεῖ δὴ μοι τὸ μὲν σύμπαν τέχνη εἶναι οὐδεμία οὐκ ἐούσα); *De Arte* 5, 228.12–14 Jouanna (L. 6.8): 'And this is a strong piece of evidence that the art really exists and is great' (Καὶ τοῦτό γε τεκμήριον μέγα τῇ οὐσίῃ τῆς τέχνης ὅτι ἐοῦσά τέ ἐστι καὶ μεγάλη).

1.1 χειροτέχνας καὶ δημιουργούς, 'craftsmen and practitioners': a χειροτέχνης is literally 'one who works with his hands'; the term was used of any craftsman skilled in manual work. For the doctor as a 'crafts-

man of healing' (χειροτέχνης ἰατρορίας), mentioned alongside the bard or αοιδός, cf. Sophocles *Tr.* 1001. In Plato and Aristotle χειροτέχνης and related terms sometimes stress manual over intellectual competence and carry pejorative connotations in keeping with these authors' disdain for banausic activity (e.g. Pl. *Plt.* 259c10–d1, *R.* 405a; Arist. *Metaph.* 981a30–b6). In the Hippocratic writers χειροτέχνης is a general term for a medical practitioner who possesses both knowledge and manual skill, and is practically equivalent to ἰατρός. Cf. VM 7.1, 126.4 J.; *Aff.* 1, L. 6.208.16–20; and esp. *Aff.* 45, L. 6.254.9–14, which states that discoveries requiring the intellect (γνώμη) can only be made by χειροτέχναι (cf. n. below on 1.2 εὑρητο). Whereas χειροτέχνης suggests the nature of the craftsman's activity, δημοουργός suggests the practitioner's social role: a δημοουργός is literally 'one who works for the people (δῆμος)'. Cf. Hom. *Od.* 17.383–385, where the healer (ἱητήρ) is mentioned as an example of a δημοουργός alongside the seer (μάντις), carpenter (τέκτων), and bard (αοιδός). In Plato's *Symposium* the doctor Eryximachus uses the term δημοουργός of the accomplished medical practitioner, the one who is ἰατροικώτατος (186c5–d5). Cf. Arist. *Pol.* 1282a3–7, where the medical practitioner (δημοουργός) is contrasted with both the master craftsman (ἀρχιτέκτων) and the educated layperson (ὁ πεπαιδευμένος περὶ τὴν τέχνην) who has the capacity to make correct judgments about medical matters (Introduction, pp. 44–45). Festugière infers from such passages that δημοουργός was the *vox propria* for medical practitioner in the fourth century (1948, 28); but if so it is remarkable that the term is quite uncommon in the Hippocratic Corpus itself. Aside from three instances in VM (all in the present chapter) it occurs only twice, in *De Arte* (8, 233.4 Jouanna, L. 6.14; 8, 234.6 Jouanna, L. 6.14). In both VM and *De Arte* δημοουργός is used in the context of general arguments that are not restricted to medicine; it seems to have been the standard term for practitioner in such discussions. The opposition of δημοουργός to ἰδιώτης is frequent in Plato (cf. *Prt.* 312b, 322c, 327c; *Plt.* 298c; *Ion* 531c).

1.2 ἔσκεπτο, 'had been examined': I translate σκέπτομαι consistently as 'examine' (cf. 5.1, 8.1, 11.1, 14.2, 24.1, and σκέψιος 4.2); it suggests close visual observation, as in the doctor's examination of the patient (e.g. *Prog.* 2, L. 2.112–118).

1.2 εὑρητο, 'discovered': the notion that medicine is made up of a body of discoveries that enable the doctor to overcome chance or luck (τύχη) figures in a number of Hippocratic treatises. (1) The author of *Loc. Hom.*

conceives of medicine as a complete body of discoveries that provide knowledge of both the character of diseases and the correct methods of treating them; as in VM, a grasp of this knowledge robs *τύχη* of all its power by giving the doctor control and mastery of the affairs of the sick (*Loc. Hom.* 46, 84.17–24 Craik, L. 6.342; cf. Introduction, p. 7). (2) *De Arte* opens with a praise of discoveries and a rebuke of those who attempt to undermine them (ch. 1, 224.1–225.2 Jouanna, L. 6.2). For this author the notions of *τέχνη* and discovery are so closely linked that an attack on discovery amounts to an attack on *τέχνη* itself. The author considers discoveries to be the result of intelligence (*σύνεσις*), associates them with experts as opposed to lay people, and conceives of discovery as a cumulative process of bringing to completion what has already been accomplished in part (ch. 1, 224.1–12 Jouanna, L. 6.2). Later he remarks on the discovery of cures for diseases with externally manifest symptoms: such cures have all been discovered, and so treatment of these diseases should admit no error; moreover such discoveries can only be made by those with a certain education (*παιδείη*) and natural aptitude (*φύσις*) (ch. 9, 235.3–8 Jouanna, L. 6.16). For diseases with no evident symptoms, medicine has discovered means of diagnosis that force nature to reveal the hidden state of the body; these techniques are fundamental to the ability of doctors to treat such diseases (ch. 12, 240.1–13 Jouanna, L. 6.22–24). (3) The opening chapters of *Vict.* place a similar emphasis on the importance of discovery. The author begins by saying that none of his predecessors has succeeded in giving a complete account of human regimen, but then goes on to praise them for their efforts (*Vict.* 1, 122.3–10 Joly, L. 6.466). He conceives of the knowledge necessary for the systematic regulation of human diet and regimen as a body of discoveries that have in large part already been made, whether by himself or by his predecessors: these include knowledge of the original constitution of the human body and of the capacities of foods, drinks, exercises, geographical and climatic factors to affect it (ch. 2, 122.22–124.17 Joly, L. 6.468–470). Discovery has its limits, for it is impossible to discover a balance between food and exercise that is appropriate for each individual patient (ch. 2, 124.17–24 Joly, L. 6.470). But some discoveries can still be made by building on the results already achieved, and the author proudly claims to have made one himself: a technique for anticipating the onset of disease that he dubs ‘prodiagnosis’ (*προδιάγνωσις*) (ch. 2, 124.28–126.4 Joly, L. 6.472). (4) In contrast to the texts discussed so far, the author of *Aff.* claims that certain discoveries about drugs can be made by chance (*ἀπὸ τύχης*)

and by the lay person just as well as the expert (χειροτέχνης) (ch. 45, L. 6.254.9–14). Still, even this author holds that professional competence is necessary for making some kinds of discoveries about drugs and about foods. On discovery in *Aff.* cf. Wenskus 1996; for the idea of chance discovery, cf. Aristotle's remark at *Po.* 1454a10 that effective tragic plots were discovered by chance (τύχη), not art (τέχνη).

1.2 ἄπειροί τε καὶ ἀνεπιστήμονες, 'lacking in both experience and knowledge of it': the view that professional competence requires both experience and knowledge is stated or implied by a wide range of Hippocratic authors. The close association between experience and knowledge is especially clear at the opening of *Flat.* After contrasting the difficulties medicine brings to its practitioners with the benefits it confers upon its patients, the author continues with some general remarks on the character of professional competence (*Flat.* 1, 103.5–13 Jouanna, L. 6.90). He distinguishes between the manual and intellectual sides of medicine, associates the ability to treat hidden diseases with the latter, and states that in such cases the difference between πείρα and its opposite (ἄπειρίη) is most apparent; the term πείρα thus refers not just to experience, but to professional competence in general, a combination of knowledge and first-hand experience (cf. Jouanna 1988, 130). For ἄπειρίη as general incompetence cf. *Lex* 4, L. 4.640.15–642.2; for a close parallel to VM's remark that incompetent practitioners lack both experience and knowledge cf. *Mul.* I 62, L. 8.126.4–19; women often do not reveal the cause of the disease from which they are suffering to physicians, even if they know what it is, since they feel shame on account of their inexperience (ἄπειρίη) and ignorance (ἀνεπιστημοσύνη). Finally, though the author of *De Arte* draws a clear distinction between what is known on the basis of the senses and on the basis of intelligence (γνώμη), and makes the latter a key component of professional competence (cf. ch. 11, 237.11–17 Jouanna, L. 6.20), he nowhere suggests that experience is restricted to the former (cf. Appendix 1). He refers to doctors as 'those experienced in this craft' (οἱ ταύτης τῆς δημοουργίης ἔμπειροι, ch. 8, 234.4–5 Jouanna, L. 6.14) and then a few lines later as 'those who have adequate knowledge of this art' (τοῖσι ταύτην τὴν τέχνην ἱκανῶς εἰδόσι, ch. 9, 234.13–14 Jouanna, L. 6.16). Cf. also ch. 6, 230.6–9 Jouanna (L. 6.10), where the author uses the adjective 'ignorant' (ἀνεπιστήμων) of a lay person as opposed to a doctor.

1.2 τύχη, ‘by chance’: for full discussion of the contrast between τέχνη and τύχη, which is fundamental to the author’s thought, see the Introduction, sec. 1.1.

1.2 ὥσπερ καὶ τῶν ἄλλων τεχνέων πασέων, ‘just as practitioners of all the other arts’: the resemblances and differences between medicine and other τέχναι were an important topic of professional debate (above, p. 116). Cf. *Morb.* I 1, L. 6.142.1–2: one of the things that anyone who wants to be able to ask and answer questions about medicine must know is ‘which of the other arts it is like and which it is completely unlike’ (καὶ τῶν τεχνέων τῶν ἄλλων ἥσιν τε ἔοικε, καὶ ἥσιν οὐδὲν ἔοικε).

1.2 κατὰ χεῖρα καὶ κατὰ γνώμην, ‘in manual skill and in judgment’: the notion that τέχνη involves both manual skill and intellectual ability goes back to the Homeric poems. Cf. *Il.* 3.60–63, where Hector’s heart is compared to ‘an unyielding axe, which cuts through a tree at the hands of a man who with skill and judgment (τέχνη) cuts out a ship timber, and it increases the man’s force’ (αἰεὶ τοι κραδίη πέλεκυς ὥς ἐστιν ἀπειρής, / ὅς τ’ εἶσιν διὰ δουρὸς ὑπ’ ἀνέρος, ὅς ῥά τε τέχνη / νήϊον ἐκτάμνησιν, ὁφέλλει δ’ ἀνδρὸς ἐρωήν). The carpenter has both the skill to use the axe and the judgment to apply that skill in the way needed to achieve his goal. In the Hippocratic Corpus the author of *Flat.* distinguishes two aspects of the medical art, works (ἔργα) of the body (σῶμα) and those of the mind or intelligence (γνώμη); the former involve manual activity (χειρουργῆσαι) and are learned by habituation (ἔθος), while the latter depend on judgment (δόξα) rather than skill (τέχνη) and reveal the difference between competence (πεῖρα) and incompetence (ἀπειρία) (*Flat.* 1, 103.5–13 Jouanna, L. 6.90; cf. n. above on 1.2 ἀπειροὶ τε καὶ ἀνεπιστήμονες). The author of *Morb.* I gives a number of examples of mistakes in judgment (κατὰ γνώμην) and errors in manual skill (κατὰ χειρουργίην) (ch. 6, L. 6.150.6–20). Examples of the former are misdiagnosing a disease, misjudging the severity of a disease, saying a patient will die when he will survive and vice versa, failing to recognize (γινώσκειν) an abscess, failing to recognize a large disease being nourished in the body, not recognizing when the patient needs a drug, not curing cases that are curable, and saying of incurable cases that they will be cured. Examples of mistakes in manual skill are failing to recognize (γινώσκειν) pus in a wound, failing to recognize fractures and dislocations, failing to recognize a fracture when probing the skull, being unable to get a catheter into the bladder, failing to recognize

stone in the bladder, failing to recognize an abscess after shaking the body, falling short in depth or length when cutting or burning, and cutting or burning what should not be cut or burnt. While each one of this second group of examples involves some manual activity, the fact that the author consistently uses the verb ‘recognize’ (γινώσκειν) in describing what he classifies as failures in manual skill (χειροουργίη) indicates that he views them as requiring judgment as well: use of the hands must be accompanied by application of the mind. Cf. *Acut.* 4, 37.11–17 Joly (L. 2.230–232), where good medical practice is described as the performance of certain actions in ways that require manual skill: quickly, neatly, and with a minimum of pain. Yet the author also says that it is necessary to apply the mind or intellect (προσέχειν τὸν νοῦν) in performing each of these actions. A similar view is expressed in the surgical works *Fract.* and *Art.* Though these texts are chiefly concerned with setting out manual procedures for the doctor to perform, they also require application of the intellect in the performance of those operations and often criticize doctors for errors in judgment as well as inept handling of a patient. Cf. *Art.* 11, L. 4.104.20–22 (on the treatment of frequent dislocation of the shoulder): ‘some do not even attempt to treat it, while others in both thought and action (φρονέοντάς τε καὶ ποιέοντας) perform in ways that are the opposite of what is beneficial’. For further passages in these works implying that professional competence involves both thought and action see Knutzen 1964, 28–29; cf. also his comment on p. 28: ‘Immer wieder also teilt sich in beiden Schriften die Aussage über ärztliches Verfahren in diesen Doppelaspekt von φρονεῖν und ποιεῖν, wobei deutlich sein dürfte, daß die Reflexion nicht parataktisch in zwei Aspekte auseinanderfällt, sondern bewußt zu einer doppelten Betrachtung auseinandergebogen wird.’

1.3 καινῆς, ‘newfangled’: this is the reading of A, followed by both Heiberg and Jouanna; M reads κενῆς ‘empty’, followed by Littré and Jones (1923, 1946). There are no paleographical grounds for choosing one reading over the other; as Jouanna notes (1990, 119n3), the confusion of α with ε is common. But καινῆς is more appropriate to the argument the author is making here. The thrust of his argument in chapters 1 and 2 is that medicine is already a τέχνη with a foundation that guarantees its systematic character; hence it has no need of the *new* foundation that the opponents propose to give it. Moreover καινός frequently carries connotations of ‘strange’ or ‘foreign’ as well as ‘new’ (LSJ s.v. II), making it quite appropriate to express the author’s deri-

sive attitude towards the opponents' innovation; hence the translation 'newfangled'. Cf. 133.7–8 J, where the author refers to his opponents as 'those who pursue their researches in the art according to the new method (καινὸν τρόπον), from a hypothesis.' The principal objection to καινῆς is that it appears to be incompatible with the author's vehement assertion that medicine has no need of a ὑπόθεσις: for on this reading he seems to be saying only that medicine does not need a *new* ὑπόθεσις, not that it can dispense with ὑποθέσεις altogether. Cf. Jones 1923, 14n1: 'the writer's objection is not that the postulate is novel but that it is a postulate'; Jones 1946, 66: 'καινῆς would imply that the old τέχνη of medicine was based on a postulate, which the writer sturdily denies.' But while the author certainly does deny that medicine should be based on a ὑπόθεσις in the sense of a 'postulate' or 'assumption', he does *not* mean to deny that medicine needs a ὑπόθεσις in the sense of a 'foundation' or 'fundamental principle' (cf. Herter 1963a, 277–278 [= 1975, 200–201], and pp. 143–144 below). What he objects to here is the opponents' attempt to give medicine a *new* foundation, one that in his view amounts to no more than a mere assumption or postulate. As for the reading κενῆς, perhaps the author understands ὑποθέσεις to be 'empty' (cf. LSJ s.v. κενός 2: 'empty, fruitless, void') because theories based on them can never be verified: talk of things in the sky and under the earth is just a lot of empty banter, since there is no way to know if one has hit upon the truth when discussing such matters. Cf. Jones 1946, 66: 'A ὑπόθεσις has no place in medicine, being unverifiable, "empty", so that nothing can be got out of it.' But this would strongly suggest that the author views speculation about 'things in the sky and under the earth' as worthless; I have given reasons for rejecting this interpretation above (pp. 118–119). The choice of reading is a delicate one, but on balance καινῆς is better suited to making the author's main point: the inappropriateness of the use of ὑποθέσεις in *medicine*. Cf. Cooper 2002, 50n35.

1.3 τὰ ἀφανέα τε καὶ ἀπορεόμενα, 'obscure and dubious matters': ἀφανῆς sometimes means simply 'invisible', but it may also have the stronger connotations of 'obscure', 'uncertain', or 'doubtful' (cf. LSJ s.v. 2.b). It is this stronger sense that best captures the author's meaning here, as the pairing with ἀπορεόμενα suggests: 'things in the sky and under the earth' are obscure because theories about them can never be decisively confirmed or rejected. Cf. Alcmaeon DK 24 B 1: 'Concerning things that are obscure as well as mortal things the gods have certainty, but

for us as humans there is only conjecture' (περὶ τῶν ἀφανέων, περὶ τῶν θνητῶν σαφήνεια μὲν θεοὶ ἔχοντι, ὥς δὲ ἀνθρώποις τεκμαίρεσθαι). For the notion that what is ἀφανής is outside the realm of verification cf. Herodotus' remark (2.23) that a person who ascribes the flooding of the Nile to the river Ocean 'since he has carried his story back into obscurity, is not subject to refutation' (ὁ δὲ περὶ τοῦ Ὠκεανοῦ λέξας ἐς ἀφανὲς τὸν μῦθον ἀνερείκας οὐκ ἔχει ἔλεγχον); see further p. 141 below. For 'meteorology' as obscure or ἀφανής cf. also Euripides fr. 913 (quoted below, p. 138).

1.3 περὶ ὧν ἀνάγκη ... ὑποθέσει χρῆσθαι, 'Concerning these things ... to say anything at all about them': the translation attempts to capture the fact that περὶ ὧν both connects with the previous clause ('Concerning these things') and serves as complement to λέγειν ('to say anything at all *about them*').

1.3 περὶ τῶν μετεώρων ἢ τῶν ὑπὸ γῆν, 'about things in the sky or under the earth': as Capelle shows (1912), outside of the Aristotelian tradition the term τὰ μετέωρα referred to both celestial and atmospheric phenomena; it was Aristotle who first drew a sharp distinction between astronomy and meteorology, corresponding to his distinction between the celestial and sublunary realms. Thus the phrase 'things in the sky' (τὰ μετέωρα) included both astronomical phenomena such as the solstices or the waxing and waning of the moon as well as meteorological phenomena such as thunder and lightning. Interest in such phenomena is attested for virtually all thinkers who participated in the Presocratic inquiry into nature; see Kahn 1960, 75–118 for discussion of the evidence relating to Anaximander. Cf. also Plato *Prt.* 315c, where Socrates describes how he observed people placing questions to the Sophist Hippias 'about nature and things in the sky' (ἐφαίνοντο δὲ περὶ φύσεώς τε καὶ τῶν μετεώρων ἀστρονομικά ἅττα διερωτᾶν τὸν Ἱππίαν). Subterranean matters discussed in the tradition of Presocratic inquiry included the cause of earthquakes, what supports the earth, the geography of the subterranean regions (particularly Empedocles; cf. Sen. *Q. Nat.* II.24 = DK 31 A 68, Pl. *Phd.* 111c–e), and the temperature of subterranean water (cf. Oenopides of Chios DK 41 11, Anaxagoras DK 59 A 42, Diog. Apoll. DK 64 A 18, Lucr. 6.840–847, and Hp. *Nat. Puer.* 24–26 with the remarks of Lonie 1981, 223–225). The range of subjects discussed in Epicurus' *Letter to Pythocles*, the topic of which is τὰ μετέωρα, gives a good idea of the kinds of topics the author of VM probably had

in mind here: the sun, moon, stars and planets, weather signs, clouds, thunder and lightning, winds, hail, snow, dew, the rainbow and haloes, comets, shooting stars, and earthquakes.

While interest in these celestial, subterranean, and atmospheric phenomena was an important part of Presocratic inquiry, that inquiry also ranged far more widely; cf. Pl. *Phd.* 96a–c and Introduction, sec. 1.3). But as Capelle notes (1912, 422), the term *μετεωρολόγος* was used in the fifth century as a general designation for those who engaged in the inquiry into nature: ‘Und schon früh wird das Wort *μετεωρολόγος* auch in weiterer Bedeutung, der des Physikers oder des Naturphilosophen überhaupt, gebraucht, da es Forscher, die sich ausschliesslich mit dem *μετέωρα* beschäftigten, damals nicht gab, sondern wer über die Dinge in der Höhe forschte, die gesamte φύσις in den Bereich seines Denkens zog.’ This extended use of *μετεωρολόγος* to refer to those whom Aristotle would later call *φυσικοί* or *φυσιολόγοι* is characteristic of polemical contexts that stress the obscurity of the matters studied by the inquiry into nature, or the impiety of investigating them. Cf. Euripides fr. 913: ‘he who looking upon these things has no thought of god, but casts far and wide the twisted deceptions of the meteorologists, whose baneful tongue talks at random about the obscure, with no measure of intelligence’ (ὅς τάδε λεύσσων θεὸν οὐχὶ νοεῖ, / μετεωρολόγων δ’ ἐκάς ἔρριπεν / σκολιάς ἀπάτας, ὧν ἀτηρὰ / γλώσσ’ εἰκοβολεῖ περὶ τῶν ἀφανῶν / οὐδὲν γνώμης μετεχοῦσα); Gorg. *Hel.* 13: ‘To see that persuasion when added to speech molds the mind as it wishes, one should consider first of all the speeches of the meteorologists (τῶν μετεωρολόγων), who by substituting opinion for opinion, demolishing one and implanting another, make things unbelievable and obscure (τὰ ἄπιστα καὶ ἄδηλα) evident to the eyes of the mind.’ The pairing of ‘things in the sky’ (τὰ μετέωρα) with ‘things under the earth’ (τὰ ὑπὸ γῆν) is a hallmark of the anti-Socratic polemic that goes back to Aristophanes’ *Clouds* (cf. 188 ζητοῦσιν οὔτοι τὰ κατὰ γῆς; 228 τὰ μετέωρα πράγματα). In Plato’s *Apology* the investigation of ‘things in the sky and under the earth’ is presented as a stock concern of intellectuals, like ‘making the weaker argument the stronger’; cf. 18b7–c1, 19b4–c1, and esp. 23d. The stress in these passages is on the impiety of investigating such matters; the celestial and subterranean realms were traditionally regarded as the abodes of the gods (Jouanna 1990, 119n4). In VM, as in Gorgias and Euripides, the emphasis is on obscurity: subterranean phenomena are literally invisible, while those that take place in the heavens or the sky are beyond the range of close observation.

The dismissal of meteorology as worthless speculation is common in Plato; cf. *R.* 488c4–489a1 (μετεωροσκοπόν τε καὶ ἀδολέσχην καὶ ἄχρηστον), 489c6 (ἀχρηστους ... καὶ μετεωρολέσχας), *Plt.* 299b7–8 (μετεωρολόγον, ἀδολέσχην τινὰ σοφιστήν). It goes back to the fifth century; cf. *Ar. Nub.* 333 (μετεωροφέναιες), 360 (μετεωροσοφισταί). But the medical writers tend to focus on the relationship of meteorology to medicine rather than the nature of meteorology itself. (1) The author of *Aer.*, after saying that the doctor needs to know about the rising and setting of the stars so that he will be aware of the changing of the seasons, insists that even though such topics might seem to be proper to ‘meteorology’ (εἰ δὲ δοκεῖ τις ταῦτα μετεωρολόγια εἶναι), they are nonetheless essential to medicine: for ‘astronomy’ (ἀστρονομία) has a large contribution to make to medicine (ch. 2, 189.10–14 Jouanna, L. 2.14; cf. the author’s discussion of the formation of rain at ch. 8, 206.11–207.4 Jouanna, L. 2.34–36). (2) Immediately after announcing that it is necessary to lay down a common ‘starting point’ or ‘principle’ (ἀρχή) when giving an account of the medical art, the author of *Carn.* states that he will not discuss ‘things in the sky’ (τὰ μετέωρα) except insofar as they are relevant to medicine (*Carn.* 1, 188.6–11 Joly, L. 8.584; cf. Introduction, pp. 21–22, 51–52). These passages indicate that the relationship of medicine to the study of τὰ μετέωρα was an active topic of intellectual debate in the late fifth century. VM’s remarks in the present section are best interpreted as taking a stand in this debate rather than as expressing an opinion on the value of meteorological speculation in its own right; cf. above, pp. 118–119 and next n.

1.3 ἂ εἴ τις λέγοι ... εἰδέναι τὸ σαφές, ‘If anyone should recognize ... attain clear knowledge’: as a number of commentators have noted, the author’s thought and language have close parallels in a fragment of Xenophanes (DK 21 B 34):

As for the certain truth, no man has known, nor will any know it, concerning the gods and everything about which I speak. For even if one might chance to say what is the case, still he himself does not know; opinion has been set over all things.¹

¹ καὶ τὸ μὲν οὖν σαφές οὐτις ἀνὴρ ἴδεν οὐδέ τις ἔσται
εἰδὼς ἀμφὶ θεῶν τε καὶ ἅσσα λέγω περὶ πάντων·
εἰ γὰρ καὶ τὰ μάλιστα τύχοι τετελεσμένον εἰπὼν,
αὐτὸς ὅμως οὐκ οἶδε· δόκος δ’ ἐπὶ πᾶσι τέτυκται.

Like VM, Xenophanes recognizes the possibility that in discussing certain subjects a person may hit upon the truth but be unable to know that he has done so. The original context of fragment B 34 is far from clear, but it seems likely that the topics to which Xenophanes is referring included cosmology and meteorology as well as the nature of the gods. Commentators ancient and modern have taken the fragment to express a radical scepticism about the possibility of human knowledge about such matters; such scepticism would imply that any attempt to construct theories to explain them is pointless (cf. S.E. *M.* 7.46–52; Barnes 1982, 136–143). Yet adherence to the view expressed in B 34 did not prevent Xenophanes from proposing a wide range of theories on questions such as the nature of the rainbow, the shape and position of the earth, and large-scale processes of cosmic change. The rainbow is a cloud, ‘purple and red and green to behold’ (DK 21 B 32). The earth extends downwards without limit (εἰς ἄπειρον, DK 21 B 28.2). According to Hippolytus, Xenophanes claimed that what is now dry land was once covered in mud, and adduced the evidence of seashells found in the mountains and fossils of marine animals found in quarries (DK 21 A 33). Xenophanes also had theories of the nature of the stars, sun, and moon (all formed from cloud: A 38, A 40, A 43), St. Elmo’s fire (A 39), eclipses (A 41, 41a), comets and shooting stars (also types of cloud: A 44), lightning (formed when clouds are ignited: A 45), and the formation of cloud itself from water drawn up by the heat of the sun (A 46). Xenophanes’ remark that the only guide to the matters about which he speaks is ‘opinion’ (δόξος) does not imply that all theories about such matters are just arbitrary guesses. Elsewhere he refers to opinions that are similar to the truth, and envisions the gradual extension and development of human knowledge over time; cf. B 35: ‘Let these opinions be accepted as resembling the truth’ (ταῦτα δεδοξάσθω μὲν εἰκότα τοῖς ἐτύμοις); B 18: ‘The gods have not revealed all things to mortals from the beginning, but over time, by seeking, they discover more and more’ (οὗτοι ἀπ’ ἀρχῆς πάντα θεοὶ θνητοῖς ὑπέδειξαν, ἀλλὰ χρόνῳ ζητοῦντες ἐφευρίσκουσιν ἄμεινον). As various commentators have pointed out, Xenophanes’ theorizing on questions of cosmology and meteorology is firmly based on human experience and goes beyond it to a limited and carefully defined extent (cf. Hussey 1990, 22–26). In light of this evidence, DK 21 B 34 is best taken as making the limited point that any discussion of matters that cannot be verified by direct human experience, such as various cosmological and meteorological questions or the nature of the gods, must remain provisional. It is not a

dismissal of all such theorizing as worthless conjecture. Given the close parallel between Xenophanes B 34 and VM 1.3, it is reasonable to suppose that VM's attitude towards theories concerned with 'things in the sky and under the earth' was similar to Xenophanes': such theories, though provisional, are not for that reason worthless or arbitrary. Cf. Fränkel 1974; Barnes 1982, 139; Longrigg 1993, 100–103.

A further close parallel to the idea expressed in the present passage is Herodotus' remark that the person who ascribes the flooding of the Nile to the river Ocean 'since he has carried his story back into obscurity (ἐξ ἀφανέζ), is not subject to refutation (οὐκ ἔχει ἔλεγχον)' (2.23; cf. above, p. 137). Gomperz may be right to take this as a general dismissal of any hypothesis that cannot be refuted as unworthy of discussion (1896–1909, 1:223: 'damit eine Hypothese irgendwelcher Beachtung wert, damit sie diskussionsfähig sei, muß sie im letzten Grunde der Bewahrheitung zugänglich sein'). Yet although he recognizes that the question is obscure (ἀφανής), Herodotus goes on to propose his own explanation of the flooding of the Nile, viz. that it is caused by the movement of the sun (2.25). The flooding of the Nile was a problem discussed by many of the intellectual figures known for their interest in 'things in the sky and under the earth': Thales (DK 11 A 16), Thrasyalkes (DK 35 1), Oenopides (DK 41 11), Anaxagoras (DK 59 A 42, 91), Diogenes of Apollonia (DK 64 A 18), and Democritus (DK 68 A 99). Of these views the explanations of Thales (the Etesian winds) and Anaxagoras (the melting of snows in the south) correspond to the views rejected by Herodotus in 2.20 and 2.22, respectively; Herodotus' own explanation, given at 2.24–27, appeals to the sun's ability to draw up moisture and closely resembles that of Diogenes of Apollonia. Herodotus, then, though he dismisses *mythical* explanations as beyond refutation and so unworthy of discussion, is not dismissive of controlled speculation on topics such as meteorology—however provisional such speculation must remain.

Finally, Epicurus provides a close parallel for VM's notion that it is impossible to confirm or refute theories of meteorological phenomena because of their remoteness and inaccessibility to close observation. A fundamental Epicurean tenet is the view that meteorological phenomena may come about in a number of ways, and it is rash to suppose that any single explanation is the only correct one (*Ep. Hdt.* 80; *Ep. Pyth.* 86, 94). This view rests on a sophisticated conception of scientific method that involves both a procedure for formulating hypotheses about obscure phenomena and methods of testing such hypotheses.

Since meteorological phenomena are seen only from a distance and it is not possible to observe how they occur at close range, we must suppose that they come about in ways analogous to the phenomena in our experience; the manner in which these occur *can* be observed directly (*Ep. Pyth.* 80, 87). Any explanation contradicted by the phenomena in our experience must be rejected as false, while any explanation that does not conflict with our experience must be accepted as true. In the case of most meteorological phenomena, analogy suggests a number of hypotheses that are consistent with experience, and it is therefore rash to suppose that any one of them is the single correct one (cf. Allen 2001, 195–205). It would be an exaggeration to claim that VM's attitude to the study of meteorology rested on a conception of scientific method as sophisticated as Epicurus'. Yet both VM and Epicurus suggest that a special method of investigation is needed to study meteorological phenomena because they cannot be examined at close range. For VM this is the use of ὑποθέσεις; for Epicurus, the use of analogy. And VM and Epicurus share the notion that it is impossible to decide between different explanations of meteorological phenomena because of their remoteness and inaccessibility. That Epicurus nonetheless considered it important to offer a large number of explanations of such phenomena provides further evidence that it was quite possible to recognize the impossibility of attaining certainty about such matters without dismissing the attempt to investigate them as worthless. Cf. above, pp. 118–119 and, for a broadly similar view of the author's attitude towards contemporary cosmological theorizing, Cooper 2002, 49–50.

1.3 οὐ γὰρ ἐστὶ πρὸς ὃ τι χρὴ ἐπανενέγκαντα εἰδέναι τὸ σαφές, 'for there is nothing by referring to which one would necessarily attain clear knowledge': I follow Jouanna in reading ἐπανενέγκαντα with M, against A's ἀνενέγκαντα; at 128.12 J. both A and M read ἀναφέρων, showing that there is little difference between the two readings. For the sense cf. 9.3, 128.10–13 J.: in prescribing therapy there is no 'measure' (μέτρον) to which the doctor can refer to gain precise knowledge (πρὸς ὃ ἀναφέρων εἴη τὸ ἀκριβές) except the feeling of the patient's body (τοῦ σώματος τὴν αἴσθησιν). In both passages the verbs ἐπαναφέρω and ἀναφέρω express the idea of appeal to a criterion: in the present passage, the purpose is to determine the truth or falsity of theories about 'things in the sky and under the earth', while at 128.12 J. it is the assessment of different therapeutic prescriptions (cf. Commentary *ad loc.*). At 10.1, 129.16 J. ἐπαναφέρειν refers to consideration of the

evidence provided by a set of phenomena—the reactions of the healthy to deviations from a normal diet—rather than appeal to a standard. This flexibility in the author’s usage indicates that for him ἀναφέρω and ἐπαναφέρω are not technical terms with a fixed meaning. Similar flexibility is apparent in Platonic usage; cf. *R.* 484c5–d3, *Phdr.* 237c–d, *Cra.* 425d. The more specialized use of ἀναφέρω and ἐπαναφέρω to mean ‘refer’ to evidence or a standard builds on the common use of these terms in the sense of ‘referring’ a matter to a person or source of authority (see LSJ s.v. ἀναφέρω 6b; ἐπαναφέρω a). Cf. Hdt. 1.157 (the citizens of Cyme decide that they will ‘refer to the god’ [ἐς θεὸν ἀνοίσειν], i.e. consult an oracle for advice), 7.149 (on the question of making peace Spartan envoys must ‘refer to the people’ [ἀνοίσειν εἰς τοὺς πλεῦνας]), and 2.23 (ἐς ἀφανὲς τὸν μῦθον ἀνενείκας).

2

The author continues his argument against the proponents of ὑποθέσεις. Medicine has long since possessed both a ‘starting point’ or ‘principle’ (ἀρχή) and a ‘way’ or ‘method’ (ὁδός) that together make up everything it needs. These have led to many discoveries in the past and will lead to still more in the future (2.1). To make a discovery by any other method is impossible, and anyone who thinks he has done so is deceived (2.2). Doctors must speak in a way that is intelligible to lay people; otherwise their statements will be irrelevant to the medical facts. Hence, once again, medicine has no need of a ὑπόθεσις (2.3).

The emphasis on the fact that medicine has *long since* (πάλαι 119.12 J.) been in possession of both an ἀρχή and a ὁδός builds on the contrast set up in chapter 1 between medicine as an established τέχνη and the opponents’ attempt to place it on a *new* foundation. It is striking that the author uses the term ἀρχή so soon after characterizing his opponents as ‘narrowing down the primary cause (τὴν ἀρχὴν τῆς αἰτίας) of diseases and death for human beings’ (1.1). He appears to be using the opponents’ language to argue that medicine already *has* the kind of foundation they claim to be giving it. Moreover, because of the close association between ὑπόθεσις and ἀρχή in chapter 1 (the opponents narrow down the ‘primary cause’ [τὴν ἀρχὴν τῆς αἰτίας] of diseases and death by ‘laying down as a hypothesis for their account’ [ὑπόθεσιν ... ὑποθέμενοι τῷ λόγῳ] one or two factors as the cause in all cases), the author in saying that medicine has an ἀρχή comes close to saying

that it also possesses a kind of *ὑπόθεσις*. Of course he avoids saying that medicine has long been in possession of a *ὑπόθεσις*, presumably because the term was a favorite of his opponents and had in his view acquired certain connotations ('postulate', 'assumption') that made it inappropriate to use of the 'foundation' of medicine. But insofar as *ὑπόθεσις* refers to a fundamental principle that guarantees medicine its systematic character, the author's position is not that medicine does not need a *ὑπόθεσις*, but that it already *has* one that is entirely sufficient for its needs (cf. n. below on 2.1 *ἀρχή* and above, pp. 135–136).

What the author means in claiming that medicine has both an *ἀρχή* and a *ὁδός* is not immediately clear. Translators are divided between 'starting point', 'beginning', and 'principle' for *ἀρχή* and 'way' or 'method' for *ὁδός* (see nn. below). This variation is no accident, for the author seems to be making two claims. First, medicine originated long ago in the past: it has an established starting point (*ἀρχή*) in time and therefore needs no new foundation. Taking *ἀρχή* in this sense suggests that the *ὁδός* is the 'path' or 'way' that the development of medicine followed over the course of time and that is marked out for it to follow in the future. The author situates medicine within a long process of historical development: many discoveries have been made in the past, but some still remain to be made, and indeed will be made as long as medicine continues to develop along the established path (*ὁδός*). But when the author states in section 2.2 that anyone who attempts to investigate 'in another way and another manner' (*ἐτέρῃ ὁδῷ καὶ ἐτέρῳ σχήματι*) and claims to have made a discovery is deceived, he is using *ὁδός* in the more abstract sense of procedure or method of discovery. Taking *ὁδός* in this methodological sense in turn suggests that *ἀρχή* refers to a methodological starting point or principle, i.e. a fundamental truth that underlies a method of making discoveries (picking up the use of *ἀρχή* in the phrase *τὴν ἀρχὴν τῆς αἰτίας* 118.4 J.). Again the implication is that medicine already has the kind of systematic method that the opponents claim it lacks.

Building on chapter 1, the opening of chapter 2 places a remarkable emphasis on the notion of discovery. The author uses the verbs *εὐρίσκω* and *ἐξευρίσκω* 'to discover' five times in the first sentence and twice more in section 2.2; the discoveries that have been made in medicine are said to be both many and admirable (*πολλά τε καὶ καλῶς ἔχοντα*). It is evident that when he says that medicine has long since been in possession of a method, the author is talking about a method of discovery. It might seem that he has thereby missed the point of the opponents'

innovation: whereas they probably claimed that their ὑποθέσεις gave medicine a systematic method of treatment, the author responds that medicine has a systematic method of discovery. In fact, however, the author probably did not distinguish between the claim that medicine has a systematic method of making discoveries and the quite different claim that it has a systematic method of treatment. The reason for this lies in his conception of what a discovery is: it is in the nature of discoveries that they are reached by a systematic method and are the basis of systematic methods of therapy. Discoveries are the end point of the method of investigation and the starting point of the procedures used in treatment (cf. below, pp. 148–149). The notion of discovery is associated with the idea of gradual, cumulative progress (cf. Edelstein 1967b, Dodds 1973). Medicine has developed over a long period of time, and new discoveries can only be made by building on what is already known; hence each discovery adds to a continually growing body of medical knowledge (cf. *Vict.* 1; above, n. on 1.2 εὔρητο). Moreover, medical progress is ongoing: though the *method* used to make discoveries was worked out long ago, and all medical discoveries may one day be made by following this method, at the present time medicine has not yet been completely discovered (contrast *Loc. Hom.* 46; above, n. on 1.2 εὔρητο). The author's optimism about the possibility of further progress in medicine shows that he is not opposed to innovation *as such*. From his point of view medical innovations are to be welcomed, as long as they are made by following the proper method. But anyone who attempts to make a discovery by another method 'has been deceived and continues to deceive himself'. Though the author does not argue for this claim here, he remarks that it will be established in the sequel, which will make clear 'what the art is' (ὅ τι ἐστίν 2.2; cf. n. *ad loc.*).

Section 2.3 has sometimes been regarded as a kind of appendix or footnote to the author's opening argument against the use of ὑποθέσεις in medicine (cf. Jones 1946, 67). But careful examination reveals that it contributes directly to that argument (cf. Pigeaud 1977). (1) First, despite the views of some commentators (e.g. Festugière 1948, ix n. 2), the passage is not primarily concerned with the delivery of a speech about medicine to a lay audience; the author is not announcing the procedure he will follow in the remainder of VM itself. He says that the affections (παθήματα) from which people suffer are the proper subject of medical discussion, and he envisions a speaker as reminding a lay audience of their affections. But VM itself does not provide a detailed account of the affections suffered in various diseases, even if the author does

insist on the need for the doctor to have knowledge of them (cf. 14.2). This suggests that what the author has in mind here is a therapeutic situation in which the doctor engages in dialogue with his patient and perhaps a crowd of bystanders. Such discussions were an integral part of the therapeutic process in ancient medicine, and it makes good sense to say that they should be restricted to the affections that the patient actually suffers; contrast 15.2, where the author imagines an opponent as prescribing something purely hot or cold for his patient and then having to face some embarrassing questions. (2) Second, section 2.3 is not concerned solely with the transmission of medical knowledge from a doctor to his listeners. The point is not just that the doctor's ability to convey information to the patient depends on his using language that the patient can understand. The passage is concerned not with teaching but with the acquisition of medical knowledge by both patient and physician. True, the doctor has knowledge of affections and their causes that it is difficult for patients to acquire on their own. Yet the validity of the doctor's knowledge depends on the patient's recollection of his own experiences in disease: if the doctor fails to remind the patient of those experiences, he will 'miss the truth' (τοῦ ἐόντος ἀποτεύξεται 120.14 J.). In other words, the truth or falsity of the doctor's statements is determined by whether or not the patient is reminded of his own experiences when he hears the doctor's explanations. Since he lacks medical training, the patient can only report his own affections as he has experienced them. The doctor's role is to explain their significance, their causes, and how they fit into a pattern of disease; in so doing he must cause the patient to recollect what he has experienced. The acquisition of medical knowledge is thus the result of a reciprocal process between patient and physician: neither can learn apart from the other. In this process the patient's own experiences are the ultimate criterion for assessing the truth or falsity of the doctor's statements. The argument thus picks up the notion of a criterion from the end of chapter 1: unlike meteorology, medicine *has* a criterion for assessing the truth and falsity of statements made in a therapeutic situation, viz. the patient's own experiences in disease. Since both section 2.3 and section 1.3 appeal to the idea of a criterion, it is appropriate for the author to end the chapter by remarking that 'for this same reason' (διὰ ταῦτα οὖν ταῦτα) medicine has no need of a ὑπόθεσις.

* * *

2.1 ἀρχή, ‘principle’: translators are divided between ‘starting point’ *vel sim.* (e.g. Diller 1975, 88; Jouanna 1990) and ‘principle’ (e.g. Capelle 1922, 262–263; Jones 1923; Festugière 1948; Kühn 1956, 6). As indicated above (p. 144), this reflects a genuine ambiguity in the author’s usage. While the temporal sense is clearly present (medicine has a starting point in the distant past, as chapter 3 will explain), ἀρχή also has the more abstract connotation of ‘principle’, a kind of fundamental truth that underlies the method of discovery. Cf. Kühn 1956, 29: ‘Die Empirie (i.e. the method VM recommends) verfügt über eine ἀρχή, wobei es schwer ist, den Begriff exakt zu fassen, da er *bald konstituierenden Anfangsakt, bald zugrundeliegendes Prinzip bedeutet*, und sie verfügt über eine ὁδός, ohne daß auch dieser Begriff der Zweideutigkeit entbehrt, da er einmal Entwicklung, zurückgelegten Weg, dann aber auch Methode bezeichnet.’ The meaning ‘principle’ is suggested most directly by the way in which the author picks up the language of chapter 1, where the phrase τὴν ἀρχὴν τῆς αἰτίας refers to the ‘primary cause’ of disease (1.1; see n. *ad loc.*). In a number of Hippocratic passages ἀρχή is used of the ‘starting point’ or ‘principle’ of a method or account of medicine; in some cases the term seems to carry both senses. The author of *Morb.* I says that one of the questions a person must be able to answer in a medical debate is what is the beginning (ἀρχή), middle, and end in medicine (ch. 1, L. 6.140.13–14). His own answer is that medicine has no ‘demonstrated starting point’ (ἀποδεδεγμένη ἀρχή): there is no single way to begin when treating patients, since different situations call for different starting points of treatment (ch. 9, L. 6.156.14–20; cf. *Decent.* 9, L. 9.238.3–6, which refers to the knowledge of drugs as the ἀρχή, middle, and end in medicine). ἀρχή seems to mean both ‘starting point’ and ‘principle’ in the mysterious remark at the beginning of *Virg.* (L. 8.466.1–4): ‘The beginning (ἀρχή) of medicine is in my opinion the principle of the ever-existing. For it is not possible to know the nature (φύσις) of diseases, which it is the aim of the art (τέχνη) to discover, if one does not know the original (κατὰ τὴν ἀρχὴν) undivided nature, from which it has been divided out.’² In several passages ἀρχή refers to the starting point of an account of medicine. The author of *Loc. Hom.*

² Ἀρχή μοι τῆς ξυνθέσιος τῶν αἰειγενέων ἱητρικῆς· οὐ γὰρ δυνατόν τῶν νοσημάτων τὴν φύσιν γινώσκειν, ὃ πέρ' ἔστι τῆς τέχνης ἐξευρεῖν, ἣν μὴ γινῶ τὴν ἐν τῷ ἀμερεῖ κατὰ τὴν ἀρχὴν, ἐξ ἧς διεκρίθη.

writes that the φύσις of the body is the beginning (ἀρχή) of an account (λόγος) of medicine (ch. 2, 38.4 Craik, L. 6.278). The author of *De Arte* says that he will begin his speech from an ἀρχή that will be agreed to by all: that some people are benefited by undergoing medical treatment (ch. 4, 227.6–8 Jouanna, L. 6.6). Here the ἀρχή is a proposition that functions as the starting point of the author's discussion, not a principle that underlies his account. But when the author of *Carn.* states that it is necessary to begin his account of the medical τέχνη by laying down (ὑποθέσθαι) an ἀρχή that is common (i.e. widely shared), ἀρχή refers to both a starting point and a principle on which the rest of his account is based (*Carn.* 1, 188.1–6 Joly, L. 8.584; cf. above, pp. 121–122).

These Hippocratic passages reflect a growing concern in the late fifth century to define the characteristics that a genuine ἀρχή should have (cf. Schofield 1997, 225–226). The passages from *De Arte* and *Carn.* discussed in the previous paragraph both express the idea that an ἀρχή should be beyond dispute; similarly, Diogenes of Apollonia (DK 64 B 1) states that an account should begin from an ἀρχή that is indisputable (ἀναμφισβήτητος). The fragments of Philolaus of Croton indicate a concern with the status and nature of ἀρχαί as well as an attempt to set out a systematic method of using ἀρχαί in different areas of investigation (Huffman 1993, 78ff.; Schofield 1997, 222–225). The dispute between the author of VM and his opponents must be viewed against this background. The difference of opinion between the author and his opponents boils down to a disagreement about the character of the ἀρχή on which medicine is based. In the author's view, medicine has no need of a principle (ἀρχή) laid down as a ὑπόθεσις (a 'postulate' or 'assumption'), for it already rests on a principle (ἀρχή) that has been established and confirmed by long experience. Cf. Kühn 1956, 31: 'Der Autor de prisca medicina ist ein scharfer Kritik der Hypothesis-medicin und lehnt eine in ὑπόθεσις gesetzte ἀρχή ab, aber nicht jede ἀρχή, vielmehr bemüht er sich mit stärkstem Nachdruck, auch in der von ihm vertretenen Medizin eine ἀρχή nachzuweisen. An diesem Punkte kann kein Zweifel bestehen, daß er sich der von den Gegnern vertretenen Lehre anpaßt.' Cf. also Schofield 1997, 226: 'On *Ancient Medicine* is the first surviving document from ancient Greece to ask explicitly and in general terms whether the ἀρχή of explanation is a matter for speculative and reductive hypothesis or for the lessons of long and various experience.'

2.1 ὁδός, 'method': just as ἀρχή is both 'starting point' and 'principle', ὁδός is both 'way' *vel sim.* (e.g. Festugière 1948; Diller 1975, 88;

Jouanna 1990) and ‘method’ (e.g. Jones 1923; Kühn 1956, 6; Capelle 1922, 262–263). Cf. Kühn 1956, 29 (quoted p. 147 above) and Becker 1937, 128n59: ‘Die Techne ist eine Sammlung von εὑρημένα in Gestalt eines Weges, den die suchende Forschung in langer Zeit gegangen ist, und auf dem sie immer weiterschreitet, das Weitere findend, dessen man bedarf. Dieser Weg ist also zugleich Ausweg für das Unternehmen der Heilung und der Gang eines Wissenszusammenhangs, zugleich darstellende (bestehende) und schaffende Erkenntnis, zugleich Theorie und Praxis.’ The term ὁδός is common in the Hippocratic writers, but almost always in the concrete sense of ‘path’ or ‘way’; the abstract sense of ‘method’ is quite unusual. The closest parallel to the present passage is *Epid.* VI 3.12 (L. 5.298.4–9):

The summary conclusion comes from the origin and the going forth, and from very many accounts and things learned little by little, when one gathers them together and studies them thoroughly, whether the things are like one another; again whether the dissimilarities in them are like each other, so that from dissimilarities there arises one similarity. This would be the road (i.e. method [ὁδός]). In this way develop verification of correct accounts and refutation of erroneous ones.³

The meaning is hardly perspicuous, but the author is apparently describing some sort of method of discovery by a progression towards higher levels of generalization (‘so that from dissimilarities there arises one similarity’). For ὁδός as a method of treatment cf. *Loc. Hom.* 34, 72.20–24 Craik (L. 6.326). Outside the Hippocratic Corpus the metaphorical use of ὁδός for a way of inquiry occurs in Parmenides (DK 28 B 2, B 6, B 7, B 8) and (less unambiguously) in Hdt. 2.20; cf. Becker 1937, 114–115.

2.2 ὃ τι ἐστίν, ‘what the art is’: depending on the reading adopted, the author promises to show either ‘what the art is’ (cf. ὃ τί M²) or ‘that the art exists’ (ὅτι A, followed by Jouanna). There are no paleographical grounds for accepting one reading over the other. But on grounds of content the former is much to be preferred. The author has already given a general argument *that* medicine is a τέχνη (1.2); his purpose in the following chapters is not to provide further argument for that

³ Κεφάλαιον ἐκ τῆς γενέσιος καὶ ἀφορμῆς καὶ πλείστον λόγων καὶ κατὰ σμικρὰ γνωσκομένων ξυνάγοντα καὶ καταμανθάνοντα εἰ ὁμοιά ἐστιν ἀλλήλοισιν, αὐτὶς τὰς ἀνομοιότητας τούτοιςιν, εἰ ὁμοίαι ἀλλήλοισιν εἰσίν, ὥς ἐκ τῶν ἀνομοιοτήτων ὁμοιότης γένηται μία· οὕτως ἂν ἡ ὁδός· οὕτω καὶ τῶν ὁρθῶς ἐχόντων δοκιμασίη, καὶ τῶν μὴ, ἔλεγχος. Text and translation Smith.

claim but rather to show that, given the *kind* of τέχνη that medicine is, no other method of discovery is possible for it. An argument *that* medicine is a τέχνη would not provide a reason to think that it can have only one possible method. But this claim might be supported if it could be shown that medicine's method of discovery was the only possible response to the situation that stimulated its development; this idea figures prominently in the sequel (cf. αὐτὴ ἡ ἀνάγκη 121.2 J.). It is, then, an explanation of *what* medicine is that the author promises to give here. Cf. Cooper 2002, 26n5.

2.2 ἀδύνατα ἔοντα ... εὐρίσκεισθαι, 'discoveries cannot be made by any means other than these': i.e. in any way other than by following the established principle (ἀρχή) and method (δόξος).

2.3 γνωστά, 'that can be understood': the meaning is not 'known' or 'understood' (Festugière and Littré: 'connues'; Jones 1923 and 1946: 'familiar'); this rendering suggests that the doctor must speak only of what is *already* known to lay people, and so obscures the fact that the passage is concerned with the patient's acquisition of medical knowledge, (cf. above, p. 146). Similarly at 120.13 J. the term γνώμη refers to the capacity of lay people to understand; for a similar use of γνώμη to refer to the intelligence or cognitive faculty cf. *Flat.* 1, 103.7–8 Jouanna (L. 6.90), where the works of γνώμη are contrasted with the works of the body (σῶμα).

2.3 τοῖσι δημότησιν, 'by lay people': δημότης is synonymous with ἰδιώτης in the present passage (cf. ἰδιωτέων 120.13 J.) and in other Hippocratic works; cf. *Acut.* 6, 38.6–18 Joly (L. 2.234–238). In *Flat.* 1 δημότης is opposed to ἰατρος; cf. esp. 103.5–8 Jouanna (L. 6.90).

2.3 Αὐτοὺς μὲν οὖν ... τῶν ἑωυτῷ συμβαινόντων, 'Now for them to learn ... the things that are happening to him when he hears them': the author conceives of the therapeutic situation as one in which dialogue between patient and physician leads to increased knowledge on the part of both; cf. above, pp. 145–146. Cf. also *Mul.* I 62, L. 8.126.4–19, which remarks that female patients are often ignorant of the nature of their diseases and of their causes; furthermore they are often hesitant to describe their diseases to male doctors out of shame, even if they know the cause. This often leads to women's diseases becoming incurable 'before the doctor can be instructed (διδαχθῆναι) correctly by the sick

woman about the reason for her sickness' (L. 8.126.11–12). Yet doctors too are often to blame in such cases, for they ask the wrong questions of their patients and treat them as though they were men. The doctor must listen to his patient as much as the patient must listen to her doctor, and a failure of the two to engage in dialogue leads to negative consequences. The idea that doctor and patient must engage in a genuine dialogue is also prominent in two passages of Plato's *Laws* (720a–e, 857c–e; below, pp. 349–350). No doubt Plato's attempt in these passages to assimilate the doctor-patient interaction to something like Socratic dialectic (cf. φιλοσοφείν, *Lg.* 857d2) involves a certain amount of exaggeration and idealization. But in their emphasis on the idea that successful medical therapy requires a dialogue between patient and physician, Plato and VM share a common conception of the ideal doctor-patient relationship.

2.3 ἀναμνησκειται, 'recalling': for the patient, the process of acquiring knowledge of disease involves recollection of his experiences. Diller characteristically interprets this as an allusion to the Platonic theory of recollection (1952, 394–395 [=1973, 55–57]). But there is no question here of the patient's recollecting highly abstract and general knowledge that he once possessed and had forgotten, as in the Platonic theory; the patient's recollection of his own experiences in disease is merely a sign that the doctor has hit upon the truth in his explanations. Cf. Jouanna 1990, 120n4; Pigeaud 1977, 201–202.

2.3 τῶν ἔοντῳ συμβαινόντων, 'the things that are happening to him': as Pigeaud observes (1977, 200), this phrase may be taken as depending on both ἀναμνησκειται 'recalling' and ἀκούων 'hears'. The patient is reminded of his affections as he hears them described by the doctor. It is not necessary to supply a specific reference to the doctor, as Festugière does in his translation ('en écoutant le médecin').

2.3 τοῦ ἔοντος ἀποτεύξεται, 'he will miss the truth': an example of the so-called veridical use of εἶναι to denote what is the case, i.e. the truth. The usage is found also in Herodotus, e.g. 1.30.3, 1.97.1, 9.11.5. Littré, followed by other commentators, compares Pl. *Phd.* 66a, where Socrates describes 'the person who will hit upon reality' (ὁ τευξόμενος τοῦ ὄντος) as the one who investigates things with the mind alone, independently of any sense perception (L. 1.560n1). But while the language is similar, the meaning is quite different. Socrates is talking

about the study of Forms, which have a more genuine existence than the particulars that participate in them; hence the one who grasps the Forms can be said to ‘hit upon reality’ (τοῦ ἔόντος τυγχάνειν). No such metaphysical overtones attach to the phrase τοῦ ἔόντος ἀποτεύξεται in VM; the meaning is simply that the person in question will fail to state what is the case.

2.3 διὰ ταῦτα οὖν ταῦτα, ‘for this same reason’: A reads διὰ ταῦτα οὖν ταῦτα; M and the majority of editors omit the second ταῦτα. But it is better to assume that the first ταῦτα in A is a copyist’s error for ταῦτά. ‘For this same reason’ nicely captures the point that sections 1.3 and 2.3 give essentially the same reason why medicine has no need of a ὑπόθεσις: the existence of a reliable criterion for judging the truth or falsity of medical theories (above, pp. 145–146). For the repetition cf. Pl. *Gr.* 518a5 (ταῦτα οὖν ταῦτα); *Ap.* 19c1 (ἄλλους ταῦτα ταῦτα διδάσκων); *Hp. Nat. Hom.* 2, 170.1–2 Jouanna (L. 6.36) (ταῦτα δὲ λέγω ταῦτα).

3

The opponents’ attempt to place medicine on a new foundation launches the author into an account that traces its origin back to the very beginnings of human culture. Medicine, understood as the ability to prescribe a beneficial regimen for the sick, would never have been sought for or discovered if the same foods and drinks were beneficial for the healthy and the sick (3.1). It was necessity itself that gave rise to medicine (3.2). But just as regimen for the sick would never have been discovered if the same foods were beneficial for the healthy and the sick, so regimen for the healthy would never have been discovered if the same foods were beneficial for human beings and animals (3.3). In the beginning human beings ate the same foods as animals and suffered terribly from them (3.3–4). Because of this suffering, people discovered cooking: they learned how to prepare a diet that was properly adapted to the human constitution (3.5). Though this ability may seem quite distinct from medicine, in fact it fully merits the name, since it rescued human beings from the suffering and death caused by their primitive diet and made it possible for them to enjoy health and strength (3.6).

By tracing the origin of medicine back to the discovery of regimen for the healthy rather than the sick, the author emphasizes the fact that medicine is an ancient and solidly established art. Far from being

a recent innovation, like the opponents' introduction of *ὑποθέσεις*, medicine dates from a time so far back in the past that human beings still ate the same food as animals. The description of medicine as a response to necessity and need (*αὐτὴ ἡ ἀνάγκη* 121.2 J., *διὰ δὲ ταύτην τὴν χρεῖν* 122.6 J.) brings out the contrast with the opponents still more. Medicine, a *τέχνη* developed to alleviate human suffering, contrasts sharply with speculation on topics such as 'things in the sky and under the earth', which does not answer to any critical human needs. But the relationship between cooking and medicine is not merely a temporal one; the point is not just that the latter developed after the former. The starting point (*ἀρχή*) in the discovery of both was a fact of the same kind: the different reactions of different individuals to the same foods. From the methodological point of view, the *ἀρχή* of medicine is not the point in time at which it was first discovered, but the principle that different individuals are affected differently by the same foods (cf. n. above on 2.1 *ἀρχή*).

The notion that human beings originally led a brutal and savage existence accompanied by terrible suffering is an idea that recurs in a number of fifth- and fourth-century texts dealing with the origins of culture (cf. n. below on 3.4 *ὑπὸ ἰσχυρῆς τε καὶ θηριώδους διαίτης*). But the author's picture of the remote past is not just a nod at a common literary *topos*; rather, it is a highly systematic and coherent reconstruction supported by evidence drawn from the present day. Medicine arose because the same foods did not benefit the sick and the healthy, just as they do not in the present day (*ὥς οὐδὲ νῦν συμφέρει* 121.5 J.). People in the past suffered terribly from a diet of raw foods, just as they would suffer in the present—though it is reasonable (*εἰκός*) to suppose that they suffered less in the past because they were more accustomed to such a diet. And in the beginning those with a weaker constitution perished quickly while others could hold out for a longer time, just as happens in the present day as well (3.4). These parallels are cited to support the author's account of the original state of human beings, but they also indicate that he has constructed that account on the basis of his knowledge of the present in a way that is comparable to Thucydides' procedure in the part of his work known as the Archaeology (cf. n. below on 3.4 *ἦσσαν μὲν οὖν ... διὰ τὴν συνήθειαν*). The author's description of the original diet of human beings and its transformation into a healthy one is strongly colored by his own medical ideas. The original human diet consisted of foods that were 'raw, unblended, and possessing great powers' (*ὠμά τε καὶ ἄκρητα καὶ μεγάλας δυνάμιας ἔχοντα* 121.17–18 J.). In

response to the suffering caused by this diet, people discovered various ways of preparing foods to make them suitable for the human constitution: moistening, kneading, and baking wheat to make bread, and kneading barley with milk or water to make barley cake or μάζα. In a word, they discovered cooking—though not all the procedures mentioned involved the use of fire (cf. n. below on 3.5 Ἐκ μὲν οὖν ... μάζαν). What they *did* have in common was the mixing and blending of strong or unblended foods with weaker ones (ἐμίξαν καὶ ἐκέρασαν τὰ ἰσχυρὰ τε καὶ ἄκρητα τοῖσιν ἀσθενεστέροισι 122.12–14 J.). It is the transformation from raw to cooked, understood as mixing and blending, that is crucial to the development of a healthy diet; the author's entire account is constructed to bring out the importance of this transformation. As will become clear in the sequel, the notions of mixing and blending (κρῆσις) play a crucial role in the author's medical theory, in connection with the fluid substances or humors in both the human body (cf. 14.4) and in foods (cf. 14.5–6).

The process of discovery described in this chapter involves the application of two procedures. (1) The first step is to notice that the same diet benefits one group of individuals but harms others, and to distinguish these groups as differing in nature or constitution (φύσις). Humans suffer great distress from a diet that is beneficial for animals; hence humans and animals differ in φύσις. The distinction between φύσεις is understood in terms of 'strength' (ἰσχύς) and 'power' or 'capacity' (δύναμις), which are assessed by observing the effects of foods. The strength of a given φύσις is a measure of its capacity (δύναμις) to 'overcome' (κρατεῖν, ἐπικρατεῖν) or assimilate foods; conversely, 'strong' foods are those that have the capacity (δύναμις) to bring about strong effects. The relationship of human beings to their diet is conceived of as a struggle between opposing forces: if an individual is overcome by the strength of his diet he succumbs and perishes, but if he can 'overcome' and assimilate it, he gains in health and strength. Those individuals who perish more quickly from the original diet of raw and unmixed foods are distinguished as having a weaker constitution (ἀσθενεστέρον φύσιν 122.2 J.); similarly, humans have a weaker constitution than animals because they can endure a diet of raw foods for a shorter period of time. Observing the reactions of different subjects to the same foods thus makes it possible to draw distinctions between different constitutions, which is the first step towards acquiring the ability to prescribe a beneficial diet. (2) The second stage in the process of discovery involves assessing the effects of different foods on the same constitution or φύ-

σις, then modifying foods to develop a diet beneficial for the constitution in question. Stronger foods are those that bring about stronger effects; these foods must be modified in order to make them weaker, i.e. more able to be assimilated by the constitution in question. By devising new procedures for modifying foods and evaluating the effects of foods modified in these ways on the human constitution, the discoverers of cooking eventually arrived at the complete set of procedures needed to prepare a healthy diet for human beings. The systematic evaluation of the strength of foods modified in various ways is the process the author describes as ‘molding everything to the constitution and power of the human being’ (πλάσσουντες πάντα πρὸς τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν 122.14–15 J.).

It is important to see that this account in no way *presupposes* the theory that foods must be mixed and blended in order to be healthy. The author’s concept of strength is fundamentally an empirical one. True, he consistently associates the strength (ἰσχὺς) of a food with the degree to which it is blended: the original ‘strong and brutish’ diet is composed of foods that are ‘unblended’ (ἄκρητα 121.17 J.), and cooking involves mixing and blending ‘strong and unblended’ foods (τὰ ἰσχυρὰ τε καὶ ἄκρητα 122.13 J.) with weaker ones. But chapter 14 makes it clear that the connection between the strength of a food and the degree to which it is blended is something that was discovered during the process described in the present chapter (cf. 14.3). The discoverers of cooking did not *begin* from the assumption that unblended foods cause strong effects; rather, this was something they learned by observing the effects of foods subject to different modifications on the human constitution (cf. Hankinson 1992, 59–60). Like strength or ἰσχὺς, δύναμις is an empirical concept assessed by the observation of effects: we learn about the δύναμις of a food by studying what it can do to the body, and the δύναμις of a constitution by observing its effect on foods. The basic meaning of δύναμις is an abstract capacity or ability; the noun is a substantive derived from the verb δύναμαι ‘to be able’, with which it often occurs (cf. Plamböck 1964, 64, quoted p. 169 below). Thus the author repeatedly uses the verb δύναμαι to make clear that the δύναμις associated with human φύσις is a capacity to ‘overcome’ or assimilate strong foods (e.g. οὐ δυνήσεται κρατεῖν ἢ φύσις 122.16 J., δύνηται ἐπικρατεῖν 123.2 J.). This is a sign that he does not presuppose familiarity with a specialized or technical meaning of δύναμις on the part of his audience. Similarly, in the statement that primitive foods were raw, unblended, and possessed ‘great powers’ (μεγάλας δυνάμεις

121.17–18 J.), the term δύναμις simply indicates that these foods had the capacity to cause strong effects on the human constitution. It is true that because these foods are also unblended (ἄκρητα) they can be said to possess ‘strong qualities’, i.e. qualities such as sweet or bitter in concentrated form. But once again it is clear that the association between strength and concentration is something that was discovered by observation of the effects of foods; there is no reason to take δύναμις in the specialized sense of ‘quality’ in this chapter (cf. n. below on 3.4 ὡμά τε καὶ ἄκρητα καὶ μεγάλας δυνάμιας ἔχοντα). Finally, the close association between the concepts of δύναμις and φύσις is a striking, characteristic feature of the author’s thought (cf. n. below on 3.5 τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν). But the two concepts remain distinct, and the impulse to translate the phrase φύσιν τε καὶ δύναμιν as a kind of hendiadys (‘natural capacity’ *vel sim.*) should be resisted. φύσις is etymologically connected with origin and growth, ideas distinct from the primary senses of δύναμις (‘capacity’, ‘ability’). In fact the close association between φύσις and δύναμις in VM reflects one of the author’s most important and distinctive methodological claims, viz. that the way to learn about a thing’s nature or constitution (φύσις) is by examining its δύναμις or capacity to affect other things (rather than by speculating about its origin and development; cf. ch. 20).

By applying the two procedures described above—distinguishing φύσεις by evaluating the reaction of different individuals to the same foods, then modifying foods and evaluating their effects on a particular constitution—the author thinks it is possible to arrive at a diet that is suited to the human constitution. The end result is that the practitioner knows what foods are suited to human nature in general and how to prepare them; that is, he knows what foods are suitable for humans *qua* humans (cf. τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν 122.14–15 J., ἡ φύσις ἢ ἀνθρωπίνη 126.10 J., τὴν τοῦ ἀνθρώπου φύσιν 135.15–16 J., πάση τῇ ἀνθρωπίνῃ φύσει 148.1 J.). A number of general conclusions about the author’s conception of discovery can be drawn from the account presented in this chapter. First, the discovery of procedures is inseparable from the acquisition of a systematic mastery of when and how to apply those procedures. The discoverers of cooking did not stumble upon a set of procedures and only then figure out how to apply them. Rather, they first acquired a conception of the human constitution as distinct from that of animals and then developed procedures for preparing foods beneficial to such a constitution. The ability to prepare certain foods goes hand in hand with the ability to recognize the class

of individuals to whom they should be administered. Second, discovery results not in the ability to provide a beneficial diet to a single individual, but in a highly general ability to prepare and prescribe foods that are beneficial for all individuals with a particular constitution. Third, a discovery is not something that can be made on the basis of a few chance modifications of foods, but the result of evaluating the effects of many such modifications over a long period of time (ἐν πολλῷ χρόνῳ 121.15 J.). The discovery of cooking is attributed to an anonymous group of people, suggesting that a discovery is not something that one or two people may chance upon, but a collective achievement that requires substantial effort on the part of many (cf. οὗτοι 122.6 J.; Οἱ δὲ ζητήσαντες τε καὶ εὐρόντες ἡτριζήν 124.9 J.; οἱ πρῶτοι εὐρόντες 135.16 J.).

The praise of medicine with which the chapter ends (3.6) resonates with a number of fifth-century accounts of the history of culture (*Kulturgeschichte*), in which τέχνη was widely celebrated for enabling human beings to overcome the perils of a hostile environment. τέχνη was often viewed as marking the distinction between civilization and savagery or between human beings and animals (cf. n. below on 3.6 Τῷ δὲ εὐρήματι ... καὶ θάνατοι ἐγίνοντο). Since the process of discovery begins from the recognition of human nature as distinct from that of animals, the account of the discovery of cooking is at the same time an account of how human beings came to be aware of their distinctive existence as humans. Furthermore, the discovery of cooking can also be viewed as a process by which human beings *become* more human. For the remark that human beings in the distant past suffered less from a diet of raw and unblended foods than people do in the present (3.4) suggests that the human constitution at that time was more like that of animals than it is in the present (cf. n. below on 3.3 τοιαύτη τροφή). By discovering cooking human beings not only become aware of their distinctive nature as humans; they also come to realize that nature more fully.

In these respects as well as a number of others, VM's account of the origin and development of medicine shows close points of contact with fifth-century *Kulturgeschichte*. The notion that human beings originally lived a brutal and savage life and gradually attained a civilized existence through the development of technology was widespread in fifth-century literature. Literary texts show a strong concern to identify and praise the 'first discoverer' (πρῶτος εὐρετής) of the various arts for their benefits to humanity (cf. Gorg. *Pal.* 30, Euripides *Supp.* 201–213, Aeschylus *Pr.* 436–506, and Kleingünther 1934). But these scattered references generally portray the discovery of technology as a discrete act,

not a gradual and cumulative process; there is normally no indication of how the arts were discovered except to say that intelligence and ingenuity on the part of the discoverer were required. VM stands apart from this literary tradition in offering a coherent account of the cumulative development of a particular τέχνη—one in which discovery is not the gift of a god or a particular named individual but the result of a collective effort over a long period of time, and in which each stage follows from the previous one in a methodical and highly systematic way. For real parallels to the author's account we must consider the work of late fifth-century thinkers such as Protagoras and Democritus. The only reliable evidence for Protagorean speculation on *Kulturgeschichte* is the story told by the character Protagoras in Plato's dialogue of the same name (*Prt.* 320c–323a). This story describes how Zeus bestowed 'technical intelligence' (ἐντεχνος σοφία) on human beings to compensate for their natural inferiority to animals; using this intelligence human beings developed language and technology (δημιουργική τέχνη), which provided them with food, clothing, and shelter. But they lacked the ability to form associations and defend themselves against wild beasts; hence Zeus provided them with the 'political art' (πολιτική τέχνη) in the form of the gifts of shame (αἰδώς) and justice (δίκη). The story is plausibly interpreted as an allegory, the basic point of which is that both technology and society arose as a response to natural needs. But it makes no attempt to set out different stages of technological development, and indeed emphasizes that technology developed quite rapidly (ταχύ 322 a6); moreover there is no explanation of why the social virtues (the πολιτική τέχνη) arose only after technology had been completely developed (cf. Herter 1963b, 470–472 [=1975, 162–164]; Cole 1967, 51). Whatever the relationship of Protagoras' story to the views of the historical Protagoras, that story fails to provide a close parallel for the most distinctive feature of VM's account: the notion of the gradual, cumulative development of technology. With Democritus, however, the situation is quite different. There are a number of close parallels between VM's account of the origin and development of medicine and the account of *Kulturgeschichte* given by Diodorus Siculus (1.8 = DK 68 B 5). Both conceive of the development of technology as a cumulative process stimulated by need or necessity and guided by the assessment of experience (for specific parallels cf. nn. below on 3.4 ὑπό ἰσχυρῆς τε καὶ θηριώδους διαίτης, 3.4 διὰ δὴ ταύτην τὴν χρείην). Diodorus' *Kulturgeschichte*, in turn, shows distinctive parallels with accounts in several roughly contemporary Latin sources (e.g. Lucr. 5.925ff., Vitruv. *De arch.* 33.16ff., Sen.

Ep. 90) and with a number of fragments of Democritus (e.g. DK 68 B 144, B 154, A 151, and Gal. *De exp. med.* ch. IX, p. 99 Walzer = DK II 423.17–22; see n. below on 3.4 διὰ δὴ ταύτην τὴν χρῆσιν). In light of these parallels scholars have argued that the ultimate origin of the accounts in Diodorus and related Latin sources was a Democritean *Kulturgeschichte* (the classic recent attempt is Cole 1967). It is not implausible that the author of VM was familiar with such an account. But the evidence for Democritean *Kulturgeschichte* remains exiguous and problematic, and in any case the parallels between VM and Diodorus should not be exaggerated. What sets VM's account apart is the author's focus on the transition from raw to cooked food, a transition that in his view results solely from the processes of blending and mixing. This focus explains his complete neglect of the importance of fire or cultivation, crucial steps in the rise of civilization in the Democritean tradition of *Kulturgeschichte* as reconstructed from sources such as Diodorus (cf. esp. Herter 1963b). Thus, even if the author was familiar with a Democritean account of the origins of culture, he has brilliantly adapted that account to the specific purpose of defending his own τέχνη from attack (cf. Introduction, p. 50).

More important than the attempt to pinpoint an ultimate source of the author's ideas about the development of human culture is the recognition that his *use* of *Kulturgeschichte* is characteristic of the late fifth century, the age of the Sophists and Democritus. The author draws on an established tradition of speculation into the origins of culture to explain the character of his own τέχνη and to defend it from what he sees as an unjustified and dangerous attack. In Plato's *Protagoras* it is a similar situation that prompts the character Protagoras to offer his speculative reconstruction of early human history. Faced with Socrates' arguments that virtue or ἀρετή is not teachable because (1) there seems to be no distinction between lay people and professionals in matters of ἀρετή, and (2) if it were teachable, there would be teachers of it, Protagoras responds with an account of the origins of civilization that explains why all human beings share in ἀρετή to some extent: Zeus' gifts of shame and justice were distributed to all people alike, for otherwise they could not live in cities as civilized human beings. Thus Protagoras' own τέχνη is simply the art of refining an ability that all civilized people must have. In a closely similar way, the author of VM is faced with an attack from the proponents of ὑποθέσεις, who probably claimed that without a foundation such as they attempted to provide, medicine would not be a τέχνη at all. He responds by giving an account

of the origin of medicine that shows how it is simply a more refined version of an ability that all civilized people share in to some extent: the ability to prepare a diet that is suitable for healthy human beings. Thus the author establishes that medicine has a solid foundation without the opponents' ὑποθέσεις. While the details of Protagoras' story do not provide a close parallel to VM's account, the *purpose* of the two accounts is basically the same—a fact that is surely indicative of the kind of appeal to *Kulturgeschichte* that was common in the age of the Sophists.

* * *

3.2 αὐτὴ ἡ ἀνάγκη, 'necessity itself': the point is that necessity is the motivation for the discovery of medicine; people were compelled to seek a diet suitable for the sick because the same foods do not benefit the sick and the healthy. Cf. 4.1: all people have some knowledge of cooking 'on account of use and necessity' (διὰ τὴν χρῆσιν τε καὶ ἀνάγκην), i.e. because they *must* make use of it. There is no implication that the discovery of medicine was inevitable or that each stage in the process followed inexorably from the previous one. Cf. n. below on 3.4 διὰ δὴ ταύτην τὴν χρεῖν.

3.3 καρπούς, 'fruits': for καρποί in the general sense of 'fruits' as a component of the diet of primitive man cf. Diodorus 1.8.1 (= DK 68 B 5): the first humans, who led a 'disorderly and brutish life' (ἐν ἀτάκτῳ καὶ θηριώδει βίῳ), subsisted on 'the most pleasant plants and fruits that grew of their own accord on trees' (τῆς τε βοτάνης τὴν προσηνεστάτην καὶ τοὺς αὐτομάτους ἀπὸ τῶν δένδρων καρπούς). The primary reference may be to acorns, commonly mentioned as part of the diet of primitive man (e.g. *glandíferas* ... *quercus* Lucr. 5.939); but there is no reason to restrict the range of the term to any one food (Jouanna 1990, 121n2; Herter 1963b, 477–478 [=1975, 168–169]). In VM καρποί evidently include wheat and barley (cf. 3.5, 8.2, 13.1); καρπός is used of wheat already in Homer (cf. LSJ s.v.). At Isoc. *Panegyricus* 28 καρποί (the gift of Demeter) are said to be responsible for putting an end to humanity's brutish existence; for the same idea cf. E. *Supp.* 205 and Moschion, fr. 6.23–24. That VM makes wheat and barley part of the 'strong and brutish' diet of primitive man is a sign that his focus is on the discovery of cooking, not cultivation.

3.3 τοιαύτη τροφή, 'such nourishment': Festugière (1948, 37) thinks the point of this remark is that human beings did not originally eat the *same*

foods as animals like the ox or horse (i.e. fruits, brush, and grass) but rather foods *of the same sort*, i.e. raw as opposed to cooked. He notes that the adjective ὁμοφάγος ('eating raw flesh, carnivorous') is associated with wild beasts (e.g. Hom. *Il.* 5.782, 11.479; Arist. *HA* 608b25, 609b1), half-human creatures such as centaurs (e.g. Κενταύρους ὁμοφάγους Thgn. 542), and savage peoples (e.g. Th. 3.94, of the Aetolians); in connection with the god Dionysus it suggests cannibalism (E. *Ba.* 139, fr. 472). It is true that the author cites 'the things that grow from the earth' only as examples of the foods that made up the original diet (οἶον τὰ ἐκ τῆς γῆς φυόμενα 121.9–10 J.); there is no reason to suppose that raw meat was not also part of this diet (cf. 13.1, where the consequences of feeding a person raw meat as well as unprepared wheat are discussed). Primitive cannibalism figures in some accounts of cultural history (cf. Moschion fr. 6.14–15; Athenion fr. 1 Kock offers a comic parody of the idea). But Festugière's argument is misguided and overly subtle. The starting point of the discovery of cooking is the fact that human diet was originally *undifferentiated* from that of animals (ταῦτά 121.8 J.), just as the starting point of the discovery of medicine is the fact that the same foods do not benefit the healthy and the sick (ταῦτά 121.4 J.). Only gradually did the first humans learn that they needed a diet specially adapted to their constitution; in so doing they became aware of their distinctive existence as humans (cf. Pigeaud 1977, 206–207). That the eating of raw food was commonly associated with savage peoples and animals does, however, suggest that the author viewed primitive man as more animal-like than the human beings of his own day; in this way his account of the discovery of cooking is also an account of how human beings came to realize their nature more fully (cf. above, p. 157).

3.3 ἐν πολλῷ χρόνῳ, 'over a long period of time': cf. ἐν πολλῷ χρόνῳ 2.1, 119.14 J.; Xenophanes DK 21 B 18 (quoted above, p. 140).

3.4 Ὡς γὰρ ἔπασχον ... ἢ νῦν χρεώμεθα, 'For human beings endured ... that which we make use of today': the section forms a single long period, as was clearly seen by Gomperz (1911, 230); for reasons of English style I have broken it into three separate sentences in the translation. The author begins by giving the reason why cooking was discovered and drawing a parallel with the present day: human beings suffered greatly from their strong and brutish regimen, just as they would suffer today from a similar diet ('For human beings ... followed by a

speedy death' = 'Ὡς γὰρ ἔπασχον ... θανάτοισιν 121.15–20 J.). This leads to an elaborate parenthesis on the similarities and differences between past and present: it is likely that people suffered less then because they were accustomed to their savage diet, but they still suffered greatly; most perished quickly, though some held out for a longer time, just as would be the case today ('Now it is likely ... with much pain and trouble' = ἥσσον μὲν οὖν ... πόνων τε καὶ κακῶν 121.20–122.5 J.). The sentence then breaks down into anacolouthon and the author resumes the original idea that it is because of the need generated by their suffering that people were impelled to search for a diet adapted to the human constitution ('It is on account of this need ... which we all use' = διὰ δὲ ταύτην τὴν χρεῖν ... ἣ νῦν χρεώμεθα 122.6–8 J.). This articulation of the section differs slightly from Jouanna's in making the parenthesis begin at ἥσσον μὲν οὖν 121.20–21 J. ('Now it is likely') rather than οἷά περ ἂν 121.18 J. ('suffering like that').

3.4 ὑπὸ ἰσχυρῆς τε καὶ θηριώδους διαίτης, 'because of their strong and brutish regimen': the notion that the life of primitive humans was similar to that of animals, a θηριώδης βίος, is found in a number of fifth-century passages; cf. E. *Supp.* 201–202, Critias DK 88 B 25 (ἄτακτος, θηριώδης βίος), A. fr. 303b Mette (βίον ... θηροῖν θ' ὅμοιον). For the idea that humans and animals originally ate the same food cf. Archelaus DK 60 A 4, II 46.19–20 (ἅπαντα τὴν αὐτὴν διαίταν ἔχοντα). For later references cf. Isoc. *Panegyricus* 28 (Demeter's gift of wheat freed humans from a brutish existence, τοῦ θηριωδῶς ζῆν), *Antidosis* 254 (the power to persuade has freed us from the life of beasts, τοῦ θηριωδῶς ζῆν); Moschion fr. 6.4 (the diet of early man was similar to that of beasts: θηροῖν διαίτας εἶχον ἐμφερεῖς βροτοί); Athenion fr. 1 Kock. Cf. especially the description of the life of primitive man in Diodorus 1.8.1ff. (DK 68 B 5). The first humans lived a 'disorderly and brutish life' (ἐν ἀτάκτῳ καὶ θηριώδει βίῳ), a nomadic existence in which they subsisted on the spontaneous products of the earth (1.8.1). Assailed by beasts, they formed associations to help one another and developed primitive means of communication (1.8.2–4). Their life was harsh because they lacked clothing, shelter, and fire, and had no knowledge of cultivation (τροφῆς δ' ἡμέρου παντελῶς ἀνενοήτους 1.8.5). They did not know how to store up food for times of need, and many of them perished from cold or lack of food (1.8.6). Many of these aspects are also present in Lucretius' account of the life of primitive man; cf. 5.932 (nomadic existence), 5.937–938 (subsistence on spontaneous products of the earth),

5.953–954 (lack of fire and clothing), 5.1007–1008 (death from lack of food, *penuria cibi*). For argument that the accounts of Diodorus and Lucretius descend ultimately from a common source (Democritus) see Cole 1967, 25–46, 56–59, and *passim*. It is certainly possible that the author of VM was familiar with a similar description of the life of primitive man due to Democritus himself. But if so, he has adapted this description quite extensively to the purposes of his argument (cf. above, pp. 158–159). Diodorus’ account agrees with VM in describing primitive humans as living off the spontaneous products of the earth and enduring harsh suffering. But it also stresses their nomadic existence, the danger posed by animals, the lack of clothing, shelter, and fire, and the absence of cultivation, none of which is mentioned in VM. In Diodorus the cause of suffering and death is exposure to the elements and want of food, not the strength of the primitive diet. The differences between Diodorus and VM reveal the latter’s remarkably coherent focus on the transition from raw to cooked, understood as a process of mixing and blending. Cf. Pigeaud 1977, 207–209; Herter 1963b, 477–480 (=1975, 168–171).

3.4 ὁμά τε καὶ ἄκροητα καὶ μεγάλας δυνάμεις ἔχοντα, ‘raw, unblended, and possessing great powers’: for the idea that foods have a δύναμις, understood as a capacity to cause a specific effect on the body, cf. 14.1: bread and barley cake possess ‘great powers’ (μεγάλαι δυνάμεις); 20.4: wine drunk to excess affects the body in a certain way, and all people know that this is its δύναμις; *Acut.* 37, 50.22–51.22 Joly (L. 2.298–302): it is remarkable how strongly some foods can affect the body when taken contrary to habit, even though they do not possess ‘great powers of their own’ (μεγάλας δυνάμεις ἰδίας); *Aff.* 47, L. 6.254.20–256.5: ‘Concerning the power (δύναμις) that each food possesses, you must draw inferences from foods that have a manifest power (ἀπὸ τῶν φανερόν τὴν δύναμιν ἔχόντων), i.e. those that produce flatulence or irritation or repletion or belching or colic or loosen the bowels or do not loosen them, and it is evident that they bring about these things’; *Aff.* 50, L. 6.260.1–10: foods that have the capacity (δύναμις) to benefit the body greatly, such as bread, barley cake, meat, fish, and wine, will also cause great harm if they are taken in excess or at the wrong time; *Vict.* 2, 124.1–2 Joly (L. 6.468): the doctor must know the δύναμις of each food and drink that makes up human regimen, i.e. how each will affect the human being; *Vict.* 39, 162.9–18 Joly (L. 6.534–536): it is a mistake to think that all foods with the same quality, such as sweet or hot, also

have the same capacity to affect the body (δύναμις)—some sweet foods are laxative, others check the bowels, others dry, and others moisten; *Vict.* 40, 162.24 Joly (L. 6.536): ‘Barley cake has the following power’ (δύναμιν δὲ ἔχει ἡ μάζα τοῦνδε). It is true that on the author’s theory unblended foods also possess strong qualities, i.e. qualities such as sweet or bitter in concentrated form (cf. 14.5–6). But the fact that foods possessing strong qualities *also* have the capacity to cause strong effects on the body is an empirical claim, one which the author thinks has been discovered by observation of the effects of foods on human beings (cf. the passage from *Aff.* 47 quoted above and introductory note, pp. 155–156). In order to make this clear it is best to translate δύναμις here as ‘power’, i.e. capacity or ability (Jones 1923), rather than ‘quality’ *vel sim.* (Jones 1946, Festugière 1948, Jouanna 1990).

3.4 ἥσσον μὲν οὖν ... διὰ τὴν συνήθειαν, ‘Now it is likely ... because of habituation’: on the appeal to what is εἰκός (likely, reasonable, or probable) as a means of reconstructing the past cf. Thucydides 1.4 (it is εἰκός to suppose that Minos put an end to piracy) and esp. 1.10.3–4, where he appeals to what is εἰκός in assessing the reliability of Homer’s testimony about the size of the Trojan War and in making his own estimate of the number of troops. Cole (1967, 145–146) notes that the appeal to εἰκός is characteristic of fifth- as opposed to fourth-century literature. On the use of the present to reconstruct the past cf. Th. 1.6, where inferences are drawn about the state of the Greek world in the past from the state of the barbarian world in the present (cf. n. on 5.2 Ἔτι γοῦν ... οὐδ’ ὑποστεύονται ἄν).

For the idea that primitive humans were more robust cf. Lucr. 5.925–930: the human race was originally ‘harder’ (*durius*) because it was created by the ‘hard’ (*dura*) earth; people’s bones were larger and their sinews stronger, and they were not easily affected by heat or cold, unusual food, or disease (*nec facile ex aestu nec frigore quod caperetur / nec novitate cibi nec labi corporis ulla*, 5.929–930).

The present passage is the only place where the author seems to recognize habit as a factor independent of nature or constitution (φύσις). Cf. ch. 10, where there is a clear emphasis on constitution over habit (below, pp. 208–209).

3.4 διὰ δὲ ταύτην τὴν χρῆσιν, ‘It was on account of this need’: A, followed by Heiberg, reads ‘on account of this reason’ (διὰ δὲ ταύτην τὴν αἰτίαν), but M’s χρῆσιν (‘need’) is both more specific and more

appropriate to the context. In general A has a tendency to substitute αἰτία for more unusual terms: cf. 11.1 (διὰ τίνας προφάσις M, διὰ τίναν αἰτίαν A); 16.1 (διὰ τάσδε τὰς προφάσις M, διὰ τάσδε τὰς αἰτίας A). The notion that χρεία or need is the motivation for discovery is difficult to parallel explicitly in fifth-century sources; cf. however E. fr. 715 (χρεία διδάσκει, ἅν βραδύς τις ἦ, σοφόν), Ar. *Pl.* 534 (craftsmen are compelled to seek a livelihood on account of need and poverty [διὰ τὴν χρείαν καὶ τὴν πενίαν ζητεῖν ὁπόθεν βίον ἔξει]); Pl. *R.* 369b–c (χρεία motivates the formation of the first city); Pl. *Pt.* 274c (after the age of Cronus human beings are at a loss because they have never been compelled to learn how to provide their own food [διὰ τὸ μηδεμίαν αὐτοὺς χρείαν πρότερον ἀναγκάζειν]). Cf. also Herter 1963b, 472–473 [=1975, 164–165] and Jouanna 1990, 41–42. There is good evidence that Democritus recognized necessity as motivating the discovery of some of the arts; cf. DK 68 B 144, which states that music had its origin not in necessity (τἀναγκαῖον) but in a situation of abundance or surplus. This suggests that Democritus may be the ultimate source of the distinction between necessary and non-essential arts that is found in a number of fourth-century and later texts (e.g. Isoc. *Busiris* 15, Arist. *Metaph.* 981b13–22; cf. Cole 1967, 42–43). But the idea of necessity as a motivating factor in the development of technology is really implicit in the widespread fifth-century picture of early man living a brutal and savage existence under constant threat from a hostile world and gradually attaining a civilized mode of life. χρεία plays a central role in the account of cultural development in Diodorus; cf. D.S. 1.8.7 (DK 68 B 5, II 136.12–15): ‘In general need itself was the teacher for human beings, by guiding and providing appropriate instruction in each thing to a creature that was well endowed by nature and had as its co-workers in everything hands, speech, and acuity of mind’ (καθόλου γὰρ πάντων τὴν χρείαν αὐτὴν διδάσκαλον γενέσθαι τοῖς ἀνθρώποις, ὑφηγουμένην οἰκείως τὴν ἑκάστου μάθησιν εὐφυεῖ ζῳῇ καὶ συνεργοὺς ἔχοντι πρὸς ἅπαντα χεῖρας καὶ λόγον καὶ ψυχῆς ἀγχίνουσαν). Here χρεία refers to use or utility (cf. LSJ s.v. III) as much as need: as ‘need’ χρεία motivates the discovery process, while as ‘use’ or ‘utility’ it guides it, in the sense that utility is the criterion for assessing which practices are effective. Cf. 1.8.2 (DK 68 B 5, II 135.35–38): the first humans learned to help one another defend against wild beasts, and in this process they were ‘instructed by the beneficial’ (ὑπὸ τοῦ συμφέροντος διδασκομένους); 1.8.7 (DK 68 B 5, II 136.8–10): in learning to store up food and move into caves for shelter people were ‘instructed by experience’ (ὑπὸ τῆς πείρας διδασκομένους).

Cf. also Lucr. 5.1452–1453 (*usus et impigrae simul experientia mentis / paulatim docuit pedetemptim progredientis*) and the remarks of Cole 1967, 40–41. The general picture suggested by Diodorus' account is that technology was developed by assessing the effects of various practices according to the criteria of benefit (τὸ συμφέρον) or utility (χρεία). A similar emphasis on experience can reliably be attributed to Democritus; cf. Gal. *De exp. med.* ch. IX, p. 99 Walzer (DK II 423.17–22): '... we find that of the bulk of mankind each individual by making use of his frequent observations gains knowledge not attained by another; for as Democritus says, experience and vicissitudes have taught men this, and it is from their wealth of experience that men have learned to perform the things they do.' Cf. also DK 68 A 151 (chance observation of the mating of a mare and a donkey is the origin of the practice of breeding mules), 68 B 154 (human beings learned the arts by observing and imitating nature, e.g. by imitating the swallow in housebuilding). For argument that Diodorus' account stems ultimately from Democritus see Cole 1967, 25–46, 56–59, and *passim*. Cf. also above, pp. 158–159.

In its basic character the process of discovery described in VM matches Diodorus' account closely: it is need that motivates people to attempt to develop a diet beneficial (συμφέρον) for human beings; at each stage in this development, the effectiveness of any procedure is assessed by determining whether or not it yields foods that are beneficial for the human constitution. In the present passage, however, the author is giving the *motivation* for the discovery of cooking; hence χρείην refers to need, not use or utility.

3.5 Ἐκ μὲν οὖν ... ἐκ δὲ τῶν κριθέων μάζαν, 'From wheat, by moistening ... they made barley cake': the procedures involved in the making of bread are given in chronological order. First the wheat is moistened (βρέξαντες), making it easier to winnow (πίσαντες) (for evidence that wheat was normally moistened before winnowing in ancient Greece see Herter 1963b, 466–467 [=1975, 159]). Then it is ground (καταλέσαντες), sifted (διασήσαντες), kneaded (φορύξαντες), and baked (ὀπτήσαντες). Barley cake or μάζα was prepared by kneading barley with milk or water; the procedure did not involve baking or indeed any use of fire (Herter 1963b, 467–469 [=1975, 159–161]). Cf. Pl. *R.* 372b1–5: the inhabitants of the city in its first stage of development will 'nourish themselves by preparing barley meal from barley, and wheat meal from wheat, baking the latter and kneading the former, and will place their noble barley cakes and loaves of bread on reeds or clean leaves' (θρέ-

ψονται δὲ ἐκ μὲν τῶν κριθῶν ἄλφιτα σκευαζόμενοι, ἐκ δὲ τῶν πυρῶν ἄλευρα, τὰ μὲν πέψαντες, τὰ δὲ μάξαντες, μάζας γενναίας καὶ ἄρτους ἐπὶ κάλαμόν τινα παραβαλλόμενοι ἢ φύλλα καθαρά).

3.5 ἄλλα τε συχνὰ... τοῖσιν ἀσθενεστέροισι, ‘And performing many other operations ... unblended foods with the weaker’: Festugière takes ταύτην (122.11 J.) to refer back to μάξαν (122.11 J.), giving the meaning ‘performing many other operations to prepare this cake’. But this is difficult since boiling and baking, which the author immediately goes on to mention, play no role in the preparation of barley cake. Kühlewein therefore emends ταύτην to ταῦτα, giving the meaning ‘performing many other operations to prepare these things’ (i.e. both bread and barley cake). But it is simpler and better to take ταύτην to refer to the healthy diet in general (τροφήν 122.7 J.); the phrase ‘performing many other operations to prepare this nourishment’ (ἄλλα τε συχνὰ ... πρηγματευσάμενοι) will then refer specifically to the preparation of foods *other* than bread and barley cake that are part of the diet of the healthy. So Jouanna 1990, 122n6.

3.5 τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν, ‘the constitution and power of the human being’: for the idea that the human body possesses a certain δύναμις or capacity cf. *Prog.* I, L. 2.110.10–112.5: since many patients die before they can even call in a doctor because of the strength (ἰσχὺς) of the disease, ‘one must recognize the natures (φύσεις) of such diseases, how much they exceed the strength (δύναμις) of the body’ (ὅκῃσιν ὑπὲρ τὴν δυνάμιν εἰσι τῶν σωμάτων); *VC* 20, L. 3.256.8–10: ‘in the administration of drugs one must consider the power (δύναμις) of the patient, how it stands with respect to strength’ (τὸ δὲ φάρμακον χορὴ διδόναι πρὸς τὴν δύναμιν τοῦ ἀνθρώπου ὁρῶν, ὡς ἂν ἔχη ἰσχὺς); *Morb.* III 16, L. 7.148.4–5: ‘wash with much hot water, except for the head, with consideration of the patient’s strength (πρὸς τὴν δύναμιν τοῦ κάμνοντος)’; *Mul.* II 133, L. 8.296.12–14: ‘taking into account the strength of the body (τὴν δὲ δύναμιν τεκμαιρόμενον τοῦ σώματος), fumigate the patient in the way that has been described’; *Mul.* II 135, L. 8.306.23–308.1: ‘If menstruation does not occur, give the woman something that will provoke it, with consideration of her strength (ὁρῶν πρὸς τὴν δύναμιν τῆς γυναικός)’; *Prorrh.* II, L. 9.14.23–24: to determine whether a patient has deviated from a prescribed regimen ‘one must consider the nature of his mind, and the strength of his body’ (ἐνθυμέεσθαι δὲ χορὴ καὶ τοῦ ἀνθρώπου τῆς τε γνώμης τοὺς τρόπους, τοῦ τε σώματος τὴν δύ-

ναμν). In these passages the meaning of δύναμις overlaps with that of ἰσχὺς ‘strength’, understood as a measure of the patient’s ability to tolerate a disease or a therapeutic procedure. In the present passage, however, the author clearly distinguishes between δύναμις and ἰσχὺς. The δύναμις belonging to the human constitution is a power or capacity to ‘overcome’ or assimilate foods, as the author explains using the verb δύναμαι (122.16 J., 123.2 J.); stronger constitutions have the capacity to hold out for a longer time against an unsuitable diet (3.4, 122.1–3 J.). For δύναμις as a power or capacity to assimilate foods the closest parallels in the Hippocratic Corpus are in the late and obscure *Alim.*: cf. ch. 35, 145.4–5 Joly (L. 9.110); 54, 147.16 Joly (L. 9.120). For the association of δύναμις and human φύσις cf. *Epid.* II 6.15, L. 5.136.5–6: περὶ φύσεως· δύναμιν πλείστην ἔχει τιτθός, ὀφθαλμὸς δεξιός; Democritus DK 68 B 3: the person who wishes to enjoy cheerfulness (εὐθυμία) must not do anything ‘beyond his ability and nature’ (ὑπὲρ τε δύναμιν ... τὴν ἑωυτοῦ καὶ φύσιν). For further discussion of the association between φύσις and δύναμις in VM cf. n. on 13.3 ὃν ἕκαστον ἰδίην δύναμιν καὶ φύσιν ἔχει (below, pp. 226–228).

3.5 ἡγεύμενοι ὥς ... τροφήν τε καὶ αὔξησιν καὶ ὑγίειαν, ‘for they considered that ... nourishment, growth, and health’: neither A nor M gives a grammatical text, and various emendations have been proposed; cf. Jouanna 1990, 122n7. But the sense is clear enough. In adapting diet to the human constitution the discoverers of cooking kept in mind two things: (1) foods that are too strong for the human constitution will cause suffering and death, while (2) foods that can be overcome by the human constitution will result in health and strength. By evaluating the effects of foods with these principles in mind, they eventually discovered that strong foods are those that lack blending or *κρησις*; cf. 14.3.

3.5 οὐ δυνήσεται κρατεῖν ... δύνηται ἐπικρατεῖν, ‘will be unable to overcome ... can overcome’: cf. ἐπικρατεῖν 4.2, 5.4, 5.5, 7.2 *bis*, 11.1; κρατεῖν 14.3. The idea that the body must ‘overcome’ or ‘dominate’ (κρατεῖν) diet is also of fundamental importance in *Loc. Hom.* In ch. 44 of that work medicine is said to be ‘a matter of fine balance’ (ὀλιγόκαιρος), where ‘balance’ (καιρός) is defined as ‘to administer the maximum amount of food such that the body can overcome (κρατεῖν) the amount that has been administered’ (τὰ σιτία προσφέρειν, ὅσων μέλλει τὸ σῶμα προσφερομένων τὸ πλῆθος κρατεῖν, 82.6–7 Craik, L. 6.338). Cf. esp. *Loc. Hom.* 44, 82.14–16 Craik (L. 6.338): ‘So long as the body overcomes

(κρατῆ) what is administered, it is nourished (τρέφεται); but when it exceeds this balance (καιρός), the opposite happens, for it is reduced.’ As in VM food is beneficial if the body ‘overcomes’ it, but harmful otherwise.

On the close connection between δύναμις and the verb δύναμαι in the Hippocratic Corpus cf. Plamböck 1964, 64: ‘Überhaupt hat man sich die Beziehung zwischen Substantiv und Verbum als sehr eng vorzustellen; δύναμις ist nichts weiter als die Substantivierung der im Verbum präsenten Vorstellung, und im Verbum ist nach allem, was sich erkennen läßt, der Begriff “Können, Vermögen” nicht sekundär und erst abzuleiten, sondern ursprünglich angelegt. Mit gleicher Ursprünglichkeit bezeichnet daher auch δύναμις substantivisch das allgemeine “Vermögen (etwas zu tun)”.’ Cf. *Morb. Sacr.* 13, 23.9–11 Jouanna (L. 6.384), where the the north and south winds are said to be ‘the strongest and the most opposed to one another in both direction and power’ (ἰσχυρότατά ἐστι καὶ ἀλλήλοις ἐναντιώτατα κατὰ τὴν στάσιν καὶ κατὰ τὴν δύναμιν). The author goes on to explain the effects of these winds on other things: the north wind causes the air to condense and become transparent and draws moisture from everything, while the south wind melts condensed air and causes it to become diffuse, and in general causes things to become moist rather than dry. The south wind does not immediately rarify condensed air, since ‘it cannot at once master the air’ (οὐ δύναται ἐπικρατῆσαι τοῦ ἀέρος αὐτίκα). Cf. *Aer.* 1, 186–187 Jouanna (L. 2.12): a doctor must know what effect is brought about by each of the seasons of the year (ὅ τι δύναται ἀπεργάζεσθαι ἐκάστη 186.2–3 Jouanna); he must also ‘consider the powers of the waters: for just as they differ in taste and weight, so too the power of each is different from that of any other’ (Δεῖ δὲ καὶ τῶν ὑδάτων ἐνθυμεῖσθαι τὰς δυνάμεις· ὥσπερ γὰρ ἐν τῷ στόματι διαφέρουσι καὶ ἐν τῷ σταθμῷ, οὕτω καὶ ἡ δύναμις διαφέρει πολὺ ἐκάστου 187.1–4 Jouanna). To know the power (δύναμις) of a kind of water is to know what effects it can bring about. Cf. also *Vict.* 3, 126.5–19 Joly (L. 6.472): the human being is composed of two substances, fire and water, which are ‘different in their power, but complementary in their use’ (διαφόρουν μὲν τὴν δύναμιν, συμφόρουν δὲ τὴν χρῆσιν). The author goes on to use δύναμαι to specify exactly what the δύναμις of each consists in: ‘Each of them has the following power (δύναμις): fire is able to (δύναται) move all things always, while water is able to nourish all things always’ (126.8–10 Joly). Neither is able to dominate the other completely (δύναται κρατῆσαι 126.11, 15 Joly).

3.6 Τῷ δὲ εὐρήματι ... καὶ θάνατοι ἐγίνοντο, ‘To this discovery ... suffering, diseases, and death?’: the benefits conferred by the discovery of cooking are stressed by a threefold repetition and chiasmus, which builds on the previous sentence: *suffering, diseases, and death* / *nourishment, growth, and health* (3.5) ~ *health, preservation, and nourishment* / *suffering, diseases, and death* (3.6) (πόνους τε καὶ νούσους καὶ θανάτους / τροφήν τε καὶ αὕξησιν καὶ ὑγίειαν 3.5 ~ ὑγίειή τε καὶ σωτηρίῃ καὶ τροφῇ / πόνοι καὶ νοῦσοι καὶ θάνατοι 3.6). The praise of τέχνη as rescuing humanity from suffering is characteristic of the late fifth century (see Guthrie 1971, 79–83 for a collection of relevant passages in translation). Cf. Heinimann 1961, 118: ‘In der sophistischen Kulturgeschichte erscheinen die τέχναι als das Mittel, der Menschheit zu helfen, ihre bedrohte Existenz zu retten ... immer dienen die τέχναι der σωτηρία der Menschheit, die ohne sie dem Untergang geweiht wäre.’ In Sophocles *Antigone* 332–371 (the ‘Ode to Man’) τέχνη is portrayed as enabling human beings to overcome the dangers of a hostile environment. Seafaring, agriculture, hunting, the domestication of wildlife, and medicine are all products of man’s inventive ingenuity, and all enable him to achieve control and mastery over the environment. Cf. 347–350: ‘He masters by his contrivances the beast who dwells in the wilds and roams the hills’ (κρατεῖ δὲ μηχαναῖς ἀγραύλου θηρὸς ὀρεσσιβάτα); 365–366: ‘he possesses skill beyond expectation for devising arts’ (σοφόν τι τὸ μηχανόεν τέχνας / ὑπὲρ ἐλπίδ’ ἔχων). In the *Prometheus Bound* Prometheus claims credit for the invention of a large number of τέχναι including medicine, which freed humans from an original state of suffering (436–506; cf. esp. 506: πᾶσαι τέχναι βροτοῖσιν ἐκ Προμηθέως). At E. *Supp.* 201–213 Theseus praises the unnamed god who provided humans with skills such as agriculture, sailing, and prophecy, and so freed them from a brutish existence. Cf. also Gorg. *Pal.* 30 (DK 82 B 11a) (Palamedes made human life ‘manageable rather than unmanageable, and orderly rather than disorderly’ [πόρμιον ἐξ ἀπόρου καὶ κεκοσμημένον ἐξ ἀκόσμου] by discovering military techniques, laws, writing, measure, number, and weight); A. fr. 303b Mette (Palamedes freed humans from a disorderly and brutish life); *h. Hom.* 20.1–7 (Hephaestus bestowed the τέχναι on people throughout the world, and because of this they no longer live in caves like wild beasts). At each stage in the story of human origins told in Plato’s *Protagoras* (320c–323a), it is τέχνη of one form or another that enables the human race to survive (cf. above, p. 158). The idea that τέχνη enables human beings to overcome natural disadvantages is well expressed by Antiphon, fr. 4 Snell: ‘by art we gain mastery over those

things in which we are conquered by nature' (τέχνην κρατοῦμεν, ὧν φύσει νικώμεθα). Cf. also Anaxagoras DK 59 B 21b: humans are inferior to animals in physical strength but make up for this by the possession of experience (ἐμπειρία), memory (μνήμη), wisdom (σοφία), and art (τέχνη); Archelaus DK 60 A 4.5–6: humans are distinguished from animals by the development of rulers, laws, cities, and τέχνηαι; Arist. *Metaph.* 980a1–28: animals have perception, memory, and a slight share of experience (ἐμπειρία), while τέχνη and reason (λογισμός) are distinctive of humans.

In these passages it is τέχνη in general that raises human beings from savagery to civilization or distinguishes them from animals. But it was also common to praise a single τέχνη as responsible for such developments (cf. Cole 1967, 6–7). Outside of VM the earliest example of this is in Isocrates, who praises rhetoric as the bringer of civilization and humanity's answer to the physical superiority of animals (*Nicoles* 5–6, *Antidosis* 253–254); cf. *Panegyricus* 28–42, where Athens is celebrated as the city that brought technology and civilization to all the Greeks. But it seems clear that the technique of praising individual τέχνηαι for their civilizing role goes back to the time of the sophists (cf. Pl. *Prt.* 316c–317c). For a comic parody of such praise (suggesting that the practice was widespread) cf. Athenion fr. 1 Kock (= Athenaeus 14.660–661), where a cook claims that it was his τέχνη that originally freed humanity from the savagery of cannibalism.

4

The author confronts an objection arising from his attempt to identify the origin of medicine with the discovery of cooking. Since cooking is a skill necessary for civilized human life, everyone must share in it to some degree. Hence no one is a lay person (ιδιώτης) where cooking is concerned, and there is no body of practitioners with special competence in it (4.1). But in spite of this cooking does qualify as a genuine τέχνη, since it was a great discovery and was developed by following a method that is still used in gymnastic training in the present day (4.2).

The existence of a body of specialized practitioners was widely considered a reliable sign of the existence of a τέχνη; conversely, a discipline in which one could not point to such practitioners could have its status as a τέχνη called into question. In chapter 1 the author himself argues that medicine is a τέχνη because of differences in competence between its practitioners (cf. 1.2 and pp. 115–116 above). But here he

insists that a *lack* of specialized practitioners should not undermine the claim of cooking to be considered a genuine τέχνη, which rests on other considerations. First, cooking was a great discovery that required much examination (σκέψις) and artful contrivance (τέχνη); this appeals to the widespread association between τέχνη and discovery (cf. pp. 144–145 above and n. on 1.2 εὕρητο). Second, cooking was discovered by following a method that is still used in an established τέχνη, gymnastic training. Gymnastic trainers continue to make discoveries by following the same ὁδός, i.e. evaluating the reactions of different individuals to different foods in order to determine which foods are the most conducive to strength (4.2). Here ὁδός again means both ‘way’ and ‘method’ (cf. n. on 2.1 ὁδός), though the stress is on the latter: gymnastic trainers follow the same procedures as the discoverers of cooking, and in so doing they are following the path or way that the discoverers of cooking originally laid down. The chapter illustrates a shift from what may be called external criteria for the existence of a τέχνη (the existence of a body of specialized practitioners) to internal criteria (the possession of a method of a certain kind). A discipline with a systematic method will normally also possess a body of specialized practitioners. But this need not always be the case; what really makes a discipline a τέχνη is having a method of a certain kind (cf. 2.1).

For a similar argument cf. Pl. *Prt.* 319a–d, where Socrates argues that virtue (ἀρετή) is not teachable (and therefore not a τέχνη) because the Athenians accept advice from all citizens in matters of virtue; when a τέχνη such as carpentry or shipbuilding is under discussion, however, they accept advice only from qualified experts. The gist of Protagoras’ response is that political virtue (πολιτική ἀρετή) is indeed a τέχνη, but one of a very special kind. All people must share in political virtue to some degree, for it is a basic requirement of civilized human life. And it is learned not by association with a single expert teacher, but by a process of socialization similar to the learning of Greek (326e–328d).

* * *

4.1 διὰ τὴν χρῆσιν τε καὶ ἀνάγκην, ‘because they must make use of it’: hendiadys; lit. ‘on account of use and necessity’.

4.1 τεχνίτην, ‘professional’: in the opening chapter of the *Metaphysics* Aristotle contrasts the τεχνίτης with the empirical practitioner or ἔμπειρος: the former has knowledge of causes, while the latter relies solely on experience (981a25–26, 981b31). Drawing on this, Festugière (1948,

39) remarks that in the present passage τεχνίτης = ‘artisan qui connaît les règles de son art’, not just ‘artisan’. But it is doubtful whether the author had any such distinction in mind; τεχνίτης seems to have been a quite general term for the practitioner of an art. Aside from the present passage and 124.1 J. it does not occur elsewhere in the early Hippocratic writings.

4.2 Ἐπεὶ ... γε, ‘And yet’: on this combination see Festugière 1948, 39; he cites a number of Platonic parallels including *Prt.* 317a4, *Euthphr.* 4c3, 9b5, *Ap.* 19e1, *Smp.* 187a4, and esp. *Prt.* 333c1–3: ‘I would be ashamed to admit this, and yet many speak in this way (αἰσχυνοίμην ἂν ἔγωγε ... τοῦτο ὁμολογεῖν, ἐπεὶ πολλοὶ γέ φασιν τῶν ἀνθρώπων).’ The usage is elliptical: ‘It is not unreasonable if this activity is not considered an art ... and yet [it *is* an art, since] the discovery was a great one’. Cf. Pohlenz 1918, 399n1 and Radt 1979, 80–81.

4.2 σκέψιος, ‘examination’: cf. n. on 1.2 ἔσκεπτο (p. 131 above).

4.2 τέχνης, ‘artful contrivance’: to say that the discovery of a τέχνη was itself the result of much τέχνη might seem paradoxical. However, τέχνη understood as a developed art or science (LSJ s.v. II, III) must be distinguished from τέχνη as artful contrivance or invention (LSJ s.v. I). The verb τεχνάομαι often means ‘contrive with skill or art’, and it is this idea that determines the meaning of τέχνη here. Cf. 3.4, 121.14–15 J.: regimen for the healthy arose ‘through a process of discovery and artful elaboration (εὐρημένα καὶ τετελεσμένα) over a long period of time.’

4.2 οἱ τῶν γυμνασίων ... ἐπιμελόμενοι, ‘those in charge of gymnastic exercises and training’: the idea of a close similarity between medicine and gymnastics goes back at least to Herodicus of Selymbria (cf. *Pl. Prt.* 316d, *R.* 406a, *Phdr.* 227d) and Iccus of Tarentum (*Pl. Prt.* 316d, *Lg.* 839e–840a; DK 25 A 1–3). In the Hippocratic Corpus cf. esp. *Acut.* 9, 39.21–40.1 Joly (L. 2.244): the use of barley gruel in therapy ‘has great power to bring health to all those who are sick, to preserve health in those who are well, to bring athletes in training to good condition (εὐεξίη), and in general for whatever purpose each person wishes.’ Yet some Hippocratic authors resisted the assimilation of gymnastics and medicine, stressing the instability of the athlete’s εὐεξία or good condition; cf. esp. *Aph.* 1.3, L. 4.458.11–460.6. The author of *Loc. Hom.* claims that gymnastics and medicine are in fact opposed to one another (ch. 35, 74.3–5 Craik, L. 6.326–328).

Like the parallel between medicine and navigation (cf. 9.4–5), the parallel between medicine and gymnastics is a Platonic commonplace. Cf. *Grg.* 464b–466a (both gymnastics and medicine are concerned with care of the body and correspond to the two arts concerned with care of the soul, lawgiving and justice; gymnastics is preventive, while medicine is corrective), *Prt.* 313d4 (where care of the body is concerned, the one who is qualified to judge what is good and bad is a gymnastic trainer or a doctor), *Smp.* 186e–187a (the speech of Eryximachus: Asclepius governs medicine and gymnastics, as well as farming and μουσική, all of which are understood as the harmonizing of opposites), *Sph.* 228e–229a (gymnastics is the remedy for ugliness, as medicine is the remedy for disease), and esp. *Plt.* 295c (both medicine and gymnastics must adapt to changing circumstances in order to deal properly with individual cases; see Appendix 2). Cf. however *Ti.* 89a–b (motion in the body induced by gymnastic exercises is better than motion brought about by drugs, which should only be used as a last resort) and *R.* 405c–406e (medical treatment modeled on gymnastic training condemned for its immoral and corrupting influence; cf. Cordes 1994, 158–168). In Aristotle cf. *EN* 1096a31–34: medicine is knowledge of the due measure (μέτρον) of nourishment (τροφή), and gymnastics is knowledge of the due measure in exercises (πόνος); *EN* 1138a29–31: medicine aims at the healthy (ὑγιεινόν) and gymnastics at what brings about good condition (εὐεκτικόν), both of which are a mean between excess and defect; *EN* 1143b27–28: we do not become healthier or improve our bodily condition simply by acquiring knowledge of gymnastics or medicine; *Pol.* 1268b35: both medicine and gymnastics have improved over time, suggesting that it may be good to deviate from the ancestral laws in politics as well (cf. *Pl. Plt.* 295c); *Pol.* 1279a1: like rule over wife and children, medicine and gymnastics are practiced chiefly for the benefit of those on whom they are practiced—but the practitioners themselves may incidentally share in the benefit, since the helmsman is a member of the crew as well, and a gymnastic trainer may himself take exercise (cf. *Pl. R.* 341c–d).

5

The author turns from the discovery of cooking to the discovery of medicine as commonly conceived: the prescription of a regimen beneficial for the sick. This activity has both a name and specialized prac-

titioners, putting its status as a τέχνη beyond dispute. The author asks whether it aims at the same ends as cooking and had the same origin; his answer to both questions is affirmative. Medicine would never have been discovered if the same foods were beneficial for the healthy and the sick (5.1; cf. 3.1–2). This is confirmed by the behavior of barbarians and those Greeks who make no use of it: like all people before the discovery of medicine, they draw no distinction between the diet of the healthy and the sick (5.2). Like the discoverers of cooking, the discoverers of medicine began by reducing the strength of their patients' diet, diminishing both the number of foods and the quantity of food ingested (5.3). This helped some people but not others, who were unable to overcome (ἐπικρατεῖν) even a small amount of solid food. Hence the strength of the diet had to be reduced still further by mixing, blending, and boiling, leading to the discovery of barley gruels (5.4). These too were beneficial for some but not others, so an even weaker diet of drinks had to be developed. These were carefully regulated in respect of both quantity and degree of blending (κρησις) so that they were moderate (μετρίως), and neither too strong nor too weak (5.5).

The chapter clearly presents medicine as a development of cooking: the discovery of medicine presupposes the existence of a diet that is suitable for the healthy, and such a diet exists only after cooking has been discovered. Cooking is the origin (ἀρχή) of medicine in the sense that medicine developed out of it, and represents a further stage along the same path of development (ὁδός). But the methodological parallel between cooking and medicine is also apparent (cf. above, pp. 144 and 172). The discovery of medicine requires no new procedures, only repeated application of the same procedures that were used to discover cooking (cf. above, pp. 154–157). The first step is to see that different groups of individuals are affected differently by the same foods: the same diet does not benefit both the healthy and the sick. Then a new diet is developed for those individuals who need it by blending and mixing foods and evaluating their effects. Like the healthy, the different classes of the sick are characterized by a distinctive ability or capacity to 'overcome' (ἐπικρατεῖν) foods, a capacity which is assessed by observation. Each stage in the discovery process begins from the observation that the same foods affect different individuals in different ways. In this sense medicine and cooking had the *same* origin (ἀρχή): both began when people took notice of a fact of the same kind. The fact that different individuals are affected differently by the same foods

is a fundamental truth or principle (ἀρχή) that underlies the method of discovery (ὁδός). Cf. above, p 153.

What distinguishes medicine from cooking is not the method used to discover it but its greater complexity, which has three principal aspects. First, instead of a single distinction between the human constitution (φύσις) and that of animals, and between the kind of regimen appropriate for each, medicine involves distinguishing several different classes of sick people and corresponding types of regimen: those who are strong enough to take solid foods, those who are helped by gruels, and those who can handle only more dilute drinks. Second, whereas the discovery of cooking involves diminishing the qualitative strength of foods by blending and mixing, the discovery of medicine requires modifying both the quantity and quality of foods. The first step in the discovery of medicine is to diminish both the number of foods and the amount of food taken (5.3); drinks must be administered with careful attention to both their quantity (πλῆθος) and the degree to which they are blended (κρησς) (5.5). Finally, whereas the discovery of cooking results from *diminishing* the qualitative strength of foods, medicine requires the careful regulation of diet so that it is neither too strong nor too weak (μετρίως 125.3J.). The recognition that an excessively weak diet must be avoided no less than one that is excessively strong anticipates chapter 9, where the idea is developed at greater length (9.1–2).

* * *

5.1 ὄνομα, ‘a name’: cf. *De Arte* 2, 226.4–8 Jouanna (L. 6.4): the τέχναι take their names from their ‘forms’ (εἶδεα), which are ‘offshoots’ (βλαστήματα) of nature. The fact that an art has a name is thus a sign that it really exists.

5.2 Ἐτι γοῦν ... οὐδ’ ὑποστεύουσιν ἂν, ‘And indeed ... nor even take less of them’: the practice of barbarians and uncivilized Greeks in the present is evidence for the practices of all people in the distant past, before the discovery of medicine. For a similar appeal to the barbarian world of the present to confirm an account of the Greek world of the past cf. n. on 3.4 ἥσσαν μὲν οὖν ... διὰ τὴν συνήθειαν (p. 164 above) and Th. 1.6 (barbarians today carry weapons and wear belts in athletic competitions, showing that these practices were once common in Greece). For the notion that the healthy may live as they like while the sick are not allowed to indulge their desires cf. Pl. *Grg.* 505a6–10; the author of *Aff.* is more flexible (ch. 44, L. 6.254.1–2). The term ἀπό-

σχοιντο (124.8 J.) refers to complete abstention from certain foods, while ὑποστείλαιντο (124.8 J.) refers to cutting back on the amount consumed; cf. *Aph.* 1.11 (L. 4.464.11–12), where ‘cutting back’ (ὑποστέλλεσθαι) a patient’s diet is opposed to ‘increasing’ it (προσιθέναι) (the parallel is noted by Jouanna: 1990, 124n3).

5.3 ὑφείλον τοῦ πλήθους ... ἀντὶ πλεόνων ὀλίγιστα ἐποίησαν, ‘diminished the number ... instead of much food gave very little’: the discoverers of medicine begin by reducing the number of solid foods consumed (ὑφείλον τοῦ πλήθους τῶν σιτίων αὐτῶν τούτων) and reducing the amount of food consumed (ἀντὶ πλεόνων ὀλίγιστα ἐποίησαν). These operations correspond exactly to the two practices mentioned in 5.2: ‘abstaining’ (ἀπέχεσθαι) from certain foods and ‘cutting back’ (ὑποστέλλεσθαι) on the amount of food taken. Cf. Jouanna 1990, 124n5.

5.4 ὥς μηδ’ ... δύνασθαι ἐπικρατεῖν, ‘that they were unable to overcome even a small amount of food’: again the verb δύναμαι is used of the capacity of the human being to ‘overcome’ or assimilate foods. Cf. n. on 3.5 οὐ δυνήσεται κρατεῖν ... δύνηται ἐπικρατεῖν (pp. 168–169 above).

5.4 τὰ ῥυφήματα, ‘gruels’: barley gruel played a major role in therapy, especially of acute diseases; on its preparation and use in treatment see *Acut.* passim.

5.5 πόματα, ‘drinks’: for drinks as a complement to barley gruels (ῥυφήματα) in therapy cf. *Aff.* 7, L. 6.214.17–18; 11, L. 6.218.18; 12, L. 6.220.13–14; 14, L. 6.222.7–8, 6.222.16; *Acut.* (*Sp.*) 11, 73.20 Joly (L. 2.418); 16, 76.1–4 Joly (L. 2.426); 27, 81.18 Joly (L. 2.448); 31, 84.4 Joly (L. 2.460–462).

6

The author gives a series of examples drawn from medical experience to support his account of the discovery of medicine. Sick people who are too weak for barley gruels suffer serious effects from taking them (6.1). If such individuals were to take even a little solid food they would be harmed even more seriously, because of the strength of such food in relation to their condition (διάθεσις) (6.2). Those who are helped by gruels but too weak for solid food will be harmed by a little solid food,

but much more by a large amount of it. In general all the causes (αἴτια) of suffering can be reduced to a single principle: it is the strongest foods (τὰ ἰσχυρότατα) that have the most harmful effects on both the healthy and the sick (6.3).

The examples given in this chapter support the account of the discovery of medicine in chapter 5 by confirming the importance of the distinctions drawn during that process. Medical experience confirms that the sick are distinguished from the healthy by their inability to assimilate solid foods and that they are grouped into distinct classes according to their ability to assimilate drinks or gruels. The underlying idea is familiar from both chapter 3 and chapter 5: individuals are harmed by foods that are too strong for them, where the strength of a food is correlated with the degree to which it has been mixed and blended. What the present chapter adds is the idea of the comparative assessment of the effects of different foods. Those who are harmed by gruels will be harmed ‘ten times more’ (δεκαπλασίως 125.12 J.) if they try to eat solid food, because of ‘the strength (ἰσχύς) of the food in relation to their condition’ (6.2). Similarly a person who is helped by gruels is harmed by taking even a little solid food, and will be harmed even more if he takes a large amount of it (6.3). The upshot is that the strength of foods must be matched to the strength of the individual: a diet that is too strong will cause harm, and the greater the discrepancy between the strength of the diet and the strength of the individual, the greater the harm that will be caused. The idea is summed up in the chapter’s concluding remark: ‘it is the strongest foods that harm the human being most severely and most manifestly, in both health and sickness’ (6.3). This principle underlies the discoveries of both cooking and medicine and explains why they proceed as they do. While the statement that ‘all the causes of suffering can be reduced to the same thing’ (Πάντα δὴ τὰ αἴτια τοῦ πόνου ἐς τὸ αὐτὸ ἀνάγεται 125.17–18 J.) might seem to commit the author to the kind of causal reductionism endorsed by his opponents, in fact it leaves open the possibility of recognizing a substantially greater range of factors as causally relevant in disease (cf. n. below *ad loc.*). Finally we may note that although the examples in this chapter concern the sick, the brief reference to the healthy at the very end (καὶ τὸν ὑγιέα ἐόντα καὶ τὸν κάμνοντα 126.1–2 J.) leads directly to the arguments of chapters 7 and 8, where the focus is on the comparison between cooking and medicine.

6.1 ἄντικρυς, ‘opposed’: this, the reading of M, is preferable as *lectio difficilior* to A’s φανερώς, which was probably introduced into the text as a gloss (cf. Dihle 1963, 137; von Fritz 1966, 169; Jouanna 1990, 125n2). The original meaning of ἄντικρυς seems to have been ‘outright, openly, without disguise’ (LSJ s.v. I 2); later it came to be used as an equivalent of ἀντικρὺ ‘opposed’ (LSJ s.v. ἄντικρυς II). This is the meaning at *Flat.* 1, 103.4 Jouanna (L. 6.90), the only other occurrence of ἄντικρυς in the Hippocratic writings: ‘for medicine is opposed (ἄντικρυς) to all these things (sc. diseases, pains, and death).’ It therefore seems best to take ἄντικρυς in the present passage as meaning ‘opposed’ or ‘contrary’ and to construe it with the preceding οὐ συμφέροι: ‘those of the sick to whom gruels are not beneficial, but rather opposed [i.e. harmful]’ (so Jouanna 1990, 125n2). If ἄντικρυς means ‘openly’ or ‘manifestly’ then it must be construed with παροξύνονται (125.7 J.): ‘It is necessary to know this well: some of the sick are not helped by gruels, but it is evident (ἄντικρυς) that if they take gruels, their fevers and pains become more acute (παροξύνονται)’.

6.2 διάθεσις, ‘condition’: διάθεσις refers to the state or condition of the patient in disease, as contrasted with his normal state or condition (φύσις). While the patient’s constitution (φύσις) remains the same, his condition (διάθεσις) varies according to the nature of the disease. For the distinction between φύσις and διάθεσις cf. *Morb.* III 15, L. 7.138.4–6; *Alim.* 34, 145.2–3 Joly (L. 9.110). The role of διάθεσις in the discovery of medicine is the same as the role of φύσις in the discovery of cooking (cf. 7.2). Associated with each διάθεσις is a certain strength (ισχύς) and capacity (δύναμις) to assimilate foods; the discovery of medicine involves the evaluation of these capacities on the basis of the reactions of different individuals to different foods. The author does not use the term δύναμις in connection with διάθεσις, but he does use the verb δύναμαι to express what the individual διάθεσις is capable of assimilating; cf. 7.2, 126.12–13 J. (ὅσων ἡ διάθεσις ... μὴ δύνηται ἐπικρατεῖν). On διάθεσις in VM cf. Muri 1936, 467–468; Jouanna 1990, 125n2.

6.3 Πάντα δὴ τὰ αἷτια ... τὸν κάμνοντα, ‘Accordingly, all the causes of suffering ... in both health and sickness’: in claiming that ‘all the causes of suffering can be reduced to the same thing’ (Πάντα δὴ τὰ αἷτια τοῦ πόνου ἐς τὸ αὐτὸ ἀνάγεται), the author might seem to be adopting the procedure of his opponents, whom he describes in chapter 1 as ‘narrowing down the primary cause of disease and death for human

beings' (ἐς βραχὺ ἄγοντες τὴν ἀρχὴν τῆς αἰτίας 1.1; cf. nn. *ad loc.*, pp. 126–130 above). Cf. Festugière 1948, 40: 'On voit donc que ce que l'auteur reproche aux novateurs n'est pas de ramener à l'unité les causes des maladies chez les hommes—c'est ce qu'il fait lui-même en les ramenant à l'ingestion d'aliments "trop forts",—mais de s'être trompé de cause en faisant appel à des postulats extrinsèques à la médecine.' But while this remark does reflect the author's view that medicine has a systematic method that is based on a principle (ἀρχή), it does not amount to an endorsement of the opponents' attempt to identify one or two factors such as hot and cold as the cause of all diseases. In chapter 14 the author identifies a large number of factors such as sweet and bitter as responsible for suffering and disease; the present remark anticipates what is said there, viz. that such factors cause harmful effects when they are present in strong or concentrated form. Moreover it is qualified at the beginning of chapter 9, where the author emphasizes that a diet that is too weak for an individual causes just as much harm as one that is too strong. In the present context (an account of the development of medicine from its origin in a brutish and savage diet) an emphasis on the harmful effects of excessively strong foods is to be expected (cf. however 5.5).

7

The author compares the discovery of medicine with the discovery of cooking, stressing the similarity between them. What difference is there, he asks, between the reasoning that led to the two discoveries? (7.1) Both were made by following the same method: the elimination of foods that were too strong for the φύσις or διάθεσις of the individuals in question (7.2). The only differences between them are that medicine is more complex and arose out of cooking (7.3).

The chapter emphasizes the methodological parallel between cooking and medicine, implicit already in chapters 3 and 5. Both cooking and medicine were discovered by following the same method (ὡντὸς τρόπος 126.9 J.): diminishing the strength of foods to make them suitable for the human constitution (φύσις) or the condition (διάθεσις) of the sick. Indeed, the author goes so far as to say that cooking and medicine are the *same* discovery (ἐν καὶ ὁμοιον τὸ εὑρημα 126.9 J.). Since different foods are appropriate for the sick and the healthy, this remark implies that a discovery is not just a kind of food or a procedure for preparing

a certain kind of food. The discoveries of cooking and of medicine are the same because both were made by following the same method and both resulted in the same ability: the ability to prepare and prescribe a beneficial diet for various classes of individuals. This is not just a matter of developing a set of procedures for preparing certain foods; it also involves learning to recognize the different classes of individuals to whom such foods should be administered. Again, the discovery of the procedures that make up the τέχνη is inseparable from the discovery of when and how those procedures should be applied (cf. above, pp. 156–157). The only differences between medicine and cooking are that the former is more complex than the latter and developed out of it (7.3). Medicine is more complex because it requires drawing more distinctions between classes of individuals and types of regimen, attention to both quantitative and qualitative aspects of diet, and concern to avoid a diet that is too weak as well as one that is too strong (cf. above, p. 176). In referring to cooking as the origin of medicine (ἀρχή 126.16 J.) the author once again adopts the developmental point of view, according to which cooking is the starting point and medicine is the next stage along a path of development (ὁδός). Cooking is the starting point of the discovery of medicine in the sense that the discoverers of medicine began from the knowledge that the discoverers of cooking had attained. But the whole thrust of the argument of the present chapter is to stress the methodological parallel between cooking and medicine: they are based on the same principle (ἀρχή) and follow the same method (ὁδός).

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7.1 Τί οὖν φαίνεται ἐτεροῖον διανοηθεῖς, ‘What difference ... between the reasoning’: cf. τὴν αὐτὴν ... διάνοιαν 5.3, 124.9–10 J. διανοέομαι sometimes means ‘to intend’; cf. 5.1, where the author asks whether medicine aims at the same ends as cooking. But the point here seems to be the more general one that the same reasoning went into the discoveries of cooking and of medicine (cf. LSJ s.v. διανοέω II).

7.2 οὗτός τε τρόπος, ‘the same method’: M’s τρόπος is preferable to A’s λόγος as *lectio difficilior* (Jouanna 1990, 126n2). For τρόπος as ‘method’ cf. LSJ s.v. VI and the reference to ‘those who pursue their researches in the art according to the new method (καινὸν τρόπον)’ at 13.1, 133.7–8 J.

7.2 ὁ μὲν ... ὁ δέ, ‘The one ... while the other’: the author normally treats discovery as the collective achievement of a group of individuals;

cf. 3.5, 5.3–5, 14.3–4, and p. 157 above. Here the singular is used to make the comparison between cooking and medicine more pointed. Cf. 11.1–2, where the singular is used (Τῷ μὲν ... Ὁ δέ) although the reference is clearly to the different classes of individuals mentioned in 10.3–4 (those who suffer from taking an extra meal, and those who suffer from skipping a customary meal).

7.2 μὴ ἐδύνατο ... μὴ δύνηται ἐπικρατεῖν, ‘could not overcome ... could not overcome’: cf. 3.5 οὐ δυνήσεται κρατεῖν ... δύνηται ἐπικρατεῖν and 5.4 ὥς μὴδ’ ... δύνασθαι ἐπικρατεῖν with nn. above (pp. 168–169, 177).

7.2 διάθεσις, ‘condition’: like the constitution or φύσις, a person’s διάθεσις is defined by its ability to ‘overcome’ (ἐπικρατεῖν) or assimilate foods; its role in the discovery of medicine is precisely the same as the role of φύσις in the discovery of cooking. Cf. n. above on 6.2 διαθέσει (p. 179).

7.3 πλέον τό γε εἶδος, ‘has more aspects’: lit. ‘is greater in respect of form’; the meaning is not immediately clear, and editors have suspected textual corruption. The main alternative is to delete πλέον; the point would then be that medicine differs from cooking only in εἶδος, i.e. in appearance. So Taylor 1911, 214. But there is no manuscript support for the deletion, and the phrase ‘greater in respect of εἶδος’ in fact expresses quite well the author’s idea that the chief difference between medicine and cooking lies in the greater complexity of the former. Medicine requires drawing more distinctions between classes of individuals and developing more types of regimen corresponding to these different classes. Medicine is ‘greater in respect of εἶδος’ than cooking in the sense that it requires knowledge of more εἶδεα, more constitutional types and types of therapy. The phrase πλέον τό γε εἶδος may thus be rendered as ‘has more aspects’, where the aspects in question are the different types (εἶδεα) of constitutions and therapies. For εἶδος used of a constitutional type see *Aer.* 3, 5, 10, 13, and passim; cf. Gillespie 1912, 181–182. For εἶδος as a type or kind of therapy cf. *Off. Med.* 7, L. 3.290.1: ‘of bandaging there are two aspects (εἶδεα), that which is completed and that which is in process of application’; *De Arte* 6, 230.7 Jouanna (L. 6.10): physicians treat patients using ‘regimen and other kinds (sc. of therapies)’ (διατήμασιν ἰώμενοι καὶ ἄλλοισι τε εἶδεσιν); *Loc. Hom.* 44, 82.1–5 Craik (L. 6.338) (where εἶδος seems to refer to a type of food, drink, or drug characterized by its capacity to affect the body). For further discussion of εἶδος in the sense of *modus procedendi* see Diller

1971b, 28. Cf. also 12.2 Πολλά δὲ εἶδεα ... περὶ ὧν εἰρήσεται and 15.1 μηδενὶ ἄλλῳ εἶδει κοινωνέον with nn. below (pp. 221–222 and 260–263).

7.3 ποικιλώτερον καὶ πλείονος πρηγματεῖς, ‘is more complex, and requires more diligent effort’: for πρηγματεῖς cf. 3.5, where the verb πρηγματεύομαι is used of the activity involved in the development of cooking (ἄλλα τε συχνὰ ... πρηγματευσάμενοι 122.11–12 J.). For ποικιλώτερον cf. 9.3: because the doctor must avoid deficiency as well as excess in the prescription of regimen, his tasks ‘are much more varied and require more precision’ (πολλὸν ποικιλώτερά τε καὶ διὰ πλείονος ἀκριβείης 128.9–10 J.; cf. n. *ad loc.*, pp. 192–193 below).

8

The author gives further evidence to support the methodological parallel between cooking and medicine. The effects of a diet fit for the healthy on a sick person are no more harmful than the effects of a diet fit for animals on a healthy person (8.1). If we imagine two people, one who is sick and eats some bread or meat, and another who is healthy and eats raw food such as barley or vetch, the latter will suffer no less than the former (8.2). This is an indication that medicine could one day be completely discovered, if research continues to be pursued according to the same method (8.3).

Although it is at first not expressed very clearly, the basic idea of the chapter is simple enough: the effects of a diet suitable for the healthy on the sick are no more severe than the effects of a diet suitable for animals on the healthy. This suggests that the sick, the healthy, and animals lie at equal intervals along a single continuum of strength: the difference in strength between the sick and the healthy is the same as the difference in strength between the healthy and animals. That the harm caused to the sick by a diet suitable for the healthy is no *greater* than the harm caused to the healthy by a diet fit for animals shows that the discovery of medicine did not involve making a greater leap than the discovery of cooking. This supports the author’s claim that the discovery of medicine was not qualitatively different from the discovery of cooking, and thus his claim that all remaining discoveries in medicine can be made by following the same method (8.3). The appeal to an imaginary situation or thought experiment is one of the author’s characteristic argumentative strategies; cf. ch. 13. The conditions of the imaginary situation are

set out with remarkable care. The sick person is said to suffer from a disease that is neither unbearable nor entirely mild; the healthy person possesses a constitution (φύσις) that is neither extremely weak nor very strong. Both individuals are described as taking only a small amount of the food that is harmful to them. In this way the author emphasizes that the imaginary situation he describes is not a particularly unusual one. This is not a thought experiment that involves imagining a situation that could never actually be realized, though it seems quite unlikely that the author ever carried out the kind of comparative assessment of effects that he describes here.

* * *

8.1 Εἰ δέ τις ... τῶν ἄλλων ζώων, 'If one were to examine ... and other animals': *prima facie* this text (substantially that of A) means that the diet of the sick is no more harmful to the healthy than the diet of the healthy is to beasts. But the sequel shows that the author's point is just the reverse: a diet suitable for the healthy is no more harmful to the sick than a diet suitable for beasts is to the healthy (cf. 8.2, 127.10–12 J.: a healthy person who eats the food of beasts will be harmed no less than a sick person who eats the food of the healthy). It is not the diet of the sick that is harmful, but the consequences of *assimilating* it to the diet of the healthy (cf. Festugière 1948, 40). As von Fritz notes (1966, 168), the awkward expression results from the author's failure to distinguish clearly between two ideas: (1) the diet of the sick stands to that of the healthy as the diet of the healthy stands to that of animals, and (2) it is nearly as harmful for a sick person to take food suitable for the healthy as it is for a healthy person to take food suitable for animals.

8.2 ἀφόρων, 'unbearable': both A and M read ἀφόρων, which is preferable as *lectio difficilior* to the ἀπόρων 'unmanageable' of the corrector of A (followed by Heiberg and most recent editors). Cf. Jouanna 1990, 127n1.

8.2 πολλῷ μείον ἢ δύνατο, 'much less than it could': i.e. much less than an ox or a horse could. Just as the sick person takes much less solid food than he could when healthy, so the healthy person takes much less raw food than an animal could. The alternative is to take the subject of δύνατο to be the healthy person himself ('much less than he could'); but then it is not at all clear what the meaning would be (much less than he could *under what conditions?*).

8.3 αὕτη ἡ τέχνη πᾶσα ἡ ἱητρικὴ, ‘this art of medicine ... in its entirety’: As αὕτη ἡ τέχνη is preferable to M’s αὐτὴ ἡ τέχνη (‘the art of medicine itself in its entirety’). Jouanna, who follows M, suggests that αὕτη expresses a contrast between medicine itself and cooking, which merits the name of medicine but is not generally recognized as such (Jouanna 1990, 127n6). But it seems unlikely that the author would want to emphasize this contrast, since his whole account is intended to show that cooking and medicine are really the *same* art: medicine is simply a more complex and refined kind of cooking.

9

The author turns from the discovery of medicine to the application of discoveries to the treatment of patients. If medicine were simply a matter of reducing the strength of a patient’s diet, as the account of chapters 3–8 might suggest, therapy would be easy: one could simply prescribe a weaker diet and be reasonably confident of success. But in fact both excess and deficiency must be avoided, and the effects of depletion (κένωσις) are no less severe than those of repletion (πλήρωσις). The strength of regimen must be matched precisely to the strength of the patient’s constitution; any excess or deficiency in strength will cause harmful effects (9.1–2). Since the doctor must prescribe a diet that is precisely matched to the strength of the patient, medicine is more complex (ποικιλωτέρα) and requires greater precision (διὰ πλείονος ἀκριβείης 128.10 J.). In prescribing treatment the doctor must aim at a ‘measure’ (μέτρον); but the only way he can do this is by relying on the ‘feeling of the body’ (τοῦ σώματος τὴν αἴσθησιν 128.13 J.). Hence it is difficult to acquire knowledge so precise that one will err only slightly in treatment; the doctor who makes only small errors is worthy of the highest praise (9.3–4). The chapter closes with an extended comparison between the doctor and the helmsman or navigator (9.4–5). The incompetence of bad helmsmen is not apparent under most conditions, when the weather is relatively calm, but it is revealed to all when a ship is lost in inclement weather. Similarly, the errors of bad doctors are not apparent in the case of most diseases, which are not particularly threatening; but when a doctor errs in a serious case, his incompetence quickly becomes clear to all.

The chief importance of the chapter lies in the author’s remarkable claim that the degree of precision or exactness (ἀκριβεία) that

can be attained in medicine is limited, and that as a result the doctor who makes only small errors deserves high praise (9.3–4). In this chapter ἀκριβεία is a quality of the doctor's actions (διὰ πλείονος ἀκριβείης 128.10 J., cf. pp. 192–193 below) and the knowledge on which they are based (εἴση τὸ ἀκριβές 128.12 J.). The accuracy of therapy corresponds directly to the ἀκριβεία of the doctor's knowledge: it is difficult to 'acquire knowledge so precise that one errs only slightly in one direction or the other' (ἔργον οὕτω καταμαθεῖν ἀκριβῶς, ὥστε σμικρὰ ἁμαρτάνειν ἔνθα ἢ ἔνθα 128.13–15 J.). As a quality of the doctor's knowledge and actions, ἀκριβεία is distinguished from τὸ ἀτρεκές, which refers to the goal he aims to achieve. By acquiring precise (ἀκριβής) knowledge the doctor can come close to attaining the goal of perfect accuracy (τὸ ἀτρεκές), though this is only rarely achieved and he normally 'misses the mark' (ἁμαρτάνει) to a small extent (cf. 12.2 and n. below on 9.4 τὸ δὲ ἀτρεκές). As applied to the products of crafts such as carpentry ἀκριβεία often conveys the notion of a high degree of detail and a close fit (cf. Introduction, sec. 1.2). These qualities can readily be transferred to knowledge: ἀκριβεία characterizes knowledge that is highly detailed and closely fitted to its subject matter. The subject matter of medicine is human φύσις and regimen, which are highly complex and varied; moreover regimen must be precisely fitted or adapted to the requirements of the individual patient's φύσις. The doctor must strive to avoid deficiency as well as excess, and aim at a diet that is precisely matched to the strength of the patient (9.1–2; cf. 12.1). This requires consideration of a number of different factors including the quantity, quality, and timing of foods (cf. 9.2 ἐλάσσονα καὶ ἐνδεέστερα with n. below; for the importance of timing cf. ch. 10). But different individuals are characterized by distinctive blends of humors in different amounts and concentrations (14, 20.6) and by internal organs that have a distinctive structure and that function in distinctive ways (11, 22–23). In order to prescribe what is beneficial for a patient, the doctor needs a body of precise (though still general) knowledge of the effects of various foods on the substances in the body and the internal organs (14.1–2, 20.3), as well as detailed knowledge of the humoral composition and internal organs of the particular individual he is treating (20.3, 20.6). It is the difficulty of gaining this knowledge, given the wide range of variation between individuals, that explains the difficulty of achieving perfect accuracy in treatment.

Section 9.3 contains the core of the author's argument that the degree of ἀκριβεία attainable in medicine is limited. The key passage

is at 128.10–13 J.: ‘For one must aim at a measure; but you will find no measure—nor number nor weight besides—by referring to which you will know with precision, except the feeling of the body.’ This statement makes several overlapping points, which must be carefully distinguished (cf. n. below on 9.3 Δεῖ γὰρ μέτρου τινὸς στοχάσασθαι ... τοῦ σώματος τὴν αἴσθησιν). First, instead of simply reducing the strength of the patient’s diet, the doctor must ‘aim at a measure’ (Δεῖ γὰρ μέτρου τινὸς στοχάσασθαι 128.10–11 J.). Here μέτρον refers to the goal of therapy, a mean between excess and deficiency; its meaning approaches that of μέτριον (‘due measure’). To say that the goal of therapy is a mean between excess and defect is just to say that the doctor must prescribe exactly what is required by the constitution (φύσις) or condition (διάθεσις) of the patient he is treating. What counts as a mean for one individual may not be a mean for another, as Aristotle famously noted in reference to both gymnastics and ethics (*EN* 1106a36–b4); hence to determine the μέτρον in a particular case the doctor needs precise knowledge of the patient’s constitution or condition. So much is clear enough. But the author immediately goes on to use μέτρον in a quite different sense: ‘... but you will find no measure (μέτρον)—nor number (ἀριθμός) nor weight (σταθμός) besides—by referring to which you will know with precision ...’ Here μέτρον refers not to the goal of therapy but to a means of reaching that goal, something ‘by referring to which’ the doctor can know precisely what the patient requires. The shift from μέτρον as goal to μέτρον as means is not as harsh as it might at first appear, since a μέτρον as a means could be understood as a dietary prescription specified in terms of measure, number, and weight (e.g. ‘give half a liter of wine twice a day for three days’). By ‘referring’ the author might mean appealing to such a specification to determine the correct therapy in a particular case. Here, then, his point seems to be a negative one, viz. that there is no general specification in terms of measure, number, and weight to which one can appeal in order to make a prescription suitable for a particular individual. This idea certainly finds parallels in other Hippocratic works; cf. especially *Vict.* 2, 124.17–24 Joly (L. 6.470) (see below on 9.3 Δεῖ γὰρ μέτρου τινὸς στοχάσασθαι ... τοῦ σώματος τὴν αἴσθησιν). But the author is not just making this negative point, for he goes on immediately to state that medicine *does* have a μέτρον that can be used to attain ἀκρίβεια: ‘you will find no measure ... by referring to which you will know with precision, *except the feeling of the body*’ (ἀλλ’ ἢ τοῦ σώματος τὴν αἴσθησιν). However the phrase translated as ‘the feeling of the body’ is understood, it clearly refers to something

quite different from the specification of a prescription in terms of measure, number, and/or weight. In the context of the passage as a whole the terms μέτρον, ἀριθμός, and σταθμός thus take on a further sense: they refer not just to specifications of a prescription but also to means or tools that function in some other way. As Festugière has noted (1948, 41–43), a number of passages in Plato and other fourth-century authors stress the role of measure, number, and weight as reliable criteria or tools of judgment for settling disputes. This is the dominant idea here: the ‘feeling of the body’ (τοῦ σώματος τὴν αἴσθησιν) is the only criterion or tool of judgment that the doctor has in assessing the correctness of a therapeutic prescription. More generally, the triad of measure, number, and weight evokes an ideal of quantitative precision exemplified by τέχναι such as carpentry (τεκτονική) (cf. Heinimann 1975 and Introduction, pp. 15–17). In saying that medicine has no μέτρον *except* the ‘feeling of the body’, the author is asserting that medicine has a tool, analogous to those used in τέχναι such as carpentry, that makes it possible for the doctor to attain ἀκρίβεια. The μέτρον is both a tool of judgment and a tool of measurement, one that enables the doctor to learn about the state of the patient’s humors and internal organs by reflecting on the effects of different therapies.

At the same time, the nature of this tool explains why medicine can attain only limited ἀκρίβεια. The interpretation of the phrase τοῦ σώματος τὴν αἴσθησιν (128.13 J.) is controversial, and a number of commentators have argued that it refers to the doctor’s perception or feeling of the patient’s body. But while there is no doubt that close observation was a crucial component of the method of many Hippocratic physicians, a consideration of general Hippocratic usage as well as the argument of VM itself makes it clear that τοῦ σώματος τὴν αἴσθησιν refers to the reaction of the patient’s body to treatment as perceived or felt by the patient himself (see n. *ad loc.*, pp. 196–200 below). The patient is the ultimate judge of what he feels in response to treatment, and the doctor must use this judgment to acquire precise knowledge of the patient’s humors and internal organs. The basic idea is the same as the idea underlying the author’s account of the discovery of medicine: reflecting on the body’s reaction to different foods and drinks leads to greater understanding of its constitution (φύσις) or condition (διάθεσις). Two features of the ‘feeling of the body’, so understood, explain why as a μέτρον it can provide only limited ἀκρίβεια. First, it provides only indirect access to the patient’s φύσις or διάθεσις: though the patient is the ultimate judge of what he *feels*, this does not immediately reveal the

state of his humors or internal organs. Second, it does not yield quantitatively precise measurements. The body contains a large variety of fluid substances or humors in different amounts and degrees of concentration (14.4), and there is no way to determine these relationships with precision from the patient's 'felt reaction' to treatment. Medicine thus falls short of the ideal of complete precision and reliability exemplified by a τέχνη such as carpentry. But this does not undermine its claim to be a genuine τέχνη (cf. 12.2) or the claim of its practitioners to professional competence. For medicine *does* have a μέτρον, albeit one that cannot yield completely precise or reliable results.

The upshot is that there is an inherent limitation on the ἀκριβεία attainable in medicine, a limitation due to the complexity of medicine's subject matter and to the tools at the doctor's disposal. No matter how closely the doctor observes a patient, he does not have the kind of tool that would be needed to make a perfectly accurate prescription. The problem is not just that it is impossible to *write down* a prescription that is valid for all cases, as though close attention to the individual case would be enough (contrast *Vit.*, which suggests that complete ἀκριβεία in therapy could be attained if the doctor were able to monitor the patient constantly; see n. below on 9.3 οὕτω καταμαθεῖν ἀκριβῶς ... ἐνθα ἢ ἐνθα). Nor is the limitation on ἀκριβεία contingent on the fact that discoveries remain to be made in medicine. The author has suggested that medicine might one day be completely discovered by following the method he sets out (cf. 2.1, 8.3), but this does not imply that complete precision and reliability will one day be attained in therapy. If all discoveries had been made in medicine and the doctor had mastered this complete body of knowledge, he would always be able to prescribe the correct treatment, given precise knowledge of the φύσις or διάθεσις of the patient. But because the doctor has only the patient's αἴσθησις or 'felt reaction' to go on, he is unable to grasp the φύσις or διάθεσις of the patient in its full complexity; hence diagnosis and therapy can never achieve complete precision or reliability.

In 'aiming' (στοχάσασθαι) at the due measure of therapy for a particular individual, the doctor must rely on imperfect knowledge of the patient's constitution or condition. But there is no suggestion that this 'aiming' involves a special faculty or ability with a distinct epistemological status, as it does in later medical writers such as Galen (cf. n. below on 9.3 στοχάσασθαι and Appendix 2, pp. 370–374). In general the author's conception of medicine is distinct from the concept of a stochastic craft as developed in Aristotle and later authors. The notion

of a stochastic craft is based on a clear distinction between following the correct method and attaining a successful result. The practitioner can do everything correct yet still fail to achieve success, not because of any limitations on his knowledge but because circumstances beyond his control intervene to prevent the intended result from coming about. For example, the archer who takes correct aim at a target may still miss because of an unexpected gust of wind. In the stochastic crafts, the criterion for successful practice is redefined from the attainment of results to following the right method: the goal of the art lies in aiming at the target, not in hitting it (cf. Arist. *Rh.* 1355b10–14; *Top.* 101b5–10). The author of VM comes close to redefining success in this way (cf. n. below on 9.3 ἔργον). But the small errors made by the good practitioner are still errors, however justifiable they may be. It is the doctor's limited knowledge that accounts for these errors; even if the limitations on his knowledge are quite understandable and excusable, the point remains that he would best fulfill the demands of his art by acquiring completely precise knowledge of the patient's constitution and thus achieving complete accuracy in therapy. Aristotle's concept of a stochastic craft is based not on the idea that practitioners' knowledge of the nature (φύσις) of the subject matter of their art is inherently limited, but on the notion that natural regularities hold only 'for the most part' (ὡς ἐπὶ τὸ πολὺ; cf. Allen 1994 and Appendix 2, pp. 369–370).

The comparison between medicine and navigation is a Platonic commonplace; in later sources, the two were commonly grouped together as paradigm examples of stochastic crafts (cf. n. below on 9.4 κυβερνήτησι). In both medicine and navigation, a practitioner could fulfill all the demands of his art in a particular situation yet still fail to achieve success because of circumstances outside his control, such as a freak storm or a disease's unexpected turn for the worse. But the point of the comparison in the present chapter is quite different: by emphasizing that doctors frequently make quite serious errors in treatment, it reinforces the author's praise of the doctor who makes only small errors. The difference between good and bad practitioners becomes clear only in cases of extreme difficulty; in most cases, one can make very great errors and still cause no harm to the patient. Instead of comparing good doctors to good helmsmen, VM compares the vast majority of doctors, who are quite bad, to bad helmsmen. The stress in this passage on the difficulty of perceiving the distinction between good and bad practitioners is striking and stands in some tension with the author's appeal elsewhere to clear differences in competence between

practitioners (cf. 1.2 and n. below on 9.5 ἀμαρτάνοντες οὐ καταφανείς ... πᾶσι καταφανής).

The author's identification of αἴσθησις as the only μέτρον available in medicine has led a number of commentators to conclude that he was influenced by Protagoras' doctrine that 'man is the measure (μέτρον) of all things' (DK 80 B 1). In this fragment μέτρον refers to a criterion or tool of judgment, as it does in VM 9. But this is hardly sufficient to establish the influence of Protagoras on VM (or vice versa), especially since it is quite unclear how Protagoras himself intended his man-measure doctrine to be understood. What can be said with confidence is that VM's position bears no resemblance to the kind of relativism attributed to Protagoras in one important early source, Plato's *Theaetetus*. In the *Theaetetus* Socrates draws out the implications of Protagoras' doctrine using perceptual examples. Each person is an infallible judge of his own perceptions; if the wind feels cold to a person, it is cold for him, and there is no other standard to which one can appeal to settle the matter (152a–c). The view expressed in VM is quite different. The author's view is not that the patient's αἴσθησις is the ultimate standard against which treatment must be assessed. What determines whether a treatment is beneficial or harmful is its effect on the patient's φύσις, and the patient's αἴσθησις provides only indirect and imprecise knowledge of his φύσις. The fact that αἴσθησις is the only criterion the doctor has at his disposal is according to VM a *limitation* of medicine. This distinguishes the author's conception of medicine sharply from the conception set out in the section of the *Theaetetus* known as the Apology of Protagoras (*Th.* 166a–168c; cf. DK 80 A 21a). Here Socrates offers a defense on Protagoras' behalf against the charge that his man-measure doctrine obliterates any distinction between the expert and the lay person. According to the view that Socrates presents, the role of the doctor is to make what *seems* painful *seem* pleasant and good to his patient; hence it must also *be* good for him, since 'each thing is as each person perceives it to be' (οἷα γὰρ αἰσθάνεται ἕκαστος, τοιαῦτα ἑκάστῳ καὶ κινδυνεύει εἶναι 152c2–3). Cole, who thinks that VM's conception of medicine is the same as that presented in the Apology, uses the example of an oculist who adjusts a person's glasses based on his responses to questioning: the only judge of whether something is beneficial for one's eyesight is the person himself, and the oculist must constantly adjust the strength of the lens on the basis of the patient's response (Cole 1972). That may be an apt illustration of the conception of τέχνη that Socrates offers Protagoras, but it fails utterly to capture the essential character of

medicine as the author of VM conceives of it. According to the author, whether or not a certain treatment is beneficial for a patient depends on how it affects the patient's φύσις, not on how the patient *perceives* its effect. The patient's perception is only an indirect indication of the state of his humors and internal organs. If Protagorean relativism was anything like the view that Plato describes in the *Theaetetus*, there is simply no trace of it in VM (cf. Introduction, p. 48).

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9.1 ἀπλοῦν, 'simple': the contrast is with ποικιλώτερα and διὰ πλείονος ἀκριβείης 128.10 J.; for the contrast ἀπλοῦς-ἀκριβής cf. 20.3: the doctor cannot simply state without qualification (ἀπλῶς) that cheese is harmful; he must be able to say precisely what kind of harm it causes and what things in the body it harms. The doctor's general knowledge must be ἀκριβής, not ἀπλοῦς. Cf. also Arist. *Metaph.* 1025b7, 1030a16, and Introduction, p. 13.

9.2 ἐλάσσονα καὶ ἐνδεέστερα, 'deficient in quantity and quality': for the importance of both quality and quantity in the prescription of regimen cf. 5.5, where a diet that is deficient (ἐνδεέστερα) is opposed to one that is excessive in both quantity (πλείω τῶν δεόντων) and quality (ἀκρητέστερα).

9.3 Διότι πολλὸν ποικιλώτερά ... διὰ πλείονος ἀκριβείης ἐστί, 'For this reason the doctor's tasks ... require more precision': ποικιλώτερα might be taken as picking up κακά from the previous sentence (so Jones 1946): 'Many other ills (κακά) also result from depletion ... Wherefore these ills are much more complex (ποικιλώτερα) than we realize, requiring greater accuracy of method.' M reads ποικιλωτέρη, which could be taken as modifying an understood τέχνη. But cf. 7.3, where the discoveries of medicine and cooking are said to differ in that the former was 'more complex and required more diligent effort' (ποικιλώτερον καὶ πλείονος πρηγματείας; cf. n. *ad loc.*). The point in the present passage is similar: medicine is more complex than it might otherwise seem to be, since the doctor's tasks are more varied (ποικιλώτερα) and require greater precision (ἀκριβεία). For ἀκριβεία as a quality of the doctor's actions cf. *Morb.* I 1, L. 6.140.12–13: a lay person needs to know 'what is said and done with precision in the art' (ὅκῳ ἀκριβῶς ποιεῖται ἐν τῇ τέχνῃ καὶ λέγεται); *Acut.* 20, 44.23 Joly (L. 2.268): the doctor must administer treatment 'observing with precision, in accordance with the signs

that have already been written down' (κατὰ τὰ τεκμήρια τὰ προγεγραμμένα ἀκριβέως θεωρέων); *Aff.* 13, L. 6.220.15–17: acute diseases need 'the greatest attention and the most precise treatment' (δεῖ πρὸς αὐτὰς φυλάκῃς τε πλείστης καὶ θεραπείης ἀκριβεστάτης). The phrase δίαίτα ἀκριβής, which occurs several times in various works, seems to refer to a diet that is regular and unvarying; cf. Introduction, 17n50. Though ἀκριβεία is normally treated as a positive quality that the doctor should pursue, a number of passages remark on the dangers of a diet that is excessively ἀκριβής. Cf. *Aph.* 1.4, L. 4.460.7–8; *Aph.* 1.5, L. 4.462.3–9; Kurz 1970, 77–80. For Hippocratic awareness of the limitations on the ἀκριβεία that can be attained in medicine see n. below on 9.3 οὕτω καταμαθεῖν ἀκριβῶς ... ἔνθα ἢ ἔνθα.

9.3 Δεῖ γὰρ μέτρου τινὸς στοχάσασθαι ... τοῦ σώματος τὴν αἴσθησιν, 'For one must aim at a measure ... the feeling of the body': as discussed above (pp. 186–188), there is some tension in the use of the terms μέτρον, ἀριθμός, and σταθμός in this passage, but it does not seem to be a tension of which the author himself is aware. The terms undergo the kind of shift in meaning that is to be expected from an author striving to express abstract ideas in the absence of a developed technical terminology. The term μέτρον refers first to the goal of therapy, a 'due measure' or 'mean', and then to a measure of content in which such a goal can be expressed; when the sentence is complete it turns out also to have the sense of criterion or measuring tool. Similarly, ἀριθμός and σταθμός seem at first to refer to specifications of prescriptions, but then take on the additional sense of criterion once the sentence is complete. The passage expresses two thoughts that the author does not clearly distinguish: first, that there is no fixed prescription specifiable in terms of measure, number, and weight to which one can appeal to determine what is suitable for a particular patient, and second that there is no criterion or tool that the doctor can use to determine the correct therapy except the patient's αἴσθησις. Cf. von Fritz 1966, 174–175: 'Man kann nicht einmal die Bedeutung der einzelnen Worte überall genau festlegen, hier z. B. ob ἀριθμός Zahl heißt oder sich der Bedeutung Zahlverhältnis nähert und ob σταθμός Gewicht oder Waage oder Maßstab bedeutet, da es ein bekanntes Phänomen ist, daß durch unklare Denken dieser Art sich sogar neue Wortbedingungen entwickeln ... die Bedeutung von ἀριθμός und σταθμός steht unklar zwischen der des zu erzielenden Maßes und des Kriteriums (oder Maßstabes, was aber auch nicht ganz klar ist), mit Hilfe dessen man das richtige Maß anstreben kann.'

For μέτρον as due measure cf. LSJ s.v. 4 (with examples from archaic and classical poetry) and Plato, *Plt.* 284c2–8 (translation as in Cooper 1997, slightly modified):

It is clear that we would divide the art of measurement (μετρητική), cutting it in two in just the way we said, positing as one part all the arts (τέχναι) that measure number and lengths and depths and widths and speeds against their opposites, and as the other, all the arts that measure in relation to due measure (τὸ μέτριον) and what is fitting (τὸ πρέπον) and the right moment (τὸν καιρὸν) and what is necessary (τὸ δέον), in a word everything that is removed from the extremes towards the mean (τὸ μέσον).

That Plato finds it necessary to draw this distinction suggests that measurement (the use of a μέτρον) was often not distinguished from the attempt to attain the due measure or mean (τὸ μέτριον). For μέτρον as both due measure and a measure of content in the specification of a dietary prescription cf. *Vict.* 2, 124.17–24 Joly (L. 6.470):

For if in addition to these things it were possible to discover for the constitution of each individual (πρὸς ἐκάστου φύσιν) a measure (μέτρον) of food and a corresponding number (ἀριθμὸς) of exercises, with no inaccuracy of either excess or defect, then health for human beings would have been discovered exactly (ἀκριβέως). But as it is, though all the things previously mentioned have been discovered, this is impossible to discover. Now if one were present and could observe, he would have knowledge of each patient as he stripped and practiced his exercises, so as to keep him in health by taking away here and adding there. But without being present it is impossible to prescribe food and exercise with exactness (μὴ παρόντι δὲ ἀδύνατον ὑποθέσθαι ἐξ ἀκριβείην οἷα καὶ πόνους).

Like VM, the author of *Vict.* claims that it is impossible to specify a fixed quantitative prescription that is adequate for all cases. Cf. also *Carmen aureum* 33–34 (a work attributed to Pythagoras): ‘But one must observe the due measure (μέτρον) in food, drink, and exercise. By measure (μέτρον) I mean that which will cause you no pain’ (ἀλλὰ ποιοῦ τε μέτρον καὶ σίτου γυμνασίων τε / ποιῆσθαι μέτρον δὲ λέγω τόδ’, ὃ μὴ σ’ ἀνήσει). For μέτρον in the sense of criterion or tool of judgment cf. especially Protagoras DK 80 B 1 (discussed above, pp. 191–192); for the triad of measure, number, and weight as reliable criteria and as means of making precise measurements see Festugière 1948, 41–43, Heinimann 1975, and Introduction, pp. 14–17. For σταθμός cf. *Steril.* 230, L. 8.442.27–444.9 (tr. based on Dean-Jones 1994, 121–122):

Try to be an inquirer into nature (πειρῶ φυσικὸς εἶναι), looking towards the state (ἔξις) and strength (ισχύς) of the woman. For there is no standard (σταθμός) of these things, but try to gather evidence from the following things: purgations and evacuations of the whole body and the head, and fumigation and pessaries of the uterus. These are your elements (στοιχεῖα), and treatment makes use of each in turn, and whichever of these you do not use, always employ fumigations: for this is what softens and leads down the humors. But when you cease treatment and the natural discharge has ceased, you must draw blood from the arm.

Here σταθμός cannot have its normal meaning of ‘weight’; it must refer to a fixed ‘standard’ or ‘criterion’ for assessing the condition and strength of a female patient. The point is that these factors cannot be assessed by appeal to such a standard; rather, the doctor must be a student of nature, a φυσικός, by using the evidence gained in treatment to draw conclusions about the patient’s φύσις. The doctor, like the natural philosopher, has his own set of elements (στοιχεῖα): the therapeutic measures he can apply to learn about the patient’s φύσις. In its rejection of fixed standards and emphasis on the need for the doctor to investigate the φύσις of his patient by evaluating her reactions to different therapies the author’s position is closely similar to VM’s; cf. Dean-Jones 1994, 121–122.

On the text I follow Jouanna in reading οὐδὲ ... οὐτε with A (*lectio difficilior*) instead of οὐτε ... οὐτε (Kühlewein et al.) or οὐδὲ ... οὐδὲ (M; cf. Heinimann 1975, 192). The effect is to separate the pair ἀριθμὸν and σταθμὸν slightly from μέτρον; this seems appropriate given the repetition of μέτρον: ‘one must aim at a measure. But you will find no measure (nor number nor weight besides) ...’ Heinimann argues that ἄλλον (present in both M and A, though A lacks οὐδένα) should be deleted on the ground that there is no pre-Platonic parallel for ἄλλον followed by ἀλλ’ ἢ (Heinimann 1975, 192; cf. Dihle 1963, 139–140). But though ἄλλον is somewhat illogical, it effectively connects the pair ἀριθμὸν and σταθμὸν with μέτρον: ‘you will find no measure, nor number nor weight *besides* (ἄλλον) ... except the αἴσθησις of the body’ (cf. Radt 1979, 87; von Fritz 1966, 175).

9.3 στοχάσασθαι, ‘aim at’: the literal meaning στοχάζεσθαι is to aim, as an archer aims at his target; cf. Pl. *Lg.* 705c4–706a1 (ὃς ἂν δίκην τοξότου ἐκάστοτε στοχάζηται). The metaphorical sense of aiming or shooting at a goal other than a physical target is common (cf. LSJ s.v. 2). For this use in the Hippocratics cf. *Septim.* 9, L. 7.448.13–14: the doctor ‘aims

at' the health of the sick (στοχάζεσθαι τῆς τῶν καμνόντων σωτηρίας); *Art.* 4, L. 4.86.1–3: the doctor performs an operation with the aim of suspending the patient from his shoulder at the armpit (οὕτω στοχασάμενον ὁκῶς ἀμφὶ τὸν ὤμον τὸν ἑωυτοῦ κρεμάσαι τὸν ἄνθρωπον κατὰ τὴν μασχάλην). In some Hippocratic passages the aiming in question involves adapting treatment to the needs of the individual patient or situation. Cf. *Medic.* 7, L. 9.214.5–6: 'you must work out a useful size for the cupping instrument by reference to the parts of the body to which it must be applied' (μέγεθος δὲ σικύης τί χρῆσιμον στοχάζεσθαι χρὴ πρὸς τὰ μέρη τοῦ σώματος, οἷς ἂν δέη προσβάλλειν); *Alim.* 35, 145.4–5 Joly (L. 9.110): 'it is excellent when quantity is well adapted to power' (μέγα τὸ ποσὸν εὐστόχως ἐς δύναμιν ξυναρμοσθέν). At *Ep.* 16, L. 9.346.12–13, στοχάζεσθαι has the sense 'conjecture' (cf. Pl. *Grg.* 464c5–6, *Phlb.* 56a, and LSJ s.v. II): 'we conjecture the due measure of drugs by reference to a constitution of which we are ignorant: for not all have one and the same constitution' (ξυμμετρίην φαρμακείης πρὸς ἀγνοουμένην φύσιν στοχαζόμεθα: οὐ γὰρ ἡ αὐτὴ καὶ μία φύσις πάντων). In the present passage the primary meaning of στοχάσασθαι is 'aim': the doctor must aim at a mean between excess and deficiency just as the archer aims at his target. But since the due measure or mean is different for different individuals, this is a matter of adapting treatment to the needs of the individual constitution. And since the doctor has only limited knowledge of the patient's constitution, the situation the author envisions is not unlike that described in *Ep.* 16: 'aiming' at a due measure for a patient whose constitution is to some extent obscure. Though it would go too far to translate στοχάσασθαι as 'conjecture' here (cf. Ingenkamp 1983, 258–259), the term does refer to aiming based on limited knowledge. Cf. above, pp. 189–190 and Appendix 2, pp. 370–374.

9.3 τοῦ σώματος τὴν αἴσθησιν, 'the feeling of the body': for the view that this phrase refers to the doctor's perception or feeling of the patient's body see esp. Lain-Entralgo 1975, Bratescu 1983. On this interpretation the passage emphasizes the need for the doctor to draw on a range of sensory evidence in his medical practice; cf. also Jaeger's interpretation of αἴσθησις as the doctor's highly refined sensitivity ('ein feines Taktgefühl') to the peculiarities of individual therapeutic situations (1938, 38). This interpretation rests largely on an appeal to the general concern with close observation of the patient that is explicit or implicit in various passages in the Hippocratic Corpus. Thus Lain-Entralgo explicitly bases his interpretation on 'hippocratisme *lato sensu*'

(1975, 307) and Bourgey discusses the passage in the context of a wide-ranging discussion of the general importance of clinical observation in the Hippocratics (1953, 200ff.). In fact, the textual evidence on which this interpretation rests is surprisingly weak. Both Bourgey and Lain-Entralgo cite the opening of *Off. Med.* (L. 3.272.2–5) and *Epid.* IV 43 (L. 5.184.7–13) as parallels (Lain-Entralgo 1975, 309; Bourgey 1953, 203n2). But while both these passages discuss the importance of sensation in medical practice, it is unclear whether the sensation in question belongs to the patient or the physician. *Off. Med.* 1 states that the doctor must give his attention to ‘what can be seen, and touched, and heard; and to what can be perceived (αἰσθέσθαι) by sight, by touch, by hearing, by the nose, by the tongue, and by judgment (τῇ γνώμῃ) ...’; as Galen’s commentary attests (K. 18.2:652–653), it was already a matter of dispute in antiquity whether αἰσθέσθαι refers to the doctor’s perception of the patient or to the patient’s perception through his own senses. *Epid.* IV 43 begins: ‘Crises, and the other things that give us knowledge, [are known] by the eyes, ears, nose, hand. The patient: the one who acts, either touching, or smelling, or tasting, and knowing in other ways’ (‘Ὅτι τοῖσιν ὁμμασι, τοῖσιν οὐασι, τῇσι ῥίσι, τῇ χειρὶ αἱ κρίσεις, καὶ τᾶλλα, οἷσι γινώσκομεν. Ὁ ἀσθενέων· ὁ δρῶν [Littre: ἢ ἰδρῶν MSS], ἢ θιγῶν, ἢ ὀσφρανθεὶς, ἢ γευσάμενος, τὰ δ’ ἄλλα γινύς). The reference to the doctor (‘the one who acts’) depends on accepting Littre’s emendation; with the text of the MSS (‘The patient, either sweating, or touching ...’) it is the patient’s own reactions and perceptions that are the source of the doctor’s knowledge. In general, while there is no doubt that close observation of the patient along with procedures such as palpitation and probing played a crucial role in the method of the Hippocratic physicians, this fact is of doubtful relevance to the interpretation of the present passage.

As Mûri observed, a passage in chapter 15 strongly supports the view that the phrase τοῦ σώματος τὴν αἴσθησιν refers to the patient’s own perception or feeling; i.e., τοῦ σώματος is a subjective not an objective genitive (Mûri 1936; cf. Deichgräber 1933a). In section 15.4 the author notes that astringent and insipid substances have opposite effects both on the human body and on inanimate objects such as leather and wood, which are ‘less sensitive’ (ἀναισθητότερα) than the human body. The language of sense perception is extended to inanimate substances: they are less able than the human being to ‘feel the effects’ of the astringent and insipid. Mûri argued that in the phrase τοῦ σώματος τὴν αἴσθησιν the term αἴσθησις is used with a similar extension of meaning:

‘der Ausdruck für die organgebundene sinnliche Wahrnehmung wird übertragen auf die “Empfindung”, die Reaktionsart des ganzen Körpers’ (1936, 469). In chapter 15 the author is discussing the sensitivity of leather and wood to the ‘powers’ (δυνάμεις) belonging to astringent or insipid substances; similarly, the present passage is concerned with the patient’s reaction to the δυνάμεις of foods, drinks, and other components of regimen. This suggests that the phrase τοῦ σώματος τὴν αἰσθησὶν should be interpreted in light of the author’s account of the discovery of medicine, in which the doctor learns to distinguish between different constitutions and conditions by evaluating the reactions of different individuals to different foods. In the present passage the author is concerned with the attainment of precise (ἀκριβής) knowledge of the patient’s φύσις or διάθεσις. His claim is that the only way to gain such knowledge is by following the procedure described in chapters 3–8: evaluating the *reaction* of the body to foods and drinks (τοῦ σώματος τὴν αἰσθησὶν) and using it to draw conclusions about the patient’s φύσις.

For the use of αἰσθάνεσθαι with an inanimate subject cf. *Aer.* 10, 216.1 Jouanna (L. 2.48): cities that are well situated with respect to the sun and the winds are less apt to ‘feel the effects of’ (αἰσθάνεσθαι) changes in the seasons (αὗται μὲν ἥσσον αἰσθάνονται τῶν τοιούτων μεταβολέων). At *Morb. Sacr.* 13, 23.18ff. Jouanna (L. 6.384–386), various inanimate objects such as the earth, the sea, rivers, and springs are said to ‘feel the effects of’ (αἰσθάνεσθαι) the south wind. Moreover the south wind also ‘makes the body feel its effects and change’ (τὸ σῶμα ποιεῖ αἰσθάνεσθαι καὶ μεταβάλλειν); these effects include relaxing and moistening of the brain and enlargement of the veins. The author of *Nat. Puer.* explains menstruation as due to a disturbance in the woman’s body brought about by a change in the seasons (ch. 15, 57.20–22 Joly, L. 7.494): ‘one month differs greatly from another in respect of cold and heat, and a woman’s body is sensitive to this difference (καὶ τούτου αἰσθάνεται τῆς γυναικὸς τὸ σῶμα), for a woman’s body is moister than a man’s’. *Loc. Hom.* 1, 36.28–29 Craik (L. 6.278) remarks that the body is an interconnected whole, so that ‘if one wishes to take the smallest part of the body and injure it, the whole body will feel the injury (πᾶν τὸ σῶμα αἰσθήσεται τὴν πείσιν)’. In each of these passages τὸ σῶμα is the subject of αἰσθάνεσθαι, and the verb expresses the idea that the body *is affected* in a certain way or *feels* a certain effect. The phrase τοῦ σώματος τὴν αἰσθησὶν is simply a nominalized expression of the same idea; it refers to the *effect* of some external factor on the body.

Müri suggests ‘sensitivity’ (‘Empfindlichkeit’) as a translation of αἰσθησις, but the general thrust of his interpretation is that τοῦ σώματος τὴν αἰσθησιν refers simply to the reaction of the patient’s body to treatment. Kühn renders the phrase as ‘Reaktion des Körpers’ (1956, 12); Diller interprets αἰσθησις as ‘die objektive Reaktion des Körpers’ and thinks that the significance of the passage as a whole lies in the author’s attempt to free αἰσθησις from its Platonic associations of subjectivity (1952, 400 [= 1973, 61]). But the parallel with the examples of leather and wood in chapter 15 should not be pressed too far. The patient’s body is not in fact an inanimate substance; unlike such substances, the patient has the capacity to feel the effects of treatment. Thus the phrase ‘the αἰσθησις of the body’ does not involve the same extension of meaning as the use of a term like ἀναίσθητος to describe a substance like leather or wood. This suggests that αἰσθησις refers to the body’s reaction to δυνάμεις *as it is perceived by the patient*. Cf. VM 2.3, where agreement between the patient’s recollection of his affections (παθήματα) and the doctor’s statements is a criterion for judging the doctor’s causal explanations. The patient is the ultimate authority in reporting his experiences; but even if what he says is accurate, it is at best an imprecise and somewhat unreliable indication of the underlying condition of his body. It is in part because he must rely on the *patient’s* report of what he feels in response to treatment that the doctor can attain only limited ἀκριβεία in therapy.

For the patient’s sensation or feeling of his own body as a guide to treatment cf. *Fract.* 5, L. 3.432–436. The author gives a series of signs (σημεῖα) of correct or incorrect bandaging, consisting primarily of responses that the patient gives to questions about how the bandage feels. The bandage should feel tighter or looser at different times during the healing process, and the doctor must continually adjust the bandage in light of the patient’s report of how it feels (cf. Bourgey 1953, 201). In *Mul.* I 62 the role of the patient’s own description of her affections is critical; the physician’s questioning of the female patient about her experiences is an essential component of the diagnostic process (L. 8.126.4–19; cf. n. on 2.3 Αὐτοὺς μὲν οὖν ... τῶν ἐσωτῶ συμβαινόντων). For the unreliability of patients’ descriptions of what they experience in disease cf. *De Arte* 11, 237.17–238.1 Jouanna (L. 6.20): ‘Indeed, even the things that people suffering from hidden diseases attempt to say about their diseases to those who treat them are a matter of opinion rather than knowledge (δοξάζοντες μᾶλλον ἢ εἰδότες ἀπαγγέλλουσιν)’.

Festugière rightly denies the presence of Protagorean relativism in the present passage or anywhere else in VM (1948, 59–60; cf. above, pp. 191–192). But he thinks that the position attributed to Protagoras in Plato's *Theaetetus*—that each person is the infallible judge of his own sensations—rules out the possibility of any genuine expertise (contrast Cole 1972). This leads him to argue that the phrase τοῦ σώματος τὴν αἰσθησιν ('la sensibilité du corps') refers to the way in which the body *habitually* reacts to treatment: 'C'est donc que l'αἰσθησις dont il s'agit ici n'est pas la sensation purement individuelle, mais la manière dont le corps se comporte *habituellement* sous l'effet de tel ou tel traitement' (1948, 59–60; orig. emph.). There is no justification for this interpretation in the text: αἰσθησις is simply the body's reaction as perceived by the patient on each individual occasion (cf. Pigeaud 1977, 215–216). But since the author surely thought that the reactions of a particular human being to treatment would show a good deal of consistency, Festugière's general assessment of the author's method can stand (1948, 60): '... le corps se comporte généralement de la même manière en telle et telle circonstance, on peut donc observer, voire expérimenter, et c'est cette méthode d'observation que notre auteur préconise.'

9.3 ἔργον, 'it is difficult': does ἔργον (sc. ἐστί) mean (1) 'it is your task to' (LSJ s.v. IV.1.a) or (2) 'it is difficult to' (LSJ s.v. IV.1.c)? Translators have mostly opted for (2); cf. Jouanna 1990 ('Aussi est-ce un travail que d'acquérir un savoir assez exacte pour ne commettre que ...'), Festugière 1948 ('aussi est-ce un dur travail que d'acquérir une science assez précise pour ne commettre que ...'), Jones 1923 ('Wherefore it is laborious to make knowledge so exact ...'). Cf. however Jones 1946 ('Wherefore it is our task to acquire knowledge so accurate ...'); Deichgräber 1933a, 357 ('Aus diesem Grunde ist es die Aufgabe der Wissenschaft, so exakt zu forschen, daß man nur geringfügige Fehler macht und nur hier und da einmal'). The phrase ἔργον ἐστί in the sense 'it is the task/function of' normally takes the genitive, but there may be an implicit σόν here since the two immediately preceding verbs (εἶσθι, εὔχοις) are in the second person. Cf. *Epid.* VI 8.17, L. 5:350.3–4: 'It is [your] task to bring the body under examination: [use] sight, hearing, smell, touch, taste, reasoning' (Τὸ σῶμα ἔργον ἐς τὴν σκέψιν ἄγειν, ὄψις, ἀκοή, ῥίς, ἀφή, γλῶσσα, λογισμός). If the meaning is 'it is your function to', then the author does in effect redefine the criterion of successful practice to be following the right method rather than achieving perfect accuracy (τὸ ἀτρεκέες); cf. above, p. 190.

9.3 οὕτω καταμαθεῖν ἀκριβῶς ... ἔνθα ἢ ἔνθα, ‘to acquire knowledge so precise ... in one direction or the other’: for ἀκρίβεια as a quality of the doctor’s knowledge cf. esp. *Epid.* III 16, L. 3.100.7–102.10:

I consider it a great part of the art to be able to study correctly the things that have been written down [i.e. in this work]. For the one who knows and makes use of these things, it seems to me, will not go far wrong in the art (οὐκ ἂν ... μέγα σφάλλῃσθαι ἐν τῇ τέχνῃ). And it is necessary to learn with precision (καταμανθάνειν ἀκριβῶς) the constitution of each season and disease; what common element in the constitution or the disease is good, and what common element in the constitution or the disease is bad; what malady is protracted and fatal, what is protracted and likely to end in recovery; what acute illness is fatal, what acute illness is likely to end in recovery. With this knowledge it is easy to examine the order of the critical days, and to make prognoses therefrom. One who has knowledge of these matters can know whom he ought to treat, as well as the time and method of treatment.

In this passage ἀκρίβεια is a quality of the doctor’s general knowledge; such precise knowledge enables the doctor to adapt treatment to the individual case, i.e. to know whom to treat and when and how they should be treated. As in VM 9, ἀκρίβεια brings the ability to avoid serious errors rather than the ability to attain perfect success. The same passage occurs at the beginning of *On Critical Days* (*Dieb. Judic.* 1, L. 9.298.1–9), suggesting that it expressed a widely shared conception of medical method; cf. Kurz 1970, 69.

For recognition that the ἀκρίβεια attainable in medicine is limited cf. *Vict.* 2, 124.17–24 Joly (L. 6.470; quoted above on p. 194). The author writes that it is impossible to set out a fixed prescription of food and exercise that will be suitable for each individual φύσις, but then goes on to suggest that the only reason complete ἀκρίβεια cannot be attained is that the doctor cannot observe the patient without interruption (μὴ παρόντι δὲ ἀδύνατον ὑποθέσθαι ἐς ἀκριβείην σίτα καὶ πόνους 124.23–24 Joly). In ch. 67 the author returns to the discussion of the limitations on ἀκρίβεια (194.3–16 Joly, L. 6.592–594). The main point in this passage is that it is impossible to write down (συγγράψαι ἐς ἀκριβείην) a set of generally valid prescriptions for all individuals because of wide variation in a number of factors, including constitutions, ages, places, seasons, and foods and drinks. In other words, fixed prescriptions cannot capture the range of differences between individual situations; the doctor must adapt treatment to changing circumstances. In response to the diversity of individual situations the author offers his own method of determining the relationship between food and exercise in the body—

a method that he claims will preserve health in the absence of serious errors (εἰ μή τις πάνυ μεγάλα ἑξαμαρτάνοι καὶ πολλάκις 194.13–14 Joly). Again the main contrast is between fixed prescriptions and treatment adapted to the individual case; the limitation on ἀκριβεία results solely from the impossibility of keeping the patient under close observation. The author of *VM*, though he agrees that it is impossible to set out fixed prescriptions for all cases, goes a step beyond *Vict.* in making the attainment of limited ἀκριβεία an inherent limitation of medicine: even if the doctor could monitor the patient constantly, he would still not be able to achieve complete ἀκριβεία because of the nature of the tool (μέτρον) he has at his disposal (cf. above, p. 189).

The author of *Morb. I* stresses the limited ἀκριβεία that can be attained in prognosis and connects this with differences between different individuals and situations (*Morb. I* 16, L. 6.168.23–170.8). In this passage ἀκριβεία is a matter of hitting upon exactly the right moment in prognosis: to ‘know with exactness’ (τὸ ἀκριβῆς εἰδέναι) is to be able to say in advance the exact moment at which a person will die, or whether he will live for a long or a short time. Such ἀκριβεία cannot be attained, since the length of time that different individuals can hold out against diseases varies with the individual, the affection, the year, and the season. The author is evidently reacting against a tendency towards giving what he took to be excessively precise prognoses (cf. Kurz 1970, 76–77; for a similar reaction against excessive ἀκριβεία in prognosis cf. *Prorrh.* II 4, L. 9.14.10–13, L. 9.20.11–15). Elsewhere the author of *Morb. I* notes that some diseases simply do not require great ἀκριβεία in treatment (ch. 5, L. 6.148.9–16). In some diseases treatment must be given at a particular moment (καιρός), but in others it makes no difference at what time of day it is given; in some cases treatment can even be administered at any time during a period of months. Such diseases ‘have no exactness other than this’ (ἀκριβείην οὐκ ἔχουσιν ἄλλην ἢ ταύτην, L. 6.148.15–16; cf. Kurz 1970, 79). For the author of *Morb. I*, then, the limitation on ἀκριβεία results not just from the variation between different situations but also from the nature of disease itself.

For limited precision resulting from individual differences cf. also *Fract.* 7, L. 3.440.2–4: ‘It takes about thirty days altogether for the bones of the forearm to unite, generally speaking. But there is nothing exact about the matter, for constitution differs greatly from constitution and age from age (ἄτρεκέες δὲ οὐδέν· μάλα γὰρ καὶ φύσις φύσιος, καὶ ἡλικία ἡλικίης διαφέρει).’

9.4 τὸ δὲ ἀτρεκές, ‘perfect accuracy’: so A; M reads τὸ δ’ ἀκριβές. A’s reading is preferable, both as *lectio difficilior* and because the author seems to intend a distinction between ἀκριβεια, a quality of the doctor’s knowledge or his actions, and τὸ ἀτρεκές, the goal at which the doctor, or medicine in general, aims. Cf. 12.2: it is difficult when so much ἀκριβεια is required in the art ‘always to attain perfect accuracy’ (τυγχάνειν αἰεὶ τοῦ ἀτρεκεστάτου); medicine has been able to come close to ‘perfect accuracy’ (τοῦ ἀτρεκεστάτου). The juxtaposition of ἀκριβεια/τὸ ἀκριβές and τὸ ἀτρεκές is linguistically striking. The noun ἀκριβεια and adjective ἀκριβής typically occur only in Attic texts, while ἀτρεκής and ἀτρέκεια are normally found only in Ionic texts. Thus ἀτρεκής and ἀτρέκεια are common in Herodotus, while Thucydides uses only ἀκριβής and ἀκριβεια. In Homer ἀτρέκεια is primarily a quality of speeches (ἀτρεκέως occurs only with the verbs ἀγορεύειν and καταλέγειν); it takes its meaning from the metaphor of speech as proceeding along a way or path (cf. Becker 1937, 105–110). A speech or λόγος that is ἀτρεκής is an account that does not *deviate* from the truth; it reports exactly what has taken place, neither more nor less. ἀτρέκεια is thus distinct from ἀλήθεια; cf. Becker 1937, 108: ‘Er (sc. ἀλήθεια) bezeichnet also die Weise, wie das *Seiende* in Wirklichkeit *ist*, der andere (sc. ἀτρέκεια), wie die *Rede* am Seienden entlang *geht*’ (orig. emph.). This analysis is supported by the etymological connection of ἀτρεκής with Lat. *torqueo*, to turn or twist (ἀτρεκής ~ *atorquens*, what does not turn or twist from the path). ἀτρέκεια in Homer is also associated with counting or numbering (e.g. δεκάς ἀτρεκές *Od.* 16.245). In Herodotus ἀτρέκεια is a quality of knowledge as well as speech (we find ἀτρεκέως εἰδέναι, ἐπίστασθαι, διακρίναι as well as ἀτρεκέως φράσαι, πυνθέσθαι), but its meaning is still derived from the idea of a λόγος that proceeds along a straight path and does not deviate from the truth (Becker 1937, 110–116).

The Homeric and Herodotean associations of ἀτρέκεια are reflected in numerous Hippocratic passages. (1) Speaking or giving an account: *Art.* 33, L. 4.148.13–14; *Flat.* 15, 125.1–4 Jouanna (L. 6.114); *Morb.* IV 45, 99.18–19 Joly (L. 7.568); 49, 104.21–22 Joly (L. 7.578). (2) Asking questions or inquiring: *Mul.* I 21, L. 8.60.15–16; *Mul.* I 62, L. 8.126.14–18. Cf. Hdt. 7.214, where the phrase τὸ ἀτρεκεστάτον πυνθόμενοι means inquiring so as to get to the truth of the matter in question. (3) Counting or numbering: *Prog.* 20, L. 2.168.16–170.2; *Fract.* 7, L. 3.440.2–4; *Carn.* 19, 201.27 Joly, 202.1 Joly (L. 8.612), 203.3 Joly (L. 8.614). (4) Knowing, learning, and judging: *Nat. Puer.* 28, 77.10–12 Joly (L. 7.528–530); *Lex* 2, L. 4.638.11; 4, L. 4.640.14. Cf. Hdt. 3.130.2, where Democedes admits

that he does not know medicine as a true doctor, but as one who has associated *with* a doctor and thus has some slight knowledge of the art (ἀτρεκέως μὲν οὐκ ἐπίστασθαι, ὁμιλήσας δὲ ἱητροῦ φλαύρως ἔχεν τὴν τέχνην). Further associations of ἀτρεκεία in the Hippocratics include the following. (5) Sense perception: *Morb.* IV 39, 93.15–18 Joly (L. 7.558); *Loc. Hom.* 3, 40.3–7 Craik (L. 6.280). (6) Medical practice: *Mul.* I 38, L. 8.94.7–8. (7) Diet and regimen: *Mochl.* 36, L. 4.380.3; 41, L. 4.394.2; *Prorrh.* II 3, L. 9.12.12. (8) The manner in which a bone is broken: *Art.* 14, L. 4.118.6–7. (9) A precise fit: *Cord.* 2, L. 9.80.12; cf. ch. 10, L. 9.88.7.

There is a good deal of overlap in these uses with the semantic range of ἀκριβεία, though ἀτρεκεία is more closely associated with giving an account, numbering, and asking questions (reflecting its Homeric and Herodotean associations), while ἀκριβεία is more commonly used in connection with therapy and the doctor's actions (cf. Introduction, pp. 17–18). Some works use both ἀκριβής/ἀκριβεία and ἀτρεκής/ἀτρεκεία with no apparent distinction in meaning. Thus the phrase δίαίτα ἀτρεκής at *Mochl.* 41, L. 4.394.2 seems equivalent to δίαίτα ἀκριβής at *Mochl.* 35, L. 4.378.9; cf. also *Prorrh.* II 3, L. 9.10.16–17 (τὰς μὲν ἀτρεκείας τὰς λεγόμενας ὡς λέγουσιν οἱ λέγοντες) with ch. 4, L. 9.14.10–11 (τὰς δ' ἀκριβείας κείνας ἀκούω τε καὶ καταγελῶ τῶν ἀπαγγελλόντων). VM is the only Hippocratic text in which ἀκριβεία and τὸ ἀτρεκές are juxtaposed so closely, suggesting that the author is striving to express a distinction for which there was no established terminology. In using τὸ ἀτρεκές of the goal at which the doctor aims he draws on the association of ἀτρεκεία with the metaphor of a path or way: τὸ ἀτρεκές is what does not *deviate* from the truth in any way. The metaphor is reinforced by the use of both τυγχάνειν and ἀμαρτάνω: τὸ ἀτρεκές is a target that one can hit (τυγχάνειν 12.2) or miss (ἀμαρτάνω 9.3–5, ἀποτυγχάνω 12.1). The notion that ἀτρεκεία involves the avoidance of both excess and deficiency would also have suggested the use of τὸ ἀτρεκές for the goal of medicine, in view of the author's idea that the doctor must aim at a mean, a μέτρον or καιρός. Cf. 12.1 ὃ τι ἂν τοῦ καιροῦ ἀποτυγχάνῃ with Pind. *N.* 8.4 καιροῦ μὴ πλαναθέντα, *P.* 8.7 καιρῷ σὺν ἀτρεκεῖ, *N.* 5.17 ἀλάθει' ἀτρεκής. ἀκριβεία, on the other hand, is a quality of the doctor's knowledge that is manifest in his activity; this reflects the term's original use to characterize the products or activity of the craftsman. Cf. Introduction, pp. 13–14 and Diller's remark (1952, 390n29 [=1973, 52n29]) that τὸ ἀτρεκές is an 'ionischer Wahrheitsbegriff, der ganz auf das Objekt gerichtet ist', while ἀκριβεία refers to 'ein "gewissenhaftes Sich-Bemühen um etwas".'

For an ancient attempt to distinguish between ἀτρεκέια and ἀκριβεία cf. Erotian's gloss on ἀτρεκέως (10.16–12.5 Nachmansohn; Festugière 1948, 45):

Bacchius in his first book says 'truly, sufficiently, precisely' (ἀληθῶς, αὐτάρκως, ἀκριβῶς); Philinus gives only 'precisely' (ἀκριβῶς); Epicles gives 'clearly, purely' (σαφῶς, εἰλικρινῶς). Now Hippocrates evidently does not apply the word in one single sense, but he often uses it to mean 'precisely' (ἀκριβῶς), and rarely to mean 'truly' (ἀληθῶς): [for example when he says] 'none of these can be counted exactly (ἀτρεκέως) in a whole number of days' (*Prog.* 20, L. 2.168.16–170.2) he uses it to mean 'precisely' (ἀκριβέως). Similarly in *On Joints* when he says: 'a fractured collar bone, if it is broken off straight across (ἀτρεκέως), is easier to treat; but if it is broken obliquely (παρὰμηνῶς), it is harder to treat' (*Art.* 14, L. 4.118.6–7). Now since he opposes the radish-like and as it were stalk-like (καυληθόν) fracture to the splinter-like (σχιδακηδόν), he uses 'exactly' (τὸ ἀτρεκές) of the bone that has been divided quickly and precisely (πρὸς ἀκριβείαν). Similarly, he says in *On Ancient Medicine* (132.15–17 J.): 'It is difficult when such precision does not (μὴ) exist in the art always to attain perfect accuracy. Yet many aspects of medicine have attained such precision'. Here too he opposes it (sc. τὸ ἀτρεκές) to truth (τῷ ἀληθεῖ ἀντιδιαστέλλων). And Homer also testifies to this meaning when he says (*Il.* 2.9): 'Having come into the hut of Agamemnon, son of Atreus, relate everything with perfect accuracy (πάντα μάλ' ἀτρεκέως ἀγορευμένον)'. And again (*Od.* 1.179): 'Indeed I shall recount everything with perfect accuracy (πάντα μάλ' ἀτρεκέως ἀγορεύσω)'. And Euripides says in the *Cretans* (fr. 472): '... timbers yoked together in accurate joints (ἀτρεκεῖς ἄρμούς) with glue made from bull's hide'. He did not mean 'true' (ἀληθεῖς) joints, but rather 'precise' (ἀκριβεῖς) ones. But in *Places in Man and Diseases of Women* I he [sc. Hippocrates] uses the word to mean 'truly' (ἀληθῶς) (cf. *Loc. Hom.* 3, 40.3–7 Craik, L. 6.280; *Mul.* I 21, L. 8.60.15–16; I 62, L. 8.126.14–18).

Erotian's view that τὸ ἀτρεκές is synonymous with ἀκριβεία in VM is partly the result of his reading μὴ at 12.2, 132.15 J.; cf. n. on 12.2 Χαλεπὸν δὲ ... τοῦ ἀτρεκεστάτου.

In the translation I attempt to capture the distinction between ἀκριβεία and τὸ ἀτρεκές by using 'accuracy' for the latter and 'precision' for the former. But I do not mean to suggest that the author drew a clear distinction between the concepts of precision and accuracy; his assumption is that the more precise (ἀκριβής) the doctor's knowledge, the more accurate (ἀτρεκής) his results will be.

9.4 κυβερνήτησι, 'helmsmen': the parallel between medicine and navigation is a Platonic commonplace. Cf. *Grg.* 511d–512d (both medicine

and navigation can save people from death, but neither the doctor nor the helmsman pretends to know whether this is in fact a good thing for those who are saved); *R.* 332d–e (the doctor is the one who is best able to help his friends and harm his enemies where health and disease are concerned, just as the helmsman is the one best able to help friends and harm enemies in a storm at sea), 341c–d (the doctor, strictly speaking, is not a money-maker but works for the benefit of his patients, just as the helmsman works for the benefit of his crew and rules over it; cf. *Arist. Pol.* 1279a1), 360e (the good doctor and the good helmsman can distinguish the possible from the impossible in their respective arts, and will attempt the former but avoid the latter), 389b–c (it is just as bad for a citizen to lie to a ruler as for a patient to lie to his doctor, a sailor to lie to his helmsman, or an athlete to his trainer); *Lg.* 902d–e (the doctor, the helmsman, and the general cannot succeed if they neglect small details), 963a–b (the helmsman, doctor, and general each aim at a single end appropriate to their art). At *Phlb.* 56b medicine and navigation are grouped together as τέχναι that proceed by conjecture rather than exact measurement (cf. Introduction, pp. 14–15). At *Plt.* 298a–299e the doctor and the helmsman are cited as models for the true statesman, the one who practices the ‘kingly art’ (βασιλική τέχνη); medicine, navigation, and gymnastics are all conceived of as arts that can achieve ἀκρίβεια by adapting to changing circumstances. Cf. Herter 1963a, Hirsch 1996, and Appendix 2.

For the parallel between medicine and navigation in Aristotle see *EE* 1220b21–25 (medicine, navigation, gymnastics, and building are concerned with excess, defect, and the mean, both with respect to one another and with respect to us); *EN* 1103b34–1104a10 (nothing is fixed in matters of action, just as nothing is fixed in matters of health; in action one must look to the καιρός, just as in medicine and navigation); *EN* 1112a34–b9 (deliberation concerns matters that are in our power and do not always come about in the same way, as is the case in medicine and navigation more than gymnastics; cf. Appendix 2, pp. 367–368).

For medicine and navigation as stochastic arts, i.e. arts in which the criterion of success is following a certain method rather than attaining a successful result, cf. Sextus Empiricus *M.* 1.72, 2.13, and esp. Alexander of Aphrodisias *In Top.* 32.36–33.26:

This is the case in medicine and navigation (κυβεργητική) and all the stochastic arts. The task (ἔργον) of the doctor is to do everything possible with a view towards saving the patient, but not to save the patient. For

if someone should say that this is the task of the doctor, then the non-doctor will be a doctor and the doctor will be a non-doctor. For often non-doctors save the sick by prescribing things to them by chance; and often doctors do not save the sick, when the affection is greater than medical aid or cannot be brought within the grasp of diagnosis. And the same is true in navigation.

9.5 ἁμαρτάνοντες οὐ καταφανεῖς ... πᾶσι καταφανής, ‘their errors are not evident to laymen ... their errors and incompetence are evident to all’: the stress on the difficulty that lay people have in perceiving differences in competence between doctors stands in sharp contrast to the author’s earlier appeal to clear criteria for distinguishing between good and bad practitioners (cf. 1.2). Moreover the claim that differences in competence are obvious in the case of the most serious diseases is directly contradicted by the opening chapters of *Acut.* The author of that text argues that acute diseases, which he takes to be the most serious, lead in fact to the greatest confusion among lay people about the competence of medical practitioners. He gives his highest praise to the physician who proves his superiority to others in the case of acute diseases, which cause the majority of deaths (ch. 5, 37.18–21 Joly, L. 2.232; cf. VM 9.4). But then in ch. 6 he goes on to say that lay people (ἰδιῶται) are unable to recognize the superior doctor in such cases; indeed ‘it is especially on account of these diseases that those who are not doctors seem to be doctors’ (οἱ γὰρ μὴ ἱητροὶ ἱητροὶ δοκέουσιν εἶναι μάλιστα διὰ ταύτας τὰς νούσους 38.11–12 Joly, L. 2.234). Lay people think that all doctors say the same thing, whereas in fact there are great differences between them. Cf. ch. 8, 39.10–20 Joly (L. 2.240–244): the treatments of doctors differ so much from one another in the case of acute diseases that medicine seems to be no better than divination, in which different seers interpret the same sign in opposite ways. From these passages it is evident that VM’s claim that differences of competence between doctors are clearly revealed in difficult cases was far from uncontroversial (cf. above, p. 116). The comparison with navigation, in which it might have been more generally accepted that differences in competence are revealed in extreme circumstances, thus serves to support a controversial claim about medicine.

9.5 αὐτῶν ἑκατέρου, ‘In both cases’: i.e. those of the doctor and the helmsman.

10

To support the claim that the effects of depletion on the sick are no less serious than those of repletion (9.2), the author appeals to their effects on certain healthy individuals. He considers two groups: those who habitually take only one meal a day (dinner) because this is beneficial for them, and those who habitually take a meal at midday as well for the same reason (10.1). Both groups will suffer greatly if they deviate at all from their customary regimen (10.2). Those who take lunch when it is not beneficial for them become sluggish and drowsy and suffer from flatulence, colic, and diarrhea if they go on to take dinner (10.3). Those who miss their normal lunch become weak, dizzy, and depressed, and also suffer colic and inflammation of the belly (10.4). In both cases these effects are often the beginning of a serious illness.

Several features of these examples are worthy of comment. (1) The author explicitly recommends a procedure of ‘referring’ (ἐπαναφέροντας 129.16 J.) to the healthy to learn about the sick. This procedure is justified in section 12.1: since the sick are weaker than the healthy (i.e. more sensitive to deviations from the ideal diet), anything that has a strong effect on the healthy will have an even stronger effect on the sick. But this justification is already implicit in the account of chapters 3–8. The effects of foods on the healthy and the sick are directly comparable (cf. ch. 8); hence it should be possible to learn about their effects on the sick by considering their effects on the healthy. The idea that a consideration of the healthy can be used to gain an understanding of the sick underlies the author’s procedure elsewhere as well; cf. 16, where he first presents examples of the effects of hot and cold on the healthy (16.3–6) and then moves on to the sick (16.7). Considered in the most general terms, this procedure reflects the author’s view that an understanding of the human body in disease must be based on an understanding of its normal condition (φύσις). (2) Second, the examples stress the importance of timing in the prescription of regimen (cf. ἀκαιγόν 129.14 J.). In both of the cases mentioned it is not the quantity or quality of the food that is responsible for its harmful effects, but the fact that it is taken at the wrong time. Even if the person who takes an extra meal consumes no more in two meals than he normally does in one, he still suffers serious effects (10.3, 130.14–16 J.); the person who misses his customary lunch and then tries to have dinner cannot digest the same amount of food as he could when he followed his usual regimen (10.4, 131.5–6 J.). Timing thus emerges as an independent factor influencing

the effects of foods in addition to quantity and quality (cf. n. below on 12.1 τοῦ καιροῦ). (3) Finally, the author is careful to restrict the scope of the examples to those individuals who have adopted their customary regimen because it is beneficial (συμφέρον) for them. Most people have adopted the habit of taking one or two meals a day because they find it pleasant to do so or for some chance reason, not because it is beneficial; for such people it makes no difference whether or not they follow their normal regimen (10.1–2). This restriction presumably reflects a basic fact of medical experience: not all individuals suffer serious effects from skipping a meal or taking an extra meal. But it also indicates that the author views the individual constitution or φύσις as more important than habit (ἔθος) in accounting for the effects of foods. It is not deviation from habit *as such* that causes harmful effects, but deviation from what is beneficial (συμφέρον), i.e. what is adapted to the individual φύσις (for the close link between συμφέρον and φύσις cf. n. below on 10.1 συμφέρει ... διὰ τὸ συμφέρον ... συμφέρει).

The author's emphasis on the importance of φύσις rather than habit emerges still more clearly from a comparison of the present chapter with the closely parallel account in *Acut.* (28–35, 47.22–50.15 Joly, L. 2.280–296; cf. Jouanna 1990, 64–69). The author of *Acut.* recommends appealing to the behavior of the healthy to learn about the sick; he gives the same examples of repletion and depletion, and mentions many of the same symptoms. The resemblances are so striking that Littré concluded that VM and *Acut.* were written by the same author, Hippocrates himself (L. 1.314–320). But the passage in *Acut.* forms part of a larger discussion of the effects of change in regimen, and its general thrust is to stress the serious consequences of any deviation from the habitual diet (cf. nn. below on 10.3 Οἱ μὲν γάρ ... καὶ μηδὲν πλείω and 10.4 Τοῦτο δέ, ἣν ἀριστᾶν ... ἀρχὴ νούσου ἐγένετο). At one point in the passage the author acknowledges that the effects of repletion and depletion vary with the individual's constitutional type: those with much phlegm in the upper parts are affected less strongly by missing a meal contrary to habit (ch. 34, 50.4–8 Joly, L. 2.296). But the emphasis throughout is on the importance of habit, not constitution. The notion that habit is an important factor in its own right—one which can actually shape the φύσις over time—is a common one in Greek medicine, but the author of VM shows no sympathy for this view in chapter 10 (cf. however 3.4, 121.20–122.1 J.).

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10.1 ἀκαιρός, ‘inopportune’: for a concise account of ἀκαιρία understood as poor timing in treatment see *Morb.* I 5, L. 6.148.16–150.5. But VM’s notion of the καιρός covers the quantity and quality of foods as well as timing; cf. n. on 12.1 τοῦ καιροῦ.

10.1 καταμανθάνειν ... ἐπαναφέροντας ἐπὶ τοὺς ὑγιαίνοντας, ‘can be learned ... by referring to people in health’: cf. *Acut.* 28, 47.22–48.1 Joly (L. 2.280–282): ‘It is important to study what is beneficial (οἷα συμφέρει) in the regimen of people who are still healthy: for if in the case of healthy people foods manifestly differ very much from one another, both at other times and when there is a change (μεταβολή), how will they not also differ greatly in disease, and especially in acute diseases?’ The idea is apparently the same as the one stated in VM 12.1: sick people are more sensitive than the healthy to anything that is liable to provoke a change in their condition. On ἐπαναφέροντας cf. n. on 1.3 οὐ γὰρ ἐστὶ ... εἰδέναι τὸ σαφές (pp. 142–143 above).

10.1 συμφέρει ... διὰ τὸ συμφέρον ... συμφέρει, ‘benefit ... because it is beneficial ... beneficial’: the term συμφέρον, which plays a central role in the chapter (ἔξω τοῦ συμφέροντος 130.6 J.; μὴ συμφέροντος 130.10 J.; συμφέρον 130.17 J.), refers to what is beneficial to an individual’s constitution or φύσις. Cf. 3.1–2, where the discovery of cooking begins from the observation that the same foods are not beneficial for the healthy and the sick (συνέφερεν 121.1 J., 121.5 J.; συμφέρει 121.5 J.); in 3.4 a diet that is beneficial for human beings is said to be ‘fitted’ to human φύσις (ἁρμόζουσιν τῇ φύσει 122.7 J.; cf. ἥρμοζεν 124.4 J.). What is συμφέρον is distinguished from the pleasant at 130.2 J. (δὲ ἡδονήν); cf. also 124.7–9 J., where those who make no use of medicine are said to live ‘as they please’ (πρὸς ἡδονήν) and to be unwilling to abstain from anything that they desire. Cf. Vlastos 1945, 586 (= 1995, 336): ‘The word *sumpherein* ... is the key concept of Hippocratic regimen; it denotes what is in harmony with nature and is thus essential in preserving or restoring health.’ With the present passage Vlastos compares Democritus DK 68 B 188: ‘The mark of the beneficial and the harmful is pleasure and pain’ (ὄρος συμφόρων καὶ ἀσυμφόρων τέρψις καὶ ἀτερπής). The point of this remark is not that things are beneficial simply because they seem pleasant; rather, pleasure and pain are indications of what is in fact beneficial for human nature (Vlastos 1945, 587–588 [= 1995, 337–338]).

Cf. Democritus DK 68 B 74: ‘Accept no pleasure, unless it is beneficial’ (ἡδὺ μὴδὲν ἀποδέχεσθαι, ἢν μὴ συμφέρῃ). In early philosophical and medical authors pleasure is commonly conceived of in physiological terms as the filling of a lack (cf. Empedocles DK 31 A 95); hence pleasure is a sign of the restoration of balance in the individual’s φύσις. Cf. *Morb.* IV 39, 93.15–18 Joly (L. 7.558): without the presence of ‘reservoirs’ (πηγαί) in the body to maintain humoral equilibrium, we would not have the ability to discriminate the pleasant and the painful (cf. Lonie 1981, 298).

10.1 ἄλλοις τε ἄριστᾶν διὰ τὴν αὐτὴν ἀνάγκην, ‘for others ... on account of the same necessity’: i.e. for others it is beneficial to take lunch as well as dinner, and they have adopted this regimen because it is beneficial.

10.1 ἄριστᾶν, ‘take lunch’: the midday meal or ἄριστον was evidently considered something of a luxury. Cf. *Ar. Nub.* 416, where the chorus tells Strepsiades that he has a great future as an intellectual as long as he abstains from lunch (μὴτ’ ἄριστᾶν ἐπιθυμεῖς). The implication is that avoidance of the ἄριστον was characteristic of the philosopher’s ascetic lifestyle, along with behavior such as enduring cold and avoiding wine and exercise.

10.1 Οὕτω γὰρ ... καὶ μὴ τούτοιςιν, ‘For all these people ... unlike those’: this, the reading of M and A, is preferable to the various emendations that have been proposed (e.g. Reinhold’s καὶ μὴν τοῦτ’ εἰσὶν οἱ ... ‘and indeed there are those who’, adopted by Heiberg). ‘For all these people’ (αὐτοῖσι 130.1 J.) refers to both groups of individuals just mentioned: those who take only one meal a day and those who also take lunch. Both groups have adopted their habits because they are beneficial, unlike most people (καὶ μὴ τούτοιςιν 130.1 J.), who have done so for some other reason. Cf. Jouanna 1990, 130n1.

10.2 παρ’ ἡμέρην ... οὐχ ὅλην, ‘for a single day ... part of a day’: cf. *Acut.* 31, 49.11–14 Joly (L. 2.290), immediately following the description of the suffering of people who miss their habitual lunch (quoted below, p. 213): ‘Since, then, healthy people suffer in such ways through a change in regimen for half a day, it is evidently useful neither to add anything to regimen nor to take anything away contrary to habit (παρὰ τὸ ἔθος).’

10.3 Οἱ μὲν γάρ ... καὶ μηδὲν πλείω, ‘The former group ... in a single meal and no more’: cf. *Acut.* 28, 48.7–13 Joly (L. 2.282–284):

Those who are unaccustomed to having lunch, if they do take it, at once it makes them feeble and heavy in their entire body, and weak and sluggish: and if they also have dinner, they suffer from heartburn. And some may even get diarrhea (σπατίλη), because their belly (κοιλίη) has been loaded contrary to habit (παρὰ τὸ ἔθος), when it is accustomed (ἐθισμένη) to a period of dryness and not to being filled up twice and digesting foods twice.

This example, along with that of the person who deviates from his normal habit of taking two meals a day, is introduced to support the principle that an ordinary but constant diet is better for health than a diet that changes suddenly (ch. 28, 48.2–5 Joly, L. 2.282). The author goes on at once to propose treatment (ch. 29, 48.14–20 Joly, L. 2.284–286) and to draw further attention to the importance of habit (ch. 29, 48.20–24 Joly, L. 2.286–288): ‘And such a man would suffer still more if he were to eat three times a day until he is full, and even more, if he were to eat still more often. And yet there are many who can easily handle eating their fill three times a day, if they are habituated to it (οἱ ἂν οὕτως ἐθισθῶσιν).’ He then passes on to the case of the person who misses his habitual lunch (see below on 10.4 Τοῦτο δέ, ἦν ἀριστᾶν ... ἀρχὴ νούσου ἐγένετο).

Cf. also *Acut.* (*Sp.*) 42, 87.23–88.1 Joly (L. 2.478): ‘For those who take lunch though they are not accustomed to it experience considerable distension of the stomach, drowsiness (νυσταγμός), and plethora: and if they have dinner, their belly (κοιλίη) is disturbed.’ The example is cited to illustrate the effects of deviation from habit (παρὰ τὸ ἔθος 87.22 Joly), and the author goes on to suggest treatment (88.1–8 Joly).

10.3 καὶ ἦν τὰ αὐτὰ σίτια ... καὶ μηδὲν πλείω, ‘even if in the two meals together ... in a single meal and no more’: the meaning may simply be that in eating both lunch and dinner these people consume on two separate occasions (δύς) the amount of food that they normally eat in a single meal; i.e. the total amount of food consumed is double the normal amount. But the Greek can also mean that the amount of food taken in the two meals *together* is no more than the amount normally consumed in a *single* meal. This places an appropriate emphasis on timing over quantity (even though they take no *more* food than usual, they still suffer harmful effects; cf. ἀκαίρου 10.1, 129.14 J.), and I have therefore translated accordingly.

10.4 Τοῦτο δέ, ἣν ἀριστᾶν ... ἀρχὴ νόσου ἐγένετο, ‘On the other hand ... the beginning of disease’: cf. *Acut.* 30, 49.1–10 Joly (L. 2.288–290):

On the other hand, if those accustomed to taking two meals a day do not take lunch, they are weak and feeble, useless for all work, and suffer from heartburn. Their viscera seem to hang, their urine is hot and green, and their stools are parched. In some cases the mouth is bitter, the eyes are hollow, the temples throb, and the extremities are chilled; most are unable to eat dinner if they have not had lunch and, if they do, their belly (κοιλίη) is heavy and they sleep much worse than if they had previously taken lunch.

After this passage the author draws the general lesson that change of regimen contrary to habit is best avoided (quoted above, n. on 10.2 παρ’ ἡμέρην ... οὐχ ὅλην), notes that the person who suffers from missing lunch will suffer even more if he goes without food for a longer time, and proposes therapy: the person should gradually be brought back to his habitual regimen (ἐκ προσαγωγῆς ... εἰς τὸ ἔθος) (49.11–50.3 Joly, L. 2.290–296). He then makes the only mention in the entire passage of constitutional differences: those with much phlegm in their upper parts are less strongly affected by missing a habitual meal (ch. 34, 50.4–8 Joly, L. 2.296).

It is worth noting that immediately after this discussion of untimely repletion and depletion the author of *Acut.* goes on to discuss the importance of habit in connection with the powers (δυνάμεις) of foods. In ch. 36, 50.16–21 Joly (L. 2.298), he notes that there are many foods and drinks that can easily be assimilated by individuals who are habituated to them (ἃ εἰθιδαται), even if they are not good by nature (φύσει); similarly, even foods and drinks that are good by nature (φύσει) are difficult to assimilate for individuals not habituated to them (ἃ μὴ εἰθιδαται). Examples of the latter are foods such as bread and barley cake, which cause strong effects when taken contrary to habit (ch. 37, 51.2–13 Joly, L. 2.298–300); the description is very similar to VM 14.1, 135.1–7 J. However the similarities of detail between *Acut.* and VM are to be explained, it is clear that each author has given a distinctive emphasis to the same basic facts of medical experience: VM emphasizes the sensitivity of the individual φύσις to any deviation from its needs, while the author of *Acut.* stresses the importance of habit.

Cf. also the parallel account in *Acut.* (*Sp.*) 44, 88.21–89.1 Joly (L. 2.480–482): ‘Those who take only one meal (sc. contrary to habit) feel empty and weak, and their urine is hot because they have been emptied contrary to habit (παρὰ τὸ ἔθος). And the mouth becomes salty or also

bitter, they tremble during any work, they feel tightness in their temples, and they cannot digest their food as well as if they had taken lunch.' The author goes on to recommend therapy, but he does not draw any general conclusions from the example, and it is not even paired with the example of repletion quoted above (p. 212).

11

The author attempts to explain the effects described in the previous chapter. Those who suffer from taking an extra meal digest their food more slowly, so that they take in additional food while the belly is still trying to assimilate the previous meal (11.1). Those who suffer from missing a meal digest more quickly, so that they do not supply fresh food to the body as soon as the nutriment from the previous meal has been consumed (11.2). In fact, all healthy people who go without food for two or three days will experience the same effects as those people who suffer if they miss their lunch (11.3).

The chapter testifies to the importance of explanatory knowledge in the author's conception of medicine. It is not enough simply to know that some individuals suffer the effects mentioned in the previous chapter; the doctor needs to examine *why* they do. The explanation lies in an aspect of the individual constitution or φύσις: the speed with which the body can assimilate foods. Those individuals who digest slowly will suffer harmful effects if they take an extra meal; those who digest quickly will suffer if they miss a customary meal. As in chapter 3, constitutions are distinguished from one another by their capacity to assimilate or 'overcome' foods (ἐπιζωοτῆσι 11.1, 131.15 J.); digestion is conceived of as a kind of cooking (cf. below on 11.1 πέσσουναι). Together with the previous chapter, chapter 11 exemplifies the kind of inference from effect to cause that is fundamental to the author's method of discovery. Observation of the different effects of foods on individuals (ch. 10) leads to the inference that their constitutions differ; these differences then explain the original effects (ch. 11). Cf. 20.6, where differences in φύσις are inferred from the different effects that the same food (cheese) has on different individuals; on the importance of knowledge of the internal organs and their variation cf. 22–23. Finally, in claiming that all healthy individuals will eventually feel the same effects from depletion as are experienced by those people who suffer if they miss a single meal (11.3), the author suggests that the healthy lie along a continuum of strength,

measured by the amount of time they can hold out against an unsuitable diet. The opening of chapter 12 picks up on this idea and extends the range of this continuum to include the sick.

* * *

11.1 διὰ τίνας προφάσις, ‘the reasons why’: so M; A (followed by Heiberg) has διὰ τίνα αἰτίαν. For similar variation in the MSS between πρόφασις and αἰτία cf. 16.1, 139.6 J. (διὰ τάσδε τὰς προφάσις M, διὰ τάσδε τὰς αἰτίας A, Heiberg). At 2.3 (δι’ οἷας προφάσις 120.9 J.) and 22.8 (διὰ ταύτας τὰς προφάσις 152.11 J.) A and M agree on the reading προφάσις. The term πρόφασις in the Hippocratics sometimes refers to an external, visible, or exciting cause, as contrasted with the underlying cause or αἴτιον (cf. Deichgräber 1933b; Rawlings 1975, 48–51). Cf. especially *Aer.* 4, 193.9–11 Jouanna (L. 2.20): ‘Many abscesses occur from the slightest cause (ἀπὸ πάσης προφάσις): the reason (αἴτιον) for this is the stiffness of the body and the hardness of the belly’. But Hippocratic usage of the term is fluid: πρόφασις is rarely contrasted *explicitly* with other terms for cause, and it often seems to be equivalent to αἰτία or αἴτιον. Cf. *Nat. Hom.* 9, 190.2–5 Jouanna (L. 6.54): ‘When there are diseases of all kinds at the same time, it is clear that what is responsible in each case (τὰ αἴτια ἕκαστα ἑκάστοις) is regimen; one must treat by opposing the cause (πρόφασις) of the disease, as I have said elsewhere, and making a change in regimen’; *Acut. (Sp.)* 6, 70.16–18 Joly (L. 2.402–404): ‘Sudden loss of the voice is provoked by blockage of the vessels, if this happens to a healthy person with no apparent reason or other strong cause (ἄνευ προφάσις ἢ ἄλλης αἰτίας ἰσχυρῆς)’; *Mul.* I 62, L. 8.126.14–18: ‘doctors go wrong by failing to inquire accurately into the cause of their [female patients’] condition (οὐκ ἀτρεκέως πυνθανόμενοι τὴν πρόφασιν τῆς νόσου) ... but one must at once inquire accurately into the cause (ἀνερωτᾶν αὐτίκα ἀτρεκέως τὸ αἴτιον)’. In VM there is no discernible semantic distinction between πρόφασις and αἰτία/αἴτιος. The author uses αἰτία/αἴτιος for the causes of bodily affections or disease (αἰτία 1.1, 21.2; αἴτιος 6.3, 17.2, 19.3, 20.4, 21.2, 23.1); in 20.2 αἰτία refers to a cause in the process of human development from a small number of elementary constituents (δι’ οἷας αἰτίας γίνεται 146.14 J.). In 2.3 πρόφασις refers to a cause of the growth and decline of diseases (δι’ οἷας προφάσις 120.9 J.); knowledge of such causes distinguishes the doctor from the lay person. There is no reason to think that these must be external or exciting causes; cf. 21.2, where knowledge of the cause of the disturbances that befall a patient during recovery from disease is

also said to distinguish the doctor from the lay person (τὴν αἰτίην 148.11 J., τὸ αἴτιον 148.12 J.). In 22.8 the phrase διὰ ταύτας τὰς προφάσεις ('for these reasons') sums up the discussion of why air in the body causes the liver to suffer pain: it is because the liver is dense and broad, but also tender and bloody (152.6–11 J.). Such characteristics are in no way external or exciting factors; in fact, they correspond to the kinds of constitutional factors with which πρόφασις is sometimes contrasted (cf. the passage from *Aer.* 4 quoted above). The phrase διὰ ταύτας τὰς προφάσεις is a semi-fixed expression that occurs in a number of Hippocratic texts with minor variations: cf. *Aer.* 15, 226.7 Jouanna (L. 2.60–62); 16, 228.8–9 Jouanna (L. 2.64); 22, 241.14–15 Jouanna (L. 2.80); *Prog.* 2, L. 2.114.12; *Acut.* 17, 42.22 Joly (L. 2.260); *Fract.* 15, L. 3.472.12–13; 18, L. 3.480.18–19; *Art.* 53, L. 4.236.8–9; 55, L. 4.242.4; 58, L. 4.254.12; 60, L. 4.258.10–11; 69, L. 4.286.7–8. In this expression πρόφασις tends to have the general meaning of cause or reason, not external or exciting cause. Cf. διὰ ταύτας τὰς αἰτίας *vel sim.* at *Morb. Sacr.* 17, 31.1 Jouanna (L. 6.392); *Int.* 1, L. 7.166.4–6; *Morb.* IV 46, 102.15 Joly (L. 7.574); *Steril.* 213, L. 8.408.2–3.

The decision between πρόφασις and αἰτία in the present chapter and in 16.1 cannot be made on semantic grounds. From the point of view of textual criticism πρόφασις is the more unusual term and therefore more likely to be altered to αἰτία than vice versa. In fact A has a tendency to substitute αἰτία for more specialized terms; cf. 3.4, 122.6 J. (διὰ δὴ ταύτην τὴν αἰτίην A, διὰ δὴ ταύτην τὴν χροίην M). By the principle of *lectio difficilior* we should read δι' οἷας προφάσεις here and διὰ τάσδε τὰς προφάσεις in 16.1 (139.6 J.).

11.1 πέσσουνσι, 'digests': the author conceives of digestion as a kind of cooking. The term πέσσω, regularly used of digestion (*Acut.* [Sp.] 44, 88.25 Joly, L. 2.482; *Salubr.* 7, L. 6.82.16–17; *Flat.* 7, 111.7 Jouanna, L. 6.98; etc.) also means to cook (e.g. Hdt. 8.137, *Ar. Ra.* 505, *Pl. R.* 372b; cf. LSJ s.v. II). Both ζέω 'boil' and ζυμώω 'ferment' (ζέουσάν τε καὶ ἐζυμωμένην 131.16 J.) are normal terms for processes involved in cooking. Cf. the use of ἔψω 'boil' of digestion at *Acut.* 28, 48.13 Joly (L. 2.284) (ἔψειν τὰ σιτία). ζυμώω means 'leaven' or 'ferment', a process important in the making of bread. For fermentation inside the body cf. *Acut.* 61, 63.13–14 Joly (L. 2.358): vinegar causes the black humors in the body to ferment (ζυμοῦται). At *Pl. Ti.* 66b acidic substances are said to bring about both boiling and fermentation in the body (ζέσιν τε καὶ ζύμωσιν 66b5). As in the account of chapters 3–8, digestion is

viewed as a matter of ‘overcoming’ foods (ἐπικρατήση 131.15 J.; cf. 3.5, 4.2, 5.4, 5.5, 7.2). The present passage makes it clear that ‘overcoming’ foods is simply a matter of cooking them; hence foods that have been cooked outside the body will be much easier to ‘overcome’ (i.e. to cook) once taken into the body. There is no reason to think that the author views the talk of cooking, boiling, and fermentation in connection with digestion as metaphorical; he evidently believes that the same processes that take place outside the body during cooking also take place inside the body during digestion. Understanding the nature of cooking can thus provide knowledge of hidden processes taking place inside the body; this idea underlies the author’s theory of χοῖσις and πέψις of the humors (cf. below, pp. 234–235 and 281–282). For digestion as a kind of cooking cf. esp. Arist. *Mete.* IV, 381b6–9; the view persists in later medical literature (e.g. Galen *On Medical Experience* ch. XII, pp. 105–106 Walzer). Cf. also n. on 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι (pp. 285–286 below).

For a similar explanation of the effects of repletion cf. the theory of Aegimius of Elea as reported in *Anon. Lond.* (XIII 44): ‘repletion comes about when further nutriment is taken in before the first has been digested’ (τὸ δὲ πλῆθος συνίστασθαι εἰσφερομένης ἑτέρας τροφῆς, πρὶν τὴν πρώτην πέψεως τυχεῖν). The view may be based on an analogy: just as pouring cold water into a pot of boiling water disturbs the boiling, so the introduction of fresh food disturbs digestion, viewed as a kind of boiling (so Jouanna 1990, 131n7).

12

The author draws out the implications of the examples discussed in the two previous chapters and concludes the discussion of the degree of ἀκριβεία attainable in medicine. Those constitutions that are more quickly and more strongly affected by deviations from the ideal diet are said to be weaker than others. The sick are weaker than the healthy, and thus more strongly affected than the healthy by deviations from the ideal diet (12.1). Hence it is difficult always to achieve perfect accuracy (τὸ ἀτρεκέστατον) in treatment. Yet many aspects (εἶδεα) of medicine have already attained complete precision (ἀκριβεία). The ancient art of medicine should be praised for attaining such a high degree of precision, and its status as a τέχνη should not be called into question just because it has not attained complete precision in all respects (12.2).

The notion that a weaker constitution is one that can hold out for a shorter time against foods that are unsuitable for it figures already in ch. 3 (cf. ἀσθενεστέον φύσιν 122.2 J.). But whereas there it is foods that are raw and unblended that are said to cause harm, the present passage takes account of the point that deficiency in diet is as harmful as excess. A strong constitution is one that can hold out for a longer time against a diet that is ill-suited to it, whether in the direction of excess or defect. The healthy and the sick are situated on a single continuum of strength: the weak person (ὁ ἀσθενής) lies close to the sick person along this continuum, but the sick person (ὁ ἀσθενέων) is even weaker, i.e. he is even more strongly affected by any deviation from the correct diet (cf. 11.3, where it is claimed that all healthy individuals will eventually experience the same effects from depletion as those individuals who suffer from missing a single meal). This provides the justification for the author's procedure of appealing to the behavior of the healthy to learn about the sick (cf. 10.1): since the sick are affected more strongly than the healthy by any deviation from the correct diet and untimely depletion has serious effects on the healthy, it follows that it will have even more serious effects on the sick. The use of the term καιρός of the ideal diet reflects the importance of timing in the examples of chapters 10 and 11, though καιρός often has the broader sense of due measure or mean and is then practically equivalent to μέτρον (cf. n. below on 12.1 τοῦ καιροῦ).

As in chapter 9, the need for ἀκριβεία in medicine is connected with the character of its subject matter, the human constitution or φύσις. Medicine requires a high degree of ἀκριβεία because some individuals, and especially the sick, are highly sensitive to any deviation from the diet their φύσις requires (cf. below on 12.2 Χαλεπὸν δὲ ... τοῦ ἀτρεκεστάτου). Also as in chapter 9, the author distinguishes between ἀκριβεία, a quality of the doctor's knowledge and actions, and τὸ ἀτρεκές, the goal at which the doctor aims (cf. n. on 9.4 τὸ δὲ ἀτρεκές). Here, however, he qualifies his reservations about the degree of ἀκριβεία attainable in medicine with the claim that many 'aspects' (εἶδεα) of medicine have achieved complete ἀκριβεία (12.2). This remark is somewhat obscure, but the point may be that while complete ἀκριβεία cannot be attained in diagnosis and therapy, it is possible in other areas of medicine (cf. n. below on 12.2 Πολλὰ δὲ εἶδεα ... περὶ ὧν εἰρήσεται).

In the final sentence of the chapter the author insists that ancient medicine should not be rejected as failing to meet the standards of

a genuine τέχνη simply because it has not attained ἀκριβεία in all respects. The requirement that a τέχνη must possess ἀκριβεία was a very general one (cf. Introduction, sec. 1.2); in arguing that ancient medicine qualifies as a τέχνη despite its inability to achieve complete ἀκριβεία the author goes beyond what is necessary to show that it fulfills the standards his *opponents* set for a τέχνη (cf. Introduction, p. 35). Chapters 9–12 thus make up a digression in which the author explains that ‘ancient’ medicine is much more complex than it might at first appear to be and addresses an objection to its status as a τέχνη that might be raised by this complexity. The praise of discovery with which the chapter ends and the insistence that medical discoveries were not the result of chance (οὐκ ἀπὸ τύχης 133.5–6 J.) echo the opening of chapter 2. Chapter 12 thus finally brings to a close the long account of ‘what the art is’ (τὴν τέχνην ὃ τι ἐστίν 120.1–2 J.) that began in chapter 3.

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12.1 τοῦ καιροῦ, ‘due measure’: the sense of καιρός in the Hippocratics is often temporal (‘right moment, opportunity’; cf. LSJ s.v. III). Cf. *Acut.* 20, 44.14–23 Joly (L. 2.266–268); *Epid.* I 4, L. 2.614.6–7; *Praec.* I, L. 9.250.1 (χρόνος ἐστὶν ἐν ᾧ καιρός, καὶ καιρός ἐν ᾧ χρόνος οὐ πολὺς). The author of *Morb.* I connects καιρός with timing and stresses the variety of καιροί in medicine; conditions in which the καιρός is acute (ὀξύς) need great precision in the timing of treatment, while other conditions admit substantial variation in timing (ch. 5, L. 6.146.15–150.5). The use of καιρός in the present passage thus reflects the importance of timing in the examples of chapters 10–11. But καιρός in the Hippocratics frequently has the more general sense of ‘due measure’, and is then practically equivalent to μέτρον or μέτριον (cf. Wilson 1980, Trédé 1992). Cf. *Aff.* 47, L. 6.258.7–10 (καιρός quantitative): ‘In the case of the sick, if you give what you give in conformity with the disease and the body, the body consumes these things completely and there is neither deficiency nor excess: but if you miss the due measure in one direction or another (ἢν δὲ ἀμαρτάνῃς τοῦ καιροῦ ἢ ἐπὶ τὰ ἢ ἐπὶ τὰ), there is harm in both cases’; *Aff.* 50, L. 6.260.1–4 (καιρός both temporal and quantitative): ‘Foods and drinks that are most suitable for the body and most sufficient for nutriment and health, when one makes use of them either at the wrong time or in excess of the due measure (ὅταν τις αὐτοῖσι μὴ ἐν τῷ καιρῷ χρῆται ἢ πλέοσι τοῦ καιροῦ), lead to diseases and death’; *Aff.* 53, L. 6.264.7–9 (καιρός ~ μέτριον): ‘A hot bath,

taken in moderation (τὸ μὲν μέτριον), softens and strengthens the body; but taken in excess of the due measure (τὸ δὲ πλεῖον τοῦ καιροῦ) it moistens the dry parts of the body and dries the moist parts'; *Aff.* 61, L. 6.270.15–17 (καιρός and μετριότης both associated with φύσις): wine and honey are excellent for human beings 'so long as they are administered appropriately and with moderation to both the healthy and the sick in accordance with their constitution' (ἦν πρὸς τὴν φύσιν καὶ ὑγιαίνουσι καὶ ἀσθενέουσι σὺν καιρῷ καὶ μετριότητι προσφέροντο). The author of *Loc. Hom.* makes knowledge of the καιρός fundamental to medicine and conceives of it as a quantitative balance between food and the body; cf. ch. 44, 82.1–19 Craik (L. 6.338–340). Cf. also *Int.* 32, L. 7.250.12–14: disease of the spleen is to be treated by cauterization, and 'if you hit the due measure in burning (ἦν τύχης καύσας τοῦ καιροῦ), you will make the patient healthy'. In light of these parallels, καιρός in the present passage is best taken as referring to the 'due measure' of diet in respect of quantity, quality, and timing.

12.2 Χαλεπὸν δὲ ... τοῦ ἀτρεκεστάτου, 'It is difficult ... perfect accuracy': Erotian reads χαλεπὸν δὲ μὴ and omits αἰεί: 'it is difficult, since the art does *not* possess such precision, to attain perfect accuracy' (cf. n. on 9.4 τὸ δὲ ἀτρεκές). This at first seems plausible, since *prima facie* the phrase τοιαύτης ἀκριβείας ἐούσης περὶ τὴν τέχνην means 'since the art possesses such precision'; i.e. it seems to assert that medicine *has* the kind of precision just mentioned (τοιαύτης), which would suggest that the doctor *could* achieve perfect accuracy in all cases (cf. Radt 1979, 90). In fact, however, the phrase τοιαύτης ἀκριβείας ἐούσης περὶ τὴν τέχνην means that a high degree of ἀκρίβεια is *required* in medicine because so much ἀκρίβεια *belongs* to its subject matter, the human φύσις. The connection of thought was seen clearly by Gomperz (1911, 235n7): 'Weil das Objekt der Arzneikunst, die Natur ... so nüancenreich, so mannigfach und genau abgestuft ist, wie es das Vorangehende gezeigt hat, darum ist es für den Arzt so schwierig, das Richtige immer haarscharf zu treffen.' The phrase τοιαύτης ἀκριβείας ἐούσης περὶ τὴν τέχνην indicates *both* that the subject matter of medicine, the human φύσις, is highly detailed and sensitive to any deviation from what it requires, *and* that the doctor requires highly precise knowledge in order to deal with this complexity; the sense 'since such precision exists in the art' (on the side of its subject matter) overlaps with 'since such precision is required by the art' (precision in the doctor's knowledge, which must accurately grasp the subject matter). It is the same idea as in chapter 9: depletion causes just

as much harm as repletion (i.e. φύσεις are very sensitive to deviations from the right diet); hence medicine is much more varied and requires greater ἀκρίβεια (διὰ πλείονος ἀκριβείης ἐστὶ 128.10 J.). For ἀκρίβεια applied to the subject matter of medicine cf. *Morb.* I 5, L. 6.148.15–16, where after remarking that many diseases do not demand great precision in the timing of treatment the author states: ‘Such are the critical moments in some diseases, and they have no exactness other than this (τοιούτοι οἱ καιροὶ εἰσιν ἐνίοισι, καὶ ἀκριβεῖν οὐκ ἔχουσιν ἄλλην, ἢ ταύτην).’ The diseases themselves are said to possess little ἀκρίβεια because no great precision is required in their treatment. In a similar way the present passage expresses the idea that human φύσις possesses a high degree of ἀκρίβεια, which must be matched by the ἀκρίβεια of the doctor’s knowledge and actions.

12.2 Πολλὰ δὲ εἶδεα ... περὶ ὧν εἰρήσεται, ‘Yet many aspects ... have arrived at such precision’: the stress on diversity (‘many εἶδεα’) is a hallmark of the classificatory use of εἶδος to refer to types or kinds; cf. Gillespie 1912 186, and below, pp. 260–261. What is unclear is what exactly these εἶδεα are. For the idea that εἶδος means a branch or department of medicine, cf. Taylor 1911, 214: ‘εἶδεα would then mean “constituent parts, departments”, like Plato’s εἶδη ἐν τῇ ψυχῇ and Aristotle’s εἶδη of tragedy’. The ‘constituent parts’ of medicine might be therapeutic procedures (cf. n. on 7.3 πλέον τό γε εἶδος) or more general kinds of therapy, like surgery or dietetics. Cf. *De Arte* 6, 230.7 Jouanna (L. 6.10): physicians treat patients using ‘regimen and other kinds (sc. of therapies)’ (διατῆμασιν ἰώμενοι καὶ ἄλλοισι τε εἶδεσιν). It is important to recognize that the author does not associate ἀκρίβεια only with therapy. In chapter 20 it is associated with a fully worked-out account of human development (ἀκριβέως 146.15 J.) and (implicitly) with the doctor’s general yet highly precise knowledge of the capacities of foods and drinks to affect the body (cf. ἀπλῶς 147.1 J. and n. on 9.1 ἀπλοῦν). This suggests that εἶδεα in the present passage might refer to different ‘aspects’ of the account of foods, drinks, and human physiology that is sketched out in ch. 14 and chh. 20–24; cf. 14.1, where the author claims to have highly detailed knowledge of the effects of various kinds of bread and barley cake on human beings. The point may be that even though the ἀκρίβεια attainable in *therapy* is inherently limited, there are other areas of the art that have been worked out with complete precision. Cf. the remark in ps-Galen, *Introductio sive medicus* that Erasistratus distinguished between different branches of

medicine based on the degree of certainty they could attain: diagnosis and therapeutics were stochastic, while aetiology and physiology could attain certainty (K. 14.684).

12.2 λογισμῶ, ‘by means of reasoning’: discovery by reasoning is opposed to discovery by chance (οὐκ ἀπὸ τύχης 133.5–6 J.); cf. 14.3, where human reasoning (λογισμός) is contrasted with divine dispensation as the source of the arts (135.14–17 J.). The author opposes reasoning not to perception but to chance and divine dispensation, suggesting that his emphasis on the importance of reason in discovery was not motivated by epistemological concerns (cf. Appendix 1). Both *De Arte* and *Flat.* contrast reason with the senses. At *De Arte* 11, 237.16–17 Jouanna (L. 6.20) λογισμός refers to the reasoning the doctor must bring to bear on ‘invisible’ diseases, i.e. those that are internal to the body and cannot be investigated using the senses alone. Cf. *Flat.* 3, 106.9–10 Jouanna (L. 6.94): air is ‘invisible to sight, but apparent to reason’ (τῇ μὲν ὄψει ἀφανής, τῷ δὲ λογισμῷ φανερός). The author of *Praec.* contrasts λογισμός with both perception and experience (ch. 1, L. 9.250.2–5). He enjoins the doctor not to treat patients simply on the basis of ‘plausible reasoning’ (λογισμός πιθανός), but instead to make use of experience combined with reason (τριβὴ μετὰ λόγου). λογισμός is ‘a memory that unites what has been grasped by perception’ (ὁ γὰρ λογισμός μνήμη τίς ἐστι ξυνθετικὴ τῶν μετ’ αἰσθήσιος ληφθέντων). The treatise shows Epicurean influence (cf. Jones 1923, 206), and such a technical concept of λογισμός goes well beyond VM’s use of the term.

13

The author returns to his attack on the proponents of ὑποθέσεις. He begins by setting out two assumptions to which they are committed: first that the cause of any disease is something hot, cold, wet, or dry, and second that the cure is the opposite of the cause. He then goes on to describe an imaginary situation in which a person with a relatively weak constitution adopts a diet of raw food: wheat straight from the threshing floor, raw meat, and water (instead of wine). Such a person will suffer many harmful effects and will not be able to hold out for long (13.1). On the opponents’ assumptions the cure for such a person must be something hot, cold, wet, or dry, since one of these factors is the cause and opposites are the cure for opposites. But the obvious

remedy is to substitute cooked food for raw and to give the person bread instead of wheat, boiled meat instead of raw, and wine instead of water. Does this change of diet help the person because the hot counteracts the cold, or the reverse (13.2)? Raw food harms the person and cooked food restores him to health, but the change from raw to cooked cannot be understood as the replacement of one opposite by another. The transformation of wheat into bread is a complex process in which a number of factors such as fire and water exert their own specific effects on the wheat; it cannot be explained as a simple change from one opposite to another (13.3).

The chapter provides a clear example of the author's rhetorical strategy of turning his opponents' own claims against them (cf. Introduction, p. 39). They are committed to the assumptions that the cause of disease is one of the principles hot, cold, wet, or dry and that opposites are the cure for opposites. This is what it means to pursue the art 'from a hypothesis' (ἐξ ὑποθέσεως 133.8 J.). The author describes an imaginary situation in which a diet of raw food causes harm and the change back to cooked food brings about recovery; on the opponents' assumptions, the change from raw to cooked must therefore be a matter of a change from one opposite to another. But it is not reasonable to regard it as such a change, given the nature and complexity of the processes involved in cooking; hence the opponents are reduced to a state of ἀπορίη (134.11 J.). It is crucial to recognize that the author does not commit himself to either of the two assumptions he attributes to the opponents in 13.1. That he does not share their view that the cause of all diseases is a single factor such as hot, cold, wet, or dry is obvious; but the words 'as their account has it' at 134.3 J. (ὥς ὁ ἐκείνων λόγος ἔχει) make it equally clear that he does not endorse the assumption that opposites are the cure for opposites. As the sequel shows, the author's own therapeutic doctrine is much more complex than the simplistic view that opposites are the cure for opposites (cf. below, pp. 283–284). The author's strategy in the present chapter is to argue that, *on the opponents' own assumptions*, it is impossible to account for a condition whose cause and cure are known to all.

The appeal to an imaginary situation or thought experiment is typical of the author's style of argument; cf. ch. 8. The situation described is one that could in principle be brought about, but there is no reason to think that the author actually attempted to do so. He takes it as a matter of common knowledge that a diet of raw foods would cause serious harmful effects and that the right remedy is to change back from

raw to cooked food. As in chapter 8, the imaginary situation is elaborated with care and the author shows some concern with what might be called experimental conditions (cf. nn. below on 13.1 μὴ τῶν ἰσχυρῶν φύσει, ἀλλὰ τῶν ἀσθενεστέρων, 13.2 ἦν γε μὴ παντάπασιν ... καὶ τῆς διαίτης). As in chapters 3–8 the focus is on the distinction between raw and cooked food; it is therefore no surprise that at the end of the chapter the nature of cooking once again comes to the fore. Cooking is a complex process of mixing and blending; it involves a large number of operations, each of which has its own ‘power and nature’ (δύναμιν καὶ φύσιν 134.16 J.). Hence it cannot be reduced to a simple transformation from one opposite to another. The association between φύσις and δύναμις is characteristic of the author’s thought and reflects his empirical approach to the study of medicine (cf. n. below on 13.3 ὣν ἕκαστον ἰδίην δύναμιν καὶ φύσιν ἔχει); the emphasis on the complexity of cooking continues in the immediate sequel (cf. 14.1).

* * *

13.1 Ἐπὶ δὲ τὸν τῶν καινὸν τρόπον ... ἐπανελθεῖν βούλομαι, ‘But I wish ... from a hypothesis’: the MSS offer Ἐπὶ δὲ τῶν τὸν καινὸν τρόπον τὴν τέχνην ζητεύντων ἐξ ὑποθέσιος (A: ἐξ ὑποθέσιος ζητεόντων M) λόγον (M: λόγων A) ἐπανελθεῖν βούλομαι. But we expect an accusative object for Ἐπὶ, and the transposition of τὸν and τῶν is easy (so Coray, Ermerins; cf. Jouanna 1990, 133n3). The choice of reading does not significantly affect the sense.

13.1 ἐξ ὑποθέσιος, ‘from a hypothesis’: the meaning is ‘on an assumption’, viz. the assumptions that the cause of any disease is something hot, cold, wet, or dry, and that the cure is the opposite of the cause. As Taylor noted (1911, 78), Aristotle’s notion of a constitution ἐξ ὑποθέσεως (e.g. *Pol.* 1317a40–b3, 1317a35–38, 1314a25–29, 1269a32–33, 1288b28–33) provides a close parallel; there is no reason to suppose that the author has been influenced by the mathematical usage discussed at Pl. *Meno* 86e–87b. Cf. chapter 1, introductory note and n. on 1.1 ὑπόθεσιν ... ὑποθέμενοι τῷ λόγῳ (above, pp. 111–113 and 124).

13.1 Εἰ γὰρ τί ἐστι θερμὸν ... τῷ δὲ ὑγρῷ ἐπὶ τὸ ξηρόν, ‘For if it is something hot ... and the wet against the dry’: for the view that the primary cause of disease is one or more of the principles hot, cold, wet, and dry cf. the opening chapters of *Nat. Hom., Aff.* 1 (L. 6.208.7–15), and several of the theories discussed in the *Anonymous Londinensis* papyrus (Introduc-

tion, sec. 3.3). For the importance of hot, cold, wet, and dry in therapy cf. esp. *Aff.* 39, L. 6.248.16–20: ‘Of all the foods or drinks that people employ in their regimen when they are healthy, for the ill you must use whichever are available, preparing hot, cold, wet, and dry: from cold, hot; and from hot, not hot; and dry from not dry, and the rest in the same fashion.’ For the general view that opposites are the cure for opposites cf. n. below on 13.2 τῷ ὑπεναντίῳ προσήκει λῦσαι.

13.1 ἔστω μοι ἄνθρωπος, ‘give me a person’: for the phrasing cf. Οὕτως οὖν μοι ἔστω οἶον 147.6–7 J. (introducing the example of wine). For an example of a thought experiment that could never actually be carried out cf. Plato *Ti.* 63b–c, where Timaeus describes an imaginary situation of weighing samples of the elements at the boundary of the spheres of air and fire, and introduces the description with the verb ὑποτίθεσθαι: ‘we will agree on these things if we hypothesize the following’ (ταῦτα διομολογητέον ὑποθεμένοις τάδε ἡμῖν).

13.1 μὴ τῶν ἰσχυρῶν φύσει, ἀλλὰ τῶν ἀσθενεστέρων, ‘whose constitution is not strong, but rather weak’: the care with which the author sets up the imaginary situation is notable; the effects of the change in regimen must be quickly and strongly felt. Cf. the remark below that the person will recover by changing back to a diet of cooked food *if* his constitution has not already been completely corrupted by the harmful diet (13.2 ἦν γε μὴ παντάπασιν ... καὶ τῆς διαίτης).

13.1 οὗτος δὲ πυρούς ... καὶ πινέτω ὕδωρ, ‘Let this person eat wheat ... let him drink water’: cf. 3.3, where the author envisions the original ‘strong and brutish’ regimen of human beings as consisting of foods such as fruits, brush, and grass (121.9–10 J.). Such foods were presumably supplied by nature without any need for cultivation. But the mention of wheat *from the threshing floor* in the present passage presupposes the discovery of agriculture. This reveals the author’s focus on the distinction between raw and cooked: his concern is not the discovery of agriculture, but the discovery of cooking. Cf. Herter 1963b, 479–480 (=1975, 170–171) and ch. 3, introductory note (pp. 154, 159 above).

13.2 τῷ ὑπεναντίῳ προσήκει λῦσαι, ‘it must be removed by its opposite’: the general principle that opposites are the cure for opposites is explicitly stated in a number of Hippocratic works. Cf. esp. *Flat.* 1, 104.1–4 Jouanna (L. 6.92); *Aph.* 2.22, L. 4.476.6–8; *Nat. Hom.* 9, 188.3–

10 Jouanna (L. 6.52). Despite VM's concern with both depletion and repletion (cf. ch. 10), the author nowhere states that repletion is the cure for depletion or vice versa. The main alternative (though much less common) general principle is treatment by similars; cf. *Morb. Sacr.* 18, 32.5 ff. Jouanna (L. 6.394) and Müller 1965c. *Loc. Hom.* endorses both cure by opposites and cure by similars, depending on circumstances; cf. esp. ch. 42, 78.19–25 Craik (L. 6.334).

13.2 ὡς ὁ ἐκείνων λόγος ἔχει, 'as their account has it': a clear indication that the author does not endorse the opponents' assumption that opposites are the cure for opposites. The author accepts the opponents' assumptions for the purposes of argument and attempts to draw out their impossible consequences; cf. above, p. 223.

13.2 ἐφθά, 'boiled': for the importance of boiling in the discovery of cooking and medicine cf. ἤψησαν 122.12 J., ἐψήσει 124.20 J. Cf. also 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι with n. (pp. 285–286 below).

13.2 ἦν γε μὴ παντάπασιν ... καὶ τῆς διαίτης, 'at least if his condition has not been completely ruined ... for a long time': cf. n. above on 13.1 μὴ τῶν ἰσχυρῶν φύσει, ἀλλὰ τῶν ἀσθενεστέρων.

13.3 ἀπορίην, 'dilemma': cf. ἄπορον 15.2, 138.1 J.

13.3 ἐρωτηθέντι, 'for the one who is asked this question': the author envisions a situation of live debate; cf. 15.2 and Introduction, sec. 3.1.

13.3 ὃ γὰρ καὶ πυρὶ <δέδοται> καὶ ὕδατι δέδενται, 'For that which has been given over to fire, moistened with water': δέδενται 'moistened' (the reading of the third hand in A) is preferable as *lectio difficilior* to M's δέδοται, but we then need another verb for the action of fire. Reinhold's proposal to insert δέδοται after πυρὶ is a simple solution that is quite in keeping with the author's style; cf. ἐξηπάτηται καὶ ἐξαπατᾶται 119.18–19 J. and Jouanna 1990, 134n5.

13.3 ὧν ἕκαστον ἰδίην δύναμιν καὶ φύσιν ἔχει, 'each of which has its own power and nature': each of the substances (or processes) that acts on wheat during cooking has its own capacity to affect (δύναμις) and nature (φύσις). For the notion that fire and water have distinct δυνάμεις

cf. *Vict.* 3, 126.8–10 Joly (L. 6.472). The close association between φύσις and δύναμις, and the emphasis on the distinctive character of different δυνάμεις, are characteristic features of the author's thought. Cf. 3.5 τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν with n.; 14.1, 135.6–7 J. (αἱ δυνάμεις δὲ μεγάλαι τε ἑκάστου καὶ οὐδὲν ἢ ἑτέρη τῇ ἑτέρῃ ἐοικυῖα); 19.7, 145.16 J. The association between φύσις and δύναμις must be interpreted in light of the author's account of the discovery of medicine. Throughout the process described in chapters 3–8, φύσεις are distinguished from one another by their δυνάμεις or capacities to assimilate foods, which are assessed by observation (cf. pp. 154–157 above). The case is similar for substances such as fire and water (as in the present passage) and the humors or fluid substances in the body and in foods: each has a distinct δύναμις that marks it off as a distinct nature or φύσις, and which is revealed by its effects on the senses, on the human body, or on other substances. Cf. esp. 15.3–4, where the δύναμις of a hot and astringent substance is said to be opposed to that of a hot and insipid substance because it has the opposite effect on the body (πᾶν τοῦναντίον ἀφ' ἑκατέρου αὐτῶν ἀποβαίνει 138.11–12 J.).

A close association between φύσις and δύναμις is characteristic of other Hippocratic texts as well. Cf. *Morb. Sacr.* 18, 32.3–5 Jouanna (L. 6.394): 'each disease has a nature and power of its own' (φύσιν δὲ ἔχει ἕκαστον καὶ δύναμιν ἐφ' ἑωυτοῦ); *Nat. Hom.* 5, 176.10–11 Jouanna (L. 6.42): each of the four humors has a 'power and nature of its own' (δύναμιν τε καὶ φύσιν τὴν ἑωυτοῦ); *Vict.* 38, 160.1–2 Joly (L. 6.530): 'Concerning the winds, the nature and power of each must be recognized in the following way' (περὶ δὲ πνευμάτων ἦντινα φύσιν ἔχει καὶ δύναμιν ἕκαστα, ὧδε χρὴ διαγινώσκειν); *Alim.* 2, 140.5–7 Joly (L. 9.98). For the notion of ἴδιαι δυνάμεις cf. *Acut.* 37, 50.22–51.2 Joly (L. 2.298): it is no surprise if foods that have strong powers of *their own* (μεγάλας δυνάμεις ἰδίας)—such as garlic—also have a harmful effect when taken contrary to habit. The closest parallel to VM's conception of the relationship between φύσις and δύναμις is found in *Nat. Hom.* The author argues against opponents who claim that the human being is made up of a single substance that changes its 'form and power' (τὴν ἰδέην καὶ τὴν δύναμιν) under the influence of factors such as hot and cold, and takes on qualities such as white and black or sweet and bitter (*Nat. Hom.* 2, 166.15–168.2 Jouanna, L. 6.34). In response he argues that the distinction between the four humors is not just conventional or customary (κατὰ νόμον) but also natural (κατὰ φύσιν): each of the four humors has its own δύναμις and φύσις, because each is characterized by a distinc-

tive degree of heat, cold, wetness, and dryness, and each can be drawn out of the body by taking a particular kind of drug (*Nat. Hom.* 5, 176.1–178.2 Jouanna, L. 6.40–42; cf. below, p. 262). As in VM, the distinction between δυνάμεις corresponds to a distinction between φύσεις; since the δύναμις of a humor is a manifestation of its φύσις, not just a secondary modification of it, one can learn about the φύσις of the humors by studying their δυνάμεις. *Vict.* occupies a middle position between VM and *Nat. Hom.* on the one hand and the theorists attacked in *Nat. Hom.* on the other. Though the author of *Vict.* clearly recognizes that things possess certain powers by nature, he also distinguishes between δυνάμεις that are natural and those that are acquired: for example, concerning foods the doctor must know ‘the power of each, both that which is natural and that which results from compulsion and human art’ (δύναμιν ἥντινα ἕκαστα ἔχει καὶ τὴν κατὰ φύσιν καὶ τὴν δι’ ἀνάγκην καὶ τέχνην ἀνθρωπίνην) (ch. 2, 124.1–2 Joly, L. 6.468; cf. ch. 39, 162.9–10 Joly, L. 6.534). On this view it is impossible to draw conclusions about a thing’s φύσις directly from a study of its δυνάμεις, for some of these may be acquired, not natural. Cf. Miller 1959; Plamböck 1964, 90ff.

On δύναμις and φύσις in VM, cf. Miller 1952 and Souilhé 1919, 38; cf. also Souilhé’s remarks on δύναμις and φύσις in the Hippocratics in general (1919, 56). In Plato, as in some of the Hippocratics, δύναμις is a principle that reveals a hidden nature or essence (Souilhé 1919, 145 writes of ‘la propriété ou la qualité révélatrice de l’être’) and which distinguishes between natures or essences (cf. *Phdr.* 270c9–d7). At *Sph.* 247d–e the Eleatic Stranger, in response to materialists who deny the existence of anything but body, says: ‘I lay it down as a definition that the things that are amount to nothing other than power’ (τίθεμαι γὰρ ὅρον τὰ ὄντα ὡς ἔστιν οὐκ ἄλλο τι πλὴν δύναμις). But the passage is polemical and does not express Plato’s considered view; in general Plato does not *identify* a thing’s δύναμις with its nature or essence (cf. Souilhé 1919, 155ff.). On Aristotle’s conception of δύναμις and its relation to Hippocratic views see below, pp. 253–254.

13.3 τὰ μὲν τῶν ὑπαρχόντων ... κέκρηται τε καὶ μέμικται, ‘has lost some of its properties ... blending and mixing’: literally ‘has lost some of the things belonging to it, but has been blended and mixed with others’. What has been treated by fire and water loses certain qualities and powers but gains others through the processes of blending (κέκρηται) and mixing (μέμικται). Foods contain a complex blend (ζοῆσις) of different constituents, each of which has its own individual δύναμις; the

character of this blend accounts for the food's distinctive capacities to affect human beings (cf. 14.1 and pp. 233–234 below). Cf. also 3.5, where cooking in general is described as involving mixing and blending (ἐμίξαν καὶ ἐκέρασαν 122.12–13 J.) and 14.4, where the notions of mixing and blending are applied to the humors in the body (μεμυγμένα καὶ κεκραμένα 136.13 J.).

14

The chapter continues the emphasis on the complexity of cooking (cf. 13.3). Different varieties of bread and barley cake have very different effects on human beings, depending on such factors as the purity of the flour from which they are made, the way it is kneaded, and the degree to which it is baked (14.1). Knowledge of these differences is fundamental to the practice of medicine: the doctor must know exactly how the human being will be affected or altered by each particular type of food in both sickness and health (14.2). Such knowledge was first acquired during the discovery of medicine by means of reasoning and investigation directed at the nature or constitution (φύσις) of the human being. The original discoverers of medicine found that it was not the hot, the cold, the wet, and the dry that were important in human regimen, but rather qualities such as sweet, bitter, astringent, and insipid (14.3). They saw that the human body contained substances with these qualities as well as myriad others; these substances are not manifest when they are well mixed and blended, but when one separates from the others and stands apart on its own, it becomes manifest and causes harm (14.4). Similarly, foods that are harmful to human beings are characterized by strong smells or flavors; when ingested they can cause one of the substances in the body to separate from the others and produce a harmful effect (14.5). But all foods that make up a normal healthy diet produce nourishment and strength, because they have been thoroughly mixed and blended and do not display any strong flavor (14.6).

The chief importance of the chapter lies in the theory of human φύσις presented in section 14.4. But this theory must be interpreted in the context of the chapter as a whole, which is concerned with the effects of foods on human beings. Section 14.1 stresses the differences between the powers (δυνάμεις) of different kinds of bread and barley cake, section 14.2 emphasizes the importance of knowing what these powers are,

and sections 14.5–6 explain why foods with strong smells or flavors have the effects that they do. The purpose of the theory presented in 14.4 is thus to account for the effects of foods on human beings in both health and disease (cf. esp. 14.2, 135.10–13 J.). It is more than just a theory of health and disease, since it must provide the doctor with a precise understanding of the effects of different foods on the healthy as well as the sick. But by the same token there is no reason to think that the theory was meant to provide anything *more* than a systematic explanation of such effects: it is a theory of just those aspects of the human constitution that are relevant to accounting for the effects of foods on individuals. Section 14.3 makes it clear that in the author's view the theory is not an assumption necessary for the discovery of medicine, but a discovery made by reasoning from observation of the effects of foods. The discoverers of medicine found that it was not the hot, the cold, the wet, and the dry that were the important factors in human regimen; rather, they thought that it was 'the strength of each thing' (τὸ ἰσχυρὸν ἐκάστου) that caused harm, and they attempted to remove this (135.17–136.5 J; cf. 3.5 and 5.4, esp. 124.19–20 J.). This credits the discoverers of medicine with an observational claim: foods that cause harm to human beings are characterized by strong smells or flavors, not by excessive heat, cold, dryness, or wetness. The author's next remark, that 'the strongest (ἰσχυρότατον) of the sweet is the sweetest, of the bitter the bitterest, of the sour the sourest, and of each of all the things present (πάντων τῶν ἐνεόντων), the extreme degree (ἄκμῃ)' (136.5–8 J.) also expresses an observational claim about the effects of foods: a quality is strongest, i.e. it brings about the strongest effect, when it is at its most concentrated. For example, among foods that are sweet, it is those that are sweetest that bring about the strongest effects. Only at the beginning of section 14.4 does the author mention the presence of factors such as sweet or bitter in the human being as well, and he is careful to mark the transition: the discoverers of medicine 'saw' (ἑώρακον 136.8 J.) that the factors present in foods were also (καὶ 136.8 J.) present in human beings and that they caused harm (on the reasoning behind this inference cf. below, pp. 234–235).

According to the theory presented in section 14.4, the human body contains a blend (κρῆσις) of a large number of fluid substances or humors (χυμοί), each one of which is characterized by a particular smell or taste (sweet, bitter, acid, etc.) and each one of which has its own δύναμις or capacity to cause a specific effect. When these humors are well mixed and blended, none of them is manifest and the person is

healthy. But when one of them separates from the mixture and stands apart on its own, it becomes manifest and causes pain. The ideas on which this theory is based are drawn from the common heritage of early Greek medicine and philosophy. (1) First there is the notion that different substances can unite by mixing and blending into a composite in which they retain their distinct identities, but these are not manifest. Such a conception of mixture is well attested for Presocratics such as Anaxagoras and Empedocles as well as various medical writers (cf. n. below on 14.4 *μεμυγμένα καὶ κεκρημένα*). (2) Second, the theory is based on the notion that health is a state in which the humors in the body are well blended with one another, while disease or other pathological effects come about when one or more of the humors becomes concentrated and predominates over the others. Health is consistently associated with *κρῆσις* of the humors and disease with lack of *κρῆσις* by a wide range of philosophical and medical authors (e.g. Alcmaeon DK 24 B 4, *Nat. Hom.* 4; cf. n. below on 14.4 *μεμυγμένα καὶ κεκρημένα*). In the present chapter lack of *κρῆσις* is associated with pain, not disease (λυπεῖ 136.14, 16 J.); in chapters 18–19, however, the author argues that disease is accompanied by the discharge of strong and unblended (*ἄκρητα*) substances from the body, and that it disappears as soon as these lose their strong and unblended character (cf. esp. 19.5–6). (3) Finally, the process by which a humor in the body becomes concentrated is viewed as a ‘separation’ or *ἀπόκρισις*. This concept found wide application in both cosmological and medical contexts; in particular, the notion that separation follows upon a ‘disturbance’ (*τάραχος*) of the humors in the body is a common one in the Hippocratic Corpus (cf. n. below on 14.6 *τάραχός τε καὶ ἀπόκρισις*). In sections 14.5–6 the author uses this theory to account for the effects of foods on individuals. Foods contain a blend of the same kinds of humors as are present in the body. These humors account for their flavors and smells, as well as their capacities to cause harmful effects on the body. When the humors in a food are well blended it promotes health and strength. But foods containing one or more concentrated humors display strong smells or flavors and bring about harmful effects by causing one of the humors in the body to separate from the others and stand apart on its own. The underlying cause of a pathological affection is a humor in the body that has separated from the overall mixture and become concentrated; this separation, however, can be provoked by eating a food that contains a concentrated humor. Cf. 20.6, where cheese is said to exert a harmful effect on certain individuals

because the humor in the body 'hostile' (πολέμιον 147.18 J.) to cheese is 'stirred up and set in motion' by it (ἐγείρεται τε καὶ κινεῖται 147.18–19 J.).

Two important qualifications must be made to this account of the author's theory. (1) First, though it is correct to describe it as a theory of the fluid substances in the body and in foods, we must recognize that the author's terminology for such substances is not fixed. In particular, he does not distinguish between substances and their qualities; in the absence of this distinction, the neuter singular adjective (with or without the article) may refer either to a quality itself or to a substance that has that quality (cf. below, pp. 240–241 on 14.4 ἐνὶ γὰρ ἐν ἀνθρώπῳ ... καὶ ἄλλα μυρία). If the author has a term for fluid substance it is χυμός 'humor'. But this term is used in a quite unspecialized way and remains close to its basic senses 'juice' and 'flavor' (cf. n. below on 14.6 χυμοῦ). A second term that the author sometimes uses to refer to a fluid substance in the body is δύναμις. The basic meaning of δύναμις in VM is capacity to affect; in this sense, the author attributes a δύναμις both to the human constitution and to foods (cf. above, pp. 155–156). δύναμις is also used of the capacity to affect belonging to a particular substance such as fire or water (13.3) or a quality such as hot or cold (15.3–4). Throughout the text δύναμις and quality are closely associated, and indeed sometimes identified (cf. 16.1, 139.5 J., where hot and cold are said to be δυνάμεις). Since the humors are identified by their qualities (e.g. sweet, bitter, etc.), we may conclude that the author conceived of each humor as possessing its own δύναμις or capacity to affect (cf. 24.1). But in the phrase 'separation of the powers associated with the body' (ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυνάμεων 14.6, 137.7–8 J.) the author writes as though the constituents of the body *were* δυνάμεις, for it is these constituents or humors that undergo separation or ἀπόκρισις. Though strictly speaking each one of the humors *has* a δύναμις or capacity to affect, the author writes of them *as* δυνάμεις because they have the capacity to bring about strong effects when concentrated (cf. 19.5, 144.10 J.; 22.1, 149.2 J.). The use of δύναμις to refer to a fluid substance possessing a strong capacity to affect can be paralleled in other Hippocratic writings such as *Nat. Puer.* and *Morb.* IV; the wide semantic range of δύναμις was noted by Aristotle (cf. n. below on 14.6 ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυνάμεων). But it is important to see that in VM this somewhat specialized usage is a natural consequence of the author's conception of the discovery of medicine. The process of discovery begins from observation of the δυνάμεις of foods, their capacities to

affect different individuals in different ways (ch. 3, ch. 5). By means of a long process of modifying foods and evaluating their effects on different individuals, it is eventually discovered that the substances in foods and in the human body with the greatest capacity to affect human beings are humors in concentrated form (14.3). Since these substances have the greatest power (δύναμις) to affect the human being, they can themselves be called powers (δυνάμεις).

(2) Second, the author's theory is substantially more complex than the simple association of health with *κρησις* and disease with lack of *κρησις* would suggest. The theory envisions a wide range of different blends or *κρήσεις*, each one characterized by a distinctive combination of humors in various quantities and degrees of concentration. A first indication of this is the author's somewhat enigmatic remark at 136.12 J. that the substances in the body possess 'powers of all kinds in respect of both quantity and strength' (παντοίας δυνάμιας ἔχοντα πληθός τε καὶ ἰσχύν). I take this to express the idea that each individual contains a distinctive blend of humors present in different amounts and degrees of concentration; the particular amounts and concentrations of the various humors determine the distinctive capacities of the individual to assimilate certain foods and to be affected by others (cf. pp. 246–248 below). This notion of *κρησις* as a complex blend of different constituents is implicit in several other passages (cf. 19.3, 144.4–5 J.; 19.6, 145.9–14 J.); the clearest evidence for it comes in 20.6, where the different effects of cheese on different individuals are explained as resulting from differences in the blend of humors in their bodies. In some individuals the humor that is hostile to cheese is 'present in greater quantity and exerts more power' in the body (πλείων ἐνεὼν καὶ μᾶλλον ἐνδυναστεύων 147.19–20 J.). These individuals are characterized by a slight predominance of one of the humors, but they are nonetheless healthy. The author's notion of *κρησις* thus allows for slight variations in the blend of humors present in different healthy individuals. Like many other Hippocratic authors, the author views health as a relative state that admits of degrees: an individual can fall short of perfect health without being diseased (cf. *Nat. Hom.* 4, where a person is said to be *most* healthy when the four humors in the body are *best* mixed; on the Hippocratic notion of relative health see Jouanna 1999, 333–334). Corresponding to the idea of *κρησις* as a complex blend of humors in the body is the notion that foods, too, contain a distinctive blend of humors in various amounts and concentrations. This is suggested by the remark at the end of chapter 13 that in being made into bread wheat 'has lost

some of its properties but gained others through blending and mixing' (τὰ μὲν τῶν ὑπαρχόντων ἀποβέβληκεν, ἄλλοισι δὲ κέκτηται τε καὶ μέμικται 134.16–17 J.; cf. n. *ad loc.*). However these changes are to be understood, it seems clear that the distinctive combination of properties that results from them accounts for the distinctive capacities of different kinds of bread and barley cake to affect human beings. The complexity of κρήσις in connection with both foods and individuals reveals both the boldness of the author's theory and the complexity of the doctor's task as he conceives of it. In principle the theory makes it possible for the doctor to give a precise account of the effects of any food on any individual, but only if he has precise knowledge of the distinctive blend of humors present in both.

The author says that the discoverers of medicine 'saw' (ἐώρων 136.8 J.) that the substances present in foods are also present in the human body. What kind of reasoning underlies this inference? One clue lies in the fact that the closest parallels to the author's theory of a large number of fluid substances in the human body are provided by accounts of plant nutrition. In *Morb.* IV the presence of a vast number of fluid substances in the soil is inferred directly from differences in the growth of plants in different regions (ch. 34, 85.25–87.18 Joly, L. 7.544–548; cf. n. below on 14.4 ἐνι γὰρ ἐν ἀνθρώπῳ ... καὶ ἄλλα μυρία). Some plants grow wild in one place but not in another, and the author argues that this is because different fluids are present in the soil in the two regions. Each plant is assumed to grow by the assimilation of its own specific fluid on the general principle that like nourishes like; hence the inability of a plant to grow in a particular region indicates that the specific fluid necessary for its growth is not present there. It is reasonable to regard VM's theory of human φύσις as the result of applying similar reasoning to human nutrition. Foods contain a tremendous variety of humors, as indicated by their different smells and flavors; on the assumption that nutrition occurs by the assimilation of like to like, we can infer that the humors present in foods are also present in the human body. The author of *Morb.* IV draws an explicit analogy between plant and human nutrition (ch. 33, 85.19–24 Joly, L. 7.544; cf. ch. 34, 87.12–18 Joly, L. 7.548), and the author of VM may have had a similar analogy in mind. The author's hypothesis that the human being contains a vast number of humors is best viewed as a response to the need to account for the very different effects of different foods on human beings, on the common assumption that nutrition takes place by the assimilation of like to like.

The analogy between cooking and medicine provides a second source of support for the author's theory. The central concepts of mixing and blending are first mentioned in chapter 3 in connection with foods and their preparation (cf. ὡμά τε καὶ ἄκρητα 121.17 J.; ἔμειξαν καὶ ἐκέρασαν 122.12–13 J.). Only in the present chapter does the author note the importance of mixing and blending of the substances in the human body. This suggests that he takes the discovery of the κρησις theory to involve an analogical leap: the discoverers of medicine observed the importance of κρησις in connection with foods and inferred by analogy that it was *also* important in the human body. Just as foods are healthy when they have been cooked and their constituent humors are mixed and blended with one another, so the humors in the body are in a healthy state when they are mixed and blended. A wide variety of factors combine through blending and mixing to account for the distinctive powers of different kinds of bread and barley cake (κέκρηται τε καὶ μέμικται 13.3, 134.17 J.); this suggests that the human body also contains a complex blend of humors present in different amounts and concentrations. Though the analogy between cooking and medicine is largely implicit in this chapter (cf. however ὥσπερ καὶ ὑπὸ τῶν ἐν τῷ σώματι ἀποκρινομένων 136.20–21 J.), it will become much more explicit in the sequel (cf. below, pp. 281–282).

* * *

14.1 διαφέρει ἐς τὸ σῶμα τοῦ ἀνθρώπου ... οὐδὲν ἢ ἑτέρη τῇ ἑτέρῃ ἐοικυῖα, 'it makes a difference ... no power is at all like any other': the claim is that each of the types of bread mentioned has a distinctive effect on the human body; cf. 23.1, where a similar point is made about bodily 'structures' (σχήματα). There is a close connection to the end of chapter 13: the reference to water recalls ὕδατι δέδενται 134.14 J. ('has been moistened with water') while the mention of cooking recalls πυρὶ δέδοται 134.14 J. ('has been given to fire'). The diversity of operations involved in preparing bread (καὶ ἄλλοισι πολλοῖσιν εἰργασται 134.15 J.) corresponds to the diversity of effects produced by the different types (ἄλλα τε πρὸς τούτοισι μυρία 135.5 J.).

The terms καθαρός 'pure' and συγκομιστός 'unsifted' refer to the degree of sifting or bolting of the flour or meal from which the bread or barley cake is made. Cf. the definition of συγκομιστοὶ ἄρτοι in Galen's Hippocratic lexicon (K. 19.142.9–10): 'dirty (ῥυπαροί), since all the wheat meal is brought together (συγκομίζεσθαι) and not separated (διακρίνεσθαι)'. In *De alim. facult.* (218.11–13 Helmreich, K. 6.483) Galen

says that συγκομιστός was a term used by ‘the more ancient doctors’ (οἱ παλαιότεροι τῶν ἱατρῶν) for bread made of wheat meal in which the bran is not separated from the pure wheat (μὴ διαχωριζομένου τοῦ πιτυρώδους ἀπὸ τοῦ καθαροῦ). For the opposition of συγκομιστός and καθαρός cf. Gal. *Thras.* p. 93 Helmreich (K.5.889). Ancient flour was not very pure by modern standards; cf. White 1984, 30. Elsewhere in the Hippocratic writings συγκομιστός occurs only in *Vict.*, where it is used of bread or meal (ch. 40, 162.24 Joly, L. 6.536; ch. 42, 164.19 Joly, L. 6.540; and ch. 79, 210.30 Joly, L. 6.624); in two passages it refers more generally to elements of diet and seems to have the sense ‘varied’ or ‘coarse’ (ch. 68, 196.6 Joly, L. 6.594; ch. 56, 180.17 Joly, L. 6.568). The terms ἀπίστων and ἐπισιμένων refer to winnowing, the process of separating the wheat or barley from the chaff or husks. This was typically done by throwing the grain into the air with a special shovel and allowing the wind to effect the separation (White 1984, 62). Cf. Erotian’s gloss on ἀπίστων (19.13–14 Nachmanson): ‘unpeeled: for winnowing means peeling off the husks and beating’ (ἀλεπίστων· πίσειν γὰρ λέγεται τὸ λεπίζειν καὶ κόπτειν).

Several other Hippocratic authors stress the importance of the factors mentioned here in determining the effects of bread and barley cake; these passages indicate that the author’s claims have a solid foundation in medical experience (cf. Bourgey 1953, 124). (1) The author of *Acut.* writes that foods that normally do not have strong powers (δυνάμεις) can have very strong effects when taken contrary to habit. In a long list of examples he mentions different types of bread and barley cake, whose effects are said to vary with factors such as purity (καθαρός vs. συγκομιστός), moisture, and freshness (ch. 37, 51.2–13 Joly, L. 2.298–300). (2) The author of *Vict.* emphasizes the importance of winnowing, sifting, and kneading in determining the δυνάμεις of barley meal and barley cake (ch. 40, 162.19–164.12 Joly, L. 536–538). In ch. 42, 164.18–166.2 Joly (L. 6.538–540) he stresses the importance of sifting, kneading, and baking in connection with wheat and bread. (3) Finally, the author of *Aff.* mentions purity, freshness, moistening, winnowing, and kneading as important factors in connection with both bread and barley cake (ch. 52, L. 6.260.18–262.1).

14.1 ἄλλα τε πρὸς τούτοις μυρία, ‘and myriad other differences in addition to these’: the diversity of effects caused by different foods matches not only the diversity of procedures used to prepare them (ἄλλοις πολλοῖς ἐργασταὶ 134.15 J.) but also the diversity of substances in the body (ἄλλα μυρία 136.11 J.). Cf. above, pp. 234–235.

14.1 καὶ αἱ δυνάμεις ... τῇ ἐτέρῃ εἰκνύα, ‘the powers of each kind ... like any other’: ‘each’ (ἐκάστου) is naturally taken to refer to each type of bread or barley cake; the point is that each such type possesses many strong powers (δυνάμεις), many different capacities to affect, corresponding to the procedures used to prepare it. The emphasis on the point that no δύναμις is at all like any other recalls 134.15–16 J.: wheat that is made into bread is acted upon by a variety of substances such as fire and water, each one of which possesses a distinctive ‘power and nature’ (ἰδίην δύναμιν καὶ φύσιν; cf. n. *ad loc.*). For the δυνάμεις of foods cf. 121.17–18 J. (ὥμά τε καὶ ἄκριτα καὶ μεγάλας δυνάμιας ἔχοντα) and *Acut.* 37, 50.22–51.2 Joly (L. 2.298): ‘If it were a matter of the effects produced by eating a lot of meat contrary to habit or garlic or silphium (juice or stalk) or other things of the same kind possessing strong powers of their own (ἢ ἄλλα ὅσα τοιουτότροπα μεγάλας δυνάμιας ἰδίας ἔχοντα), one would not be surprised that such foods cause greater pains in the belly than other things’. In both these passages the plural can be taken distributively: to say ‘these foods have many strong powers’ is just to say that *each* food has a *single* strong power, a distinctive capacity to cause a strong effect on the body (cf. also n. below on 14.4 παντοίας δυνάμιας ἔχοντα πληθὺς τε καὶ ἰσχύν). In the present passage, however, ἐκάστου makes such an interpretation unlikely: *each* kind of bread and barley cake is said to possess many δυνάμεις. The passage thus supports the view that the author conceives of each kind of food as containing a distinctive blend (κορμῆς) of constituents present in different amounts and concentrations, with each constituent possessing its own δύναμις (cf. above, pp. 233–234).

14.2 πῶς ἂν τι οὕτως ... παθημάτων εἰδέναι, ‘how could the person ... the affections that come upon the human being’: such affections (παθήματα) are the only proper subject of medical discussion, and it is the doctor’s role to explain their causes to the patient (2.3). Anyone ignorant of them cannot be a competent practitioner of medicine.

14.2 Ὑπὸ γὰρ ἑνὸς ἐκάστου τούτων, ‘For by each one of these things’: i.e. the various procedures involved in preparing the types of bread and barley cake mentioned in 14.1: kneading, cooking, winnowing, etc.

14.3 λογισμῷ, ‘reasoning’: the discovery of medicine required reasoning as well as observation; cf. 12.2 λογισμῷ with n. (p. 222 above).

14.3 πρὸς τὴν τοῦ ἀνθρώπου φύσιν, ‘directed at the constitution of the human being’: the human constitution or φύσις is the focal point of the process of discovery; cf. 122.14–15 J. πλάσσουντες πάντα πρὸς τὴν τοῦ ἀνθρώπου φύσιν τε καὶ δύναμιν.

14.3 οἱ πρῶτοι εὐρόντες ... ὥσπερ καὶ νομίζεται, ‘the first discoverers ... as is commonly believed even now’: a clear rejection of a standard *topos* in the literary tradition of the ‘first discoverer’ (πρῶτος εὐρετής), viz. the idea that the arts were discovered by a divine or semi-divine benefactor (e.g. A. *Pr.* 436–506; cf. above, pp. 157–158). With the rejection of this notion goes an emphasis on discovery as a collective and cumulative achievement over a long period of time (cf. ἐν πολλῷ χρόνῳ 119.14 J., 121.15 J.; οὗτοι 122.6 J.; Οἱ δὲ ζητήσαντές τε καὶ εὐρόντες ἡτρικὴν 124.9 J.).

14.3 Οὐ γὰρ τὸ ξηρὸν ... καὶ τοῦτο ἐξήτησαν ἀφελεῖν, ‘For since they did not think that it was the dry ... this they sought to remove’: following Littré (1.602) and Jouanna (1990, 136n1), I take ἀλλὰ τὸ ἰσχυρὸν ἐκάστου (136.3 J.) as well as the immediately following ‘that which is more powerful than the human constitution’ (τὸ κρείσσον τῆς φύσιος τῆς ἀνθρωπίνης) with the participle ἡγησάμενοι (136.1 J.) rather than with the main verb ἡγήσαντο (136.5 J.). I also take the clause ‘that which the human constitution was unable to overcome’ (οὐ μὴ ἡδύνατο κρατεῖν) as anticipating τοῦτο (136.4 J.). For similar anticipation cf. 126.10–14 J. (ὅσων μὴ ἐδύνατο ἡ φύσις ἢ ἀνθρωπίνη ... ἐπικρατεῖν ... , ταῦτα ἐξήτησεν ἀφελεῖν).

There is a close connection with the account of chapters 3–8, where the first discoverers are said to remove the strong or concentrated qualities in foods by mixing and blending. Cf. 3.5, 122.12–14 J. and esp. 5.4, 124.19–20 J. (ἀφαιρέόμενοι τὸ ἰσχυρὸν τῇ κρήσει τε καὶ ἐψήσει). Hence ‘the strength of each thing’ (τὸ ἰσχυρὸν ἐκάστου) should probably be understood as ‘that which is strong (i.e. concentrated) in each food’ (so Jouanna 1990: ‘ce qui, en chaque aliment, est fort’). The alternative is to take it to mean ‘the strength of each quality’ (so Littré, Festugière); but this comes to much the same thing, since the reference is still to the strong qualities present in foods, i.e. sweet, bitter, etc. (cf. ἐκάστου 136.7 J.). The point is simply that the first discoverers of medicine observed that it is not the excessive hotness, coldness, wetness, or dryness of foods that makes them harmful to human beings, but rather the presence of qualities such as sweet or bitter in strong or concentrated form.

Plamböck (1964, 75) argues that in the present passage the author is not just rejecting the claim that the hot, the cold, the wet, and the dry are important causal factors in disease, but also the claim that factors such as sweet or bitter (τὸ γλυκύ, τὸ πικρόν) are causally relevant; rather, what is important is the strength (τὸ ἰσχυρόν) of such factors, which can be assessed in quantitative terms. But while it is true that the passage opposes hot, cold, wet, and dry to strength rather than to factors such as sweet and bitter, this does not imply that the author means to deny the causal importance of such factors. The parallels with the earlier account of the discovery of medicine (noted above) indicate that he is thinking of foods with strong qualities such as sweet or bitter, and in the next sentence (136.5–8 J.) he goes on to discuss such qualities. In general the author does not deny that factors such as sweet or bitter, or even hot and cold, are responsible for certain effects; indeed the entire argument of chapters 15–19 is meant to show that the causal power of factors such as sweet and bitter is much greater than that of hot and cold. Cf. 15.4, which argues that the astringent and the insipid have ‘great power’ (μεγάλην δύναμιν 138.15 J.) in contrast to the hot; in 17.2 the claim is that fever is not due *simply* to the hot (οὐ διὰ τὸ θερμὸν ἀπλῶς 141.16–17 J.), and that the hot is not its *only* cause (τὸ αἴτιον ... μόνον 141.18 J.). Plamböck can only explain such statements by special pleading (1964, 75): ‘Dies (i.e. that the author denies an important causal role to factors such as τὸ γλυκύ and τὸ πικρόν as well as τὸ θερμὸν and τὸ ψυχρόν) zu betonen ist deshalb so wichtig, weil die Wiederlegung der “Hypothesiker” sich nachher dahin zuspitzt, die von ihnen allein angenommene Vierheit sei zu allem anderen auch noch weniger wirksam als etwa “das Herbe” oder “das Fade”, was sich bei der deductio ad absurdum verständlicherweise als elegante Wendung empfiehlt.’ But the contrast between the causal power of hot and cold and that of qualities such as astringent and insipid is one of the author’s fundamental theses, not just an elegant rhetorical move.

14.3 Ἰσχυρότατον δ’ ἐστὶ ... ἡ ἀκμή, ‘And the strongest ... the extreme degree’: this must be taken closely with the previous sentence; the author is still discussing the qualities of foods. The phrase πάντων τῶν ἐνεόντων at 136.8 J. (‘of all the things present’) refers to qualities present in foods, not in the human body (so Jouanna 1990, 136n2). The point is that the strength of a food (i.e. its ability to cause a strong effect) depends on the degree of concentration of the qualities that it contains.

For example, among foods that are sweet, it is the sweetest that are strongest, i.e. that cause the strongest effect (cf. Hankinson 1992, 62–63). This is an observational claim that correlates the qualities of foods as perceived by the senses with their capacities to harm the human body. The author consistently associates the strength of a food (understood as its ability to cause strong effects) with the degree of concentration of the qualities it contains; cf. 121.16–17 J., 122.13 J., 124.19–20 J., 136.19–20 J., 137.10 J. For a similar association between strength and concentration cf. *Aff.* 16, L. 6.224.18–22 (text Potter): ‘for phlegm and bile when concentrated are strong, and dominate wherever they may be in the body, and they produce suffering and strong pain; but when dispersed they are weaker, wherever they may appear in the body’ (τὸ γὰρ φλέγμα καὶ ἡ χολὴ συνεστηκότα μὲν ἰσχυρά ἐστι, καὶ κρατεῖ καθ’ ὅποιον ἂν τοῦ σώματος στή, καὶ πόνον τε καὶ ὀδύνην ἰσχυρὴν παρέρχει· διακεχυμένα δὲ ἀσθενέστερά ἐστι καθ’ ὃ ἂν ἐνδηλα ᾗ τοῦ σώματος). For ἀκμή (literally the ‘highest or culminating point’, but sometimes simply ‘strength, vigor’; cf. LSJ s.v. II) cf. *Aff.* 61, L. 6.270.18–20: ‘Foods that are beneficial to the healthy are too strong (ἰσχυρότερα) for the sick, and one must give them after removing their intensity (ἀφαιρέοντα τὴν ἀκμήν)’. Cf. also *Morb. Sacr.* 16, 29.16 Jouanna (L. 6.390), where ἀκμή is used of the especially pure and concentrated portion of air that remains in the brain after respiration.

A similar interpretation is given by Miller (1952, 189n18). Plamböck offers a quite different and not entirely perspicuous interpretation, based on the mistaken idea that the author is attempting to reduce qualitative differences to quantitative ones (1964, 76–77). Cf. n. below on 14.4 παντοίας δυνάμιας ἔχοντα πλήθος τε καὶ ἰσχύον.

14.4 Ταῦτα γὰρ ἐώρων ... τὸν ἄνθρωπον, ‘For they saw that ... and cause it harm’: ἐώρων and καὶ (136.8 J.) mark the transition from the discussion of the qualities of foods to a theory of humors in the body; the ‘seeing’ is to some extent metaphorical. Cf. above, pp. 234–235.

14.4 ἔνι γὰρ ἐν ἀνθρώπῳ ... καὶ ἄλλα μυρία, ‘for there is in the human being ... and myriad other things’: the neuter singular adjectives without article (‘salty and bitter and sweet ...’) refer to fluid substances of a particular quality. Cf. *Nat. Hom.* 6, 180.10–182.3 Jouanna (L. 6.44–46), where the author argues that there are drugs with a distinctive capacity (δύναμις) to attract particular humors from the body:

Just as things that grow and are planted in the earth, when they enter it, each one draws what is natural (κατὰ φύσιν) to it in the earth—and there is in the earth acid and bitter and sweet and salty and things of all sorts (ἐνὶ δὲ καὶ ὀξύ καὶ πικρὸν καὶ γλυκὺ καὶ ἀλμυρὸν καὶ παντοῖον)—first, then, it draws to itself the greatest amount of what is most natural (κατὰ φύσιν) to it, and then it draws other things as well. This is just the sort of thing that drugs do in the body: those that draw out bile first of all purge the most unblended bile, then mixed bile; the drugs that draw out phlegm at first draw out the most unmixed phlegm, and then phlegm that is more mixed; and in those who are cut, the blood that flows is at first very hot and very red, and then it becomes more phlegmatic and bilious.

The analogy works only if what is drawn from the earth is a fluid substance like the humors blood, phlegm, and bile in the body. The author apparently thinks that the hypothesis of a vast number of types of fluid in the earth is necessary to account for plant nutrition, on the assumption that nutrition occurs by the assimilation of like to like. A similar view of plant nutrition figures in *Nat. Puer.* In chapters 22–27 the author draws an extended analogy between the growth of plants in the earth and the growth of the embryo in the womb. Just as the condition of the plant is determined by the nature of the soil, so the condition of the embryo is determined by that of the mother (*Nat. Puer.* 22, 68.19–27 Joly, L. 7.514). The diversity of plant life is traced back to diversity in the soil, which is said to contain fluid substances of all sorts (ἱκμάδα παντοίην 68.26 Joly, L. 7.514). This view of plant nutrition, along with the analogy between plant and human nutrition, is developed at greater length in *Morb.* IV 33–34. According to the author of this text the human body is constituted by the four humors phlegm, bile, blood, and water (ὑδρωψ), each one of which has its own ‘source’ (πηγή) in the body: the heart (blood), the head (phlegm), the spleen (water), and the liver (bile). Foods and drinks also contain these humors, and their different effects on the body are explained by differences in their humoral composition (*Morb.* IV 33–34, 85.14–86.7 Joly, L. 7.544–546; tr. Lonie):

Here is a further point: all foods and all drinks contain a greater or a lesser quantity of bilious, watery, bloody, or phlegmatic substance, this in fact being the reason why different foods and drinks differ (διαφέρει) in their effect upon health. So much, then, for that. Now whenever a man eats or drinks anything, the body attracts to itself the humor (ἱκμάς) I have mentioned from the stomach, while the four sources likewise attract it from the stomach through the veins. Each kind of humor (ἱκμάς) attracts its like, and distributes it to the body, just as in the case of

plants each kind of humor (ἰκμάς) attracts its like. For the earth contains innumerable virtues of all kinds (δυνάμεις παντοίας καὶ ἀναριθμούς), for it provides every individual plant which grows in it with a humor (ἰκμάς) similar to that humor which each plant possesses congenitally and which is akin to that plant—so that each plant draws from the earth nutriment such as the plant itself is. The rose, for example, draws from the earth the humor (ἰκμάς) of that kind which is present in the earth; garlic draws from the earth a humor (ἰκμάς) to match its own virtue; and each and every other kind of plant draws from the earth according to its own nature. For if this were not so, plants would not be like the seeds from which they grew.

Each of the four humors in the body attracts its like from the stomach, just as each plant draws from the earth a fluid or humor (ἰκμάς) that is similar to itself. Once again the ability of the earth to nourish plants is connected with the presence of an innumerable variety of fluid substances within it. In this passage the author conceives of δύναμις as a kind of fluid substance and seems to treat it as equivalent to ἰκμάς: the earth contains innumerable ‘virtues’ (δυνάμεις) because it provides each plant with a kind of ‘humor’ (ἰκμάς) congenital to it (cf. Lonie 1981, 263). The author goes on to cite several pieces of evidence to support the claim that plants require the presence of a particular humor in the soil in order to grow (ch. 34, 86.13–87.2 Joly, L. 7.546). First, certain plants will not grow in certain regions, despite a favorable climate; thus it is impossible to grow silphium in the Peloponnese or in Ionia, even though these places are quite well situated with respect to the sun and the seasons, and the plant grows wild in Libya. Second, different regions produce wine that varies greatly in sweetness, though they enjoy the same climate. Third, there are plants that grow wild in one location but will not grow at all if transplanted a distance of six feet, even if they are carefully cultivated. Each of these phenomena is explained by the presence or absence in the soil of a fluid substance (ἰκμάς) that is congenital to the plant; since the climate remains the same, it cannot be responsible for the differences. The reason that plants grow in some places but not others is that ‘some regions are too acrid for them, others too moist, others too sweet, or too dry, or too bitter: in fact the differences are innumerable (μυρία), for the virtues (δυνάμεις) in the earth are innumerable (μυρία)’ (ch. 34, 87.2–5 Joly, L. 7.546; tr. Lonie). At the end of chapter 34 the author returns to the analogy between plant and human nutrition: ‘Each kind of food or drink which is of vegetable origin draws many virtues (πολλὰς δυνάμεις) from the earth into itself, and in every one of them there is something phlegmatic and

sanguineous and watery and bilious. This then is my proof for the fact that the body draws through the sources I have mentioned from the food and drink entering the stomach, each humour (ἰκμάς) attracting its like through the veins' (87.12–18 Joly, L. 7.548; tr. Lonie).

This remarkable passage contains, first, an argument from differences in plant growth to the presence of innumerable fluid substances in the soil. Since plants grow in different ways in regions that experience the same climatic conditions, the explanation of the differences cannot lie in the climate; it must lie in the soil. On the assumption that nutrition occurs by the assimilation of like to like, it is reasonable to conclude that the differences in plant growth are due to the presence of different fluid substances in the soil. Since the differences in plant growth are innumerable, there must also be innumerable fluid substances in the earth (cf. Lonie 1981, 261–262). Second, the passage draws an analogy between plant and human nutrition. In both cases the same humors are present in the nourishment and in the thing that is nourished, and in both cases the mechanism is the same: the attraction of like by like. As Lonie has noted, there are some inconsistencies in the passage which suggest that the author has drawn the argument from the diversity of plant growth to the diversity of fluids in the soil from another source. Thus the remark at the end of chapter 34 that each plant draws many δυνάμεις from the earth (87.12–18 Joly, L. 7.548) is incompatible with the claim that each plant is nourished by a single ἰκμάς, unless the author holds that a single ἰκμάς contains many δυνάμεις; yet earlier in the same chapter he seems to treat δύνανμις and ἰκμάς as equivalent (cf. Lonie 1981, 262–263). The identity of the author's source cannot be determined with any certainty (cf. Lonie 1981, 263–266). There is a close parallel with a view ascribed to Empedocles (DK 31 A 70): 'Differences in flavor (τὰς δὲ διαφορὰς τῶν χυμῶν) are due to the composition of the soil, and the different ways in which the plants draw the homoeomerous substances from that which nourishes them. So with vines, it is not the differences (διαφοραί) in the vine that make a drinkable wine, but differences in the soil that sustains them' (tr. Guthrie 1962–1981, 2:208; cf. Lonie 1981, 215 and Müller 1965a, 70–72). Müller argues that the author's source is Anaxagoras (1965a, 129–134), while Lonie attempts to show that an equally strong case can be made for Democritus (1981, 263–266). The attempt to explain differences in visible properties, effects, or powers by appealing to invisible differences at the atomic level was characteristic of the atomists. According to Theophrastus Democritus explained differences in perceptible quali-

ties as due to differences in atomic shape (DK 68 A 135); cf. also Lucr. 2.333–380 (argument from differences between individual living things, e.g. a particular calf or ear of corn, to an underlying diversity of atomic shapes), 2.381–477 (various differences in the behavior or properties of visible things traced back to differences in atomic shape), 2.581 ff. (no visible thing consists of just one kind of atom, and the differences in a thing's powers [*vis*] and faculties [*potestates*] are due to the diversity of its constituents; the earth is a prime example), 2.661–672 (differences between animals traced back to differences between the crops on which they feed).

Whatever sources the author of *Morb.* IV may have drawn upon, his reasoning in chapters 33–34 is closely paralleled in VM. In chapter 20 the author makes a very similar argument in the context of human nutrition. The same food (cheese) has different effects on different individuals; hence those individuals must differ in humoral composition, with the humor hostile to cheese being more dominant in some than in others (20.6). The reason for the different effects cannot lie with the food, since this remains the same; it must therefore lie with the individuals. If it is assumed that foods are assimilated or cause their effects by the action of like on like, then the same fluids must be present in the human body and in foods. Since the differences in the effects of foods are vast (μυρία 135.5 J.), the number of different fluid substances in the body must be equally vast (μυρία 136.11 J.). Thus like the theories of plant nutrition discussed above, VM's theory of myriad fluid substances in the body is best interpreted as the minimal hypothesis necessary to account for a great diversity of observed effects. That the author of *Morb.* IV draws an explicit analogy between plant and human nutrition suggests that the author of VM may have had a similar analogy in mind; cf. above, p. 234.

The notion of a vast or unlimited number of fluid substances in the earth or in the human body bears a superficial resemblance to some fragments of Anaxagoras; cf. DK 59 B 4 *init.*: 'These things being so, one must suppose that there are many things of all sorts (πολλὰ τε καὶ παντοῖα) in all the things that are mixing together, and seeds of all things, which have forms and colors and flavors of all kinds (παντοίως)'. In the case of VM the resemblance has been taken as evidence of the influence of Anaxagoras on the author or the reverse (Vlastos 1955, 67n2 [=1995, 115n4]; Longrigg 1963, 159–165; Longrigg 1983). But Anaxagoras' view is part of a larger cosmological framework characterized by the theses that 'in everything there is a por-

tion of everything' and that nothing in the world exists in completely pure form except Mind or νοῦς (cf. DK 59 B 11, 12). These doctrines are motivated by the need to respond to the Eleatic denial of change and plurality. In the medical writers, the hypothesis of a vast number of fluid substances is restricted to the specific contexts of plant and human nutrition. The author of *Morb.* IV says that all *foods* and *drinks* contain some combination of the four humors present in the body (ch. 33, 85.14–17 Joly, L. 7.544; cf. ch. 34, 87.12–15 Joly, L. 7.548 and Lonie 1981, 264, 269). Similarly, the author of VM is attempting to explain the effects of foods on human beings; there is no reason to attribute to him the claim that the humors in foods and human beings are also present in other substances, let alone the bizarre notion that 'in everything there is a portion of everything'. Cf. Longrigg 1963, 160; Vlastos 1950, 53 (=1995, 315). The author's theory is a bold but also restrained attempt to explain just those phenomena he thinks are central to medicine: the effects of foods on human beings. Cf. above, pp. 229–230.

For reference to a large number of constituent substances in connection with the idea that nutrition occurs by the assimilation of like to like cf. *Carn.* 13, 196.14–19 Joly (L. 8.600). Theophrastus (*CP* 6.3.5 = DK 32 A 7) claims that the fifth-century botanical theorist Menestor held that the flavors or juices (χυμοί) of plants are unlimited in number (ἄπειροι), but the reasoning he used to justify this view is unknown.

14.4 ἄλμυρόν ... πλαδαρόν, 'salty ... insipid': for a similar list cf. Democritus' attempt to account for the effects of a number of 'flavors' or 'juices' (χυλοί) in terms of atomic shapes (Thphr. *Sens.* 65–68 = DK 68 A 135); these include acid (ὀξύς), sweet (γλυκύς), astringent (στυφυνός), bitter (πικρός), salty (ἄλμυρός), and acrid (δριμύς). According to Theophrastus Democritus offered explanations of their effects on the body as a whole, not just the sense organs: thus the acid warms the body, the sweet moistens and disturbs the other juices in the body and causes them to flow into the stomach, and the astringent blocks the vessels and causes constipation (*Sens.* 65–66). Cf. *Sens.* 67: 'In the same way he also accounts for the other powers (δυνάμεις) of each (sc. type of juice) by referring them to the shapes' (ὡσαύτως δὲ καὶ τὰς ἄλλας ἐκάστου δυνάμεις ἀποδίδωσιν ἀνάγων εἰς τὰ σχήματα). Cf. also n. below on 14.4 μεμιγμένα καὶ κεκρημένα.

14.4 παντοίας δυνάμιας ἔχοντα πλῆθος τε καὶ ἰσχύν, ‘having powers of all kinds in quantity and strength’: this might be taken to mean that *each* of the fluid substances in the body has powers ‘of all kinds’ (so Plamböck 1964, 83). But the author consistently associates each quality with a *single* δύναμις; cf. esp. 15.3–4 (where the hot and astringent is said to have the opposite δύναμις to the hot and insipid) and 16.1 (where δύναμις is used of the qualities hot and cold themselves). Hence the present passage is much more likely to mean that each constituent substance possesses a *single* δύναμις; the reason that the δυνάμεις are ‘of all kinds’ is that the body contains constituents ‘of all kinds’, each one of which possesses its own δύναμις (cf. n. above on 14.1 καὶ αἱ δυνάμεις ... τῇ ἐτέρῃ ἐοικυῖα). The phrase παντοίας δυνάμιας ἔχοντα πλῆθος τε καὶ ἰσχύν has often been taken to mean ‘of all kinds in *number* and strength’; cf. Anaxagoras DK 59 B 1: before the formation of the cosmos ‘all things were together, unlimited in both number and smallness’ (ὁμοῦ πάντα χρήματα ἦν, ἄπειρα καὶ πλῆθος καὶ μικρότητα). So Jones (1923, 1946), Festugière 1948 (‘douées des propriétés les plus diverses et en nombre et en force’). In fact, however, πλῆθος elsewhere in VM tends to refer not to number but to quantity (cf. 125.2 J.), and this sense is clearly preferable here (cf. Plamböck 1964, 83). The point is that the δύναμις belonging to each of the substances in the body varies according to the amount of that substance that is present (πλῆθος) and its strength (ἰσχύς). The author’s consistent tendency to associate strength and degree of concentration (cf. n. above on 14.3 Ἰσχυρότατον δ’ ἐστὶ ... ἡ ἀκμὴ) suggests that he viewed quantity and strength as independent factors and did not think the former reducible to the latter; cf. 5.4–5, where the strength of a diet is distinguished from its quantity (τῇσί τε καὶ κατὰ τὴν πλῆθει 125.2 J.). The motivation for distinguishing between variation in quantity and in concentration is perhaps the following. We can distinguish between a case in which more of one substance is present but it is distributed evenly throughout the body, and a case in which all the constituents are present in equal amounts but one is more concentrated than the others. If a constituent is unblended, concentrated, and therefore strong, it is not necessarily present in a greater quantity than the others. Conversely, if one constituent is present in greater quantity than the others, it is not necessarily concentrated in one part of the body. Cf. 20.6, where the humor hostile to cheese is said to be present in greater abundance and to exert more power in certain individuals (πλείων ἐνεῶν καὶ μᾶλλον ἐνδυναστεύων ἐν τῷ σώματι 147.19–20 J.); we need not conclude that ‘exerting

more power' in the body is equivalent to being present in greater abundance. The author of *Nat. Hom.* writes (ch. 4) that the human being is healthiest when the humors are well blended 'in respect of their relative power and quantity' (τῆς πρὸς ἄλληλα δυνάμιος καὶ τοῦ πλήθους 174.1 Jouanna, L. 6.40); here 'power' (δύναμις) is probably distinct from quantity (πλήθος). Even if the present passage did express the view that the strength of a δύναμις is just a matter of its quantity, it would not imply the reduction of all qualitative differences between δυνάμεις to quantitative ones (so Plamböck 1964, 84: 'Die den δυνάμεις *spezifische Weise der Wirkung* wird also in dem Ausdruck geradezu eliminiert'). In general the author conceives of a δύναμις as a capacity to cause a specific kind of effect that also possesses a certain strength or intensity: the stronger the δύναμις, the more intense the effect. Even if the strength of a δύναμις depended on quantitative factors alone, each δύναμις would still be distinguished by the qualitative character of the effect it brings about.

The obscurity is hardly atypical; in general, early Greek scientists do not distinguish clearly between qualitative and quantitative predominance, even when they are aware of the distinction between quantity and quality (Lonie 1981, 130). For example, the author of *Genit.* attempts to explain sex differentiation as due to the mixing of two types of seed: the male, which he claims is stronger (ἰσχυρότερον), and the female, which he claims is weaker (ἄσθενέστερον). Both parents can produce both types of seed; the sex of the offspring is determined by whichever kind of seed predominates in the mixture, and predominance depends on both the quantity and quality of the seed. If both the mother and the father produce the stronger, male seed, the result is a boy. If both produce the weaker, female seed, the result is a girl. But if female seed is present in much greater quantity (πολλῷ πλεόν) than male seed, the male seed is overcome (καταεῖται), resulting in a female child (*Genit.* 6, 48.11–23 Joly, L. 7.478). The author goes on to illustrate this by the analogy of mixing wax and suet. If one mixes a greater quantity of suet with some wax, the prevailing character of the mixture is not apparent while the substances are liquid; but once they have solidified, it becomes clear that the suet prevails quantitatively (κατὰ πλήθος) over the wax (ch. 6, 48.23–27 Joly, L. 7.478; cf. next n.). Although the author does not explicitly associate strength with concentration in this passage, elsewhere he writes of the male seed as thicker and the female seed as more dilute (*Nat. Puer.* 31, 83.22–25 Joly, L. 7.540; cf. Lonie 1981, 128). The overall strength of the parent's contribution to the child thus depends on both

the concentration of the seed and the amount contributed, though the author imprecisely remarks that the sex of the offspring is determined by whichever seed ‘prevails in quantity’ (κρατήση κατὰ πλῆθος 48.19 Joly, L. 7.478).

14.4 μειγμένα καὶ κεκορημένα, ‘mixed and blended’: for the notion of a mixture in which the constituents retain their individual properties but none is manifest, cf. Anaxagoras DK 59 B 4.17–22: ‘Before these things were separated off (ἀποκριθῆναι), when all things were together, not even any color was manifest (ἐνδηλος): for the mixture (σύμμιξις) of all things prevented it, of the moist and the dry and the hot and the cold and the bright and the dark ...’ The same idea is present in Empedocles, for whom all things are made up of the elements earth, air, fire, and water in various proportions. For mixing of the elements cf. DK 31 B 35.7, 35.16; B 8; B 9; for the idea that the elements are joined into compounds through blending (κοήσις) cf. DK 31 A 30, A 33; B 22, B 33. In the medical literature, the author of *Nat. Hom.* claims that a harmonious mixture of hot, cold, wet, and dry is necessary for generation to occur and that each of these constituents retains its own distinctive power (δύναμις) in the mixture (ch. 3, 170.8–172.12 Jouanna, L. 6.36–38). In discussing the mixture of male and female seed, the author of *Genit.* offers a concrete illustration of the emergence of constituents from a mixture: ‘It is just as though one were to mix together beeswax with suet, using a larger quantity of the suet than of the beeswax, and melt them together over a fire. While the mixture is still fluid, the prevailing character of the mixture (τὸ κρατέον) is not apparent (διάδηλον): only after it solidifies can it be seen that the suet prevails quantitatively over the wax’ (*Genit.* 6, 48.23–27 Joly, L. 7.478, tr. Lonie; cf. Lonie 1981, 131–132 and prev. n.). Here the components of the mixture become apparent by means of solidification, a change of state. But the underlying idea is exactly the same as in the present passage: the components are present in the mixture, but their individual character is not manifest until they separate out from it and become concentrated.

The notion that health is a state in which the fluid substances in the body are well blended is an idea that runs throughout Greek medicine. The clearest Hippocratic example is *Nat. Hom.* 4 (172.15–174.6 Jouanna, L. 6.40); the idea goes back at least to Alcmaeon (DK 24 B 4). The association between health and κοήσις persists in Plato, Aristotle, and the later medical tradition. Cf. Pl. *Smp.* 186c–d, *Ti.* 82a; Arist. *Ph.*

246b4–6; Hp. *Hebd.* 24, L. 8.647.25–26. The notion of *κρησις* as a distinctive blend of constituents in various amounts and concentrations (above, pp. 233–234) figures in a number of early philosophical and medical theories, especially those of sense perception and thinking; cf. Parmenides DK 28 B 16, Empedocles DK 31 A 86, Democritus DK 68 A 135, and *Vict.* 32–36. In these theories a good or proportionate (σύμμετρος) *κρησις* is correlated with perceptual acuity or clarity of thought, and differences in the precise blend of constituents account for variations in perception or thought. Democritus’ use of *κρησις* to account for the phenomenon of conflicting appearances provides an especially close parallel to VM’s use of *κρησις* to systematize dietetics. Theophrastus reports that Democritus offered an account of the effects on the body of a number of ‘juices’ or ‘flavors’ (*χυλοί*), including acid (*ὀξύς*), sweet (*γλυκύς*), astringent (*στυφυνός*), bitter (*πικρός*), salty (*ἄλμυρός*), and acrid (*δριμύς*) (Thphr. *Sens.* 65–68 = DK 68 A 135; cf. n. above on 14.4 ἄλμυρόν ... πλαδαρόν). Each of these juices contains a blend of atoms of many different shapes; its overall character is determined by the shape that preponderates (*Sens.* 67; cf. 63). The capacity of a particular juice to affect the body thus depends on the precise blend of atoms that it contains. But the effect also depends on the blend of atoms in the subject affected: ‘Furthermore subjects change in respect of their blend (*τῇ κρήσει*) according to affections and ages; hence it is clear that the state (*διάθεσις*) is responsible for the impression’ (*Sens.* 64). The blend of atoms in the subject must be taken into account because of the problem of conflicting appearances: ‘this (sc. the state [*ἔξις*] of the perceiver) makes no little difference as well, since the same thing sometimes produces opposite affections, and opposites sometimes produce the same affection (*πάθος*)’ (*Sens.* 67). Democritus’ approach to the problem of conflicting appearances is thus closely similar to VM’s approach to the problem of accounting for the effects of foods on individuals. Both thinkers need to explain why the same object might produce different effects on different subjects, or why two objects that normally produce opposite effects may sometimes bring about the same effect; both attempt to explain these phenomena as due to the interaction of distinctive blends of constituents present in both subject and object.

14.4 ἀποκριθῆ, ‘separates off’: separation (*ἀπόκρισις* 137.7 J.) was an important concept in early Greek medicine and philosophy (cf. Lonie 1981, 99). The first stage in Anaximander’s cosmogony was the separation (*ἀποκριθῆναι*) from the *ἄπειρον* of ‘that which was productive

of hot and cold' (DK 12 A 10); Kahn identifies ἀπόκρισις, understood as the separation of one opposite from another, as 'the fundamental phenomenon of natural change' in Milesian thought (1960, 162). The fragments of Anaxagoras amply demonstrate that he conceived of the development of the cosmos as a process of separation and differentiation out of an original mixture (e.g. DK 59 B 4.17, B 6.19, B 9, B 13). Cf. also Empedocles DK 31 B 9.4 (ἀποκρινθῶσι) and Democritus' view (DK 68 B 167) that a 'whirl' (δῖνον) separated off (ἀποκριθῆναι) at the beginning of the cosmos. In the medical writers ἀπόκρισις and ἀποκρίνεσθαι are regularly used of the secretion of a humor or other substance from the body or a part of the body. *Genit.* opens with a description of the way in which semen is produced by secretion from all parts of the body (ἀποκριθέν 44.3 Joly, L. 7.470). For ἀπόκρισις used of the separation of one of the humors from the overall mixture cf. *Nat. Hom.* 4, 174.9 Jouanna (L. 6.40). The author of *Morb.* IV compares the separation of the humors in the body under the influence of heat to the Scythian practice of making butter and cheese from mare's milk. In this procedure the milk is placed in wooden bowls and agitated. The fatty part rises to the surface and becomes butter, the thickest portion sinks to the bottom and becomes cheese, and the whey remains in the middle. In the same way the humors in the body are separated from one another when they are disturbed: the bile rises to the top and the blood, phlegm, and water settle underneath it. Once a humor has separated out from the mixture, it moves about the body or settles in a particular place, thus causing disease (*Morb.* IV 51, 107.26–109.1 Joly, L. 7.584–586; cf. Lonie 1981, 84). Cf. *Morb.* IV 52, 111.11–19 Joly (L. 7.590), where the separation (διακρίνεσθαι) of a humor is compared to the curdling of milk by fig juice. The process of ἀπόκρισις was commonly viewed as following upon a 'disturbance' (τάραχος); cf. ταρασσόμεθα 14.5, 136.20 J. and n. below on 14.6 τάραχος τε καὶ ἀπόκρισις.

14.4 αὐτὸ ἐφ' ἑωυτοῦ, 'on its own': cf. *Nat. Hom.* 4, 174.4 Jouanna (L. 6.40): a humor in the body causes a pathological effect when it is separated (χωρισθῆ) and 'stands on its own' (ἐφ' ἑωυτοῦ στή). Cf. also n. below on 15.1 αὐτό τι ἐφ' ἑωυτοῦ (pp. 258–260).

14.5 ταρασσόμεθα, 'we are disturbed': cf. nn. on 14.4 ἀποκριθῆ, 14.6 τάραχος τε καὶ ἀπόκρισις.

14.5 ὥσπερ καὶ ὑπὸ τῶν ἐν τῷ σώματι ἀποκρινομένων, ‘just as we are also disturbed by the things that separate off in the body’: on the significance of this explicit recognition of the analogy between foods and the human body cf. above, p. 235.

14.6 χυμοῦ, ‘flavor’: χυμός can mean either ‘juice’, i.e. a fluid substance in plants or animals, or ‘flavor’ (cf. LSJ s.v.). Here it is natural to translate ‘flavor’, since the author is talking about foods that do not possess strong smells or tastes. Later in the text, however, χυμός is clearly used of a fluid substance or juice; cf. 18.4, 143.4 J.; 19.6, 145.5 J.; 20.6, 147.19 J.; 22.1, 149.4 J.; and 24.1, which mentions both ‘sweet humor’ (γλυκὺς χυμός 153.10 J.) and ‘acid humor’ (ὀξύς χυμός 153.14 J.). In all these passages χυμός refers to a fluid substance that is identified by a single smell or taste. This distinguishes the author’s concept of humor from the notion found in texts such as *Nat. Hom.*, where the humors are distinguished from one another by their visual appearance as well as by qualities such as hotness, coldness, wetness, and dryness (cf. *Nat. Hom.* 5, 176.5–9 Jouanna, L. 6.42). It also reflects the central importance of the concept of δύναμις in the author’s thought, as well as the close association between δύναμις and quality. A fluid substance in the body is known only through its δύναμις, its capacity to affect other things; the quality it manifests to the senses of smell or taste is one aspect of this capacity. Hence the close association between the terms χυμός and δύναμις in several passages (cf. 22.1, 149.3–4 J.; 24.1, 153.7 J.; and n. below on 14.6 ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυνάμιων). Cf. Miller 1952, 193–194; Lonie 1981, 217.

14.6 οἶον ἄρτος τε καὶ μάζα, ‘such as bread and barley cake’: *prima facie* this is inconsistent with 14.1, where bread and barley cake are said to possess ‘great powers’ (μεγάλαι δυνάμεις). But the point of that passage may simply be that such foods have the capacity to cause great harm when taken in the wrong amount or at the wrong time. According to *Acut.* 37, 50.22–51.13 Joly (L. 2.298–300) bread and barley cake have the capacity to cause strong effects on the body when eaten contrary to habit, even though they do not have ‘great powers of their own’ (μεγάλας δυνάμεις ἰδίας 50.24 Joly, L. 2.298). The author of *Aff.* says that those foods which are the most beneficial are also the most harmful if taken either at an inopportune moment or in the wrong amount, and he identifies bread and barley cake as well as meat, fish, and wine as examples (ch. 50, L. 6.260.1–10). These foods all have a

δύναμις to bring about both great benefit and great harm in the body (L. 6.260.8).

14.6 ταραχός τε καὶ ἀπόκρισις, ‘disturbance and separation’: the idea that separation (cf. n. above on 14.4 ἀποκριθῆ) follows upon a ‘disturbance’ (τάραχος, cf. ταρασσόμεθα 136.20 J.) is common in the Hippocratic writings. Cf. 20.6: the humor hostile to cheese is ‘stirred up and set in motion’ by it (ἐγείρεται τε καὶ κινεῖται 147.18–19 J.). Cf. also *Morb.* IV 46, where fever is said to arise from a disturbance of the humors in the body (101.25–102.1 Joly, L. 7.572): ‘When a man is fevered, he is in a state of disturbance (τετάρακται), and the sign is the chill that runs over his body, now here and now there; this would not have occurred unless the humor had been disturbed (ἐταράσσαστο) and had a greater or a lesser quantity separated off from it (ἀπεκρίνετο) which dominated (ἐκράτει) now here, and now there’ (tr. Lonie, modified). In *Nat. Puer.* 15 the concept is applied to menstruation. Blood in the body is disturbed (ταράσσεται 57.18 Joly, L. 7.494) by the change in temperature from month to month, secreted, and causes harm if not purged; cf. esp. 58.3–7 Joly (L. 7.494): ‘Now when the blood is agitated and secreted (ταραχθὲν ... καὶ ἀποκριθὲν), but instead of flowing away, flows into the womb and the womb does not release it, then the womb is heated by the blood which lingers in it, and in turn heats the rest of the body’ (tr. Lonie). For other examples cf. *Aff.* 12, L. 6.220.8–12 (metastasis of fever occurs when phlegm and bile are set in motion); *Morb.* I 26, L. 6.192.11–26 (phlegm and bile are set in motion by excessive drinking); *Morb.* II 5, L. 7.12.19–14.7 (mortification of the brain occurs when phlegm and bile are set in motion and flow towards the heart). Cf. in general Lonie 1981, 100.

14.6 ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυνάμιων, ‘separation of the powers associated with the body’: separation was regularly likened to processes involving fluid substances such as the making of butter or cheese or the curdling of milk (cf. n. above on 14.4 ἀποκριθῆ), and it can result in the discharge of a humor with a strong smell or flavor from the body (cf. 18–19). Hence to talk of the separation of ‘powers’ (δυνάμεις) is tantamount to identifying δύναμις with a kind of fluid substance. A close association between δύναμις and fluid substance or χυμός is apparent in several later passages (cf. 19.5, 144.10 J.; 22.1, 149.2–4 J.; 24.1, 153.7 J.). This use of δύναμις is somewhat unusual within the Hippocratic Corpus, but it is closely paralleled in both *Nat. Puer.* and

Morb. IV. In *Morb.* IV δύναμις is sometimes semantically equivalent to ἰκμάς ‘fluid’ (e.g. ch. 34, 85.25–28 Joly, L. 7.544; cf. above, pp. 242–243). In *Nat. Puer.* δύναμις is used of a fluid substance present in the seed of a plant that governs its growth and development. The author writes of a δύναμις as thick or thin, light or heavy, and as undergoing processes such as compression or condensation. Cf. his account of the way in which plants sprout from seed (ch. 22, 69.1–9 Joly, L. 7.514; tr. Lonie):

Now there is a virtue or power (δύναμις) in the seed: when the lightest part of this virtue is condensed and compressed (συστραφείσα) by breath (πνεύματος) and the moisture (ἰκμάδος) in the seed, it turns into green shoots and breaks the seed open. This is what happens at first: the shoots sprout upwards, but once they have sprouted, then the moisture in the seed is no longer sufficient for their nutrition. So the seed and its shoots break open in a downward direction: the seed is forced to release downward that part of its virtue (δύναμις) which has been left behind owing to its weight.

When a plant is still growing and remains tender and moist it cannot produce fruit, for it does not possess a ‘virtue that is strong and rich, from which the seed will be compressed’ (οὐ γὰρ ἔστιν αὐτῷ δύναμις ἰσχυρὴ καὶ πλείρα, ἐξ ἧς τὸ σπέρμα συστραφήσεται 22.3, 69.18–20 Joly, L. 7.516). Fruit grows to be large because ‘every plant draws from the earth more virtue (δύναμιν) than did the seed from which it originated’ (69.27–28 Joly, L. 7.516). The substantial conception of δύναμις in *Nat. Puer.* goes beyond VM and stands out in the Hippocratic Corpus (though Lonie 1981, 216 notes parallels in Theophrastus *CP* 1.12.1, 1.17.1, 5.1.4, 5.2.1). But the author’s usage is quite understandable given the problem he is trying to solve: how a seed grows into a developed plant of a particular type. It is natural for him to use the term δύναμις, normally an abstract noun with the meaning ‘power’ or ‘capacity to affect’, for the fluid substance that *has* the power of governing the growth and differentiation of the plant (cf. Lonie 1981, 218). Similarly, the problem faced by the author of VM is to explain the effects of foods on human beings. His central claim, as stated in the present chapter, is that these effects are caused by concentrated humors with qualities such as sweet and bitter, not by hot, cold, wet, and dry. Since it is the humors that *have* a strong δύναμις or capacity to affect the body, it is natural for the author to refer to them *as* δυνάμεις (cf. above, pp. 232–233).

Aristotle’s discussion of δύναμις in the *Metaphysics* captures the semantic range of the term in *Nat. Puer.* and VM quite well. Aristotle

recognizes that δύναμις is a term that is ‘said in many ways’ (πολλαχῶς λέγεται), but he holds that all these uses derive from a single primary sense: a δύναμις is a principle of change in another thing, or in a thing itself *qua* other. Cf. *Metaph.* 1019a15–18: ‘We call a capacity (δύναμις) (1) a source of movement or change (ἀρχὴ κινήσεως ἢ μεταβολῆς), which is in another thing or in the same thing *qua* other; e.g. the art of building is a capacity which is not in the thing built, while the art of healing, which is a capacity, might be in the man healed, but not in him *qua* healed’ (tr. Barnes). Other things are called δυνάμεις by virtue of having such a principle; cf. *Metaph.* 1019b35–1020a6, 1046a4–16. Though Aristotle is developing his own concept of potentiality in these passages, his analysis matches Hippocratic usage quite closely in taking the primary sense of δύναμις to be an abstract capacity for bringing about a change. It is because they possess a capacity of this kind that other things (such as the humors in VM or the fluid in the seed in *Nat. Puer.*) can be called δυνάμεις.

For ἀμφί cf. τὰ περὶ τὸν ἄνθρωπον 19.7, 145.13 J., where the reference is also to δυνάμεις.

14.6 εὖ τε συγκέκερται ... καὶ ἀπλοῦν [καὶ ἰσχυρόν], ‘they are well blended ... a single, simple whole’: cf. 19.7, 145.14–16 J. for a similar point about the humors in the body: through κρήσις and πέψις they unite into a whole in which none displays its individual δύναμις (δύναμιν ἰδίην 145.16 J.). The words καὶ ἰσχυρόν contradict οὕτε ἰσχυρόν (137.10 J.) and should be deleted.

15

The author begins with a rhetorical question: how will the opponents ever treat patients in conformity with their ὑποθέσεις? They have not discovered any food or drink that is purely hot, cold, wet, or dry, and simply declare one food to be hot, another wet, another cold, and another dry. If a doctor tells his patient to eat something hot, the patient will ask what, and the doctor will either have to talk nonsense or fall back on some food that is generally recognized to be hot (15.1–2). Since there is no food that is purely hot or cold, but all have some quality such as astringent or insipid, these other qualities will also be important in determining what effect the food will have (15.3). In fact these qualities are much more important than hot and cold: the effect

of a hot and astringent thing is completely opposite to that of something hot and insipid. This is revealed by a consideration of their effects not only on the human being, but also on substances such as leather and wood (15.4).

The rhetorical strategy of the chapter is similar to that of chapter 13: the opponents are driven to ἀπορία by their own principles and assumptions. The claim is that they cannot treat patients in a way that conforms to their ὑποθέσεις, i.e. by prescribing something hot to counteract the cold, and so forth. If the opponent wants to prescribe something hot to a patient, he is faced with a dilemma (ἄπορον 138.1 J., cf. ἀπορία 134.11 J.): he must either talk nonsense (i.e. claim that a food is hot when it is not evidently so) or fall back on a food that is recognized to be hot. But if he takes the second option he will be trapped by the rest of the author's argument, which falls into two parts. First, there is no food that is purely hot, cold, wet, or dry; any food that has one of these qualities will also have another quality such as astringent or insipid. Second, it is these other qualities that determine the effects of foods on the body. This second claim is crucial, since an opponent might concede that hot, cold, wet, and dry always occur together with a quality such as astringent or insipid while still maintaining that they have great power to affect the body. Hence the assertion at the end of the chapter that the hot does not have 'great power' (μεγάλην δύναμιν 138.15 J.) to affect the body. Only if this claim can be sustained—and the case for it will not be complete until the end of chapter 19—will the author succeed in showing that his opponents cannot treat patients in a way consistent with their ὑποθέσεις.

Four points are worthy of special note. First, the author seems to recognize that hot, cold, wet, and dry make up a special class of qualities distinct from astringent, insipid, and the like. The crucial claim is that hot, cold, wet, and dry always occur with a quality such as astringent or insipid; the point is *not* that qualities such as astringent and insipid must occur with one another (as though anything astringent would also have to possess some other quality such as sweet or bitter). The underlying idea seems to be that anything with a distinctive odor or taste (astrigent, insipid, etc.), must be hot, cold, wet, and dry to some degree. That any physical body is to some degree hot, cold, wet, and dry is surely one reason why these qualities came to be regarded as fundamental, and VM's opponents might well have appealed to this fact. If so, then the argument of this chapter can be viewed as an

attempt to turn this claim against them. ‘Yes,’ the author acknowledges, ‘all foods are to some extent hot, cold, wet, and dry. But on the other hand, anything that is hot, cold, wet, or dry will also possess some quality such as bitter or astringent. And this shows that hot, cold, wet, and dry are *not* important in accounting for health and disease, for the qualities with which they occur have far more power to affect the human being. You can see this by considering their effects.’

Second, the language of section 15.1—in particular the terms εἶδος, αὐτὸ ἐφ’ ἑωυτοῦ, and κοινωνέω—bears a striking resemblance to the terminology of Plato’s Theory of Forms. Commentators have drawn various conclusions from these affinities. For Taylor the passage shows that the terms in question ‘already had a known and definite meaning in the medical science of the fifth century’; εἶδος means ‘at once an ultimately simple body, and an ultimately simple sense-quality, and is, as for Plato, an exact equivalent of φύσις’ (Taylor 1911, 215–216; Diller 1952, 404 [= 1973, 65] takes the passage as evidence of Platonic influence on VM). In contrast, Festugière emphasizes that all the expressions in question are frequently used in an unspecialized way and that even in Plato they often do not carry any technical metaphysical significance; when they do, this emerges clearly from the context in which they are used (1948, 47–53; cf. Gillespie 1912). A consideration of the context along with an exhaustive survey of Hippocratic usage confirms the basic correctness of Festugière’s position. The question in this chapter is whether there is any food or drink that is purely hot, cold, wet, or dry, and displays no other quality such as astringent or insipid. The author is making a claim about the character of foods and drinks, not the existence of ‘an ultimately simple body’ or ‘an ultimately simple sense-quality’ (to use Taylor’s language). The phrase αὐτὸ ἐφ’ ἑωυτοῦ expresses a contrast between a food that is purely hot and one that has other qualities as well, and perhaps also between a food that is hot *in itself* and one that only *appears* to be hot (cf. n. below on 15.1 αὐτό τι ἐφ’ ἑωυτοῦ). εἶδος refers to a kind or type that is distinguished in part by its visual appearance (cf. n. below on 15.1 μηδενὶ ἄλλῳ εἶδει κοινωνέον). Though these senses are somewhat specialized, they clearly build on normal Hippocratic usage and therefore provide no evidence for Platonic influence on VM or the reverse (cf. Introduction, p. 47).

Third, the claim that hot and cold have less power to affect the body than qualities such as astringent and insipid has a clear empirical basis in the comparison of effects (15.3–4). A hot and astringent food has the opposite effect to the hot and insipid; similarly, the cold and insipid food

has the opposite effect to the cold and astringent (πᾶν τοῦναντίον ... ἀποβαίνει 138.11–12 J.). The implication is that the change from astringent to insipid is much more significant in determining the effect than the change from hot to cold. The argument implies a relatively sophisticated inference from effect to cause: if two foods have opposite effects they cannot be due to a factor that is common to both, but must result from something that differs between them. On the level of terminology, the passage brings out both the close association between δύναμις and quality and the distinction between them. The hot-astringent and hot-insipid have δυνάμεις that are opposed to one another; the point is not simply that these foods have opposite qualities, but also that they cause opposite effects (cf. n. below on 15.3 δυνάμιας ... ὑπεναντίας). Yet the effect is still correlated with the presence of a specific quality. By comparing the effects of different substances, we learn that certain effects are correlated with the presence of certain qualities, and hence come to recognize that each quality has a particular capacity (δύναμις) to bring about a specific effect.

Finally, it is remarkable that the author adduces the effects of astringent and insipid substances on materials external to the body such as leather and wood (15.4). That the hot-astringent and hot-insipid have opposite effects on leather and wood confirms and strengthens the claim that they have opposite effects on human beings. Since leather and wood are ‘less sensitive’ (ἀναισθητότερα 138.14 J.) than the human body, the differences in effect observed in leather and wood will be still more apparent in the case of the human body. The appeal to observation outside the body anticipates 22.3, where the author explicitly recommends a procedure of using observable phenomena outside the body to learn about what takes place inside it (ἔξωθεν 149.16 J., 153.16 J.). The author’s empirical claims are based on medical experience (the effects of ointments and plasters) and, in the case of leather and wood, experience in crafts other than medicine (cf. n. below on 15.4 καὶ ἐν σκύτει καὶ ἐν ξύλῳ καὶ ἐν ἄλλοισι πολλοῖσιν).

* * *

15.1 ἐπὶ ὑπόθεσιν ... ὥσπερ ὑποτίθενται, ‘to a hypothesis ... in accordance with their hypothesis’: ὑπόθεσις has the sense of ‘assumption’ or ‘presupposition’; the opponents are committed to the assumptions that (1) the cause of disease is something hot, cold, wet, or dry and (2) the cure is the opposite of the cause. Cf. n. on 13.1 ἐξ ὑποθέσιος and the introductory note to chapter 1 (pp. 111–113 above).

15.1 αὐτό τι ἐφ' ἑωυτοῦ, 'anything that is in itself purely': as Festugière notes (1948, 47–48), the combination of ἐπί with the reflexive pronoun (ἐφ' ἑωυτοῦ, ἐφ' ἑαυτῶν) is frequent in authors such as Herodotus and Thucydides, where it expresses the idea of separation ('alone, by itself, by themselves'); the addition of αὐτός emphasizes the idea of separation. Cf. 14.4: a humor causes pain when it has undergone separation (ἀποκριθῆ) and come to be isolated or 'on its own' (αὐτό ἐφ' ἑωυτοῦ 136.15 J.) in the body. Since a humor that has separated from the others in the body is present in pure form, the phrase αὐτό ἐφ' ἑωυτοῦ expresses the idea of purity as well as separation. Purity is a key notion in the present passage as well, for in denying that there is any food that is αὐτό ... ἐφ' ἑωυτοῦ θερμόν the author is denying that there is any food that is *purely* hot and does not also share in a quality such as astringent or insipid. Cf. Anaxagoras DK 59 B 6: it is impossible for anything to be separated (χωρισθῆναι) and exist 'on its own' (ἐφ' ἑωυτοῦ), since all things are together (πάντα ὁμοῦ) just as they were in the beginning. The only exception is Mind or νοῦς, which is not mixed with anything else and hence is completely pure: Mind 'is mixed with no thing, but is alone and by itself (μόνος αὐτὸς ἐπ' ἑωυτοῦ ἐστίν) ... for if it were not by itself (ἐφ' ἑαυτοῦ), but were mixed with some thing, it would have a share in all things ... and the things mixing with it would hinder it, so that it could not govern anything as it does, being alone and by itself (μόνον ἐόντα ἐφ' ἑαυτοῦ)' (DK 59 B 12.1–8).

This similarity between VM and Anaxagoras has been taken as evidence of the influence of one on the other (Vlastos 1955, 67n2 [=1995, 115n4]; Longrigg 1963, 1983). But a consideration of other Hippocratic uses of the αὐτὸς ἐφ' ἑωυτοῦ locution (and the apparently equivalent phrase αὐτὸ καθ' αὐτό) shows that such a conclusion is quite unwarranted. The phrases αὐτὸς ἐφ' ἑωυτοῦ and αὐτὸ καθ' αὐτό occur more than 20 times in the Hippocratic writings, where they typically express the absence of some qualification or relation that is made clear by the context. αὐτὸς ἐφ' ἑωυτοῦ is used to mark a contrast between a condition when it occurs by itself (αὐτὸ ἐφ' ἑωυτοῦ) and when it is accompanied by some other condition (e.g. *Morb.* II 29, L. 7.46.19). The author of *VC* contrasts a head wound that occurs alone (αὐτὴ ἐφ' ἑωυτῇς) with one that is accompanied by breakage (ch. 9, L. 3.212.2–3; cf. ch 3, L. 3.192.16–194.4 and ch. 7, L. 3.208.8). Cf. *Epid.* I 11, L. 2.674.2–4: quartan fever is safest, not only 'in itself' (αὐτὸς ἐφ' ἑωυτοῦ) but also in relation to other diseases, which it often relieves. In connection with dietary prescriptions αὐτὸς ἐφ' ἑωυτοῦ sometimes marks a

contrast between the effects of a certain food when administered on its own and its effects when administered with other things. The author of *Aff.* states that hot bread and meats dry the body when given ‘on their own’ (αὐτὰ ἐφ’ ἑωυτῶν), but not when administered with water (ch. 51, L. 6.260.15–17). Cf. *Aff.* 52, L. 6.264.1–2: fish is light food, both taken by itself and with other foods (καὶ αὐτοὶ ἐφ’ ἑωυτῶν καὶ μεθ’ ἑτέρων σιτίων); *Aff.* 58, L. 6.266.18–20: honey when eaten together with other foods (σὺν ἑτέροις) nourishes and promotes good complexion, but alone (αὐτὸ δ’ ἐφ’ ἑωυτοῦ) it thins rather than strengthens the body. Cf. also *Mul.* II 205, L. 8.394.14–16, where a list of ingredients for a papyrus is given and the author says that they may be administered ‘alone’ (αὐτὰ ταῦτα καθ’ αὐτά) or in combination with rose-oil (σὺν ῥοδίνῳ). The contrast between foods taken by themselves and with other foods could easily shade into a contrast between pure and mixed foods. Cf. *Aff.* 61, L. 6.270.17–18: wine and honey are ‘good by themselves, good also when mixed with one another’ (ἀγαθὰ μὲν αὐτὰ ἐφ’ ἑωυτῶν, ἀγαθὰ δὲ καὶ συμμισγόμενα); *Nat. Mul.* 32, L. 7.358.7–9: ‘cook these substances in water or wine, either mixing them together or giving them pure’ (καὶ συμμισγῶν καὶ αὐτὸ καθ’ ἑαυτὸ ἀφεψῶν ἐν ὕδατι ἢ ἐν οἶνῳ). Cf. also *Morb.* III 17, L. 7.158.4: as a remedy for fever give ‘rain water αὐτὸ καθ’ αὐτό’ (where the meaning is both rain water *alone*, and also *pure* rain water). The ordinary language of dietary prescriptions and the preparation of remedies thus provides ample parallels for the use of the αὐτὸς ἐφ’ ἑωυτοῦ locution to express the notion of purity, as it does in both VM and Anaxagoras. Moreover, that so many of these examples are drawn from dietary prescriptions shows that it was quite natural for the author of VM to use αὐτὸς ἐφ’ ἑωυτοῦ to make a point about the qualities of foods. Cf. Gillespie 1912, 195–196; Festugière 1948, 52–53.

It is possible that αὐτὸς ἐφ’ ἑωυτοῦ here marks another contrast as well: the contrast between a food in itself or in its own nature and that food as it appears to the senses (cf. *Nat. Hom.* 2, 168.9–170.1 Jouanna, L. 6.36, with Jouanna’s remarks [1975, 248–249]). It seems likely that VM’s opponents claimed that they could prescribe foods that were purely hot *in themselves*, even though they did not appear to be hot. The author says that they arbitrarily assign certain qualities to certain foods, and this is presumably because they have a story to tell about how certain foods really *are* hot, even though they do not seem to be (cf. n. below on 15.2 Ὡστε ληρεῖν ... καταφεύγειν). If this is the case, then in denying that there is any food that is hot αὐτὸ ἐφ’ ἑωυτοῦ the author may also

be denying that there is any food that is purely hot *in itself*, regardless of how it may appear to the senses. Hence the translation ‘anything that is in itself purely hot’.

If this is correct, then in the present passage (as well as *Nat. Hom.* 2) the phrase αὐτὸς ἐφ’ ἑωυτοῦ is used in a somewhat more specialized sense than elsewhere in the Hippocratics and authors such as Herodotus and Thucydides. Plato, too, sometimes uses αὐτὸς ἐφ’ ἑωυτοῦ to mark a contrast between a thing in itself and how it appears to an observer (cf. *Tht.* 152b5). But it is a small step from the notion of a thing that is purely hot to the notion of a thing that is hot *in itself* or *in its own nature*. Cf. Festugière 1948, 49; Jouanna 1975, 248 (‘De l’isolement de fait d’une chose à la recherche de l’essence d’une chose par l’isolement, voilà la marge qui sépare l’emploi courant de l’emploi plus technique.’) And in Plato, just as in the Hippocratics, the more specialized or technical meaning of expressions such as αὐτὸς ἐφ’ ἑωυτοῦ emerges only from the context. Cf. Burnyeat 2000, 36: ‘In Plato “itself” (αὐτό) and “itself by itself” (αὐτὸ καθ’ αὐτό) standardly serve to remove some qualification or relation mentioned in the context. Their impact is negative. Only the larger context will determine what remains when the qualification or relation is thought away.’ The phrases αὐτὸς ἐφ’ ἑωυτοῦ and αὐτὸ καθ’ αὐτό are put to somewhat specialized uses in the Hippocratics and (to a much greater extent) in Plato, but they never become technical phrases with a fixed meaning independent of the context in which they occur. Hence VM’s use of the phrase αὐτὸ τι ἐφ’ ἑωυτοῦ provides no evidence for the author’s influence on Plato or the reverse.

15.1 μηδενὶ ἄλλῳ εἶδει κοινωνέον, ‘shares in no other kind’: the meaning of the phrase emerges clearly enough from the context: there is no food that is purely hot, cold, wet, or dry and *possesses no other quality* such as astringent or insipid. Cf. Littré’s rendering (L. 1.604): ‘Car ils n’ont pas trouvé, je pense, quelque chose qui soit chaud, froid, sec ou humide, en soi, et sans mélange d’aucune autre qualité.’ For the association of εἶδος and quality cf. 19.6, 145.5 J. (ἐς χυμῶν εἶδος διὰ πολλῶν εἰδέων καὶ παντοίων); 24.1, 153.11 J. (ἐς ἄλλο εἶδος). In both of these passages εἶδος refers to a type or kind of humor that is distinguished by its quality. The underlying idea is that of classification: humors come in various kinds or types (εἶδεα), each of which is characterized by a particular quality such as bitter, salty, or astringent. As Gillespie has shown, the terms εἶδος and ἰδέα often have a classificatory meaning in the Hip-

pocratics (cf. Gillespie 1912, 186–190, noting the frequent use of these terms with numerals and words such as *πολύς*, *ἕτερος*, and *ἄλλος*). The notion of classification is also important in the other passages of VM in which *εἶδος* occurs (cf. 7.3 *πλέον τό γε εἶδος*, 12.2 *Πολλά δὲ εἶδεα ... περὶ ὧν εἰρήσεται*, 23.1 *Πολλά δὲ καὶ ἄλλα ... εἶδεα σχημάτων* with nn. *ad locc.*).

The most common meaning of the terms *εἶδος* and *ἰδέα* in early Greek literature is visible form, appearance, or shape, and they often have this meaning in the Hippocratic writings (for examples see Gillespie 1912, 182). The classificatory use of *εἶδος* and *ἰδέα* is a somewhat specialized development from this more general use, but is not sharply distinguished from it. Even in passages where *εἶδος* and *ἰδέα* are best translated as ‘type’ or ‘kind’, they often carry a strong connotation of visible form or shape; the classification in question is often one based on visible features (Diller 1971b). Hippocratic usage of *εἶδος* and *ἰδέα* is similar to the use of a word like ‘form’ in everyday English. ‘Form’ may refer to the shape of a thing (‘the form of a wheel is round’), or to the type or class to which it belongs (‘this form of behavior is not allowed here’). ‘Form’ is more closely connected to the idea of appearance and suggests a classification based on externally observable features; ‘type’ and ‘kind’ suggest a more abstract classification that may be completely independent of such features. Cf. Gillespie 1912, 186: ‘The (sc. Hippocratic) writers are not far removed from the attitude of the modern unmetaphysical Englishman, who applies such words as “kind”, “sort”, “form”, “type”, “class”, without very much difference, but still in a vague, unconscious manner chooses the one that he feels to be most appropriate.’ Cf. *Off. Med.* 7–8 (L. 3.290–294), where the author moves freely between *εἶδος* as a type or kind of bandaging and *εἶδος* as the shape of a bandage or body part (cf. Diller 1971b, 28). In VM as well, *εἶδος* sometimes retains the connotation of visible form or shape. The clearest example is at 23.1: there are many other ‘types of structures’ (*εἶδεα σχημάτων* 152.19 J.), distinguished from one another by their shape, which are relevant to treatment (e.g. a head that is small or large, a neck that is thick or thin, and so forth; on the meaning of ‘structure’ here cf. n. on 22.1 *σχήματα*). But the author also shows some concern with the visible appearance of the humors. Cf. the references to yellow bile at 19.5, 144.11–12 J. and ‘acrid and greenish (*ἰώδεις*) acidities’ at 19.5, 144.19 J. (followed closely by the remark about transformations of the humors from one *εἶδος* to another at 19.6, 145.5 J.). In view of this it is reasonable to conclude that *εἶδος* in the present passage refers to

a kind or type that is characterized in part by a distinctive set of visual features.

Finally we may consider the author's conception of the relationship between εἶδος and φύσις. As far as the humors are concerned, εἶδος is closely associated with a quality such as sweet or acid: sweet is one εἶδος of humor, acid another. But the quality of a humor is just one manifestation of its δύναμις or capacity to affect other things, and this δύναμις is itself a manifestation of the humor's distinctive nature or φύσις. This suggests that the author considers both εἶδος and δύναμις to be distinct manifestations of an underlying φύσις. Such a conception of the relationship between εἶδος/ιδέα, φύσις, and δύναμις is found in a number of Hippocratic texts (cf. *Nat. Hom.* 5, 176.1–178.2 Jouanna, L. 6.40–42, where hot, cold, wet, and dry are associated with the δυνάμεις of the humors rather than their ιδέαι; *De Arte* 2, 225.15–226.8 Jouanna, L. 6.4; *De Arte* 4, 227.17–228.5 Jouanna, L. 6.6). Cf. also Melissus DK 30 B 8, which refers to 'many eternal things possessing both forms and strength' (πολλὰ καὶ αἰδία καὶ εἶδη τε καὶ ἰσχὺν ἔχοντα DK I 274.14). The pairing of δύναμις and ιδέα is frequent in Plato, where the two terms function as a kind of periphrasis for φύσις; e.g. *Plt.* 291b, 308c, *Ti.* 28a (cf. Souilhé 1919, 157; Jouanna 1975, 243). The distinction between εἶδος/ιδέα and δύναμις was not always so clear in the Hippocratics. In *Loc. Hom.* 44 εἶδος refers to a type of drug or food that is characterized by the capacity to cause a certain effect on the body, such as loosening the bowels (82.1–5 Craik, L. 6.338; cf. Craik 1998, 210–211). The phrase ιδέην τοῦ γάλακτος at *Nat. Puer.* 21, 68.10 Joly (L. 7.512) may refer to both the outward appearance and power of milk, and the different forms (ιδέαι) of phlegm referred to at *Int.* 20, L. 7.214.18–19 are characterized in part by their capacities to cause certain pathological effects (cf. Lonie 1981, 117). But even if the author of VM did not draw a clear distinction between εἶδος and δύναμις (εἶδος in the present passage refers primarily to qualities such as hot, cold, wet, and dry rather than visual features), there is still no reason to suppose that he identified εἶδος and φύσις, as Taylor claimed (1911, 215–216; cf. Gillespie 1912, 196).

In sum, εἶδος in the present passage refers to a kind or type that is characterized in part by a distinctive visual appearance or form. It is the manifestation of a distinct nature (φύσις) but not to be identified with it; and it is perhaps to be distinguished from the δύναμις possessed by that nature, its power or capacity to affect. Such a conception of εἶδος bears no significant resemblance to Plato's notion of Forms as

immaterial entities that are grasped by the intellect, not by perception, and which function as universal concepts, definitions, or paradigms to which particular cases can be referred. Cf. Festugière 1948, 52: 'Il ne s'agit point du tout, en VM, de définition, d'un concept universel ou d'une forme-paradigme à quoi on rapporterait des cas particuliers, mais d'une *sorte* d'entité qualitative qui, selon les novateurs, n'aurait de participation à aucune autre *sorte*' (orig. emph.).

15.1 κοινωνέον, 'shares in': the basic meaning of κοινωνέω is 'to have or do in common with, share, take part in a thing with another' (LSJ s.v.). The verb takes a genitive of the thing shared and a dative of the person with whom it is shared. It can also be used with a dative object alone, in which case the meaning is 'to associate with' or 'to have in common with'. Festugière notes that the latter usage is relatively rare in fifth-century literature (1948, 52; cf. LSJ s.v. 3 for κοινωνεῖν τινι in the sense 'have dealings with' a person). But it is by far the most common usage in the Hippocratic Corpus, in which κοινωνέω occurs some 17 times and 15 times with a dative object alone. The term is regularly used to express the idea of connection between different parts of the body, such as bones, sinews, or vessels (e.g. *Fract.* 9, L. 3.450.6; 10, L. 3.450.15). Cf. also *Loc. Hom.* 3, 40.30–31 Craik (L. 6.282); 9, 48.13–14 Craik (L. 6.292); *Prog.* 7, L. 2.130.8. It is not very far from such uses to the present passage, where κοινωνέω expresses the idea of a thing 'sharing in', i.e. belonging to, a particular class or type. Cf. the use of μετέχω at 14.5, 137.3 J. to express the idea that certain foods do not 'share in' (i.e. display) a strong flavor (χυμός). Both κοινωνέω and μετέχω are used by Plato in connection with the Theory of Forms, but there is no sign in VM of the key Platonic doctrine that every material object is what it is only by virtue of participation in an immaterial Form (cf. Festugière 1948, 52).

15.2 ἄπορον, 'it is no use': cf. ἀπορίην 134.11 J.

15.1 ἐρωτήσει, 'he will ask': cf. ἐρωτηθέντι 134.11–12 J. The situation envisioned there is one of public debate with an opponent; here it is discussion with a patient.

15.2 ὥστε ληρεῖν ... καταφύγειν, 'So one will ... recognized to be hot': since the author represents the opponents as arbitrarily assigning certain qualities to certain foods (προσσιθέασι 137.19 J.), ληρεῖν may

refer to the attempt to give an account of how a certain food is hot even though it does not *appear* to be so (cf. n. above on 15.1 αὐτό τι ἐφ' ἑωυτοῦ). Similarly, τῶν γνωσκομένων probably means 'foods recognized to be hot' rather than just 'recognized foods'.

15.3 ἄραδον ἔχον, 'causes disturbance': ἄραδον is glossed by Erotian as 'a disturbing and tossing motion' (ταραχώδη κίνησιν καὶ σάλλον 19.15 Nachmanson). The term is rare in the Hippocratic Corpus. Cf. *Acut.* 10, 40.7–8 Joly (L. 2.246): the gluten of barley gruel is neither astringent nor causes disturbance in the belly nor swells up in it (οὔτε στύψιν ἔχον οὔτε ἄραδον κακὸν οὔτε ἀνοιδίσκεται ἐν τῇ κοιλίῃ); *Acut.* (*Sp.*) 47, 89.21 Joly (L. 2.486); *Morb.* IV 56, 120.14–18 Joly (L. 7.606); *VC* 15, L. 3.242.19. There is no suggestion that what 'causes disturbance' has a particular taste or smell; this is a sign that the author conceives of δύναμις as 'capacity to affect', not just 'quality' (cf. next n.).

15.3 δυνάμιας ... ὑπεναντίας, 'powers opposed to one another': for the notion of opposite δυνάμεις cf. *Vict.* 2, 124.6–8 Joly (L. 6.470): 'Now foods and exercises have powers opposed to one another (ὑπεναντίας μὲν γὰρ ἀλλήλησιν ἔχει τὰς δυνάμιας οἷτα καὶ πόνοι), but they contribute together towards health. For it is the nature of exercise to use up what is at hand, but of food and drink to fill up what has been emptied.' In the present passage the author is thinking of substances with opposite qualities (e.g. astringent, insipid), but δύναμις is more than just quality; it is a capacity to cause a quite general kind of effect, not just on the sense organs but also on materials such as leather or wood. The point is that the substances in question (i.e. the hot-astringent and hot-insipid) produce opposite effects on the body and other substances; cf. πᾶν τοῦναντίον ἀφ' ἑκατέρου αὐτῶν ἀποβαίνει 138.11–12 J. For recognition that δύναμις and quality are distinct though closely correlated cf. *Aer.* 1, 187.1–4 Jouanna (L. 2.12): just as the types of water differ in taste and weight, so they also differ in δύναμις (cf. above, p. 169). For criticism of the view that one can draw conclusions about the δύναμις of a food (i.e. its capacity to affect the body) from its quality (i.e. whether it is sweet or salty or hot) see *Vict.* 39, 162.9–18 Joly (L. 6.534–536); Diocles of Carystus fr. 176 van der Eijk (fr. 112 Wellmann). There is no reason to think that Diocles and the author of *Vict.* were attacking VM in particular, but the assumption they criticize—viz. that the quality of a food or substance is correlated with a specific capacity to affect the body—is a widespread one that the author of VM certainly shared. In

general VM and the other early Hippocratic writers do not explicitly assert the existence of a correlation between quality and δύναμις; such a correlation is rather an implicit assumption, reflected in the lack of any term for quality other than δύναμις. For an explicit assertion that all humors with a certain quality cause the same effects on the body see Mnesitheus fr. 22 Bertier.

15.4 ἀφ' ἑκατέρου αὐτῶν, 'from each member of such a pair': i.e. from the hot-astringent and the hot-insipid, the cold-astringent and the cold-insipid, etc.

15.4 καὶ ἐν σκύτει καὶ ἐν ξύλῳ καὶ ἐν ἄλλοισι πολλοῖσιν, 'in leather and wood and many other things': σκυτός refers not only to animal skin or hide in general, but more specifically to leather that has been tanned or dressed (cf. Aristophanes' use of σκυτός as a euphemism for Cleon the tanner at *Eq.* 868, *Pax* 669). This suggests that the author may be thinking of processes used in tanning leather. He perhaps also has in mind procedures for treating wood to make it more suitable for various specialized purposes. Cf. *De Arte* 11, 239.7–8 Jouanna (L. 6.22), where τέχνηαι that involve working with wood and leather are cited as paradigm examples of crafts in which mistakes can easily be rectified because of the nature of the material. The author of *Nat. Puer.* makes a similar appeal to the behavior of inanimate substances, and leather and wood in particular, to illustrate and support various theories about processes going on inside and outside the body. In chapter 24 (72.2–4 Joly, L. 7.520) he cites the fact that leather garments undergo spontaneous combustion when compressed as an illustration of the general principle that all things become hotter when compressed; he claims to have observed the phenomenon himself (ὥς ἐγὼ ἤδη εἶδον 72.3–4 Joly). The author also mentions wheat, barley, and dung as behaving in a similar way, suggesting that he is drawing upon experience in agricultural production. Elsewhere he draws an analogy between the production of milk in a pregnant woman and a particular way of treating leather to keep it soft: 'The process is the same as when you smear a hide with large quantities of oil and, after giving the hide time to absorb the oil, you squeeze it, and the oil oozes out again under pressure' (ch. 21, 67.19–22 Joly, L. 7.512; tr. Lonie). Lonie terms this a technological analogy, noting that leather was often anointed to keep it soft (1981, 207); cf. Hom. *Il.* 17.389–395. In *Nat. Puer.* 12 the author proposes a theory of embryonic respiration based on the principle that

everything that is heated acquires breath (πνεῦμα); he claims that this principle is supported by the way in which various inanimate substances behave when heated. The case of burning wood provides him with the best evidence: ‘You can see what happens from the case of burning wood—any kind of wood will behave in the same way, but green wood in particular. It will expel air where it has been cut, and when this air gets outside, it eddies around the cut. This is a matter of common observation (καὶ τοῦτο γινόμενον ὁρέομεν)’ (53.17–21 Joly, L. 7.486; tr. Lonie). The author also mentions the behavior of leaves, foods, and drinks, suggesting inductive inference of the general principle from a series of examples. Similarly, the author of VM mentions ‘many other things’ (καὶ ἐν ἄλλοις πολλοῖς) as well as leather and wood as evidence of the behavior of astringent and insipid substances. On the role of inductive inference and general principles in the author’s analogical method cf. ch. 22, introductory note (pp. 324–325 below).

15.4 ἀναισθητότερα, ‘less sensitive’: the substances in question (leather and wood) are less able than the human being to ‘feel the effects’ of astringent and insipid substances, i.e. they are less sensitive than the human being. Cf. *Morb. Sacr.* 13, 23.18ff. Jouanna (L. 6.384–386), where various inanimate things are said to ‘feel the effects of’ (αἰσθάνεσθαι) the south wind. The south wind melts (κατατῆγει) and disperses condensed air, and has similar effects on the earth, the sea, rivers, springs, wells, and everything in which there is some moisture: ‘All these things feel the effects of this wind (αἰσθάνεται τοῦ πνεύματος τούτου) and become dull instead of bright, hot instead of cold, wet instead of dry. Vessels of pottery, too, which are kept in rooms or underground and are full of wine or other liquid, always feel the effects of the south wind (αἰσθάνεται τοῦ νότου) and change their shape to a different form.’ Moreover the south wind both ‘masters’ (ἐπικρατεῖ) the sun, moon, and stars by making them dull instead of bright and ‘makes the body feel its effects and change’ (τὸ σῶμα ποιεῖ αἰσθάνεσθαι καὶ μεταβάλλειν); these effects include relaxing and moistening of the brain and enlargement of the veins. Cf. n. on 9.3 τοῦ σώματος τὴν αἴσθησιν and Müri 1936.

15.4 ἔξω τοῦ ἀνθρώπου ... ἔξωθεν, ‘outside the human being ... externally’: for the use of evidence drawn from outside the human body cf. ἔξωθεν 22.3, 149.16 J.; 24.2, 153.16 J.

16

The author continues his argument that hot and cold exert only a small amount of causal power in the body. Like the other powers (*δυνάμεις*), hot and cold cause no pain when they are mixed and blended; it is only when they separate from one another that they cause harm (16.1). But when this occurs—when, for example, the cold comes upon a person and causes pain—then it is immediately met by its opposite, the hot, which counteracts its power and deprives it of the capacity to cause any serious effects (16.2). This claim is supported with examples drawn from the experience of both the healthy (16.3–6) and the sick (16.7). The first example (16.3) is of a person who chills himself in winter, e.g. by bathing outside in cold water. The more such a person is chilled, the warmer he feels when he returns to shelter and warmth. Second (16.4), if this person warms himself by a fire or by taking a hot bath, then puts on his normal clothes and goes out into the cold, he will feel much colder than if he had not first become hot. Third (16.5), if a person fans himself to relieve excessive heat and then stops doing so, he will feel far hotter than if he had never used the fan in the first place. Finally, a point that the author considers the strongest of all (16.6): when people who have been exceedingly chilled in their extremities by walking in snow and cold come inside, they experience the kinds of symptoms characteristic of those who have been burned by fire. As for the sick (16.7), fever is most acute in those who have experienced a chill, and it tends to migrate to the parts of the body that have been the most chilled. But when it departs and the patient breaks into a sweat, he feels much colder than if he had not had the fever in the first place. In conclusion (16.8) the author draws the devastating consequences for the opponents' conception of therapy: if hot and cold counteract one another spontaneously in the way these examples suggest, what need is there for any assistance from the physician?

In this chapter hot and cold are portrayed as opposed powers (*δυνάμεις*) that counteract one another in a reciprocal relationship. The imagery is both political (*δυναστεύειν* 139.5 J.) and military (cf. nn. below on 16.2 *διὰ τάχους πρῶτον ... οὐδὲ παρασκευῆς δεόμενον*, 16.6 *Οὕτως ἐτοίμως ἐκάτερον ... παραγίνεται*, 16.8 *διὰ τάχους ... παραγίνεται τὸ ἐναντιώτατον*). The depiction of opposites such as hot and cold as forces engaged in war or struggle with one another is a commonplace of early philosophical and medical thought, and survives even in Aristotle (Kahn 1960, 126–133; Solmsen 1960, 342ff., 360–361). The

relationship between hot and cold is described in terms of the notions of *κρησις* and *ἀπόκρισις* introduced in chapter 14: when hot and cold are mixed with one another, they enter into *κρησις* and do not cause pain; only when they separate (*ἀποκριθῇ* 139.10 J.) from one another do they cause harm. But this chapter adds the idea of *κρησις* as a kind of dynamic equilibrium, a state that has the capacity to maintain itself and restore itself if disturbed. Once either hot or cold becomes dominant in the body, the opposite power immediately rushes in to counteract it, thus restoring the original state of *κρησις*. The idea of *κρησις* as a dynamic equilibrium with the power to maintain and restore itself provides a theoretical basis for the notion that individuals have a capacity to preserve their health in the face of external disturbance and to return to health without any external intervention. That is precisely the point the author makes against his opponents in this chapter: no medical assistance is needed against the hot or the cold, since each is spontaneously counteracted by its opposite (16.8). But the notion that the individual *φύσις* has the power to heal itself also informs the author's own approach to therapy, which is based on the notion of medical treatment as 'assistance' (*βοηθείης* 16.2, 139.14 J.; 16.8, 141.11 J.; *βοήθημα* 13.2, 133.19 J.); cf. ch. 19, introductory note (below, pp. 283–285).

The idea that hot and cold hold one another in check in a dynamic equilibrium is widespread in cosmological as well as medical thought. The seasonal alteration between hot and cold, wet and dry is basic to the conception of cosmic change held by thinkers such as Anaximander; such seasonal variation becomes the basis of a complex medical system in texts such as *Nat. Hom.*, in which the relative dominance of different humors in the body in different seasons corresponds to the degree to which the season shares in the hot, the cold, the wet, and the dry (*Nat. Hom.* 7; for *κρησις* of the seasons as a balance between hot, cold, wet, and dry cf. *Aer.* 12). The cosmologists and medical thinkers inspired by them pointed to the large-scale seasonal alterations between hot and cold, wet and dry as evidence of the fundamental importance of these principles in governing the cosmos and, by analogy, the human body. But VM argues that the dynamic relationship between hot and cold when applied to the human body in fact reveals that hot and cold are quite *unimportant* in accounting for health and disease. Once again the author may be viewed as attempting to turn his opponents' own arguments against them (cf. the introductory notes to chapters 13, 15, and 17 [pp. 223, 255–256, and 273–274]).

Several features of the examples are worthy of note. First, the author begins with the healthy and then considers the sick, following the procedure recommended at 10.1, 129.14–17 J. Second, the examples that concern the healthy are drawn from the ordinary experience of daily life; the example of fever (16.7) also appeals to phenomena that would have been familiar to people without specialized medical experience. Finally, the focus of the examples is on an individual's own sensations, not on how an individual would *appear* to an outside observer. A person who goes outside in winter and becomes very cold, then returns inside, will himself feel very hot; but he will feel very cold to anyone who touches him. A person who becomes very hot and then goes out into the cold will himself feel quite cold, but he will feel very hot to a person who touches him. A person who fans himself and then stops will himself feel very hot, but he will feel cold to a person who touches his skin. This provides further confirmation that the phrase τοῦ σώματος τὴν αἴσθησιν at 9.3, 128.13 J. refers to the patient's perception or feeling of his own body, rather than the doctor's perception of the patient (cf. n. *ad loc.*).

* * *

16.1 τῶν δυνάμεων ... δυναστεύειν, 'powers ... least power': the metaphor is political, as δυναστεύειν typically refers to a city, group, or individual with political power; cf. Alcmaeon's conception of health as an 'equal distribution of powers' (ἰσονομία τῶν δυνάμεων) and disease as the 'rule of one' (μοναρχία) (DK 24 B 4). The language reveals that the author does not clearly distinguish between the notions of *having* a δύναμις and *being* a δύναμις (above, pp. 252–254). Hot and cold *are* powers (δυνάμεις), but they also exert power (δυναστεύειν) in the body, i.e. they *have* a certain δύναμις; furthermore we have just been told that the hot does not possess 'great power' in the body (μεγάλην δύναμιν 15.4, 138.15 J.). Cf. *Flat.* 3, 106.2–4 Jouanna (L. 6.94), where the author calls air the 'greatest lord' (μέγιστος δυνάστης) in everything, then immediately goes on to say that one should 'contemplate its power' (θεήσασθαι τὴν δύναμιν).

16.1 διὰ τάσδε τὰς προφάσεις, 'for the following reasons': so M; A reads διὰ τάσδε τὰς αἰτίας. On the variation between πρόφασις and αἰτία in VM see n. on 11.1 διὰ τίνας προφάσεις.

16.1 κρῆσις γὰρ καὶ μετριότης ... τότε λυπεῖ, 'for blending and moderation ... then it causes pain': for the notions of blending (κρῆσις)

and separation (ἀπόκρισις) cf. nn. on 14.4 μεμιγμένα καὶ κεκρημένα, 14.4 ἀποκριθῆ, 14.6 ταραχὸς τε καὶ ἀπόκρισις, and the introductory note to chapter 14 (above, pp. 230–232).

16.1 τῷ δὲ θεομῷ ἀπὸ τοῦ ψυχροῦ, ‘and to the hot from the cold’: M continues with the words καὶ τᾶλλα κατὰ λόγον, which might be interpreted as a reference to wet and dry. But since the examples that follow are concerned exclusively with hot and cold, it seems more likely that the phrase is a marginal addition that has crept into the text.

16.2 διὰ τάχους πρῶτον ... οὐδὲ παρασκευῆς δεόμενον, ‘swiftly for this very reason ... needing neither assistance nor preparation’: the metaphor is a military one, with hot and cold pictured as forces on campaign (Jouanna 1990, 139n3). βοηθείη and παρασκευή may refer to military as well as medical ‘assistance’ and ‘preparation’, respectively; cf. LSJ s.v. βοήθεια II, s.v. παρασκευή II 2. πρῶτον is best taken proleptically with τὸ θεομόν: the point is not that the hot comes to be present *first*, but that it does so ‘in the first line’ of battle (so Jouanna, ‘en première ligne’). For διὰ τάχους ... πάρεστι cf. 16.8 διὰ ταχέος ... παραγίνεται τὸ ἐναντιώτατον with n. below.

16.2 καὶ ταῦτα καὶ ἐν ὑγιαίνουσι ... καὶ κάμνουσιν, ‘And it does this ... as well as the sick’: for the methodology of learning about the behavior of the sick from the behavior of the healthy cf. 10.1, 129.14–17 J.

16.4 ὥσπερ διεψυγμένος, ‘as he was when chilled’: so A; M adds the article ὁ before διεψυγμένος, but this is based on a misunderstanding. The second example (16.4) is concerned with the same person discussed in the first (16.3). Now this person instead of taking a cold bath first warms himself thoroughly by the fire, then goes outside into the cold; the point is that the sensation of cold is much more intense for him than it would have been had he not first warmed himself so thoroughly. The example illustrates the ability of the cold to counteract the hot, just as the first example illustrated the ability of the hot to counteract the cold. The parallelism is stressed by the remark that the person wears the same clothes (τὸντὸ εἶμα ἔχων 140.2 J.) and spends time in the same place (ἐν τῷ αὐτῷ χωρίῳ 140.2–3 J.) as in the previous example.

Similar remarks about the effects of hot and cold baths are made in the Aristotelian *Problemata*, 862b35–863a5 (cf. Jouanna 1990, 140n1).

The author says that people who take cold baths in the winter are relatively free from chill for the rest of the day, while those who take hot baths feel the effects of the cold more strongly. He offers an explanation: the skin of those who take cold baths is contracted, keeping the innate heat inside the body, while the skin of those who take hot baths is loosened, allowing the innate heat to escape. The general context is an attempt to explain why fevers are more prevalent during the cold seasons, autumn and winter, while chills (ῥίγη) are more prevalent in the warm seasons, spring and summer. Thus the same phenomena to which VM appeals in attacking medical theories based on hot and cold are adduced in support of just such a theory.

16.6 Τὸ δὲ δὴ καὶ πολὺ μᾶλλον, ‘Here is a further, much stronger point’: the strongest example is reserved for the last in the series. This, the text of A, is preferable to M’s reference to a plurality of further examples (τὰ δὲ ... μέζω). While the author does remark at 140.16 J. that he could give myriad other examples (Μυρία ... ἄλλα), this comes only *after* he concludes the series of examples concerning the healthy with the words Οὕτως ἐτοίμως ἐκάτερον ... παραγίνεται (140.15 J.). Cf. Jouanna 1990, 140n3.

16.6 ὥσπερ τοῖσιν ἀπὸ πυρὸς κατακεκαυμένοι, ‘just as they do on those who have been burned by fire’: the mention of chill in the extremities (feet, head, and hands) and of blisters suggests that the reference is to frostbite. For the association of heat, itching (κνησμός) and blistering cf. n. *Epid.* II 1.1, L.5.72.1–5 (a description of anthrax): ‘There were watery gatherings in the skin. When formed, they grew hot and caused itching (κνησμόν), and then small blisters as though from burns (φλυκταινίδες ὥσπερ πυρίκαυστοι) rose up. They seemed like burns on the skin beneath.’

16.6 Οὕτως ἐτοίμως ἐκάτερον ... παραγίνεται, ‘Such is the readiness ... presents itself against the other’: ἐκάτερον shows that the author is concerned as much with the ability of the cold to counteract the hot as with the ability of the hot to counteract the cold. παραγίνεται is not ‘pass into’ (Jones 1923) or ‘passe au’ (Festugière), but ‘come upon’, ‘present itself’; the military metaphor is continued (cf. n. above on 16.2 διὰ τάχους πρῶτον ... οὐδὲ παρασκευῆς δεόμενον). There is no question of the hot *turning into* the cold or vice versa.

16.7 Τὰ δὲ κατὰ τοὺς νοσέοντας ... ἢ εἰ μὴ ἔλαβε τὴν ἀρχὴν, 'As for the sick ... than if the fever had never seized him in the first place': the general structure of the example is clear enough. The first part, which runs from οὐχὶ ὅσοισιν 140.17 J. to ἐνεχρόνισεν 141.6 J., illustrates the way in which hot follows upon cold. It is those who suffer from shivering who also suffer the most acute fever, and this fever migrates into those parts of the body that have been chilled the most (typically the feet). The second part (Πάλιν τε ... τὴν ἀρχὴν 141.6–7 J.) illustrates how the cold follows upon the hot: after the fever breaks, the patient feels even colder than he would have felt had he never suffered the fever in the first place. As at 16.3–4 we have first an example of hot following on cold, then of cold following on hot. The phenomena mentioned are widely attested in Hippocratic texts, as Jouanna has noted (1990, 141n1). For the connection of acute fever with shivering and chill, cf. *Epid.* III 1, L. 3.54.2 (ῥίγος· πυρετὸς ὀξύς); *Epid.* III 17.3, L. 3.116.12 (πολλὴ ψύξις, πυρετὸς ὀξύς); *Morb.* I 24, L. 6.190.6–13 (fever follows necessarily on ῥίγος because of heating of the blood). The author of *Acut.* (*Sp.*) notes that cold feet are a sign that fever will become more acute, and that the feet become hotter than the rest of the body when fever ceases (ch. 13, 74.13–75.2 Joly; L. 2.420–422).

There is some uncertainty on several points of detail. I follow Jouanna in adopting Coray's ἰσχυρὸς for the ἰσχυρῶς of A and M and in retaining οὕτως at 141.1 J. (cf. Jouanna 1990, 141n1). I take the point of the clause καὶ οὐχὶ ... ἀσινής; 141.1–3 J. to be that even though the fever that follows upon shivering is acute (ὀξύτατος 141.1 J.), it is nevertheless not very strong, ceases after a short time, and causes no serious harm to the body. This anticipates the point made in 18.3 and 19.4 that any condition caused by hot or cold alone comes quickly to an end with hot counteracting cold or vice versa; cf. also διὰ τάχειος 139.12 J, 141.8 J. I take the subject of παρῇ at 141.3 J. to be the fever, rather than the ῥίγος that precedes it (so Jouanna). This avoids the abrupt shift in subject from fever (ἀσινής 141.3 J.) to ῥίγος and back to fever again (διάθερμος 141.3 J.); also the point is not that the fever is intense as long as the cold (i.e. ῥίγος) is present, but that intense fever follows upon shivering. Finally, I follow Jouanna (1990, 141n2) in taking διέψυξεν 141.7 J. as intransitive, with the patient as subject; the fever is already gone, so it can hardly cool the patient.

16.8 διὰ τάχειος ... παραγίνεται τὸ ἐναντιώτατον, 'that is swiftly met ... by what is most opposed to it': the author continues the military

metaphor; cf. nn. above on 16.2 διὰ τάχους πρώτον ... οὐδὲ παρασκευῆς δεόμενον, 16.6 Οὕτως ἑτοιμῶς ἑκάτερον ... παραγίνεται.

16.8 ἀφαιρεόμενον τὴν δύναμιν, ‘takes away its power’: hot and cold each *has* a δύναμις; cf. n. above on 16.1 τῶν δυναμίων ... δυναστεύειν.

16.8 βοηθείης, ‘assistance’: cf. βοηθείης 139.14 J., βοήθημα 133.19 J., and (on the author’s therapeutic views) ch. 19, introductory note (pp. 283–285).

17

The mention of fever at the end of chapter 16 leads to an objection. In serious illnesses it is often the case that fever persists for a long time, suggesting that the hot is not immediately counteracted by the cold (17.1). The author concedes the point that the hot is not immediately counteracted by the cold in such cases, but he claims that this is evidence that the hot is *not* the sole cause of the fever. Another factor such as bitter or acid is always present, and it is this that is the real cause of the disease (17.2–3). The hot plays only an auxiliary role: its power increases and decreases in conjunction with the strength of the genuine cause, but it has no power beyond what has been assigned to it (17.3).

The chapter provides a striking example of one of the author’s key argumentative strategies: the attempt to turn an opponent’s claim against him (cf. 13, 15, 16). As in chapters 13 and 15, a situation of live debate is envisioned: the objection is attributed to an imaginary opponent and introduced with the phrase ‘Someone might say’ (Εἴποι ἄν τις 141.12 J.). The opponent’s point is turned completely on its head: the persistence of fever in serious diseases, far from being evidence that they are caused by the hot, is in fact the strongest piece of evidence (μέγιστον τεκμήριον 141.16 J.) that the hot is *not* their sole cause. Though a striking rhetorical move, this is no mere bluff. In chapter 16 the author has given a number of examples of situations in which certain effects are manifestly brought about by hot or cold alone and the cause is quickly counteracted by its opposite without any external intervention. Generalization from these cases yields the principle that any effect caused by hot or cold alone is quickly counteracted by the opposite of the cause. Once this is accepted, it is legitimate to infer that any case in which hot is *not* counteracted by cold must be due

to some other factor. In taking on the case of fever the author confronts what must have seemed a clear case of a pathological condition caused by the hot; indeed the idea that heat is the cause of fever was to some extent rooted in the Greek language itself (cf. n. below on 17.1 οἱ πυρεταίνοντες). The author does not deny that the hot is in some sense responsible for fever; his claim, rather, is that it is not the *sole* cause of fever (141.16–18 J.). The power of hot and cold in disease is dependent on and subordinate to the power of the leading cause, a factor such as bitter or acid. Hot and cold are like auxiliaries on a campaign who must follow the orders of their leader and can exert no power beyond what has been assigned to them (on the military metaphor cf. n. below on 17.3 συμπάρεστι δὲ καὶ τὸ θερμὸν ... δύναμιν δὲ οὐδεμίαν πλείω τῆς προσηκούσης).

* * *

17.1 Εἴποι ἄν τις, ‘Someone might say’: cf. *Flat.* 10, 116.10 Jouanna (L. 6.104): ‘But perhaps someone might say (Ἴσως δ’ ἄν τις εἴποι): how is it that fluxes are caused by air?’

17.1 οἱ πυρεταίνοντες, ‘those whose fevers are due to’: the term πυρετός ‘fever’ is built on the word πῦρ ‘fire’; hence the verb πυρεταίνω might be rendered literally as ‘I’m on fire’. Cf. Lonie 1981, 85–86 (noting that the account of fever given in *Morb.* IV, 42–49 is ‘a whole sustained metaphor’ that builds on the semantic associations of the word πῦρ). For the view that fever is caused by the hot see *Morb.* I 23, L. 6.188.7–13: ‘Fever (πυρετός) comes about from the following: whenever bile or phlegm is heated, all the rest of the body is heated along with them, and this is called fever. Bile and phlegm are heated internally by foods and drinks ... and externally by exercise and wounds, and by excessive heat and cold. And they are also heated by vision and hearing, but by these least of all.’

17.1 τοῖσι καύσοισι, ‘causūs’: καῦσος is a condition characterized by periodic high fever, but difficult to identify with certainty (‘bilious remittent fever’ LSJ s.v.). The author of *Morb.* I attributes it to bile that is set in motion (presumably by heat) and heats the blood, which then heats the rest of the body (ch. 29, L. 6.198.6–200.10).

17.1 περιπλευμονίησι, ‘pneumonia’: a disease characterized by inflammation of the lungs, roughly the modern pneumonia. In 19.2 the author

attributes it to a flux to the throat. True to form, the author of *Morb.* I argues that it is caused by the hot (ch. 27, L. 6.194.19–25): ‘περιπλευμονίη comes about whenever, when bile and phlegm have been heated and set in motion, the lung because of the heat attracts fluid to itself from the neighboring regions in addition to what is already present in it. And it warms the whole body and causes pain, especially in the back, the sides, the shoulders, and the backbone, since it is from these parts that it attracts the most fluid; and it dries and heats them to excess.’

17.1 πάρεστιν, ‘present itself’: cf. 139.12–13 J. (διὰ τάχειος ... πάρεστι τὸ θερμόν).

17.2 ἔστι καὶ πικρὸν καὶ θερμόν τὸ αὐτὸ ... καὶ ἄλλα μυρία, ‘one and the same thing is both bitter and hot ... and myriad other combinations’: for the wording cf. 15.3, 138.4–5 J. (Εἰ δὲ δὴ τυγχάνει τι θερμόν ἐόν στρυφνόν, ἄλλο δὲ θερμόν ἐόν πλαδαρόν). The basic idea is also the same: hot and cold are never found except in conjunction with a quality such as bitter or acid. But whereas in chapter 15 the author is making the point that any food or drink must possess other qualities as well as hot or cold, here the reference is to harmful substances in the body, i.e. humors.

17.2 μετὰ δυνάμιων ἑτέρων, ‘with other powers’: i.e. other than cold; δυνάμιων includes the powers hot and cold as well as bitter, acid, salty, and the like. But at 17.3, 142.5 J. δύναμιν is the power *possessed* by the hot; cf. n. below.

17.3 συμπάρεστι δὲ καὶ τὸ θερμόν ... δύναμιν δὲ οὐδεμίαν πλείω τῆς προσήκουσας, ‘the hot is present as an auxiliary ... having no power greater than that which is proper to it’: the syntax is somewhat irregular, since there is no verb or participle governing the accusative δύναμιν. Various emendations have been proposed, but we can easily understand δύναμιν as governed by an implicit ἔχον, understood from the compound μετέχον. The terms συμπάρεστι and τὸ ἡγεύμενον continue the military metaphor (16.2, 16.6, 16.8, 17.1; cf. Jouanna 1990, 142n2). Here the metaphor expresses not opposition but the subservience of hot and cold to their ‘leader’, a factor such as bitter or acid. For συμπάρεστι of allies on a military campaign cf. Xenophon *Hellenica* 4.6.1.

17.3 δύναμιν, ‘power’: for the power *belonging* to the hot cf. 15.3, 138.14–15 J. (Οὐ γὰρ τὸ θερμόν ἐστι τὸ τὴν μεγάλην δύναμιν ἔχον); 16.8, 141.9 J. (ἀφαιρεόμενον τὴν δύναμιν).

18

Chapters 18 and 19 present a continuous argument against the claim that hot and cold play a significant causal role in disease (despite such phenomena as the persistence of fever). The author begins by offering a series of examples, starting with cases that are familiar from common experience (18.1). The first example, presented in this chapter, concerns κόρυζα, a condition involving the discharge of acrid flux from the nose along with nasal swelling, inflammation, and ulceration. In cases of this disease the heat and inflammation in the nose cease only when the discharge becomes less acrid, thicker, better mixed, and more ripe or concocted (πέπον) (18.2). But when a case of κόρυζα is caused by cold alone, it ceases as soon as the cold is counteracted by the hot; this takes place quickly and requires no coction (πέψις) (18.3). All other cases of κόρυζα, which are caused by acridness and lack of *κρησις* among the humors, cease only when the humors undergo coction and *κρησις* (18.4).

The author begins with a disease that would have been familiar to a wide audience: κόρυζα, a condition whose symptoms resemble those of the common cold. He argues that the presence of this condition and its associated symptoms is correlated with the discharge of strong and unmixed substances from the body. As long as such substances are being discharged the disease and its symptoms are present; but once the discharges mix with other substances in the body and lose their strong and unblended character, the disease comes to an end. The discharge is the external, visible manifestation of the factor that is actually causing the disease: a strong, concentrated humor in the body. The argument builds on the association between *κρησις* and health made in chapter 14: disease occurs when one humor separates from the others and stands apart on its own, and health returns when the humors again blend with one another and return to a state of *κρησις*. But this chapter introduces an important new concept in the author’s discussion of disease, the notion of πέψις or coction. πέψις is associated with changes in the humors such as thickening, moderation of quality, mixing, and *κρησις*; it is said to be necessary for recovery in cases of

κόρυζα caused by the humors, but not in those caused by hot or cold alone (18.2–4). In using πέψις and related terms of processes taking place inside the body, such as digestion and changes in the humors during disease, the author is following general Hippocratic usage. But these terms were also used of a wide range of processes external to the body such as cooking and the ripening of fruit (cf. nn. below on 18.2 πέπον, 18.3 πέψιος, 18.4 πεφθέντα καὶ κρηθέντα). In general the Hippocratic writers do not draw attention to the analogy between πέψις in the body and such external processes. In VM, however, the central importance of cooking in the author's argument suggests that he was well aware of the analogy between cooking and πέψις of the humors; the next chapter will make this connection explicit.

* * *

18.1 ἐπὶ τῶνδε τῶν σημείων, 'from the following examples': σημεία are both 'examples' (cf. σημείω 147.12 J.) and 'signs', i.e. observable phenomena that provide direct evidence of what cannot be observed (cf. Diller 1932). The stress on the manifest character of the examples (φανερώτατα 142.7 J.) suggests that the author is thinking in terms of inference from visible to invisible.

18.1 ὅν πάντες ἔμπειροι ... καὶ ἐσόμεθα, 'which we all often experience ... in the future': the author begins from a starting point that is well known to his audience. The first-person-plural verbs establish a bond between author and audience; cf. Introduction, p. 37 and n. 79.

18.2 κόρυζα, 'a cold': a condition frequently said to be accompanied by βράγχος 'sore throat' (*Aer.* 10, 215.9 Jouanna, L. 2.46; *Aer.* 10, 217.2 Jouanna, L. 2.50; *Acut. [Sp.]* 41, 87.20 Joly, L. 2.478; *Aph.* 2.40, 3.13, 3.20, 3.23) and παταμός 'sneezing' (*Prog.* 14, L. 2.146.6; *Coac.* 393, L. 5.670.18–19); it is sometimes accompanied by fever, sometimes not (*Epid.* IV 7, L. 5.148.5–6). *Flat.* also treats κόρυζα as a flux to the nose, caused when air blocks the blood vessels in the head; this flux may also turn to the eyes (cf. VM 19.1), to the ears, or to the chest, causing βράγχος (cf. VM 19.2). The flux is said to be acrid and to cause ulceration: 'for phlegm mixed with acrid humors (δρμίσιν χυμοῖσιν), whenever it moves to unusual places, causes ulceration (ἐλκοῖ)' (*Flat.* 10, 116.10–117.6 Jouanna, L. 6.104–106). The same focus on acridness and ulceration characterizes VM's examples through section 19.2: cf. δρμύτερον 142.10 J., δρμύ 142.18 J., δρμύτητας 143.4 J., δρμύτητας 143.8 J., δρμεία 143.18

J., δομύτητος 143.20 J.; ἐξελκοῦται 142.14 J., ἐλκοῖ 143.9 J. *Loc. Hom.* begins an enumeration of types of flux to different parts of the body with a description of nasal flux, suggesting that the author considered it a common condition (ch. 11, 50.28–31 Craik, L. 6.296; cf. Craik 1998, 144).

18.2 συγκαίειν, ‘inflamed’: adopting the reading of M over A’s συγκαίει and taking the verb as intransitive: ‘to be inflamed’ (so Jouanna 1990, 142n6).

18.2 καὶ πλείω χρόνον παρῇ, ‘and the flux is present for a long time’: the subject of παρῇ is the flux (ῥεῦμα 142.9 J.); rubbing the nose with the hand leads to ulceration if the flux continues for a long period of time.

18.2 ἄσαρκόν τε καὶ σκληρὸν ἐόν, ‘since it is without flesh and hard’: the participle is probably causal rather than concessive; the nose becomes ulcerated *because* it is hard and lacking in soft flesh (Jouanna 1990, 142n8).

18.2 Παύεται δὲ πῶς ... ἐκ τῆς ῥινός; ‘How does ... come to an end?’: the interrogative πῶς (A) is in keeping with the author’s penchant for rhetorical questions and is preferable to the indefinite πως (M).

18.2 πέπον, ‘ripe’: the basic meaning of πέπων is ‘cooked by the sun, ripe’ (LSJ s.v.); it is regularly used by the Hippocratics of discharges such as urine, sputum, or stools, and is sometimes opposed to ὠμός ‘raw’ (e.g. *Hum.* 4, L. 5.480.7; *Aph.* 1.22, L. 4.468.13–14). According to *Acut. (Sp.)* 32, 84.15–17 Joly (L. 2.462–464) concocted (πέποντα) sputum is similar to pus (ὁμοῖα τῷ πυφί), while concocted urine has a reddish sediment like the color of bitter vetch (ὄροβος). Cf. πεπαίτερα 143.20 J.

18.2 μεμιγμένον μᾶλλον τῷ πρότερον γινομένῳ, ‘better mixed with what occurred before’: i.e. with the discharge that normally flowed from the nose before the onset of κόρυζα (τοῦ πρότερον γινομένου ... καθ’ ἐκάστην ἡμέρην 142.10–12 J.). Cf. Jouanna 1990, 142n11.

18.3 Ἀλλ’ οἷσι [δὲ], ‘But in all cases’: Ἀλλ’ οἷσι is a necessary correction for the ἀλλοῖσι of the MSS; the pronoun is picked up by πᾶσιν at 142.21 J. (cf. Littré 1.614–615). But the combination ἀλλὰ ... δέ is unparalleled;

hence Ermerins' deletion of δὲ and adoption of M's πᾶσιν in place of A's πᾶσι δὲ at 142.21 J. Cf. Jouanna 1990, 143n1.

18.3 ὑπὸ ψύχους ... μηδενὸς ἄλλου συμπαραγενομένου, 'where such a condition obviously arises from chill alone with no other reinforcement': in mentioning cases of κόρυζα caused by cold alone, the author probably has in mind the way in which a walk out in the cold during winter can bring on a runny nose, which ceases shortly after one comes back into shelter; cf. the examples of moving from a cold environment into warm shelter in chapter 16 (16.3, 16.6). In such a situation the runny nose is manifestly caused by cold alone, and it manifestly ceases when the person comes in from the cold. This supports the general principle, suggested by the examples given in chapter 16, that any condition caused by hot or cold alone ceases quickly with the cause being counteracted by its opposite; it thus supports the author's case that any condition characterized by the persistence of hot or cold cannot be due to those factors alone (cf. ch. 17, introductory note). For συμπαραγενομένου cf. συμπάρεστι 142.3 J.

18.3 αὕτη ἡ ἀπαλλαγὴ, 'this is the relief': this, the text of M, is preferable to A's ἡ αὐτὴ ἀπαλλαγὴ, since the point is not that all cases of κόρυζα arising from cold alone end in the *same* way, but that they end with a change from cold to hot. αὕτη points forward to the infinitives διαθερμανθῆναι (143.1 J.) and διαψυχθῆναι (143.2 J.).

18.3 καὶ ταῦτα ταχέως παραγίνεται, 'These things come about quickly': the verb παραγίνεται continues the military metaphor; hot and cold 'present themselves' quickly with no need for coction. Cf. 16.8, 141.8 J. διὰ τάχους ... παραγίνεται; 16.2, 139.12–13 J. διὰ τάχους ... πάρεστι.

18.3 πέψις, 'coction': the only occurrence of the substantive πέψις in VM. It occurs only twice elsewhere in the early Hippocratic writings: *Acut.* (*Sp.*) 37, 86.6–7 Joly (L. 2.470) (referring to urine that 'has coction' [πέψιν ἔχοντα]) and *Coac.* 384, L. 5.666.22–23 (sputa that are 'colored towards coction' [ἐς πέψιν χρωματιζόμενα] within five days are a good sign). The author of *Meteorology* IV, at the beginning of an extensive discussion of πέψις, defines it as a perfection (τελείωσις) brought about by innate heat, and says that there are three principal types: ripening (πέπανσις), boiling (ἔψησις), and roasting (ὀπτησις) (379b12, 18; cf. 381a23). Cf. n. on 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι.

18.4 πεφθέντα καὶ κρηθέντα, ‘concocted and blended’: the verb πέσσω occurs several dozen times in the Hippocratics. By far the most common meaning is ‘digest’, as at VM 11.1, 131.17 J. (cf. n. *ad loc.*). At *Nat. Puer.* 22, 70.2 Joly (L. 7.516) and *Nat. Puer.* 26, 76.3 Joly (L. 7.526) the meaning is ‘ripen’ (cf. Hom. *Od.* 7.119). Diseases themselves could also be said to undergo coction, where this was a matter of progress towards a decisive turning point or crisis. At *Acut.* 42, 54.3–4 Joly (L. 2.312) sleeplessness is said to be a reason why a disease is not concocted (οὐ πέσσεται ἢ νοῦσος). Cf. *Prog.* 12, L. 2.140.11, where the presence of thin and yellowish-red urine is a sign that a disease is ‘unconcocted’ (ἄπεπτον); if the condition persists, there is a danger that the patient will not hold out ‘until the disease is concocted’ (ἔστ’ ἂν πεπανθῇ ἢ νοῦσος, L. 2.140.13). At *Acut.* 38, 52.10 Joly (L. 2.304) it is the ἀκμή of the disease that is said to undergo coction (πεπανθῇ). On the association between πέψις and κρησις cf. below, pp. 281–282.

19

The author continues the series of examples in support of the claim that hot and cold are relatively unimportant as causes of disease. He first considers flux to the eyes, accompanied by ulceration of the eyelids, pain, burning heat, and inflammation; these symptoms continue until the flux undergoes coction and thickening, and changes into rheum (19.1). The final example is of flux to the throat, leading to serious throat conditions and diseases of the lungs. When such diseases are at their height patients discharge salty, moist, and acrid fluids; only when these thicken, undergo coction, and lose their acrid character do the fever and the other symptoms cease (19.2). It is clear that the cause of each of these conditions is a concentrated humor in the body: for the presence of such a humor is necessarily accompanied by the disease, while its disappearance signals that the disease is at an end (19.3). But all cases of such diseases that arise from hot or cold alone cease when the hot is counteracted by the cold or vice versa (19.4). Section 19.5 gives two examples to support the claim that all other diseases are caused by ‘powers’ (δυνάμεις), i.e. humors in concentrated form: the discharge of a bitter humor such as yellow bile, accompanied by nausea, fever, and weakness; and acrid, greenish, and acidic discharges, accompanied by frenzy and gnawing pain in the viscera. In both cases there is no relief until the offending humor is either purged away or

undergoes πέψις and κοήσις with the other humors in the body. In the last two sections of the chapter the author argues that hot and cold cannot undergo the kinds of changes that are involved in πέψις, such as thickening and changing into different sorts of humors. This is connected with another distinctive characteristic of hot and cold: they can enter into κοήσις only with one another, whereas the strength of any other power becomes more moderate the greater the number of substances with which it is mixed (19.6). The best state is one in which all the humors in the body have undergone πέψις and are thoroughly mixed and blended, so that none displays its distinctive δύναμις (19.7).

The examples given in this chapter make the same point as the example of nasal flux in chapter 18. All the conditions mentioned are accompanied by the discharge of substances with strong smells or flavors from the body; the claim is that the diseases cease when and only when these substances undergo mixing, κοήσις, and πέψις, and lose their strong and unblended character. Conditions caused by hot or cold alone cease quickly with a spontaneous change from one opposite to the other; those caused by a concentrated humor cease only with πέψις and κοήσις. As in chapter 18 πέψις is consistently associated with mixing, blending, and thickening (for mixing and blending see 143.14–15 J., 144.17 J., 145.14–15 J.; for thickening 143.13 J., 143.20 J., 145.4 J., 145.9 J., and n. below on 19.6 Πέσσεσθαι ... παχύνεσθαι). A new and important point here is the explicit association of πέψις and cooking: the humors undergo πέψις by being ‘boiled together’ (συνεψηθῆναι 143.15 J.) as well as by mixing and blending with one another (cf. n. below on 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι). This association must be interpreted in light of the analogy between cooking and medicine that underlies the author’s entire response to the proponents of ὑποθέσεις. Just as the humors in foods must be cooked in order to diminish their strength, so in the body when one of the humors separates from the others and causes harm, the humors must undergo πέψις in order to return to a state of health. The processes that the humors in the body undergo in returning to health are the same as the processes that the humors in foods undergo during cooking. To bring about health in the body, the doctor must bring about πέψις of the humors; thus, just as the account of chapters 3–8 suggests, his τέχνη really is a kind of cooking. The explicit association between πέψις and cooking sheds light on a further distinctive feature of VM, the author’s close association of πέψις and κοήσις (143.5–6 J., 143.14–15 J., 144.17 J.). As Jouanna has noted (1990, 62–63), other Hippocratic texts tend to appeal to either πέψις or

κρησίδες but not both in accounts of disease; when both are mentioned, they tend not to be closely associated. The close link between πέψις and κρησίδες in VM reflects the author's attempt to base his theory of human φύσις as a κρησίδες of humors on experience in the τέχνη of cooking. Cf. Arist. *Mete.* IV 381b3–9, 381a9–12 (discussed below on 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι).

While the author's argument against the causal importance of hot and cold might seem to be based solely on observable correlations (diseases cease only when the substances discharged from the body lose their strong and concentrated character), in fact his conception of causation is much more sophisticated than simple *post hoc, propter hoc* correlation (cf. n. below on 19.3 Δεῖ δὲ δήπου ... ἐξ ἄλλην κρησίδων παύεσθαι). Moreover his argument is based on a conception of disease that was shared by a number of other Hippocratic authors. According to this conception diseases are characterized by progression towards a 'crisis' (κρίσις), a turning point that is decisive for their further development. The progress of the disease is marked by periodic variation of fevers and other symptoms according to a pattern of 'critical days'. Diseases are accompanied by 'raw' (ὥμά), 'unconcocted' (ἄπεπτα), or 'unblended' (ἄκρητα) discharges, and they cease when coction occurs and the discharges lose their unblended character. The notions of critical days, coction, and crisis make up a theoretical framework for the understanding of disease that is attested with variations in a number of Hippocratic texts, especially those traditionally associated with the school of Cos such as *Prognostic* and *Epidemics* (cf. Jones 1923, li–lv; Bourgey 1953, 236ff.; Langholf 1990, 79ff.). The author of VM reveals his familiarity with this framework when he stresses the importance of both crises and critical days in connection with coction (19.6). A famous passage of the *Epidemics* exemplifies the close association between coction and crisis (*Epid.* I 5, L. 2.632.12–634.6; tr. Jones, modified):

In all dangerous cases, be on the watch for (σκοπεῖσθαι) all timely coctions (πεπασμούς) of the evacuations from all parts or for fair and critical abscessions (ἀποστάσεις). Coctions (πεπασμοί) signify nearness of crisis and surety of recovery (ἀσφάλειαν ὑγείας), but raw (ὥμά) and unconcocted (ἄπεπτα) evacuations and those that turn into bad abscessions signify absence of crisis, pain, prolongation, death, or a relapse of the same symptoms. But which of these results is most likely, you must investigate on the basis of other signs.

The passage is remarkable for its confident association of coction, crisis, and recovery. 'Coctions' (πεπασμοί) signify crisis and certain recov-

ery; the absence of coction signifies lack of crisis and death or relapse. A close connection between coction and crisis is stated or implied in numerous other passages (cf. *Epid.* I 3, L. 2.610.8–9; VI 3.4, L. 5.294.5–6; *Prog.* 12, L. 2.140.10–13; *Acut.* [*Sp.*] 37, 86.6–7 Joly, L. 2.470). Yet coction may take place without crisis (e.g. *Epid.* II 3.4, L. 5.106.3–108.6), and it is sometimes even treated as an unfavorable sign (*Coac.* 371, L. 5.662.12–14; *Coac.* 568, L. 5.714.7–10; *Prorrh.* I 59, L. 5.524.8–9; cf. Bourgey 1953, 238–239). These passages reflect an attempt to reconcile a theoretical commitment to the link between coction and crisis with the reality of medical experience. But even if some Hippocratics overstated the link, it no doubt had a solid foundation in observation and experience (cf. Bourgey 1953, 244). VM's argument in this chapter should thus be viewed as an appeal to observation within a particular theoretical framework. Within this framework the question was: what is the most reliable sign of crisis and recovery? The author's answer that it is πέψις and κρήσις of the humors is at least as strong on observational grounds as the opposing claim that crisis is brought about by the hot, i.e. fever (cf. *Epid.* I 11, L. 2.674.14–676.10, noting that fever sometimes diminishes and sometimes increases around the time of crisis). And it is more in line with a widespread and influential approach to disease that had a solid basis in medical experience.

In the last two sections of the chapter the author argues that hot and cold are the least able of all the powers in the body to undergo πέψις. Despite some textual corruption, two reasons for this emerge with reasonable clarity. First, hot and cold cannot undergo processes such as thinning, thickening, or putrefaction (σῆψις), nor can they change into different kinds of humors (19.6, 145.3–9 J.). The idea seems to be that hot and cold are less substantial than the other powers: a quality such as sweet or bitter is always manifest in a fluid substance that can thin, thicken, or undergo putrefaction, but this is not true of hot and cold (cf. ch. 15, introductory note). Second, hot and cold can undergo κρήσις only by blending with one another. The other powers in the body, by contrast, become more moderate and better blended the greater the number of things with which they are mixed (19.6–7, 145.9–14 J.). A quality such as astringent has its strength or concentration diminished by mixing with the sweet or the acid just as much as by mixing with its opposite, the insipid. Again the idea seems to be that hot and cold are less tied to a particular kind of material substance than qualities such as astringent or acid. The mixing of astringent and acid is like the mixing of water and wine: even though these are not opposites, both

become more dilute when they are mixed together. But when the hot, for example, ‘mixes’ with something sweet or bitter, i.e. when a sweet or bitter thing becomes hot, it does not lose any of its heat; this happens only when it ‘mixes’ with the cold. In any case, it is clear that the author conceives of *κρῆσις* of the humors not as an equilibrium between opposites, as in the case of hot and cold, but as a blend in which each power holds all the others in check and is held in check by them. Each of the humors will be opposed by all the others acting together if it comes to dominate in the body. This conception of equilibrium is quite different from that of Alcmaeon, who conceived of health as an equilibrium between opposite powers (DK 24 B 1); it is well illustrated by the model of interconnecting vessels described by the author of *Morb.* IV (ch. 39; see below on 19.7 *Τὰ δ’ ἄλλα πάντα ... καὶ βελτίονα*).

With this conception of *κρῆσις* comes a clear rejection of the notion that opposites are the cure for opposites. On the author’s view the doctor’s task is to bring about *πέψις* and *κρῆσις* of the humors; this is a much more complicated task than countering the hot with the cold or the wet with the dry. Indeed, the fact that hot and cold can enter into *κρῆσις* only with one another shows that they are *unimportant* in accounting for diseases and their treatment. The focus on bringing about *πέψις* and *κρῆσις* of the humors is connected with a conception of therapy as a non-invasive rendering of ‘assistance’ to the patient (*βοηθείη* 16.2, 139.14 J.; 16.8, 141.11 J.; *βοήθημα* 13.2, 133.19 J.). It is striking that the passage from *Epidemics* I 5 quoted above (p. 282) as illustrating the importance of *πέψις* goes on to describe the physician’s task as assisting the patient in his battle with the disease (L. 2.634.6–636.4). The notion of therapy as assistance, in turn, suggests the idea that the patient’s nature has a power of its own to restore health (the so-called *vis medicatrix naturae*; see *Epid.* VI 5.1, L. 5.314.4–12 and Jouanna 1999, 346–347). We have already seen that the author conceives of the *κρῆσις* of hot and cold as a dynamic equilibrium that tends to restore itself if disturbed (ch. 16, introductory note). The *κρῆσις* of the humors is no less a dynamic equilibrium: if one of the humors comes to dominate in the body, it will be counteracted by all the others acting together (again *Morb.* IV 39 provides a striking illustration; see below on 19.7 *Τὰ δ’ ἄλλα πάντα ... καὶ βελτίονα*). The patient’s φύσις has a power of its own to bring about a return to health, and the doctor’s role is to assist that power. This conception of therapy may help to explain why the author makes only a single reference to therapeutic intervention in the present chapter: the offhand remark

at 19.5, 144.14 J. that patients may be freed of an offending humor either spontaneously (αὐτόματοι) or by taking a drug (ὑπὸ φαρμάκου). In minimizing references to therapy the author may have been attempting to emphasize the power of the patient's φύσις to bring about its own recovery, and thus to distinguish himself from what he took to be his opponents' tendency towards excessive therapeutic intervention.

* * *

19.1 ὡς ἰσχυρὰς καὶ παντοίας δριμύτητας ... ἐλκοῖ μὲν βλέφαρα, 'since they possess strong acridities of all sorts, cause ulcers on the eyelids': for ulceration caused by acrid flux cf. *Flat.* 10, 116.10–117.6 Jouanna (L. 6.104–106; above, n. on 18.2 κόρυζα). For παντοίας cf. 14.4 παντοίας δυνάμιας ἔχοντα πληθὸς τε καὶ ἰσχύιν with n.

19.1 μέχρι τίνος, 'and for how long?': both A and M read μέχρι τινὸς ('up to a certain extent'), but the direct interrogative is more in line with the author's vivid style; cf. πῶς 18.2, 142.15 J.

19.1 πεφθῆ ... παχύτερα ... λήμη, 'are concocted ... become thicker ... rheum is formed from them': for the association of πέψις and thickening cf. παχύτερόν ... πέπον 142.17–18 J., παχύτερα καὶ πεπαίτερα 143.20 J., παχύνεσθαι 145.4 J., παχυνθείη 145.9 J. For the idea that πέψις results in the formation of λήμη ('a humor that gathers in the corner of the eye, rheum' LSJ) cf. Arist. *Mete.* 379b29–32. Cf. also *Anon. Lond.* XII 25, where σῆψις is associated with thickening and the formation of rheum (λήμη) (the theory of Dexippus of Cos; cf. n. below on 19.6 Οὐτε γὰρ ἂν τοῦτο γέ σαπείη οὔτε παχυνθείη).

19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι, 'And coction comes from ... and boiled together': cf. the initial description of cooking at 3.5, 122.12–13 J. as involving boiling, baking, mixing, and blending (ἤψησάν τε καὶ ὥπτησαν καὶ ἔμιξαν καὶ ἐκέρασαν); for boiling cf. also 5.4, 124.19–20 J. (ἀφαιρέομενοι τὸ ἰσχυρόν τῇ κρήσει τε καὶ ἐψήσει). For the explicit association of πέψις and κρήσις cf. πεφθέντα καὶ κρηθέντα 143.5–6 J., ἄπεπτα καὶ ἄκρητα 144.17 J. The implication is that the same processes (mixing, blending, and boiling) are involved in cooking and in the πέψις of the humors in the body. For πέψις as cooking cf. Hdt. 8.137, Ar. *Ra.* 505, Pl. *R.* 372b, and the discussion of πέψις in *Meteorology* IV, where its three main types are said to be ripening (πέπανσις), boiling (ἔψησις), and roasting (ὄπτησις) (379b12, 18; cf. 381a23). At 381b3–9 the

author states that the natural process of πέψις in the body is *similar to* (ὅμοια) roasting and boiling, for ‘art imitates nature’ (μιμείται γὰρ ἡ τέχνη τὴν φύσιν). But then at 381a9–12 he suggests that there is *no difference* between πέψις in the body and such artificial processes: ‘Such, then, is what is called coction (πέψις) by boiling (ἔψησις): and it makes no difference whether it takes place in artificial or natural instruments (ἐν ὀργάνοις τεχνικοῖς καὶ φυσικοῖς), for the cause will be the same in all cases.’ A similar view probably underlies VM’s attempt to base his theory of human φύσις on experience in the τέχνη of cooking; cf. above, pp. 281–282 and below, pp. 325–326. On the importance of cooking analogies in the Hippocratics as a means of elucidating the internal functioning or development of the human body see Jouanna 1999, 319–321. For representative examples cf. *Flat.* 8, 113.14–114.2 Jouanna (L. 6.102) (yawning before fever compared to the way in which steam from a boiling kettle causes the lid to rise); *Flat.* 8, 114.9–15 Jouanna (L. 6.102) (formation of sweat during fever like the way in which steam rising from boiling water condenses if it strikes a hard surface); *Carn.* 3, 189.3–190.19 Joly (L. 8.586–588) (human tissues are formed when fatty and glutinous substances are cooked by the hot); *Carn.* 4, 191.7–12 Joly (L. 8.588–590) (the behavior of different substances when cooked supports a theory of the formation of the spinal marrow); *Nat. Puer.* 12, 54.21–26 Joly (L. 7.488) (formation of a membrane around the embryo compared to the way in which a crust forms around bread when it is baked); *Morb.* IV 51, 108.2–21 Joly (L. 7.584) (coagulation and separation of the humors in the body illustrated by the Scythian procedure of making butter and cheese); *Morb.* IV 52, 111.11–19 Joly (L. 7.590) (separation of humors compared to the way in which fig juice curdles milk); *Vict.* 18, 138.18–21 Joly (L. 6.492) (cooking cited as an example of a τέχνη that imitates or resembles the φύσις of the human being).

19.2 βράγχοι, ‘hoarseness and sore throat’: βράγχος is ‘hoarseness or sore throat causing hoarseness’ (LSJ). Cf. Thucydides 2.49, where it is one of the early stages in the Athenian plague and accompanied by sneezing (πταγμός). According to *Flat.* it results from a flux to the chest that consists of phlegm mixed with acrid (δερμύς) humors (ch. 10, 117.4 Jouanna, L. 6.106.3); cf. n. on 18.2 νόρυσα.

19.2 κυνάγχει, ‘quinsy’: serious throat inflammation accompanied by difficulty in breathing and swallowing saliva. Cf. *Morb.* II 9, L. 7.16–18; *Morb.* II 26–28, L. 7.40–46; *Morb.* III 10, L. 7.128–130.

19.2 ἐρυσιπέλατα, ‘crysipelas’: the context indicates that the region affected is the lung, not the skin (Jouanna 1990, 143n8). For ἐρυσίπελας of the lung cf. *Morb.* I 18, L. 6.172 (where the cause given is excessive dryness); *Morb.* II 55, L. 7.84–88.

19.2 περιπλευμονίαι, ‘pneumonia’: cf. n. on 17.1 περιπλευμονίησι.

19.2 καὶ ἐν τοῖσι τοιούτοισιν ἔρρωται τὰ νοσήματα, ‘and in such things diseases have their strength’: I take τοιούτοισιν to refer directly to the kinds of discharges just mentioned: diseases have their strength ‘in such things’, i.e. they are what give the disease its power (so Jouanna 1990, 143n9). Alternatively ἐν τοῖσι τοιούτοισιν might be taken in a temporal sense: the diseases mentioned have their strength ‘at such times’, i.e. when the salty, moist, and acrid substances just mentioned are discharged (so Littré, Festugière).

19.2 ὅταν δὲ παχύτερα καὶ πεπαίτερα γένηται, ‘but when they become thicker and more ripe’: the subject of γένηται is best taken to be the same as that of ἀφίει 143.18 J., i.e. πάντα ταῦτα (sc. ῥεύματα) 143.17 J. (picking up ὅσα 143.15 J.). It is these fluxes that provoke the conditions mentioned, ‘send forth’ (ἀφίει) the acrid discharges, and undergo coction and thickening (cf. Μέχρι ἂν τὰ ῥεύματα πεφθῇ καὶ γένηται παχύτερα 143.12–13 J.). So Jouanna 1990, 143n10. For coction and thickening cf. n. on 19.1 πεφθῇ ... παχύτερα ... λήμη; for πεπαίτερα cf. n. on 18.2 πέπον.

19.3 Δεῖ δὲ δήπου ... ἐς ἄλλην κρῆσιν πάυσεσθαι, ‘One must of course ... into another blend it ceases’: most translators take ταῦτα to refer forward to the genitive ὧν at 144.3 J., making this a highly general statement about the identification of genuine causal factors: ‘One must of course consider the cause of each condition to be those things whose presence is necessarily accompanied by that condition in a certain form, while when they change into another blend, it ceases.’ But the subject throughout section 19.2 has been the fluxes (ῥεύματα) that send forth salty, moist, and acrid discharges from the body (cf. prev. n.), and the reference to ‘changing into another blend’ (μεταβαλλόντων δ’ ἐς ἄλλην κρῆσιν 144.4–5 J.) makes it clear that the author still has such fluxes in mind. This suggests that the point is that these fluxes (ταῦτα picking up the subject of ἀφίει 143.18 J. and γένηται 143.20 J.) must be regarded as the genuine cause of each of the specific conditions

mentioned (ἐκάστων 144.3 J.); the translation follows this interpretation (so Jouanna 1990, 144n1).

On either interpretation, the passage shows that the author has a highly sophisticated conception of cause. The remark goes beyond simple *post hoc, propter hoc* reasoning in two respects: (1) it mentions both the presence and absence of a disease and of its cause; (2) the term ἀνάγκη (144.4 J.) suggests that the correlation between cause and effect is not merely temporal—the condition follows necessarily from the presence of the genuine cause, and is present only as long as the cause is present. The suggestion that a genuine causal factor is something whose presence is *necessarily* accompanied by its effect and whose absence is necessarily accompanied by the absence of the effect is arguably the most sophisticated statement about causation to be found anywhere in the Hippocratic Corpus; cf. Vegetti 1999, 284. It would not be misleading to attribute to the author the view that a genuine cause must be both a necessary and sufficient condition of its effect, though he has no special terminology to express the notion of such conditions (cf. Lloyd 1979, 54 and [for the terminology] Pl. *Phd.* 99a4–b6). For explicit rejection of *post hoc, propter hoc* reasoning in a different context cf. 21.2; cf. also *Vict.* 70, 202.11–12 Joly (L. 6.606).

19.3 ἐς ἄλλην κρῆσιν, ‘into another blend’: a clear reference to the existence of different κρήσεις of the humors, each one a distinct combination of ingredients in different amounts and concentrations. Cf. n. below on 19.6 Τί γὰρ αὐτὸ φήσομεν εἶναι ... ἢ τῷ θερμῷ and ch. 14, introductory note (above, pp. 233–234).

19.4 Ὅκόσα τε οὖν ... ὅνπερ προείρηται μοι τρόπον, ‘Accordingly, all cases ... in the way I have already said’: on the interpretation of section 19.3 adopted here (cf. n. above on 19.3 Δεῖ δὲ δήπου ... ἐς ἄλλην κρῆσιν παύεσθαι), this statement refers specifically to cases of flux to the throat that are caused by hot and cold alone. The words ὅνπερ προείρηται μοι τρόπον refer back to 18.3, 142.20–143.3 J., where the same point is made about κόρυζα.

19.4 καὶ μὴ μετέχει ἄλλης δυνάμιος μηδεμῆς, ‘and have no share in any other power’: ἄλλης implies that hot and cold are regarded as δυνάμεις; cf. nn. on 17.2 μετὰ δυναμίων ἐτέρων and 19.5 πάντα ἀπὸ δυναμίων γίνεται.

19.5 Ἐπι τοίνυν ... πάντα ἀπὸ δυνάμεων γίνεται, ‘Moreover, all the other ills ... come from powers’: ‘all the other ills’ refers to all conditions other than those discussed in the series of examples that begins in 18.1 (viz. flux to nose, eyes, and throat). The implication is that the only conditions caused by hot or cold alone are certain cases of diseases such as κόρυζα or βράγχος—not an unreasonable view for the author to hold. Cf. Jouanna 1990, 144n4.

19.5 πάντα ἀπὸ δυνάμεων γίνεται, ‘all ... come from powers’: since the conditions mentioned in this section are caused not by hot or cold but by a humor in concentrated form (cf. 144.11–12 J., 144.18–19 J.), δύναμις here must have the specialized sense of ‘concentrated humor’; i.e. the scope of the term excludes hot and cold. But at 144.7 J. δύναμις includes hot and cold; cf. above on 19.4 καὶ μὴ μετέχει ἄλλης δυνάμιος μηδεμιᾶς. The author slides easily from δύναμις as ‘power’ or ‘quality’ (cf. 16.1) to δύναμις as ‘concentrated humor’. Cf. n. on 14.6 ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυνάμεων.

19.5 πικρότης τις ... χολὴν ξανθὴν καλέομεν, ‘a bitterness is poured out, the one which we call yellow bile’: a remarkable illustration of the author’s failure to distinguish between concrete and abstract; the abstract substantive πικρότης clearly refers to a fluid substance, yellow bile. Cf. 19.5 ὀξύτητες ... δορμειαί τε καὶ ἰώδεις and pp. 232–233 above.

19.5 καλέομεν, ‘we call’: for the notion that the names of the humors are a matter of specialized knowledge cf. Thuc. 2.49.3, Pl. *Ti.* 83b–c; on the use of καλέομεν to mark a technical term and the significance of such remarks for determining the author’s intended audience cf. Festugière 1948, 68–69 and Introduction, p. 41.

19.5 ἢ αὐτόματοι ἢ ὑπὸ φαρμάκου, ‘whether spontaneously or by means of a drug’: on the significance of this remark for understanding the author’s conception of therapy cf. introductory note, pp. 284–285.

19.5 ὅσον δ’ ἂν χρόνον ταῦτα μετέωρα ἦ, ‘But as long as these humors are in an excited state’: ‘these humors’ refers to the bitter fluid mentioned at 144.11 J. (πικρότης τις, picked up by τούτου 144.13 J.). For the metaphorical use of μετέωρος (lit. ‘suspended’, ‘elevated’) cf. *Acut.* (*Sp.*) 8, 71.16–17 Joly (L. 2.408): ἐν ἀρχῇ εὐθέως μετέωρων ἐόντων πάντων τῶν λυπεόντων ῥευμάτων (noted by Jouanna 1990, 144n7).

19.5 ἀπεπτα καὶ ἄκρητα, ‘unconcocted, and unblended’: for the association between πέψις and κρήσις cf. 18.4 πεφθέντα καὶ κρηθέντα with n., 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι with n., and introductory note, pp. 281–282 above.

19.5 ὀξύτητες ... δριμυταί τε καὶ ἰώδεις, ‘acid and greenish acidities’: cf. above on 19.5 πικρότης τις ... χολὴν ξανθὴν καλέομεν.

19.6 Πέσσεσθαι ... παχύνεσθαι, ‘But undergoing coction ... thickening’: despite λεπτύνεσθαι at 145.4 J. we need not conclude that the author takes coction to involve *both* thinning and thickening. He consistently associates πέψις with thickening (παχύτερα 143.13 J., 143.20 J.; παχυνθείη 145.9 J.); λεπτύνεσθαι thus probably refers to a change away from rather than towards a state of coction. The point is that hot and cold simply cannot undergo the kinds of transformations involved in πέψις.

19.6 ἐς χυμῶν εἶδος διὰ πολλῶν εἰδέων καὶ παντοίων, ‘into a kind of humor through kinds many and varied’: εἶδος refers to a type or kind of humor; sweet is one εἶδος of humor, acid another (cf. 24.1 μεταβάλλοι ἐς ἄλλο εἶδος with n.). The plurals παντοίας δριμύτητος (143.8 J.) and ὀξύτητες (144.19 J.) suggest the existence of many different varieties of acid and acidic humor; the εἶδος is the general class to which each of these varieties belongs. The types or kinds of humor are distinguished chiefly by their smell or taste, but also in part by visual features (cf. χολὴν ξανθὴν 144.12 J., ὀξύτητες ... ἰώδεις 144.19 J.). Cf. Gillespie 1912 and n. on 15.1 μηδενὶ ἄλλῳ εἶδει κοινωνέον.

19.6 διὸ καὶ αἱ κρίσεις ... μέγα δύνανται, ‘for which reason ... in such diseases’: for the significance of this recognition of the importance of crisis and critical days in the treatment of disease cf. pp. 282–283 above.

19.6 πάντων δὲ τούτων ... πάσχειν, ‘such modifications hot and cold are the least likely ... to undergo’: the meaning we expect is ‘hot and cold are the least able to undergo all these processes’ (i.e. πέσσεσθαι, μεταβάλλειν, etc.), but πάντων δὲ τούτων cannot function as the object of πάσχειν. Various emendations have been suggested; the easiest is perhaps that of Cornford, who proposed the addition of τι before τούτων (Jones 1946, 83). If the text of the manuscripts is retained, πάντων δὲ τούτων must be interpreted as a genitive of comparison

depending on ἥμιστα and referring to the other powers or substances in the body (i.e. τοῖσιν ἄλλοισιν 145.3 J.): ‘of all these (powers, substances) hot and cold are the least likely to suffer (such modifications)’. Cf. 16.1, 139.4–5 J. (πασέων ἥμιστα τῶν δυναμίων ... δυναστεύειν) and Jouanna 1990, 145n3.

19.6 Οὐτε γὰρ ἂν τοῦτο γε σαπείη οὔτε παχυνθείη, ‘for in this case there could be neither putrefaction nor thickening’: the notion that σήψις or putrefaction is the opposite process to πέψις is firm Aristotelian doctrine (*Met.* IV, 379a3–b9; cf. LSJ s.v. Π and Bonitz 1870, 590b57), but earlier thinkers did not always distinguish them. Aristotle criticizes Empedocles for holding that milk is blood that has undergone putrefaction, not πέψις (DK 31 B 68); cf. Galen’s claim that Empedocles failed to distinguish πέψις and σήψις, and that this was the general practice among early Greek thinkers: ‘there was an ancient custom among these men to call unputrefied (ἄσπικτα) what we call unconcocted (ἄπεπτα)’ (*In Hipp. Aph. comment.* 6.1, K. 18.1:8.14–16 = DK 31 A 77). Cf. also the account of the theory of Dexippus of Cos at *Anon. Lond.* XII 25, where σήψις is associated with thickening and the formation of rheum (λήμη).

19.6 Τί γὰρ αὐτὸ φήσομεν εἶναι ... ἢ τῷ θερμῷ, ‘How then can we say ... except when mixed with the hot’: the readings of A and M diverge significantly down to δύναμιν 145.10 J. I follow the text of A, except that I accept Plamböck’s proposal (1964, 89) to read πρὸς ἀλλήλας for πρὸς ἄλληλα in 145.10 J. With this emendation the text of A yields a satisfactory sense. In 16.1 the author remarked that hot and cold can enter into κρήσις with one another (139.8–9 J.). Now he points out that they can enter into κρήσις *only* with one another: the hot is moderated only by the cold, and the cold only by the hot (ἐπεὶ ἄλλω γε ... ἢ τῷ θερμῷ 145.11–12 J.). If we suppose that each κρήσις has a δύναμις, a capacity to affect resulting from the combination of the individual δυνάμεις of its constituents, then all the κρήσεις into which hot and cold can enter will have essentially the same δύναμις. But the situation with the humors is different: any humor can enter into κρήσις with any other (19.7, 145.12–14 J.). Hence we can imagine a virtually unlimited variety of κρήσεις of the humors, each with its own δύναμις depending on the precise blend of constituents that make it up. With Plamböck’s πρὸς ἀλλήλας (sc. κρήσιας), the text may be read as expressing two ideas that the author would certainly endorse: (1) the κρήσεις of the humors are different *in respect to one another* (πρὸς ἀλλήλας), i.e. ‘the one

from the other', and (2) this is because each one has a different δύναμις (ἄλλην). Jouanna emends to πρὸς ἄλλα and translates: 'De fait, en quoi pourrions-nous dire qu'il existe pour le chaud et le froid des crases possédant telle ou telle propriété suivant qu'elles se font avec telle ou telle substance'. For the idea of κρῆσις as a complex blend of different constituents in various amounts and concentrations cf. 19.3 ἐς ἄλλην κρῆσιν with n., the introductory note to ch. 14 (pp. 233–234), and the remarks of Plamböck on the present passage (1964, 89): 'Die Bindung aber verschlingt nicht nur die in sie eingetretenen Kräfte, sie vereinigt sich auch und sammelt sie in einem neuen spezifischen Kraftwesen höheren Ordnung, welches die Teilkräfte als funktionale Momente in sich begreift ... Im Normalfall sind also sehr wohl verschiedene Arten der Bindung festzustellen, und jede von ihnen ist Träger einer einzigen ihr eigentümlichen Kraft, welche die Partikularitäten in sich aufhebt.'

While the text of A is hardly free from difficulties, it is hard to extract a satisfactory meaning from M's text at all. Instead of A's Τί γὰρ αὐτὸ φήσομεν εἶναι (145.9 J.) M reads Τί δ' ἂν αὐτὸ φαίμεν εἶναι; This may be taken closely with the preceding remark that hot and cold cannot undergo σῆψις or thickening: 'How could we say that such a thing takes place?' (sc. that hot or cold should putrefy or thicken). But then M goes on with κρῆσις τε αὐτέων ἐστὶ πλὴν πρὸς ἄλληλα ἔχουσα δύναμιν. The point of this would seem to be either (1) any κρῆσις of hot and cold has a capacity to act only on hot and cold, or (2) any κρῆσις of hot and cold has a δύναμις that results from their reciprocal union (πρὸς ἄλληλα). The author would not endorse (1), and I cannot see how (2) can be extracted from the Greek. Cf. Jouanna 1990, 145n5.

19.7 Τὰ δ' ἄλλα πάντα ... καὶ βελτίονα, 'But as for all the other powers ... the milder and better they become': unlike hot and cold, which can only enter into κρῆσις with one another, any one of the humors is moderated by blending with any other. The implication is that if any humor separates from the overall κρῆσις, it will be countered by all the others acting together (not just by its opposite). Cf. the remarkable illustration of self-adjusting humoral equilibrium in *Morb.* IV 39 (92.12–93.3 Joly, L. 7.556–558). The author describes a piece of apparatus constructed by boring small holes in three or more bronze vessels, connecting them to one another with small tubes, and then filling one of the vessels with water. The water will flow into all the vessels until it rises to the same level in each. If more water is added to one of the vessels, it will flow away into each of the others until the water

takes the same level in all the vessels; similarly if water is drained from one vessel, it will flow in from all the others simultaneously until once again the water takes the same level in all the vessels. Each of the vessels corresponds to an organ in the body that is the source or reservoir (πηγή) of a distinct kind of humor. The model provides a beautiful illustration of the way in which any disruption of equilibrium by one of the humors—whether in the direction of excess or defect—is immediately countered by all the others acting together. Cf. Lonie 1981, 296–298.

19.7 Πάντων δ' ἄριστα διάκειται ... μηδεμίαν δύναμιν ἰδίην ἀποδεικνύμενα, 'And the human being is in the best possible condition ... displaying no power of their own': the subject of πέσσηται is the same as that of ἐν ἡσυχίῃ ἤ, viz. the powers or substances in the human body (τὰ περὶ τὸν ἄνθρωπον 145.13 J.; cf. τῶν ἀμφὶ τὸ σῶμα δυνάμειων 137.7–8 J.). Hence Ermerins' emendation of ἀποδεικνύμενον (AM) to ἀποδεικνύμενα should be adopted (cf. Jouanna 1990, 145n6).

19.7 μηδεμίαν δύναμιν ἰδίην, 'no power of their own': for the author's emphasis on the distinctiveness of different δυνάμεις cf. n. on 13.3 ὅν ἕκαστον ἰδίην δύναμιν καὶ φύσιν ἔχει (pp. 226–228 above).

20

The chapter opens with an attack on the views of certain doctors and 'sophists' (σοφισταί) who claim that a doctor must know 'what the human being is' (ὃ τι ἐστὶν ἄνθρωπος) in order to treat patients correctly. In the author's view such people 'tend towards philosophy (φιλοσοφίῃ)' like Empedocles and others, who have attempted to give an account of human φύσις 'from the beginning' (ἐξ ἀρχῆς) by explaining how the human being originally came to be and the constituents from which it was formed (20.1). In section 20.2 the author emphatically rejects the claim that this kind of knowledge of human φύσις is necessary to treat patients correctly: everything that such thinkers have said or written about human φύσις has more to do with the art of writing (γραφικῇ) than medicine. Moreover, it is impossible to acquire this kind of knowledge of human φύσις—knowledge of 'what the human being is and by what causes it comes to be and all the rest' (146.14–15 J.)—*unless* one first acquires a complete grasp of all of medicine and takes this as

one's starting point. Next (20.3), the author sets out his view of the kind of knowledge of human φύσις the doctor does need to have in order to treat patients correctly. The doctor must know 'what the human being is' in *relation* to foods and drinks and other practices, i.e. precisely how human beings are affected by each component of their regimen. The doctor's knowledge must go beyond crude generalizations such as 'cheese is harmful when eaten in excess', and specify the precise nature of the harm, its cause, and the thing in the body that is harmed (147.3–4 J.). The remainder of the chapter (20.4–6) gives two examples to clarify this claim. The first (20.4) brings out the importance of differences between foods: the effect of drinking too much wine is different from that of eating too much cheese, and the doctor must know exactly what these effects are and how they are caused. The second example (20.5–6) appeals to variation between individuals. Cheese when eaten in abundance is not harmful to all; while some are harmed by it, it is beneficial to others. These individuals differ in their constitution or φύσις: those in whom the humor hostile to cheese is more dominant will suffer more from eating it. Cheese is not harmful to the human constitution in general; if it were, it would harm all people in the same way.

In this chapter the author first rejects the claim that medicine must be based on a certain kind of account of human φύσις (20.1–2), then goes on to set out another kind of account of human φύσις that in his view makes up the essential foundation of medical practice (20.3–6) (on the general structure of the chapter cf. esp. Pohlenz 1918). The author and his opponents agree that medicine needs to be based on a theory of human φύσις; their dispute concerns what kind of theory this should be (cf. Introduction, sec. 1.1). The opponents, building on the etymological connection of φύσις with the verb φύομαι 'to grow', take a theory of human φύσις to be an account of the origin and development of the human being. They attempt to give an account of the constituents from which the human being was first formed (ὁπόθεν συνεπάγη 146.6–7 J.) and the way in which it developed—whether during the original formation of the cosmos as a whole (i.e. anthropogony; cf. ὅπως ἐγένετο πρῶτον 146.6 J.) or in the present day (i.e. embryology; cf. δι' οἷας αἰτίας γίνεται 146.14 J.). Empedocles, whom the author mentions by name in section 20.1, provides an excellent illustration of this approach to the study of human φύσις: he displays a keen interest in anthropogony and embryology and is the first thinker to articulate a clear notion of elemental constituent (cf. n. below on 20.1 καθάπερ Ἐμπεδοκλέης). But Empedocles' approach of course reflects a more gen-

eral trend, as we can see from texts such as Socrates' description of the 'inquiry into nature' (περὶ φύσεως ἰστορία) in Plato's *Phaedo* (96a–c); in the Hippocratic Corpus *Vict.* and *Carn.* provide the clearest examples of the claim that medicine must be based on such a developmental account of human φύσις (cf. *Vict.* 2, *Carn.* 1, and Introduction, sec. 1.3). The author's basic point in sections 20.1–2 is that this kind of theory of human φύσις, far from being essential for therapy, is in fact a kind of theoretical knowledge that is irrelevant to medical practice (cf. nn. below on 20.1 φιλοσοφίην, 20.2 τῇ γραφικῇ, and 20.2 ἰστορίην). Remarkably, however, the author does not claim that the knowledge of human φύσις that his opponents claim to have is unattainable. Indeed in section 20.2 he emphatically states that it *can* be attained, but only if one begins from a complete mastery of medicine (cf. Pohlenz 1918, 399). While undoubtedly a striking rhetorical move, this is no mere bluff; cf. below, pp. 297–298.

The author's own view, stated in section 20.3, is that medicine must be based on a theory of 'what the human being is' (ὃ τι ἐστὶν ἄνθρωπος) in relation to (πρός) foods, drinks, and the other components of regimen. A number of commentators have taken this remark to express a commitment to a kind of philosophical relativism (e.g. Kühn 1956, 26). But the context shows that such an interpretation is quite off the mark. The author uses the same language he ascribes to his opponents (περὶ φύσιος, ὃ τι ἐστὶν ἄνθρωπος) but he gives it a new twist: the doctor must know 'what the human being is' in *relation* to diet and regimen (πρός 146.18 J., 146.19 J.), *rather than* what the human being is 'from the beginning' (ἐξ ἀρχῆς 146.5 J.). The contrast is between a theory of how human beings *came to be* from simpler constituents and a theory of what human beings *are* in relation to regimen: an account that will make it possible for the doctor to relate human beings to their regimen in an appropriately systematic way and so to prescribe the correct therapy (cf. Pohlenz 1918, 405). On the author's view, knowledge of how human beings develop from a small number of elementary constituents is simply irrelevant to this purpose. The statement that the doctor must know 'what will be the effect of each thing on each individual' (ὃ τι ἀφ' ἑκάστου ἑκάστῳ συμβήσεται 146.19–147.1 J.) must be interpreted along similar lines: the doctor needs to know how each component of regimen will affect each individual in order to treat patients successfully. Some commentators take this remark to express the claim that the doctor can know *only* how different foods and drinks will affect an individual patient; in other words, that the only knowledge the doctor can

have about human φύσις is knowledge of individual human φύσεις (cf. Edelstein 1967a, 196, 199–201; Kühn 1956, 23). But there is no reason to saddle the author with such a bizarre position. The point is just that the doctor must be able to relate the peculiarities of the individual φύσις to his knowledge of human φύσις in general in order to prescribe the right therapy (cf. n. *ad loc.*, pp. 314–315 below). In order to do this the doctor needs precise, general, and explanatory knowledge of the ways in which the various components of regimen affect the human being. It is not enough simply to know that cheese is harmful when eaten in excess; the doctor must be able to specify the type of harm (τίνα ... πόνον 147.3 J.), its cause (διὰ τί 147.3 J.), and the thing in the body to which it is inimical (τίτι τῶν ἐν τῷ ἀνθρώπῳ ἐνεόντων ἀνεπιτήδειον 147.4 J.; cf. n. *ad loc.*, p. 315 below). In sum, the author's position is that the essential basis of medical practice is a body of precise, general knowledge of the effects of foods on the substances and organs in the human being, acquired by the systematic observation and evaluation of such effects—not knowledge of the origin and development of the human being from a small number of elementary constituents, derived from a sweeping cosmological theory.

The two examples given in sections 20.4–6 clarify the reasons why the author takes the statement ‘cheese is harmful to one who eats too much of it’ (147.1–3 J.) to be inadequate. The first example (20.4) brings out the importance of differences between foods: other foods and drinks, such as wine, can cause harm, but they do not affect human beings in the same way as cheese. Wine has a specific, obvious effect on the body; all who observe this effect know that wine is responsible, and also what part of the body is chiefly affected. The second example (20.5–6) focuses on differences between individuals. While cheese is harmful to some individuals, it is beneficial to others. Hence the crude generalization ‘cheese is harmful when eaten in excess’ must be replaced by a causal account on the level of the humors: it is a humor in cheese that is harmful to those individuals in whom a certain kind of humor is dominant. The doctor may know *that* cheese often harms patients when eaten in excess, but if he does not know *why* it is harmful, he has no way to explain why it is sometimes beneficial or to determine what effect it will have on a particular individual. In rejecting the statement ‘cheese is harmful’ in favor of a humoral account the author replaces a modest generalization with a higher-level, indeed a universal, generalization: *all* foods with an abundance of a certain humor cause harm to *all* individuals characterized by a certain humoral blend

or *χοῆσις*. This higher-level generalization is also explanatory, for it is *because* the food has the humor in question that it causes the harm. And it is a generalization that involves something that cannot be directly observed by the doctor or experienced by the patient: the *χοῆσις* of humors in the body. The two examples presented in 20.4–6 thus reveal how the author's keen awareness of differences between different individuals and different foods drove him not to a rejection of all generalizations, but rather to the realization that medicine must be based on a body of theory of a higher level of generality, a theory that could *explain* those differences (cf. Introduction, pp. 11–12).

Most commentators seem to take the author's rejection of the statement 'cheese is harmful when eaten in excess' as a rejection of the theories of the doctors and sophists mentioned at the beginning of the chapter. But it does not involve any theoretical entities that would have figured in an Empedoclean-style account of human φύσις, and it seems unlikely that the author would have chosen this statement to illustrate the kind of claim his opponents would have made. Rather, his point is that medical treatment must be based on much more than crude generalizations such as 'cheese is harmful', for they are insufficient to relate individuals to their regimen in a systematic way. In other words, the author is anticipating the kind of objection that might be made by his opponents. They might well attempt to characterize medicine without a basis in Empedoclean-style knowledge of human φύσις as no more than a collection of crude generalizations; hence the author is driven to insist that medicine as he conceives of it is much more sophisticated.

We may now return to the author's remarkable assertion in 20.2 that the kind of knowledge of human φύσις that his opponents claim to have can be attained, but only if one first masters all of medicine. From the rhetorical point of view this remark is characteristic of the author's strategy of turning his opponents' claims against them (cf. 13, 15, 17). The opponents claim that it is impossible to treat patients correctly without prior knowledge of human development from a small number of elementary constituents; the author fires back that, on the contrary, one cannot acquire genuine knowledge of the origin and development of the human being without *first* mastering the knowledge needed to treat patients correctly. Yet this claim is much more than a rhetorical flourish. It also reflects a fundamental feature of the author's method: the use of experience in medicine and other τέχναι as a basis for constructing theories of human φύσις. The author's theory of human φύσις as a *χοῆσις* of humors is based on experience in the τέχνη of cooking

(cf. ch. 19, introductory note); in chapter 22 he explicitly recommends a method of using analogies with familiar phenomena to learn about the unobservable and cites an example drawn specifically from medical experience (cf. 22.2–4 and ch. 22, introductory note). The author's remark in 20.2 thus amounts to the claim that medical experience is the only reliable basis for developing accounts of human embryology or anthropogony. A complete mastery of medicine would involve complete knowledge of the behavior of the humors in the body, their behavior outside the body (cf. 24.1), and the capacities of the various bodily organs or structures (σχήματα) to act on and be affected by fluids and air (cf. 22). The author might well have thought it possible to use this knowledge as a source of analogies for the development of a reliable account of human embryology or anthropogony—knowledge that was worth pursuing for its own sake, even if it was of no value in the treatment of patients.

Finally, since the author is attacking opponents who gave an account of the origin and development of the human being in a cosmological context, it is possible that he thought that a complete account of human embryology and anthropogony, solidly based on medical experience, would have implications for cosmology as well. A satisfactory account of the primary substances from which the human being originated might allow reliable conclusions to be drawn about the role of those substances in the original formation of the cosmos. We might imagine that the author envisioned the formulation of an anthropogony and cosmology like that of *Carn.*, only in reverse: knowledge of 'things in the sky' (τὰ μετέωρα), rather than being the essential foundation of medical practice, would instead be the culmination of the study of medicine (so Cooper 2002, 51–56; cf. p. 22 above). But even if the author did envision the possibility of using medicine to develop a cosmological theory in this way, such a theory would still fall under the scope of the remark in chapter 1 that no clear knowledge is possible concerning 'things in the sky and under the earth' (1.3). That passage expresses a cautious ideal of empirical verifiability: theories about the invisible can be confirmed if there is some way to assess them on the basis of human experience. But while the author evidently thinks that statements about the humors in the body or the internal organs fall within the realm of such empirical verifiability, it is hard to see how any theory about 'things in the sky and under the earth' ever could. No matter how rich a base of medical experience we may accumulate, such topics are so remote and inaccessible that we cannot hope to gain reliable knowledge of them.

* * *

20.1 σοφισταί, ‘sophists’: the term is used in the general sense of ‘expert’ or ‘wise man’, and refers to an individual with intellectual expertise in a particular area; it is not (as often in Plato) a professional designation for an itinerant teacher who offered instruction for a fee (cf. Festugière 1948, 55; Guthrie 1971, 27–40). The contrast with ‘doctors’ (ἰητροί) and the reference to Empedocles in the sequel suggests that the author has in mind thinkers who were later regarded as natural philosophers or φυσικοί. Cf. *Nat. Hom.* 2, 166.¹² Jouanna (L. 6.34), where the author turns from a discussion of theorists who suppose that the human being is composed of one of the elements earth, air, fire, and water (e.g. Diogenes of Apollonia) to the views of ‘doctors’ (ἰητροί) who hold that the human being is composed of one of the humors blood, phlegm, yellow bile, or black bile. For a similar use of σοφιστής in a fifth-century context cf. Simplicius’ remark that Diogenes of Apollonia referred to his opponents as σοφισταί (DK 64 A 4). In the present passage σοφισταί has a somewhat pejorative sense; the author has no time for the views of such thinkers in the context of a discussion of medicine. But this by no means implies that VM is influenced by Plato’s polemic against the Sophists. For another pre-Platonic derogatory use of σοφιστής cf. *Ar. Nub.* 331, where the Clouds are said to be the nourishers of σοφισταί, among whom are included medical experts (ιατροτέχνη). No conclusions can be drawn about the date of VM from the author’s use of σοφιστής; both before and after Plato it could be used in the non-specialized way exemplified here. Cf. *X. Mem.* 1.1.11 (referring to ‘what is called the κόσμος by the σοφισταί’); *Isoc. Antidosis* 268 (Alcmaeon, Empedocles, Gorgias, Parmenides, Melissus, and Ion of Chios all referred to as σοφισταί). In Plato too the term sometimes means just an expert in a certain field; cf. *Hp. Maj.* 281d, *Meno* 85b). Cf. Introduction, pp. 43–44, 53–54.

20.1 Τείνει τε αὐτοῖσιν ... ὃ τι ἐστὶν ἄνθρωπος, ‘Their account tends towards philosophy ... what the human being is’: the syntax of the sentence has troubled commentators, since the words Ἐμπεδοκλέης ἢ ἄλλοι seem to have no verb; various emendations have been proposed (cf. Radt 1979, 106; Jouanna 1990, 146n3). But there is no need to emend if one understands the idea expressed by τείνει to apply to Ἐμπεδοκλέης ἢ ἄλλοι as well as λόγος: ‘Their account tends towards philosophy, just like Empedocles or others who have written about nature from the beginning ... [tend toward philosophy]’. So Jouanna 1990, 146n3.

Cooper (2002, 32n12) objects that this fails to capture the point that the author was attempting to assimilate his opponents to ‘such professed and recognized specialists in philosophy as Empedocles’: Empedocles does more than just *tend* towards philosophy. But we must keep in mind that the term φιλοσοφία was not yet clearly defined at the time the author was writing; Empedocles is cited, in part, to make its meaning clearer. Cf. next n.

20.1 φιλοσοφίην, ‘philosophy’: the context shows that the reference is to a specific kind of theoretical knowledge, viz. the knowledge of human φύσις that the author associates with Empedocles and the Presocratic ‘inquiry into nature’. The author’s point is that Empedoclean-style theories of human φύσις are irrelevant to medical practice, and are in this sense purely theoretical; to express this idea he says that thinkers who claim that medicine must be based on such theories ‘tend towards philosophy’. If VM is dated to the late fifth century then this passage is the earliest attestation of the substantive φιλοσοφία. It is also important early evidence for the use of φιλοσοφία to refer to a distinct kind of theoretical knowledge rather than to the ‘love of knowledge’ in general (its usual meaning in unspecialized contexts; cf. e.g. Pl. *Grg.* 484c for φιλοσοφία as a way of life devoted to intellectual pursuits, as contrasted with the life of politics). Similarly, φιλοσοφῶ often refers to a love of knowledge in general, not devotion to theoretical knowledge in particular or to a specific kind of theoretical knowledge (e.g. Hdt. 1.30.3, Th. 2.40.1); φιλόσοφος often designates a lover of knowledge rather than a professional philosopher (e.g. Pl. *Phd.* 68c1–2, *R.* 475d). Although ancient tradition identified Pythagoras as the first to use the term φιλοσοφία of specifically theoretical knowledge (D.L. 1.12; DK 58 B 15 = Aëtius 1.8; Cic. *Tusc.* 5.8–9), Burkert has argued forcefully that this tradition originated in Plato’s Academy in the mid-fourth century BC (Burkert 1960). The more specialized use of φιλοσοφία and related terms is thus characteristic of the fourth rather than the fifth century, but this should not be taken as evidence against assigning VM a late fifth-century date (so Hankinson 1992, 55n2: ‘it seems impossible that any writer of the fifth century could use the term *philosophiê* in the way our author does’). The present passage does not suggest that φιλοσοφία was already a well-established term for ‘theoretical knowledge’ or ‘natural philosophy’ at the time the author was writing. Rather, it testifies to a crucial moment in the *invention* of philosophy as a distinct kind of intellectual activity. The author’s main

purpose in the passage is to draw a firm distinction between medicine and the activity of thinkers such as Empedocles. He brands the kind of theorizing practiced by Empedocles ‘philosophy’ in order to distinguish it from medicine, and mentions the name of Empedocles to indicate the character of the knowledge he has in mind. In so doing, he lends to φιλοσοφία specialized connotations that the term did not have in the general usage. Cf. Jaeger’s astute remark on the passage (1944, 19n40): ‘The word φιλοσοφία (“intellectual work”, “study”) was not yet clearly defined, and Empedocles’ name is used in order to make it clearer.’

The author’s polemical attempt to brand philosophy as inherently theoretical marks the opening stage in a debate about the nature of philosophy and its value that can be traced through the fourth century in authors such as Plato, Isocrates, and Aristotle. In the first chapter of the *Metaphysics* Aristotle makes philosophy, understood as the knowledge of causes and principles, the paradigm example of a type of knowledge (σοφία) that arose out of leisure rather than to meet human needs: it was only when the τέχνη essential for human life had been discovered that the leisure necessary for the discovery of philosophy became available (*Metaph.* 982a13–25). For Aristotle philosophy is the highest form of knowledge precisely because it did not arise out of need and has no practical applications. This account is evidently directed against a thinker (presumably Isocrates) who dismissed philosophy, understood as the search for purely theoretical knowledge, as irrelevant speculation. But though VM is the first text in which φιλοσοφία is treated as an inherently theoretical activity we need not conclude that the author meant to dismiss it as *worthless*; his purpose here is only to stress its theoretical character and irrelevance to medicine (cf. ch. 1, introductory note, pp. 118–119).

It is instructive to compare the author’s attempt to distinguish medicine from philosophy with Aristotle’s remarks in the *De Sensu* about the relationship of medicine and natural philosophy (φυσική). Aristotle’s view is that medicine should be based on principles furnished by the natural philosopher (φυσικός); similarly, an account of natural philosophy should culminate with a discussion of the principles of medicine. Cf. *Sens.* 436a17–b1: ‘It also belongs to the natural philosopher (φυσικός) to obtain a clear view of the first principles of health and disease, inasmuch as neither health nor disease can exist in lifeless things. Indeed we may say of most physical inquirers (τῶν περὶ φύσεως οἱ πλείστοι), and of those physicians who pursue their art more philosophically (οἱ φιλοσο-

φωτέρως τὴν τέχνην μετίοντες), that while the former end by discussing medical matters (τὰ περὶ ἰατρικῆς), the latter start from a consideration of nature (ἐκ τῶν περὶ φύσεως) (tr. Barnes, modified; cf. *Resp.* 480b22–30). These passages express a view of the priority of natural philosophy to medicine that the author of VM would no doubt have rejected. But the more important point is that for Aristotle, natural philosophy and medicine are already separate and well-defined fields; his problem is only to explain how they are related. The author of VM, by contrast, has to *establish* that medicine is distinct from philosophy; in doing so he clarifies the nature of both. Cf. Introduction, p. 54.

On natural philosophy and medicine in Aristotle cf. *Ph.* 2.2, 194a23–24: just as the natural philosopher or φυσικός needs knowledge of both form and matter, so the doctor must have knowledge of phlegm and bile up to a point—for these are the ‘matter’ of health.

20.1 καθάπερ Ἐμπεδοκλέης, ‘just like Empedocles’: specific reference to named thinkers is quite rare in the Hippocratic Corpus; the only comparable example is the mention of Melissus in a similarly polemical context at *Nat. Hom.* 1, 166.11 Jouanna (L. 6.34). A survey of the fragments and testimonia suggests two principal reasons why Empedocles is mentioned as exemplifying the kind of theorizing the author considers irrelevant to medicine. (1) First, Empedocles shows a keen interest in anthropogony and embryology (cf. ὅπως ἐγένετο πρῶτον 146.6 J., δι’ οἷας αἰτίας γίνεται 146.14 J.). Several fragments and testimonia deal with the original formation of human beings and other living things (e.g. DK 31 B 62, B 60–61, B 15; A 72, A 78). In embryology Empedocles dealt with such questions as menstruation (DK 31 A 80), sex differentiation and the resemblance of parents to children (A 81), and the length of time it takes male and female embryos to develop (A 83). His embryological accounts were closely linked to accounts of the first emergence of living things: according to DK 31 A 70 (Aëtius) Empedocles claimed that trees were the first living things to emerge from the earth, and drew an analogy between their nourishment by the heat in the earth and the nourishment of the embryo in the womb. Empedocles’ embryology was also embedded in a cosmological context: to explain the viability of children born in the seventh month of pregnancy, he cited the different length of the day at the time when human beings first emerged from the earth (DK 31 A 75). Empedocles’ interest in embryology and anthropogony reflects a more general concern with the origin and development of the human being, a concern that

is also manifest in his approach to questions of physiology. The famous fragment in which he compares the eye to a lantern to elucidate its structure and function is in fact a description of the creation of the eye by Aphrodite, the divine personification of the cosmic force of Love (DK 31 B 84): 'As when a man who intends to make a journey prepares a light for himself, a blaze of fire burning through a wintry night ... in the same way *at that time* was the primal fire confined in the round pupil'. The reference is to the time when Aphrodite originally fashioned the eye; DK is right to remark 'bei der Bildung des Auges' in its translation. Simplicius quotes three fragments showing that Empedocles gave an account of Aphrodite's construction of the eye and also that he appealed to this account to explain why some animals see better by day, others by night (*In Cael.* 529.21ff.): 'But also concerning the coming to be of these corporeal eyes, he adds the following: "from which [sc. elements] divine Aphrodite constructed (ἔπηξεν) the untiring eyes" [B 86]. And a little later: "Aphrodite, joining them together with nails of love" [B 87]. And giving the reason why some see better by day, others by night, he says "when they first grew together under the hands of Kypriis" [B 95].' Empedocles' other major fragment dealing with physiology, the famous comparison of respiration to the action of a clepsydra (DK 31 B 100), may have also figured originally in an account of human development; cf. DK 31 A 74 (Aëtius), which contrasts the first breath of the first living thing with the process of respiration as it goes on in the present. (2) Secondly, while earlier thinkers may have identified particular substances such as air or fire as fundamental, Empedocles is the first thinker to develop a clear concept of elemental constituent. The Empedoclean elements earth, air, fire, and water are unchanging and indestructible; all change results from their combination and separation under the influence of the cosmic forces Love and Strife. The fundamental role of the elements in Empedocles' thought made him an obvious choice to illustrate the opponents' concern with the original constituents of the human being (ὁπόθεν συνεπάγη 146.6–7 J.). That Empedocles' own term for element is 'root' (ῥίζωμα), however, indicates that for him the elements are embedded within a larger framework and are more than just constituent substances. The four elements or roots are both the origin of all things and that to which all things return when destroyed. Like the Homeric gods, each has its own privileges (τίμαι), and they share dominance over the world in an endless process of cyclical variation (for the elements as 'roots' see DK 31 B 6.1; for their cyclical variation and equal privileges see B 17.27–35). On

the development of the doctrine of elements see Kahn 1960, 133–163. Cf. also Introduction, pp. 22–23.

The general approach to the study of living things suggested by all this evidence is brought out clearly by Aristotle in a passage of the *De Partibus Animalium* (640a18–22 = DK 31 B 97): ‘For coming to be (γέ-νεσις) is on account of substance (οὐσία), not substance on account of coming to be. Hence Empedocles was wrong to say that many things belong to animals because it happened in this way during their coming to be, for example that they have a backbone of such a kind because it happened that it was twisted and broken.’ From Aristotle’s point of view, Empedocles errs in trying to explain the fully developed organism by reference to the way it comes to be, rather than explaining the processes by which it comes to be as necessitated by the nature of the mature organism. We need not accept Aristotle’s commitment to a teleological approach to the study of nature to appreciate the correctness of this basic observation about the style of Empedoclean explanations. What Aristotle’s remark makes quite clear is that Empedocles’ approach to the study of the nature (φύσις) of a living thing is to try to give an account of how it came to be the way it is. For the author of VM, by contrast, what the doctor needs to know is not how the human being came to be, but what it *is* in relation to regimen; moreover the only way to gain reliable knowledge of the former is by studying the latter (above, pp. 295–296).

20.1 περὶ φύσιος, ‘about nature’: translators and commentators are divided on whether this phrase here and throughout the chapter (146.8 J., 146.9–10 J., 146.16 J.) refers to human nature or nature as a whole. Festugière evidently adopts the latter interpretation, translating all four instances of φύσις in the phrase περὶ φύσιος as ‘la Nature’; Cooper takes a similar view (2002, 32n12 and 53n39). But what the author rejects in this chapter is the claim that a certain kind of theory of *human* φύσις is necessary in order to treat patients correctly. The words ὁ τι ἐστὶν ἄνθρωπος at 146.2 J. establish a strong presupposition that περὶ φύσιος here (146.5 J.) refers to human nature; the way in which the author expands on the phrase makes this clear: ‘... like Empedocles or others who have written about nature (περὶ φύσιος) from the beginning, *what the human being is and how it originally came to be and from what things it was compounded.*’ Similarly, at 146.16 J. it is clear that περὶ φύσιος refers to human nature: what the doctor needs to know ‘about nature’ (περὶ φύσιος) is ‘what the human being is in relation to foods and drinks and

other practices'. At 146.8 J. the reference to anything that a doctor or sophist has said or written 'about nature' (περὶ φύσιος) picks up the chapter's opening remark that there are some doctors and sophists who claim that one cannot know medicine without knowing 'what the human being is', i.e. *human* nature. Finally, at 146.9–10 J. the claim that one cannot attain clear knowledge 'about nature' (περὶ φύσιος) from any other source than medicine refers to the knowledge that the doctors and sophists claim to have, viz. a certain kind of knowledge of *human* φύσις. Of course thinkers such as Empedocles based their accounts of human φύσις on more general accounts of nature as a whole, and there is no reason to suppose that the author failed to recognize this. But his concern here is only with the part of their project that had the greatest impact on medicine: the attempt to offer an account of the nature of the human being. Cf. Jouanna 1990, 146n5.

20.1 ἐξ ἀρχῆς, 'from the beginning': the author does not clearly distinguish between ἀρχή as 'starting point' or 'beginning' and as 'principle' (cf. n. on 2.1 ἀρχή). Here the two senses overlap. An account of human nature 'from the beginning' (ἐξ ἀρχῆς) is an account that both goes back to the origin of the human being in time (ὅπως ἐγένετο πρῶτον 146.6 J.) and attempts to explain how it was formed from a set of elementary factors or principles (ὁπόθεν συνεπάγη 146.6–7 J.). The same ambiguity is present at *Vict.* 2, 122.22–27 Joly (L. 6.468): the doctor needs knowledge of the patient's original constitution (ἀπὸ τίνων συνέστηκεν ἐξ ἀρχῆς), where the reference is to knowledge of the particular blend of fire and water that is congenital to the patient.

20.1 συνεπάγη, 'compounded': συμπίγνυμι means both 'to construct' (e.g. of a ship) and 'to congeal, solidify' (e.g. what happens when fig juice acts on milk; cf. *Hom. Il.* 5.902). συμπίγνυμι and the simple verb πήγνυμι are widely used in early philosophical and medical literature of processes involving solidification or what might be called a change of state, especially in the context of anthropogony or embryology. Cf. *Carn.* 9, 194.9 Joly (L. 8.596); *Vict.* 9, 134.3–4 Joly (L. 6.484); *Genit.* 6, 48.23–27 Joly (L. 7.478); *Nat. Puer.* 18, 64.1–2 Joly (L. 7.504); *Morb.* IV 32, 84.1–3 Joly (L. 7.542). πήγνυμι is a favorite term of Empedocles, who uses it of such varied processes as the evaporation of salt under the action of the sun (DK 31 B 56), the formation of eyes (B 86), the mingling of elements (B 107), and the formation of human beings (πρὶν δὲ πάγεν τε βροτοὶ ... οὐδὲν ἄρ' εἰσιν B 15.4). Cf. also DK 31 A 51

(Aëtius), which describes the heavens as formed from congealed air (ἐξ ἀέρος συμπαγέντος). Anaxagoras uses συμπήγνυμι of the formation of earth and stones (DK 59 B 16) as well as that of human beings and other living things (DK 59 B 4). For συμπήγνυμι cf. also Xenophanes DK 21 A 47 (formation of earth from air and fire); Democritus DK 68 A 152 (formation of the embryo); and Plato *Ti.* 82a1 (formation of the human body from the four elements), 46b *bis*, 55a, 55c, 59e, 60e, 61c, 73d, 82a, 82c, 85d, 87d, 91b.

20.2 τῇ γραφικῇ, ‘the art of writing’: to say that the opponents’ theories of human φύσις have more to do with γραφικῇ than with medicine is to stress their theoretical character and irrelevance to medicine. Whatever the meaning of γραφικῇ, it is a clear example of an art that has nothing to contribute to the practical goal of curing patients. But there is no agreement among commentators on whether γραφικῇ refers to (1) painting or (2) writing (the verb γράφειν may refer to both activities), or on the specific point of the comparison.

(1) ἡ γραφικῇ (sc. τέχνη) is regularly used of the art of painting in fourth century sources (so always in Plato, e.g. *Grg.* 450c, *Prt.* 318c, *Ion* 532e–533a). But it is far from clear what the author might have meant in likening Empedoclean-style theories of human φύσις to painting. (a) Kühn suggests that painting is mentioned as an art of illusion and deception (1956, 21); the point would then be that theories modelled on Empedocles are illusory or deceptive. But such a conception of painting is not attested before Plato; moreover the author’s argument is directed not against Empedoclean-style theorizing in itself, but rather against the attempt to base medical practice on such theorizing (cf. Dihle 1963, 149). (b) In one fragment (DK 31 B 23) Empedocles compares the mixing of the four elements to the mixing of paints: just as painters can depict anything they like by mixing a small number of colors, so everything in the world can be created by the mixing of the four elements. Both Jouanna (1990, 146n8) and Festugière (1948, 60–61) take γραφικῇ in the present passage to be an allusion to this fragment. On this interpretation the point is that anything a doctor or sophist writes about human φύσις is more relevant to painting, in which complex realities can be depicted using a small number of elementary factors, than to medicine (in which a much larger number of factors is necessary). But this would be a remarkably enigmatic and allusive way for the author to make a reasonably straightforward point. It presupposes that the audience would immediately grasp the correspondence between the mixing

of paints and the mixing of elements that underlies the Empedoclean analogy. Such an allusive reference to a specific passage is not at all in keeping with the author's generally explicit style and mode of expression. (c) Dihle (1963, 146ff.) proposes that γραφική refers to a specific written account of the art of painting based on an Empedoclean-style account of human φύσις—i.e. an account that set out a method for depicting the human being based on knowledge of its elementary constitution. But this makes the passage even more enigmatic and allusive than interpretation (b), since it requires not only the author but also the audience to be aware of a specific written treatment of painting that has not survived (cf. Müller 1965b, 307–308). (d) Pohlenz (1918, 416–421) notes that painting (γραφική) is often classified as a kind of playful recreation, in contrast to arts such as medicine that arose to meet human needs. Cf. Pl. *Lg.* 889c–e, where γραφική is grouped with μουσική as an amusement or recreation (παιδιά), while medicine, agriculture, and gymnastics are classified as serious (σπουδαῖον); *R.* 373b, where painting is mentioned as a τέχνη that did not arise from necessity; Lucr. 5.1448–1453, where poetry and painting are classed together as *deliciae* ... *vitae* and distinguished from navigation and agriculture. The contrast probably goes back to Democritus; cf. DK 68 B 144 (Philodemus): 'Democritus ... says that music is rather young, and in giving the reason for this he says that it was not necessity (ἀναγκαῖον) that caused it to be separated (sc. from the other arts); rather, it arose out of an already existing abundance.' Pohlenz' suggestion gives the author's remark an apt point: the opponents' theories of human φύσις are more germane to an art that arose from leisure and contributes only to pleasure than to the practical art of medicine, which serves critical human needs. The view that medicine was discovered to meet human needs is of course fundamental to the author's argument against the proponents of ὑποθέσεις in chapters 3–8, and he might well have been aware of the Democritean distinction between necessary and non-essential arts (cf. pp. 158–160 above). But nothing in the text makes this explicit; hence this interpretation too requires us to suppose that the author is being uncharacteristically oblique and allusive.

(2) Edelstein (1967a, 108–109) takes γραφική to refer to the art of writing the letters of the alphabet. In his view the comparison is based on the idea that γραφική is a 'fixed' τέχνη, i.e. an art consisting of a set of fixed procedures: once a person has learned to write the letters, he can write anything he wishes, and there is no need for him to adapt his knowledge to changing circumstances. Medicine, however, is a τέχνη in

which nothing is fixed and everything must be adapted to the changing circumstances of the individual case. A passage in *Loc. Hom.* makes the idea explicit (ch. 41, 76.15–22 Craik, L. 6.330–332; tr. Craik):

It is not possible to learn medicine quickly for this reason: that it is impossible for any fixed expertise (καθεστηκός σοφισμα) to come about in it, such as when a person who has learned writing (τὸ γράφειν) in the one way by which it is taught knows everything. And all who have knowledge (of writing) have like knowledge for this reason, that the same thing, done in the same way, now and at other times, would never become the opposite, but is always [steadfastly] the same and does not require discrimination (καιρός). But medicine now and at other times does not do the same thing; and does opposite things to the same individual; and the same things are opposites to one another.

Similarly, Isocrates attacks opponents who claim to be able to transmit the science of discourse like that of letters (φασιν ὁμοίως τὴν τῶν λόγων ἐπιστήμην ὥσπερ τὴν τῶν γραμμάτων παραδώσειν, *In soph.* 10; cf. 12); cf. also Arist. *EN* 1112a34–b9 (discussed in Appendix 2, pp. 367–368). Like the interpretations of γραφικὴ as painting discussed above, this interpretation presumes that the audience will immediately recognize the point of an oblique and allusive reference. That the author of *Loc. Hom.* explains the significance of the comparison with writing at some length suggests that he did not expect his audience to grasp its significance immediately. Aside from this, there is little reason to think that the author conceived of medicine based on an Empedoclean-style theory of human φύσις as a body of fixed procedures that could not be adapted to individual cases. His main point in the chapter is that such theories are simply irrelevant to medicine. In rejecting the statement ‘cheese is harmful’ the author does stress the need for the doctor to adapt his treatment to the distinctive features of the individual patient. But in doing so he is not drawing a contrast with medicine as his *opponents* conceive of it (cf. above, p. 297). Finally, it is important to see that even if Edelstein is correct that γραφικὴ is mentioned as an example of a ‘fixed’ τέχνη, this would not imply that the author rejects all generalizations (so Edelstein 1967a, 199). To deny that medicine is made up of a body of fixed *procedures* is not to deny the existence of stable *generalizations* in medicine. The cheese example illustrates quite clearly that knowledge of certain generalizations (those involving the interaction of the humors) is essential for the treatment of individual cases. To know how a patient will be affected by cheese the doctor needs specific knowledge of his individual humoral constitution

as well as general knowledge of the behavior of the humors (i.e. which of the humors is disturbed by the humor dominant in cheese). It is true that the author conceives of medicine as a τέχνη that must always adapt to changing circumstances. But this is a matter of relating individual peculiarities to a body of stable generalizations that *do* hold in all cases. Even in *Loc. Hom.* the contrast between medicine and writing is not meant to express the rejection of all generalizations in medicine. In chapters 41–42 the author describes a number of cases in which substances that normally have one effect have the opposite effect: e.g. laxatives sometimes check the bowels, and binding agents sometimes loosen them (76.21–80.12 Craik, L. 6.332–336). But then at the beginning of chapter 43 he gives a reason for this variation: weakness of the body (ἀσθενείη). When the body takes in a suitable amount of food, it is mastered (κρατεῖται) by the body and substances have their normal effects; when too much food is ingested, it masters (κρατέουσι) the body and causes substances to have the effect opposite to their normal one (80.13–18 Craik, L. 6.336). At the beginning of chapter 44 the author claims that knowledge of the καιρός, defined as the maximum amount of food that can be administered without overcoming the patient, is the key to dealing with this variation: as long as the doctor does not transgress the limit set by the καιρός in the prescription of regimen, he can count on substances exerting their normal effects (82.1–19 Craik, L. 6.338–340). Cf. the author's confident tone at the beginning of ch. 46: medicine has all been discovered, and the person who has knowledge of it depends least of all on luck (τύχη) (84.17–24 Craik, L. 6.342). The sequel to chapter 41 thus shows that the author's point in contrasting medicine with writing is not that there are no generalizations in medicine, but rather that the doctor must have knowledge of the exact balance between diet and the individual constitution in order to ensure that the normal generalizations hold.

All the interpretations discussed so far take the mention of γραφική as an oblique and allusive reference to a quite specific conception. But the author's normal mode of expression is direct and explicit; when he uses a term in a specialized sense (e.g. ὑπόθεσις), its meaning emerges clearly from the context. This suggests that a basic requirement of any interpretation of the present passage should be that it allows the meaning of γραφική to emerge directly from the context. Such an interpretation has been proposed by Müller (1965b), who takes γραφική to mean the art of writing understood as the art of composing written works. This is strongly supported by the use of the verb γράφειν at 146.5

J. and 146.8 J.; in both cases the term refers specifically to writing about human nature (περὶ φύσιος). Indeed, a consideration of the general run of the passage makes it seem quite unlikely that τῇ γραφικῇ at 146.9 J. refers to anything *other* than the art of composing written works: ‘Their account tends towards philosophy, just like Empedocles or others who have *written* (γεγράφασιν) about nature from the beginning ... But I hold that whatever has been said or *written* (γέγραπται) about nature by a sophist or doctor pertains less to the art of medicine than to the art of *writing* (τῇ γραφικῇ)’. Cf. Alcidas *Soph.* 29, 30, 33, where the phrase γραφικὴ δύναμις refers to the ability to write speeches as contrasted with the ability to improvise them on the spot (αὐτοσχεδιαστικὴ δύναμις). On this interpretation the remark about γραφικὴ does not make a specific point about the opponents’ conception of medicine; the point is only that Empedoclean-style theories of human φύσις are irrelevant to medicine. But it enables the author to make this point with a nice sarcastic twist: what the doctors or sophists have written may be fine *writing*, but it has nothing to do with *medicine*. In general I believe it is a mistake to assume that the remark about γραφικὴ is meant to convey an essential contrast between the author’s conception of medicine and that of his opponents. It is a sarcastic and dismissive comment that should not be invested with a significance beyond the meaning that emerges from the immediate context.

20.2 νομίζω δὲ περὶ φύσιος γνῶναί τι σαφές ... ἢ ἐξ ἡτρικῆς, ‘and also that it is impossible ... from any other source than medicine’: cf. 1.3, where it is remarked that there is no criterion that can be used to yield clear (σαφές) knowledge of ‘things in the sky and under the earth’. The author envisions the possibility of developing a clear and reliable account of human origins and development on the basis of medical experience, but no such account can be given in the case of meteorological phenomena. Cf. introductory note, pp. 297–298.

20.2 Τοῦτο δὲ οἷόν τε καταμαθεῖν ... καὶ τὰλλα ἀκριβέως, ‘This knowledge can be acquired ... and all the rest, with precision’: I take the phrase ταύτην τὴν ἱστορίην (146.13 J.) to refer back to τοῦτο (146.11 J.): ‘This (τοῦτο) it is possible to learn when one has correctly grasped medicine itself, in its entirety ... I mean this science (ταύτην τὴν ἱστορίην) that consists in knowing what the human being is and by what causes it comes to be and all the rest, with precision.’ The claim is that if a person has grasped medicine in its entirety, he will be able to

acquire the kind of knowledge of human φύσις that the ‘doctors and sophists’ claim to have. Grammatically, it would be possible to take ταύτην τὴν ἰστορίην as picking up αὐτήν ... τὴν ἡγεζικὴν (146.11–12 J.), yielding the following line of thought: it is possible to get clear knowledge about φύσις only from medicine (146.9–11 J.); this clear knowledge (τοῦτο 146.11 J.) can be attained only when one has mastered all of medicine itself; and by medicine itself (ταύτην τὴν ἰστορίην) I mean knowledge of what the human being is, by what causes it comes to be, and so forth. So Cooper 2002, 53n39. But though it is grammatically possible, this interpretation must be rejected for multiple reasons. First, it implies that the author takes knowledge of human origins and development to be an essential part of medicine. This, however, is just the view that he is so determined to reject: knowledge of human origins and development is what Empedocles claimed to have, and the author insists that it has nothing to do with medicine. In order to treat patients correctly the doctor needs precise, general, and explanatory knowledge of human φύσις that will enable him to know how different individuals will be affected by various dietary factors (20.3); this does not require knowledge of ‘what the human being is and by what causes it comes to be’ (146.14 J.). With the words Ἐπεὶ τοῦτο γέ μοι δοκεῖ (146.15 J.), the author is not going on to specify what is involved in having knowledge of ‘what the human being is and by what causes it comes to be and all the rest, with precision’ (so Cooper 2002, 53n39); rather, he is setting out a very different conception of what the good doctor needs to know. Moreover, on Cooper’s interpretation the author is arguing that the only way to get clear knowledge of nature as a whole is to begin from knowledge of medicine in its entirety, i.e. (on this view) complete knowledge of human φύσις that includes the origin and development of the human being. The phrase περὶ φύσιος at 146.8 J. and 146.9–10 J. must therefore refer to nature as a whole rather than to human nature. But the author’s concern throughout the chapter is with human nature, not nature as a whole (cf. n. above on 20.1 περὶ φύσιος). And having clear knowledge of nature as a whole would surely involve knowledge of ‘things in the sky and under the earth’, the very matters about which the author insists that *no* clear knowledge is possible (1.3; cf. prev. n.).

20.2 ἰστορίην, ‘science’: ἰστορίη can mean both inquiry and a body of knowledge that results from inquiry, i.e. a ‘science’. Here it refers to the kind of knowledge of human φύσις that the author associates with Empedocles. Elsewhere the term is used of the Presocratic ‘inquiry’

into nature in general; in addition to Socrates' discussion of 'the kind of wisdom (σοφία) they call the inquiry into nature (περὶ φύσεως ἱστορία)' at Pl. *Phd.* 96a–c cf. Euripides fr. 910 (DK 59 A 30): 'blessed is he who is learned in science (ἱστορία) and sets out neither to harm his fellow citizens nor to commit evil deeds, but rather gazes upon the ageless κόσμος of immortal φύσις, how and in what way it came to be' (ὄλβιος ὅστις τῆς ἱστορίας ἔσχε μάθησιν μήτε πολιτῶν ἐπὶ πημοσύνην μήτ' εἰς ἀδίκους πράξεις ὁρμῶν, ἀλλ' ἀθανάτου καθορῶν φύσεως κόσμον ἀγήρων, † πῇ τε συνέστη χῶπι χῶπως). In the present passage the author's main point about the knowledge he terms ἱστορίη is that it is theoretical and irrelevant to medicine. Cf. *De Arte* 1, 224.1–3 Jouanna (L. 6.2): those who disparage the arts think they are making a display of their own learning (ἱστορίας οἰκεῖς ἐπίδειξιν ποιούμενοι). At *Praec.* 13, L. 9.268.16–270.1 ἱστορίη refers to book learning in contrast to practice (τριβή). Since the author of VM claims that the knowledge he terms ἱστορίη can be attained if one looks for it in the right sort of way, he clearly does *not* view it as inherently speculative, i.e. concerned with matters about which no clear knowledge can be attained. ἱστορίη was often used of investigations that had a solid basis in observation and experience. Cf. Hdt. 2.99.1, where an account based on Herodotus' own observation (ὄψις), judgment (γνώμη), and inquiry (ἱστορίη) is contrasted with an account based on what the Egyptians say; cf. also Hdt. 2.118.1, 2.119.3. ἱστόριον is a key term in the Hippocratic embryological treatises, where it refers to a piece of observational evidence cited to support the author's account. Cf. *Genit.* 1, 44.3 Joly (L. 7.470); *Genit.* 8, 50.12 Joly (L. 7.480); and esp. *Nat. Puer.* 13, 56.9 Joly (L. 7.492) and *Nat. Puer.* 29, 77.22 Joly (L. 7.530), where a carefully conducted observation of the development of the chicken embryo over a period of twenty days is referred to as a ἱστόριον that supports the author's account of human embryonic development. Lonie thus seems right to gloss ἱστόριον as 'evidence which has been found by deliberate enquiry' (1981, 134). The author of *Nat. Puer.* also uses the verb ἱστορέω of pieces of evidence that 'bear witness' to the truth of his account (*Nat. Puer.* 18, 63.26 Joly, L. 7.504; cf. *Morb.* IV 48, 104.18 Joly, L. 7.578). He seems to view his project as a kind of ἱστορίη; this provides a close parallel for VM's use of the term to refer to an account of human origins and development. That ἱστορίη was often associated with empirical investigation and used of knowledge gained on the basis of such investigation suggests that what distinguished it from other forms of knowledge was not its reliability or the method used to reach it, but rather its theoretical

character. Cf. Jouanna's remarks (1992, 93n7) on the contrast between *ἰστορίη* and *τέχνη* in the Hippocratic period: 'Les différences ne portent pas sur la validité ou le degré de la connaissance. La médecine qui consiste à soigner la malade (*therapeuein*) est, pour les Hippocratiques, une science au même titre que l'*historiê*. Mais on pourrait présenter les différences de la façon suivante: alors que l'*historiê* reste une science qui ne modifie pas l'objet de son savoir, la *technê* est une science qui se réalise par une action sur l'objet du savoir. Connaissance et pouvoir d'agir sont indissolublement liés dans la notion de *technê*.'

20.3 ὁ τι τέ ἐστιν ἄνθρωπος πρὸς τὰ ἐσθιόμενά ... πρὸς τὰ ἄλλα ἐπιτηδεύματα, 'what the human being is in relation to foods ... and other practices': for the view that πρὸς expresses the author's commitment to a kind of relativism cf. Kühn 1956, 26: 'Der Verfasser leugnet also die Möglichkeit, über Gegenstände allgemeingültige Aussagen zu machen; Aussagen über Eigenschaften von Gegenständen haben nur Gültigkeit, wenn sie auf den jeweiligen Bezugspunkt relativiert werden. Die Gegenstände haben also ihre Eigenschaften nicht an und für sich, sie haben sie nur für das jeweilige Subjekt, zu dem sie in Verbindung treten. Sie haben nur ein Sein πρὸς τι.' In fact, however, there is no question of any kind of relativism here; πρὸς conveys the idea that the account of human φύσις that the author goes on to discuss will enable the doctor to relate an individual to the various components of his regimen in a systematic way, unlike Empedoclean-style theories (cf. above, pp. 295–296). Cf. 14.3, 135.15–16 J.: the discovery of the κρῆσις theory required reasoning (λογισμός) that was 'directed at the constitution of the human being' (πρὸς τὴν τοῦ ἀνθρώπου φύσιν), where this contrasts with the opponents' irrelevant speculation about hot, cold, wet, and dry. In 21.3 the author says that anyone who does not know how each of the components of regimen is related to the human being (ὥς ἕκαστα ἔχει πρὸς τὸν ἄνθρωπον 148.18 J.) will be unable to treat patients correctly; the point is again that the doctor needs to be able to relate each individual to his regimen in a systematic way. Chapter 23 states that there are many types of structures or configurations inside and outside the body that differ greatly from one another in relation to (πρὸς) the affections suffered by the sick and the healthy (152.18–153.1 J.); here the point is that different structures are correlated with different affections. Cf. also *Vict.* 2, 124.11–14 Joly (L. 6.470), which argues that the doctor must be able to relate the amount of exercise he prescribes to the various other factors influencing human

health in a systematic way: he must know ‘the proportions (συμμετρίας) of exercise in relation to (πρός) the amount of foods and the nature of the human being and the ages of bodies, and in relation to (πρός) the seasons of the year, and in relation to (πρός) the changes of the winds, and in relation to (πρός) the situations of the lands in which they take their regimen, and in relation to (πρός) the constitution of the year.’

20.3 καὶ ὁ τι ἅψ’ ἐκάστου ἐκάστω συμβήσεται, ‘and what will be the effect of each thing on each individual’: ἐκάστου clearly refers to a type of food, drink, or other component of regimen (cf. ἕκαστα 21.3, 148.18 J.); ἐκάστω can be taken in a number of ways. Gomperz (1911, 222n6) suggested that it anticipates the phrase ‘which of the things in the body it is inimical to’ (τίνι τῶν ἐν τῷ ἀνθρώπῳ ἐνεόντων ἀνεπιτήδειον) at 147.3–4 J. The meaning would then be that the doctor must know how each component of regimen will affect each organ or humor in the body; i.e. the phrase ἅψ’ ἐκάστου ἐκάστω would be concerned solely with the doctor’s general knowledge, and would not express the need for the doctor to have detailed knowledge of the individual patient at all. This interpretation is somewhat forced, since there has been no mention of humors or organs in the chapter so far. It is therefore more natural to take ἐκάστω to refer to the patient (i.e. ἀνθρώπῳ); yet even so the reference might still be to a type or class rather than to an individual. Cf. Pl. *Phdr.* 271b1–5, where Socrates describes the procedure of the scientific rhetorician whose method is modeled on that of Hippocrates: ‘... having classified the types (γένη) of speeches and of soul and the various ways in which they are affected, he will go through all the causes of these affections, coordinating each type of soul with the type of speech appropriate to it (προσαρμόττων ἕκαστον ἐκάστω) and explaining why a certain sort of soul is necessarily persuaded by one kind of speech and another sort is not.’ If ἐκάστω means each class or type of constitution, the phrase ἅψ’ ἐκάστου ἐκάστω would again be concerned only with the doctor’s general knowledge: the point would be that the doctor must be able to relate each type of food, drink, or other component of regimen to each constitutional type. But even if we take ἐκάστω to refer to an individual patient (as I have done in the translation), this does not commit the author to the view that the doctor can know only how the particular individual he is treating will be affected by the various components of his regimen (cf. above, pp. 295–296). The point, rather, is just that the doctor must be able to relate the peculiarities of each individual patient to the body of

general knowledge that is the foundation of his medical practice (cf. Gomperz 1911, 222n6). For the need to take into account both human φύσις in general and the φύσις of the individual patient cf. *Epid.* I 10, L. 2.668.13–670.2: τὰ δὲ περὶ τὰ νοσήματα ἐξ ὧν διαγιγνώσκωμεν μαθόντες ἐκ τῆς κοινῆς φύσιος ἀπάντων καὶ τῆς ἰδίης ἐκάστου; Celsus, *Med.* prooem. 66: *Ergo etiam vetustissimus auctor Hippocrates dixit mederi oportere et communia et propria intuentem*. Cf. also n. below on 20.6 πάσῃ τῇ ἀνθρωπίνῃ φύσει.

20.3 τίνοι τῶν ἐν τῷ ἀνθρώπῳ ἐνεόντων ἀνεπιτήδειον, ‘which of the things in the human being it is inimical to’: the reference may be either to a humor or to an organ or ‘structure’ (σχῆμα) within the body; for the importance of the latter cf. 22–23. Since the author has not yet introduced the concept of bodily structures or explained their importance in accounting for disease, we might be inclined towards the former interpretation; this is supported by the cheese example in 20.6 (cf. χυμὸς 147.19 J.). But the wine example in 20.4 is best taken as referring to the effects of wine on the head, a ‘structure’ as defined in chapter 22 (cf. 22.4, 150.7 J.; 23.1, 153.2 J.). It thus seems best to suppose that the author intended the phrase τίνοι τῶν ἐν τῷ ἀνθρώπῳ ἐνεόντων ἀνεπιτήδειον to cover both humors and structures, and thus to anticipate somewhat the explicit introduction of the latter in chapter 22.

20.4 Οὕτως οὖν μοι ἔστω οἶον, ‘Accordingly, let me take this example’: for this way of introducing an example cf. ἔστω μοι ἄνθρωπος 133.13 J.

20.4 καὶ ἅπαντες ἂν ἰδόντες τοῦτο ... μάλιστα οἶδαμεν, ‘All who see this ... we know what they are’: reading ἰδόντες in 147.8 J. (M, Jouanna) instead of οἱ εἰδότες, ‘and all those who know this’ (the reading of the fourth hand in A, which itself has οἱ ἰδότες). The effects of wine on the body are a familiar example that illustrates the author’s claim that the doctor must know precisely what affection is caused by a certain food or drink (τίνα ... πόνον 147.3 J. ~ διατίθησί πως τὸν ἄνθρωπον 147.7–8 J.), its cause (διὰ τί 147.3 J. ~ αὐτὸς αἴτιος 147.9 J.), and what things in the body are affected (τίνοι τῶν ἐν τῷ ἀνθρώπῳ ἐνεόντων ἀνεπιτήδειον 147.3–4 J. ~ οἷσί γε τῶν ἐν τῷ ἀνθρώπῳ τοῦτο δύναται γε μάλιστα 147.9–10 J.). The specific effects of drunkenness are well known to all, and it is obvious that they are due to wine. Moreover, it is also clear that these effects are felt most acutely in certain parts of the body, viz. the head. Cf. Arist. *GA* 744b6: ‘if heaviness comes about to any degree around the

head because of sleep or drunkenness (μέθη) or any other such thing'; *Pr.* 872b29–31: 'drunkenness (τὸ μεθύειν) ensues whenever there is heat in the regions around the head'; *Pr.* 874b13: 'drunkenness (τὸ μεθύειν) is in the regions around the head'. Since the example is one in which the effects are well known to all, ἰδόντες is preferable to οἱ εἰδότες: the point is that anyone who *sees* a case of drunkenness recognizes at once that wine is its cause.

20.4 αὕτη ἡ δύναμις οἴνου καὶ αὐτὸς αἴτιος, 'this is the power of wine ... it alone is responsible': confusion about the point of the example has led to unnecessary proposals to emend the text. The contrast between the account the author rejects ('cheese is harmful when eaten in abundance') and the account he endorses is not a contrast between foods taken in themselves and foods taken under certain circumstances (i.e. in excessive amounts). This seems to be the view of Festugière (1948, 65): 'Un bon médecin doit connaître le comportement de l'homme à l'égard des aliments qu'il ingère. Non pas de l'homme en soi, mais de chaque individu, car les tempéraments diffèrent. Non pas de tout aliment en soi, mais de l'aliment pris en telle quantité, dans telles conditions.' Cf. Jones 1923, 64: 'Cheese is not bad food; it is only bad in certain conditions, and in certain ways, and at certain times. In these circumstances cheese has a δύναμις which does not belong to cheese *in itself*, but is latent until certain conditions call it forth. The error, says the writer, is not made in the case of wine. Everybody knows that in itself wine is not bad; it is drinking to excess, or at wrong times, which is mischievous.' No doubt the author would agree that wine is only bad when taken in excess, but that is not his point here. The example presupposes that the person drinks too much wine; the point is that all recognize the effects of drunkenness, and that wine alone is responsible for them (αὐτὸς αἴτιος). Jones' misunderstanding leads him to propose the reading οὐκ αὐτὸς αἴτιος for αὐτὸς αἴτιος, thus completely inverting the straightforward meaning of the passage; the confusion persists in Jones 1946 (86).

20.5 Τυχὸς γάρ, 'For cheese': the ability of cheese to cause strong effects on certain individuals was widely recognized. Cf. *Morb.* IV 35, 87.21–25 Joly (L. 7.548): 'When a man eats cheese or something pungent (δριμύ), or eats or drinks anything else which is phlegmatic, it immediately runs up to the mouth and the nostrils. We all see (πάντες ὁρώμεν) that this happens; and it is only to be expected, from the cause which I am about to give' (tr. Lonie). The author's explanation is that the phlegmatic

substances in foods and drinks are attracted to the head, which sits on the body like a cupping instrument (σικύη; cf. VM 22.3, 150.2 J.); fresh phlegm entering the head causes expectoration of the phlegm that had previously collected there. Cf. also Pl. *Lg.* 638c2–8: those who immediately blame some practice as soon as it is proposed are like people who ‘when someone has praised wheat (πυρούς) as good food, immediately blame it, having learned neither its effect (ἐργασία) nor its proper application (προσφορά): how it should be given and to whom and with what other things, and in what condition it should be given and what the condition should be of those to whom it is given (ὅντινα τρόπον καὶ οἷσιν καὶ μεθ’ ὧν καὶ ὅπως ἔχοντα καὶ ὅπως προσφέρειν ἔχουσιν)’. The point is similar to that of the present passage. But the similarity is not so close as to establish that Plato had this passage in mind, and it does not provide sufficient reason to emend πυρούς ‘wheat’ in the Platonic text to τυρούς or τυρόν ‘cheese’, as many editors have done. Cf. Festugière 1948, 65; Herter 1963a, 281–282 (=1975, 204); Jouanna 1990, 147n2.

20.5 σημείω, ‘example’: cf. σημείων 18.1, 142.7 J.

20.6 χυμός, ‘humor’: the reference is clearly to a juice or fluid substance present in the body, as at 18.4, 143.4 J.; 19.6, 145.5 J.; 22.1, 149.4 J.; 24.1, 153.7 J., 153.10 J., 153.14 J. At 14.6, 137.2 J. (χυμοῦ) the emphasis is on ‘flavor’; cf. n. *ad loc.*

20.6 Διαφέρουσιν οὖν τούτων αἱ φύσεις, ‘Hence the natures of these people differ’: for the argument from differences in observable effects to differences in underlying constitution see n. on 14.4 ἔνι γὰρ ἐν ἀνθρώπῳ ... καὶ ἄλλα μυρία (pp. 241–244 above).

20.6 τυγχάνει πλείων ἐνεὼν ... ἐν τῷ σώματι, ‘happens to be present in greater quantity and to exert more power in the body’: for the distinction between the amount of a humor present in the body and its degree of concentration cf. n. on 14.4 παντοίας δυνάμεις ἔχοντα πλήθός τε καὶ ἰσχύν (pp. 246–248 above).

20.6 πάσῃ τῇ ἀνθρωπίνῃ φύσει, ‘for human nature in general’: cf. ἡ φύσις ἡ ἀνθρωπίνη 7.2, 126.10 J.; τὴν τοῦ ἀνθρώπου φύσιν 14.3, 135.15–16 J.; τῆς φύσεως τῆς ἀνθρωπίνης 14.3, 136.3–4 J.

20.6 Ταῦτα δ' εἴ τις εἰδείη, οὐκ ἂν πάσχοι (**21.1**) τάδε· ἐν τῇσιν ἀνακομιδῇσι, 'Whoever knows these things would not suffer the following. (**21.1**) In recovery from disease': adopting Gomperz' emendation of τὰ δ' ἐν (AM) to τάδε(ε)· ἐν (Gomperz 1911, 238n11; also adopted by Jones 1923 and supported by Radt 1979, 109–110). This makes the connection between chapters 20 and 21 clear: if a doctor has the kind of knowledge described in chapter 20, he will not fall into the difficulties discussed in chapter 21. The ability to explain the effects of the various components of regimen on different individuals is necessary to avoid errors in therapy. The reading of the MSS (followed by most editors, including Jouanna) yields a much weaker connection between the two chapters: 'Whoever knows these things would not suffer (πάσχοι). (**21.1**) Now in recovery from disease (Τὰ δ' ἐν τῇσιν ἀνακομιδῇσι)'. On this reading, it would be possible to take the subject of πάσχοι to be a lay person rather than a doctor; the point would then be that lay people, too, need the kind of explanatory knowledge required of the doctor in chapter 20 in order to avoid suffering certain affections (cf. Jouanna 1990, 148n1). But I take it that in chapters 20 and 21 the author is concerned to set out what the good doctor needs to know; cf. esp. 20.3, 146.15–17 J. This does not mean that VM's audience is confined to medical practitioners, since the author had a strong motivation to communicate his view of what the good doctor needs to know to a lay audience; cf. Introduction, pp. 40–45.

21

The author describes the therapeutic consequences of the failure to grasp the knowledge set out in the previous chapter. Patients suffer many disturbances during lengthy diseases and while recovering from them (21.1). Most doctors, like lay people, assume that if a patient makes some change in regimen that is quickly followed by a disturbance in his condition, the change must be responsible for the disturbance. Thus they often deprive patients of what is beneficial for them through ignorance of the true effects of regimen (21.2). The doctor must know what effects are brought about by such things as untimely bathing or fatigue, repletion, and different sorts of foods. Without the knowledge of how each one of these things affects the human being it is impossible to make correct use of them in treatment (21.3).

The emphasis is on the therapeutic importance of the explanatory

knowledge described in the previous chapter. If the doctor is ignorant of the true effects of changes in regimen, he may mistakenly believe that such changes are responsible for the disturbances that patients suffer during sickness and recovery, and thus deprive patients of what is most beneficial for them (21.2). Ignorance of the effects of regimen is associated with lack of professional competence (ὥσπερ τοὺς ἰδιώτας 148.8 J.; cf. 120.7–12 J.), and the principal criticism of other doctors is that their understanding of causation is merely *post hoc, propter hoc*: any change in regimen that is soon followed by a change in the patient's condition is considered responsible for that change (cf. 19.3 for the author's own much more sophisticated conception of cause).

* * *

21.2 Οἶδα δὲ τοὺς πολλοὺς ἰητροὺς ... ἦν οὕτω τύχῃ, ἀφαιρεῦντας, 'I know that the majority of doctors ... depriving the patient of what is most beneficial': for similar criticism of *post hoc, propter hoc* reasoning cf. *Vict.* 70, 202.11–12 Joly (L. 6.606), where the author complains that patients generally identify the cause of a disease as whatever they do at the moment it breaks out: 'whatever the patient happens to do at this moment, he blames, though it is not responsible' (ὃ τι δ' ἂν τύχῃ ποιήσας κατὰ τοῦτον τὸν καιρὸν, τοῦτο αἰτιᾶται οὐκ αἴτιον ἔόν). For the therapeutic consequences resulting from ignorance of the true cause of disease cf. *Acut.* 43–44, 54.18–55.13 Joly (L. 2.314–318). The author complains that doctors are not experienced (ἔμπειροι) in distinguishing cases of weakness due to starvation or depletion from cases due to pain or the acuteness of a disease. It is a very serious error and very dangerous for the patient if the doctor increases the patient's ration of food on the assumption that starvation or depletion is the cause, when in fact the cause is the acuteness of the disease. It is less dangerous for the patient if the doctor fails to recognize that the weakness is caused by starvation and erroneously diminishes the patient's ration of food. But this kind of mistake runs a serious risk of making the doctor a laughingstock (καταγελαστοτέρη 55.5 Joly, L. 2.316) if another doctor or lay person arrives and gives the patient more food. Such acts are viewed by the public as tantamount to raising the patient from the dead, and cause doctors to be held in widespread contempt.

21.2 ταῦτα δὲ πάντα ... ἢ μή, 'whether all these things are better done or not': the Greek might also mean 'though these things are better done than not' (so Littré, Festugière). As Jouanna remarks, however

(1990, 148n4), the phrase ἦν οὕτω τύχῃ ‘perhaps’ at 148.13 J. tells against this interpretation. It is possible, but not necessary, that the bad doctors will deprive their patient of what is most beneficial to them; thus it cannot be clear whether or not the changes in the patient’s regimen were beneficial.

21.3 Ὅστις οὖν ταῦτα ... οὔτε χρῆσθαι ὀρθῶς, ‘Whoever does not know ... nor to make correct use of them’: a restatement of the key idea of chapter 20, viz. that the doctor needs knowledge of how each component of regimen (e.g. baths, foods and drinks of different sorts) will affect the human being in order to treat patients correctly. For ἕκαστα cf. 20.3 καὶ ὁ τι ἀφ’ ἑκάστου ἑκάστῳ συμβήσεται with n.; for πρὸς τὸν ἄνθρωπον cf. 20.3 ὁ τι τέ ἐστιν ἄνθρωπος πρὸς τὰ ἐσθιόμενα ... πρὸς τὰ ἄλλα ἐπιτηδεύματα with n.

22

The chapter describes a further body of knowledge that the doctor must have in order to treat patients correctly: knowledge of the ‘structures’ (σχήματα) inside the human body, where ‘structures’ include organs such as the lung or spleen as well as parts of the body such as the head. In section 22.1 the author mentions nine different types of structures, distinguished by their shape, consistency or texture, and orientation: (1) hollow and tapering, (2) hollow and extended, (3) solid and round, (4) broad and suspended, (5) extended, (6) long, (7) dense, (8) rare and inflated, and (9) spongy and porous. Sections 22.2–4 set out a method for learning about the behavior of these structures. The author first asks which structures are best able to attract liquids from the rest of the body, and answers that it is those of type (1), the hollow and tapering (22.2). This must be learned by considering evident phenomena outside the body, such as the use of a tube or straw to draw liquids into the mouth or the use of cupping instruments to draw fluids from the body (22.3). Of the structures in the body it is the bladder, the head, and the womb that have the greatest attractive capacity: they are hollow and tapering, and always full of moisture attracted from elsewhere (22.4). Sections 22.5–6 discuss the capacity of hollow and extended (type 2), solid and round (type 3), and spongy and porous (type 9) structures to attract and retain liquids. Sections 22.7–9 focus on the effects of air or wind inside the body. Flatulence and colic are produced in hollow and

spacious structures, while fleshy and soft structures are prone to numbness and obstruction (22.7). The liver, because it is broad and dense but also tender and bloody, both resists the onrush of wind in the body and suffers abscesses and tumors from it (22.8). The diaphragm is affected in a similar way but less severely, because of its more sinewy nature (22.9).

The focus throughout the chapter is on knowledge of the capacities of different structures or organs to affect and be affected by fluids and air in the body. This knowledge supplements the *κρησις* theory introduced in chapter 14. If disease is a state in which a humor has undergone ‘separation’ (*ἀπόκρισις*) and collected in a particular part of the body, it is of obvious relevance to know about the capacities of the various organs for attracting or retaining fluids, and for being affected by other substances in the body such as air (cf. *Morb.* IV 35–38, where the head, liver, spleen, and heart are each said to attract a particular humor). The chapter maintains the focus on powers (*δυνάμεις*) and the close connection between *φύσις* and *δύναμις* that are characteristic of the author’s thought, even though he does not use the term *δύναμις* in connection with structures (cf. however the use of *δύναμαι* in connection with attractive capacity at 22.2, 149.14 J.; note also *φύσις* at 150.6 J., 152.15 J., and esp. 152.2 J.).

The chief importance of the chapter lies in the method it sets out for using the behavior of visible things outside the body to investigate the behavior of the internal organs or structures. Four points about this method call for special comment.

First, the method presupposes a good deal of knowledge about the structures inside the body. The author already knows that the bladder, the head, and the womb are hollow and tapering (22.4); the method he sets out yields the conclusion that these organs have the most attractive capacity. Throughout the chapter the author claims to have knowledge of the shape, texture, and consistency of various internal organs. The spleen, the lung and the breasts he knows to be spongy and porous, so he concludes that they are especially suited to absorb moisture (22.6). The liver is broad and resistant but also tender, swollen, bloody, and dense, so that it suffers sharp and frequent pains from the effects of air in the body (22.8). The diaphragm suffers less than the liver from air in the body because it is more sinewy and stronger (22.9). Hippocratic knowledge of human internal anatomy was based not on dissection but on medical experience and analogies with the anatomy of animals (cf. Jouanna 1999, 307–313). But whatever the basis of his anatomical

knowledge, the author takes it to be a reliable starting point for learning about the behavior of the internal organs.

Second, the method involves drawing analogies between visible and invisible phenomena. Since it was not possible to investigate the internal organs directly, the author draws conclusions about their behavior from the behavior of visible things that have an analogous shape. From the observations that it is easier to draw liquids into the mouth using a tube or straw and that cupping instruments, which are especially good at drawing liquids from the body, have a tapering shape, he infers that the structures in the body with the most capacity to attract fluids are also those that are hollow and tapering. The link between visible and invisible is provided by a general principle, viz. that hollow and tapering objects have the most capacity to attract fluids. Although the author does not state this principle explicitly, the examples of the tube and cupping instrument both suggest it, and the reference to ‘many other examples of this kind’ (22.3, 150.5 J.) suggests that it is meant to be inferred by induction from them. The reasoning is thus as follows: hollow and tapering things have the most attractive power (general principle inferred from observation), but the organs in the body that are hollow and tapering are the bladder, head, and womb (known from medical experience); hence these organs have the most attractive power. The application of the general principle to the internal organs assumes only that objects inside the body with a certain shape will behave in exactly the same way as similarly-shaped objects outside the body.

Third, the observational evidence the author adduces is drawn from the experience of daily life (the use of a tube to draw liquids into the mouth) and experience in medicine (the use of cupping instruments). Cupping instruments played a large role in ancient medical practice, and were commonly cited as examples of the phenomenon of attraction (cf. Pl. *Ti.* 79e, Hp. *Medic.* 7, discussed below on 22.3 αἱ σικύαι). The Hippocratic doctors had a wide variety of experience with the behavior of different kinds of cupping instruments; the author of VM draws on this rich body of experience to construct his theory of the structures in the body. More generally, the example of the cupping instrument reflects the author’s procedure of basing his theory of human φύσις on analogies with τέχνη (cf. below, pp. 323 and 325–326). Cupping instruments have been crafted (τετεχνέεται 22.3, 150.4 J.) for the purpose of drawing liquids from the body, and they have a hollow and tapering shape; hence their behavior is a reliable basis for inferring that hollow and tapering objects have the greatest capacity to attract fluids.

Finally, the method set out in 22.2–4 involves confirmation by appeal to medical experience. After noting that the bladder, head, and womb have a hollow and tapering shape (and therefore must have the strongest attractive capacity), the author says that these organs are ‘manifestly’ (φανερῶς 150.7 J.) always full of moisture attracted from elsewhere. This fact of medical experience both confirms his analysis of the behavior of the internal organs and is explained by it.

The author follows this method consistently throughout the rest of the chapter (see detailed notes below on sections 22.5–9). Experience in medicine and in daily life suggests general principles that relate shape and/or texture with different capacities to affect and be affected by fluids and air. These general principles are assumed to govern the behavior of the internal organs as well; when combined with prior knowledge of the shape and texture of different organs, they yield knowledge of the capacities of these organs to affect or be affected by fluids and air. And this knowledge both explains and is confirmed by various facts of medical experience. The author’s use of cooking as a model for understanding the behavior of the humors in the body is also based on analogical reasoning (cf. above, pp. 235 and 281–282). But while the role of analogy in formulating the theory of *κρῆσις* and *πέψις* is largely implicit, here the author advocates the use of analogy as an explicit method. In both cases his starting point is the firm belief that medicine is a genuine *τέχνη*, and he constructs his theory of human *φύσις* by drawing analogies from experience in it. This procedure justifies the author’s claim in chapter 20 that the knowledge of human origins and development that his opponents claim to have can be attained if one begins from medicine (20.2); cf. pp. 297–298 above.

In basing theories about invisible processes inside the body on analogies with familiar objects or processes outside it, the author of VM follows a procedure that is characteristic of early Greek science and philosophy. His remark that ‘one must learn these things from evident (φανερῶν) things outside the body’ (22.3) echoes the dictum attributed to Anaxagoras that ‘the appearances are a vision of the unclear’ (*ὅψις ἀδήλων τὰ φαινόμενα*)—a saying of which Democritus is said to have approved (DK 59 B 21a), and which is echoed by Herodotus and various medical authors in addition to VM (cf. n. below *ad loc.*, pp. 328–329). It is likely that Anaxagoras’ dictum refers in part to the use of analogies to construct theories about the obscure (Lloyd 1966, 341). The early Milesians used analogies to formulate theories about the large-scale structure of the cosmos and the nature of meteorological phenom-

ena. In the domain of human biology, Empedocles stands out for his use of analogies with familiar objects to elucidate obscure physiological processes. Finally, several Hippocratic treatises—in particular *Genit.*, *Nat. Puer.*, and *Morb. IV*—make extensive use of analogies to account for such phenomena as the development of the embryo or the behavior of the humors in the body. We may now attempt to place VM's use of analogy in this wider context. Three points are of primary importance.

First, VM stands out for its explicit recommendation of analogy as a general method of investigating the obscure. While the use of analogies goes back to the beginnings of Greek science and philosophy, it is only in the early Hippocratic writings and the fragments of the later Presocratics such as Anaxagoras that we find any explicit recognition of analogy as a distinct method. Moreover, VM stands out for its clear emphasis on the heuristic function of analogy. In addition to providing models or suggesting theories about the invisible, analogies in early Greek thought often served an illustrative function—to make a theory vivid to the reader or audience (a function inherited by the scientific analogy from its ancestor, the poetic simile)—or even as evidence to support a theoretical account. As Lonie has emphasized, it is often difficult to separate the heuristic, illustrative, and evidential functions of particular analogies (1981, 83–86; cf. 79, where he notes Regenbogen's apt description of the analogies in the treatises *Genit.*, *Nat. Puer.*, and *Morb. IV* as both the scaffolding ['Baugerüst'] and support ['Stützung'] of the author's account). Lloyd finds that in early Greek science analogies 'were generally treated as not so much a source of preliminary hypotheses, as the basis and justification of definitive accounts' (1966, 382). This, however, is clearly not the case in the present chapter, where analogy is used to suggest hypotheses about the behavior of the internal organs that are subsequently confirmed by medical experience. While VM clearly emphasizes the heuristic function of analogy, the observable analogues he cites also serve as evidence, by establishing the general principles that provide the crucial link between visible and invisible. The important role of general principles in analogical argument has rightly been emphasized by Lonie (1981, 81–82; cf. *Nat. Puer.* 12, 53.10–12 Joly, L. 7.486, where the principle that 'everything that is heated acquires breath' is explicitly stated). In particular, he points out how such principles provide a kind of bridge between 'semiotic' arguments, in which observation provides evidence of the unobservable without any element of simile or comparison (cf. Diller 1932), and analogy *stricto sensu*, in which an observable analogue supplies a model for

the understanding of an obscure process without providing any *evidence* of how it comes about. As well as supplying a model of an unobservable object or process, the observed analogue also provides evidence for it by supporting a general principle, which is then applied to the unobservable object on the basis of its similarity with the visible. In this way, the observable analogues of the tube and cupping instrument cited in section 22.3 serve as evidence for the behavior of the internal organs as well as heuristic models for understanding that behavior.

Second, in basing analogies on ordinary human experience and experience in a particular τέχνη, VM follows a procedure that is characteristic of early science and philosophy. Cf. Diller 1932, 40 (=1971a, 142): ‘Immer aber trifft es zu, daß die Erfahrungen, die der Mensch an sich oder im Bereich seiner Arbeit mit dieser Arbeit oder den ihr zugehörigen Werkzeugen macht, die φαινόμενα sind, an denen die griechische Naturphilosophie den Blick für die αἰδηλα, die bis dahin unerschlossenen Naturvorgänge gewinnt.’ A wide range of technological processes—cooking foremost among them—served as the basis of analogies in early Greek thought (cf. Lloyd 1966, 345ff.; Jouanna 1999, 319ff.). The author of *Vict.* explicitly recommends the general procedure of drawing analogies with τέχνη in order to learn about human φύσις (*Vict.* 11–12, 134.21–136.6 Joly, L. 6.486–488):

People do not know how to investigate the obscure (τὰ ἀφανέα) from the evident (ἐκ τῶν φανερῶν). For though they make use of arts (τέχναι) that resemble human nature (φύσις), they are unaware of it ... But I shall point out arts that bear an evident resemblance to human affections, both evident and unapparent.⁴

The author goes on to discuss a wide range of different τέχναι including divination, iron-working, fulling, cobbling, carpentry, building, music, cooking, basket-making, gold-working, sculpting, pottery, writing, and gymnastic training (*Vict.* 12–24); in each case he first describes some features of the τέχνη in question, then points out or suggests one or more resemblances with human φύσις. The emphasis is on structural similarities between art and nature: art ‘imitates’ (μιμεῖται) human nature in the strong sense that the processes taking place in the human body (or closely similar ones) also take place in the various arts (for μιμεῖσθαι cf. ch. 12, 136.9 Joly, L. 6.488; ch. 16, 138.5 Joly, L. 6.490; ch. 17, 138.11

⁴ Οἱ δὲ ἄνθρωποι ἐκ τῶν φανερῶν τὰ ἀφανέα σκέπτεσθαι οὐκ ἐπίστανται· τέχνησι γὰρ χρεώμενοι ὁμοίῳ ἄνθρωπινῃ φύσει οὐ γινώσκουσι ... Ἐγὼ δὲ δηλώσω τέχνας φανεράς τε καὶ ἀφανείς.

Joly, L. 6.492; ch. 18, 138.22 Joly, L. 6.492). The author concludes the section by remarking that all τέχναι 'have something in common with' (ἐπικοινωνέουσι) human φύσις (ch. 24, 142.4–5 Joly, L. 6.496). Since all τέχναι 'imitate' or 'have something in common with' human φύσις, it is possible to learn about the hidden realm of human φύσις by reflecting on the various τέχναι and grasping the nature of the imitation (for the idea of art imitating nature with specific reference to the resemblance between cooking or πέψις and the processes taking place inside the body cf. Arist. *Met.* 381a9–12 and 381b3–9, discussed above on 19.1 Τὸ δὲ πεφθῆναι γίνεται ... καὶ συνεψηθῆναι). The particular analogies between art and nature to which the author of *Vict.* draws attention are often quite obscure. Yet the notion that τέχνη provides the model for understanding φύσις clearly underlies many of the technological analogies in the Hippocratic authors, some of whom modified particular instruments or procedures in the search for observable analogues that could shed light on obscure phenomena (cf. below on 22.3 αἱ σιχύαι).

Finally, the author's use of analogy shows a degree of what may be called epistemic restraint that sets it apart from other examples of the analogical method in early science and philosophy. The author uses analogies to investigate matters about which he already has a good deal of knowledge from his medical experience (such as the internal organs); he also appeals to experience to confirm hypotheses formulated on the basis of analogy. In particular, the author in using analogies to explain the invisible does not postulate the existence of entities for which there is no evidence aside from the analogy itself. We may contrast his procedure with some characteristic examples drawn from two areas of early Greek science in which analogies were extensively employed: (a) cosmology and meteorology, and (b) biology and physiology. (a) In their attempts to offer accounts of the origin or the present structure of the universe the early Milesians often appealed to analogies with objects familiar from everyday experience. For example, Anaximander apparently suggested that the heavenly bodies are wheels of fire enclosed in mist; this fire shines through pipe-like apertures in the wheels that resemble the nozzle of a bellows (DK 12 A 11, 21; cf. Lloyd 1966, 312ff.). While this model is clearly based on common experience and provides an intelligible explanation of certain celestial phenomena, there is no evidence for wheels of fire with pipe-like apertures in the heavens aside from the analogy itself. Indeed, given the impossibility of subjecting the heavenly bodies to close examination, there was little hope of gaining much evidence of their nature independent of the particular analogies

that were proposed to explain them. A similar point can be made about meteorological phenomena, many of which could be explained by a number of distinct analogies drawn from common experience. It was easy to conclude that there was no reliable criterion for deciding which explanation was the correct one (cf. Epicurus' attitude to meteorological phenomena, discussed on pp. 141–142 above). (b) Empedocles offers two striking examples of the use of analogy to investigate questions of human biology and physiology. He compares the eye to a lantern in order to elucidate its structure and functioning (DK 31 B 84) and the process of respiration to the action of a clepsydra, a common household implement for carrying water (DK 31 B 100). Both of these analogies appeal to the behavior of objects familiar from everyday life, but both also presuppose the existence of unobservable entities not otherwise known to exist. The lantern analogy appeals to the existence of passages in the tissues of the eye as well as fire within the eye itself, neither of which are evident from direct observation. The clepsydra analogy presupposes the existence of 'bloodless tubes of flesh stretching out to the innermost parts of the body' (DK 31 B 100.1–2; these are pores in either the skin or the nasal cavity [Lloyd 1966, 328ff.]). Given the existence of such invisible pores, the clepsydra could certainly provide a model for the process of respiration; but Empedocles offers no evidence of their existence aside from the analogy itself. These examples suffice to indicate that the use of analogy in early medicine and philosophy was typically far more bold and speculative than in VM. The author's epistemic restraint in the use of the analogical method helps to explain and justify his view that reliable knowledge about invisible processes can be attained in medicine, but not in a field such as cosmology or meteorology (1.3).

* * *

22.1 Λέγω δὲ τί τοῦτο; 'What do I mean by this?': this is the reading of M, adopted by Jouanna; it is more suited to the vividness of the author's style and his penchant for rhetorical questions than A's Λέγω δὲ τι τοιοῦτον ('I mean something like the following').

22.1 Δύναμιν μὲν εἶναι ... καὶ ἰσχύν, 'By "power" I mean the acuity and strength of the humors': since the author does not distinguish clearly between substances (i.e. the humors) and their qualities (i.e. their 'strength' or 'acuity'), the upshot is that δύναμις is defined as a strong or concentrated humor; cf. n. on 14.6 ἀπόκρισις τῶν ἀμφὶ τὸ σῶμα δυναμίων.

22.1 σχήματα, ‘structures’: the author’s explicit definition (‘all the parts inside the human being’) hardly establishes the precise meaning of the term. From the examples later in the chapter it becomes clear that it refers to the internal organs as well as anything in the body that has a distinctive structure or configuration. The examples of σχήματα in this chapter are: the bladder, the head, and the womb (22.4); the spleen, the lung, and the breasts (22.6); the belly (κοιλίη) and chest (θώραξ) (22.7); and the liver (22.8) and diaphragm (22.9); cf. also 23.1. Jouanna notes (1999, 310) that the use of ὄργανον for bodily organs is Aristotelian; in general the Hippocratics viewed the parts of the body in terms of form rather than function. But it should be kept in mind that the author also considers the consistency or texture of the various structures of the body as well as their shape; moreover his overall concern is with the way in which the structures affect and are affected by fluids and air in the body. Cf. 22.6, where the fact that ‘spongy and porous’ organs such as the lung and breast absorb and retain liquid is said to be due to ‘the nature of their structure’ (διὰ τὴν φύσιν τοῦ σχήματος 151.6–7J.).

22.1 τὰ δὲ καὶ ἐκπεπταμένα, ‘others also extended’: the sequel shows that the reference is to structures that are hollow as well as extended. Cf. τὰ κοιλὰ τε καὶ ἐκπεπταμένα 149.12 J.; Τὰ δὲ κοῖλα καὶ ἐκπεπταμένα 150.9 J.

22.1 τεθιλότα, ‘swollen’: cf. 152.6 J., where the liver is said to be τεθιλός. The basic sense of θάλλω is to thrive or bloom, and it is regularly used of plants; cf. LSJ s.v. For the meaning ‘swell’ cf. *Loc. Hom.* 24, 64.16–17 Craik (L. 6.314).

22.3 Καταμανθάνειν δὲ δεῖ ταῦτα ἔξωθεν ἐκ τῶν φανερῶν, ‘But one must learn these things from evident things outside the body’: the remark stands out for its explicit recommendation of the use of analogy as a heuristic method (above, pp. 324–325). It echoes the dictum attributed to Anaxagoras by Sextus Empiricus (DK 59 B 21a): ‘the appearances are a vision of the unclear, as Anaxagoras says, for which he was praised by Democritus’ (‘ὅψις γὰρ τῶν ἀδήλων τὰ φαινόμενα’, ὥς φησιν Ἀναξαγόρας, ὃν ἐπὶ τούτῳ Δημόκριτος ἐπαινεῖ). For similar remarks cf. *Genit.* 7, 49.1–3 Joly (L. 7.478): ‘Now that both male and female sperm exist in both partners is an inference that can be drawn from evident things’ (Συμβάλλεσθαι δὲ παρέχει ὅτι καὶ ἐν τῇ γυναικὶ καὶ

ἐν τῷ ἀνδρὶ ἔστι γόνος καὶ θῆλυσ καὶ ἄρσιν τοῖσιν ἐμφανέσι γινομένοισι); *Vict.* 11–12, 134.21–136.6 Joly (L. 6.486–488; quoted above, p. 325); Hdt. 2.33.2: ‘as I conclude, inferring what is unknown by means of evident things’ (καὶ ὥς ἐγὼ συμβάλλομαι τοῖσι ἐμφανέσι τὰ μὴ γινωσκόμενα τεκμαιρόμενος). In the first of these passages (*Genit.* 7) the reference is to a ‘semiotic’ argument in the sense distinguished by Diller (1932), i.e. an appeal to observation that does not involve any analogy or similarity between visible and invisible. The author argues that both parents contain both male and female sperm, since (1) the same woman can bear female offspring to one man and male offspring to another, and (2) the same man may engender male offspring in one woman and female in another. Later he mentions the resemblance of parents to children as a further piece of evidence (ιστόριον; *Genit.* 8, 50.12 Joly, L. 7.480): a daughter may resemble her father more than her mother (on the author’s theory of sex differentiation this can only be because the father contains female sperm). Though they depend to some extent on the author’s theory of sex generation, these arguments are clearly semiotic: the phenomena provide direct evidence for the theory because (in the author’s view at least) they cannot be explained in any other way (cf. Lonie 1981, 133–136). In the case of the other two passages mentioned (*Vict.* 11–12 and Hdt. 2.33) the reference is to analogical argument: the use of the various τέχναι as a means of learning about human φύσις in *Vict.*, and Herodotus’ attempt to set out the course of the Danube by analogy with the course of the Nile. As Lloyd points out (1966, 341), for Anaxagoras himself the dictum ὅψις ἀδύλον τὰ φαινόμενα probably referred to other kinds of appeal to observational evidence (i.e. ‘semiotic’ arguments) as well as the use of analogy. For recognition of analogy as a distinct kind of argument cf. also *Nat. Puer.* 27, 77.4–7 Joly (L. 7.528): the process of growth (φύσις) is about the same (παραπλήσιον) for human beings and plants; *Nat. Puer.* 29, 78.3–4 Joly (L. 7.530): observation of the development of the chicken embryo will confirm the author’s account of human embryonic development ‘so far as it is legitimate to compare the growth (φύσις) of a bird to that of a man’.

22.3 Τοῦτο μὲν γὰρ ... ὃ τι θέλοις, ‘For example ... whatever you like’: the text presents some difficulties, none of which significantly affects the interpretation. Jouanna’s text (which I follow) is based on that of A and gives a three-part example, progressing from cases of lesser to greater attractive power: (1) mouth wide open, (2) lips compressed,

(3) lips compressed and applied to a tube. The main alternative is based on the text of M, which gives a two-part example: (1) lips wide open, (2) lips compressed and then (ἐπειτεν) applied to a tube (so Heiberg). The specification of multiple alternatives in the reporting of such experiences was common: cf. *Morb.* IV 39, 51, 57; *Genit.* 9; *Nat. Puer.* 17, 25; Senn 1929, 251.

The example is drawn from the experience of everyday life. Cf. the similar example ascribed to Anaximenes by Plutarch (*De prim. frig.* 7, 947–948 = DK 13 B 1): if one holds the mouth wide open and breathes out, the breath is warm, but if the lips are compressed, then the breath is cold. This is not a test deliberately contrived and carried out in order to decide between competing theories, but a fact of experience adduced to support or suggest a theory. The formulation of the example as a condition (the participles in 149.17–150.1 J. express the antecedents of the condition) is typical of Hippocratic reports of experience; cf. the examples collected by Senn (1929, 266–267), which often begin with εἴ τις. Senn classifies the present passage as an ‘Einwandfrei beschriebenes Experiment’—i.e., a test deliberately conducted in order to establish a certain result—on the grounds of the style in which it is formulated (1929, 231). He argues that the use of the future indicative or the optative to express the result of a condition is a telltale sign of such ‘experiments’ (cf. ἀνασπάσεις 150.1 J., ἀνασπάσαις 150.2 J.), while the present indicative is used in the case of experiences drawn from everyday life (Senn 1929, 261, 266–267). But style cannot be used to differentiate between the reporting of deliberately contrived tests and appeals to everyday or professional experience. Cf. *Morb.* IV 49, 105.21–24 Joly (L. 7.580): ‘if you pour water and oil into a bronze cauldron, and burn a large fire under it for a long time, the amount of the water will decrease very considerably (πολλῷ ἔλασσον ἔσται) ... while the oil will decrease by only a small amount’ (tr. Lonie). Here, though the future indicative ἔσται is used to express the result, the procedure described may have been used in the making of perfume (so Senn 1929, 234; cf. Lonie 1981, 79, suggesting that it was a common household procedure for removing water from oil). Cf. also *Nat. Puer.* 21, 67.19–22 Joly (L. 7.512): ‘The process is the same as when you smear a hide with large quantities of oil and, after giving the hide time to absorb the oil, you squeeze it, and the oil oozes out again (διαπιδοίη ἄν) under pressure’ (tr. Lonie). Though formulated as a condition with the result in the optative, this example is probably drawn from experience in leatherworking (so Lonie 1981, 207; cf. Senn 1929, 236).

From the point of view of content the example is similar to, though rather less elaborate than, a number of examples cited in the treatises *Morb.* IV and *Nat. Puer.* to illustrate the behavior of fluids and air. The author of *Morb.* IV draws an analogy between the behavior of fluids in the body and the behavior of oil in narrow-necked vessels (*Morb.* IV 51, 110.21–28 Joly, L. 7.588): ‘It is similar to what happens when one takes a leather oil flask with a narrow neck and fills it with oil and inverts it so that the mouth is straight downwards. The oil will be unable to flow out, for it chokes the entrance by its accumulation and pressure ... Water on the table, too, will do the same thing’ (tr. Lonie). A similar experience is cited to illustrate the behavior of water cut off in the veins at *Morb.* IV 57, 123.12–23 Joly, L. 7.612: ‘It is similar to what happens if one closes off a large narrow-necked vessel and quickly inverts it, then slowly removes the cover from its mouth—the water will not flow out ... But if you tilt the vessel gently, or bore a hole in its base, the air will leave the vessel; and as the air passes outside, so too will the water’ (tr. Lonie). Cf. also the obscure comparison in *Nat. Puer.* 25 (73.17–74.9 Joly, L. 7.522–524), where the behavior of a bladder containing water and air is adduced as an illustration of the behavior of water in the earth in winter and summer.

22.3 αἱ σικύαι, ‘cupping instruments’: the cupping vessel was ‘a bell-shaped instrument which when heated and placed on the body would attract fluid; it was also used in the reduction of dislocations’ (Lonie 1981, 209). The name is derived from the shape, which is like that of a gourd (σικύα). For discussion and illustrations of various types see Milne 1907, 101–105 and Plates XXXIII–XXXVII. The importance of cupping instruments in medical practice is indicated by their role as distinctive signs of the medical profession in iconographic representations; cf. Festugière 1948, 66–67 and Jouanna 1999, 86–87 (both noting the presence of several cupping instruments in the depiction of a doctor’s surgery on an aryballos in the Louvre dating from around 470 BC). A funerary stele of approximately the same date depicts a patient and physician with two cupping instruments hanging on a wall (Berger 1970, 62–87). Numerous passages in the Hippocratic writers discuss the use of cupping instruments in the treatment of a wide variety of conditions (cf. the references at L. 10.835–836). *Aph.* 5.50 recommends applying a cupping instrument as large as possible to a woman’s breasts in order to stop the flow of the menses (L. 4.550.5–6; cf. also *Epid.* II 6.16, L. 5.136.7–8); *Nat. Mul.* recommends application to the hip in the case

of complete extrusion of the uterus (ch. 5, L. 7.318.15–16; cf. *Mul.* II 144, L. 8.318.9–10). The author of *Ulc.* writes that if blood flows after the application of cupping instruments they should be reapplied in order to prevent the formation of clots and ulcers, and the area of application should be washed with vinegar; when a cupping instrument is applied to the knee or below it, the patient should be standing if possible (ch. 27, L. 6.430–432). The most detailed and informative passage for present purposes is *Medic.* 7 (L. 9.212–214), a chapter entirely devoted to the use of cupping instruments. The author indicates that different kinds of cupping instruments should be used depending on whether the material to be removed is deep inside the body or extended over the surface of the skin (*Medic.* 7, L. 9.212.10–19):

We say that two kinds of cupping instruments are in use. If the fluid is collected together far from the surface of the flesh, the neck must be narrow, but the body must be bulging, not elongated in the part held by the hand, nor heavy: for with this shape it will attract (ἐλκεῖν) in a straight line, and will be good at drawing the fluid up to the skin from far below. But when the trouble extends over more of the flesh, the cupping instrument should be the same in other respects, but have a large neck; thus you will find that it draws the harmful fluid from as wide an area as possible to the appropriate place. For the neck cannot be large without causing the skin to contract over a wide area.

The author goes on to explain that cupping instruments with a wide neck are not effective at drawing fluids from deep in the body, for they attract fluid from the surrounding areas of the skin; it is these fluids that are drawn off, leaving the harmful matter behind. He remarks that the size of a cupping instrument must be matched to the size of the part of the body to which it is applied, and concludes the chapter with instructions on scarification (in which he says the narrow-necked variety should be used). The passage shows quite clearly that the Hippocratics were familiar from their medical practice with the different kinds of attraction exerted by cupping instruments of various shapes; the author of VM draws on this knowledge in the present passage.

The cupping instrument is a standard example of attraction (ἐλκεῖν) in philosophical and medical literature. In the *Timaeus* (79c) Plato mentions the operation of cupping instruments as one of a number of phenomena that, like respiration, can be explained by the principle of ‘circular thrust’ (περίωσις, ἀντιπερίστασις; for an attempt to do this cf. Plutarch *Plat. quaest.* 1004e–1005a). At *GA* 737b28–35 Aristotle rejects

the view, which he attributes to ‘certain persons’ (τινές), that the genital organs attract sperm like a cupping instrument (ἐλκεῖν τὰ αἰδοῖα ... ὥσπερ τὰς σικύας). It is possible that Aristotle had VM specifically in mind (cf. ὑστέραι 150.7 J.), though the context indicates that the thinkers to whom he refers also gave an important role to πνεῦμα. Later, however, Aristotle seems to endorse the connection between attractive power and a hollow and tapering shape: at *GA* 739b9–13 he says that the uterus attracts semen ‘in the same way that conical vessels which have been washed out with something warm draw water (σπᾶ) up into themselves when they are turned mouth downwards’ (tr. Peck). Among the Hippocratics the author of *Morb.* IV remarks that the head is hollow and attracts phlegm like a cupping instrument (ἡ κεφαλὴ κοίλῃ ἐοῦσα καὶ ὥσπερ σικυὴ ἐπιχειμένη ἔλκει ch. 35, 87.27–28 Joly, L. 7.548). The example remained a standard one in later literature. Cf. Hero *Spir.* 10.3–13 Schmidt; Galen, *De util. resp.* K. 4.487.15, 490.10, 491.6, *De sem.* K. 4.516.1.

In citing a medical instrument as an observable analogue of a process taking place inside the body the author follows a procedure that is common in the medical writers. For example, the author of *Nat. Puer.* describes a piece of apparatus to illustrate his theory that the embryo forms by the accretion of like to like (*Nat. Puer.* 17, 60.8–18 Joly, L. 7.498). A tube is attached to a bladder, and earth, sand, and lead filings are poured in through the tube. If water is added and air is blown in through the tube, like substances will eventually move towards like; this can be observed if one allows the bladder to dry out and then cuts it open. Lonie (1981, 184–185) notes that the apparatus described here is in fact an enema or douche, which would have been familiar to the author from his medical practice (cf. *Mul.* II 131, L. 8.278.16–17). A second striking example of the tendency to draw on instruments familiar from medical practice as a source of analogies is the system of interconnected vessels described in *Morb.* IV 39 to illustrate the author’s conception of humoral equilibrium (cf. n. on 19.7 Τὰ δ’ ἄλλα πάντα ... καὶ βελτίονα). The vessels used in constructing this apparatus are bronze cauldrons (χαλκεῖα), which were widely used in medical practice (Lonie 1981, 296, 299; cf. *Ulc.* 12, L. 6.412 and 17, L. 6.420–422 for their use in the preparation of medication). Analogies in early Greek science and philosophy were frequently based on the operation of tools or instruments; a prime example is Empedocles’ elaborate analogy between respiration and the operation of the clepsydra (DK 31 B 100; above, pp. 325–326). But Lonie is right, I believe, to remark that it is a large

step from an analogy based on a tool or instrument in its normal use (like Empedocles' clepsydra) to an analogy that requires modifying an instrument or turning it to a new purpose (as in *Nat. Puer.* and *Morb.* IV). Indeed, the use of analogy in these works suggests that 'the deliberate construction of experimental or demonstrative apparatus came to Greek science from the side of Greek medicine' (Lonie 1981, 184). In the present passage the analogy is based on the normal operation of the cupping instrument. But in chapter 24 the author recommends conducting a deliberate, systematic investigation of the behavior of the humors outside the body; such an investigation could well involve the kind of modification of tools or instruments exemplified in *Nat. Puer.* and *Morb.* IV (cf. below, pp. 340–341).

22.4 Τῶν δὲ ἔσω τοῦ ἀνθρώπου φύσις καὶ σχῆμα τοιοῦτον, 'Of the structures ... such a nature and shape': this is the reading of M; A gives τῶν δ' ἔσω φύσει τοῦ ἀνθρώπου σχῆμα τοιοῦτον ('of the things inside the human constitution, the following have such a shape'). As Jouanna notes (1990, 150n2), ἔσω normally takes a genitive object; cf. 23.1, 152.18 J. The words φύσις καὶ σχῆμα almost make up a hendiadys ('natural shape'); but later in the chapter φύσις is associated with consistency or texture rather than shape (cf. below on 22.6 διὰ τὴν φύσιν τοῦ σχήματος, 22.9 φύσις ... νευρωδεστέρη).

22.5 Τὰ δὲ κοῖλα καὶ ἐκπεπταμένα ... οὐχ ὁμοίως, 'The hollow and extended parts ... in like manner': although he cites no observational evidence to support this claim, the author might have pressed the comparison with drawing in liquids through the mouth (22.3). The wider the mouth is open the more liquid can come into it, if it flows of its own accord; but it is harder to draw up liquid with an open mouth than if one purses the lips or uses a tube. The general principle is that increasing the aperture through which liquid must pass increases the amount that can flow in, but decreases the suction. Cf. *Hp. Medic.* 7 (discussed above on p. 332), where it is noted that that cupping instruments with larger apertures have less attractive capacity.

22.5 Τὰ δέ γε στερεὰ καὶ στρογγύλα ... ἐφ' ἧς μέντοι, 'The solid and round parts ... upon which to remain': here consistency or texture as well as shape is relevant, for it is because these structures are solid as well as round that liquids cannot enter into them at all. The general

principle seems to be that things must be hollow in order to receive liquids or to draw them in by suction—again a principle that would be familiar from everyday experience with objects outside the body.

22.6 Τὰ δὲ σπογγοειδέα τε καὶ ἄραιά ... διὰ τὴν φύσιν τοῦ σχήματος, ‘The spongy and porous parts ... the nature of its structure’: the focus continues to be on consistency or texture. The spleen, lung, and breasts ‘drink up’ (ἀναπίου 150.15 J.) liquids that come into contact with them, and they harden and increase in size. The reference to drinking (cf. πῖη 151.2 J.) might suggest that the author wants to press the analogy with drawing in fluid through the mouth (22.3). But he clearly has in mind a different model, since he explicitly contrasts what happens in these cases with what happens when liquid enters something hollow (Οὐδὲ γὰρ ἄν ... οὔτ’ ἀφίησι 150.17–151.6 J.). In the latter case the liquid is surrounded by a container and can be discharged; spongy and porous things, by contrast, absorb the liquid and become hard and dense (σκληρός, πυκνός) instead of soft and porous (μαλθακός, ἄραιός). As a result, the liquid cannot easily be discharged. The author is evidently thinking of visible phenomena of absorption. The ability of sponges to absorb and retain liquid would have been familiar to doctors from their medical practice; Lonie notes that the sponge is a favorite analogy with Greek scientists (1981, 344). According to *Mul.* I 61 (L. 8.122.11–13), ‘the spleen attracts from the stomach, since it is porous (ἄραιός) and spongy (σπογγοειδής) and sits on the stomach’. Cf. *Morb.* IV 51, 110.18–20 Joly (L. 7.588): ‘when the flesh is saturated like a sponge (ὅπως περ σπόγγος), it does not release the blood but contains it, until a void forms somewhere in it’ (tr. Lonie). Cf. also the attempt by the author of *Mul.* I to show that porous substances are especially absorbent (ch. 1, L. 8.12.9–16). The author says that if one suspends a piece of fleece and a piece of tightly-woven cloth that are equal in weight over water or in a wet place for two days and two nights and then weighs the fleece and the cloth, he will find that the fleece is much heavier; the reason, he claims, is that the fleece is more porous (ἄραιός) and softer (μαλθακός) than the cloth. Lloyd (1966, 349) notes that while this test does not establish that a woman’s flesh is spongier and softer than a man’s, it does support the general principle that ‘two objects made of the same substance but of different textures may absorb water in different degrees.’ Hanson (1992, 37 and n38) shows that the author is adapting a procedure used by farmers to detect water under the surface of the earth. In this procedure fleece was placed in a covered

vessel and left overnight; if it was found to be saturated in the morning, a farmer would know that the earth contained water for nourishing his crops. The description of this test is part of an attempt to explain menstruation: the author claims that the flesh of women is more porous (ἄραιός) than that of men and that female flesh attracts more fluid than male flesh, just as the fleece in the test absorbs more water than the cloth (L. 8.12.17–14.7). In contrast to this use of a simple test to support a speculative theory, the author of VM draws on the phenomena of absorption to explain various facts of medical experience. Hardening of the spleen, the lung, and the breasts (which he already knows to be spongy and porous) is often a sign of a serious disease, and they do not quickly become soft again. As Jouanna notes (1990, 151n2), hardening of the spleen is a sign of malaria, hardening of the lung a sign of consumption (φθίσις), and hardening of the breast a sign of cancer.

22.6 Οὐδὲ γὰρ ἂν ... καθ' ἐκάστην ἡμέρην, 'For they cannot be emptied ... on the outside': the general sense of the comparison is clear: spongy and porous parts absorb liquid and increase in size; they do not contain it like hollow parts, which are emptied each day. There are, however, a number of textual uncertainties; for the details cf. Littré 1.628, Jouanna 1990, 151n1. I follow Jouanna and Littré in taking κοιλίη as a general term for cavity, rather than a specific term for the belly or bowels; this interpretation requires adopting M's αὐτὴ ἢ κοιλίη 'this cavity' at 151.1 J. instead of A's αὐτὴ ἢ κοιλίη 'the belly itself'. The reference to emptying each day and 'concocting away' fluid (ἐκπέσσει 151.5 J.) shows that the author has the belly primarily in mind; but he might also be thinking of other hollow organs that are emptied on a regular basis, such as the bladder.

22.6 ἀλλ' ὅταν πίνῃ ... τὸ ὑγρόν, 'But whenever ... into itself': we expect a masculine singular subject (cf. σκληρός τε καὶ πυκνός 151.5 J.), but it is not clear what this might be since the subject of the immediately preceding verb (ἐξαγγίζοιτο 151.1 J.) is neuter plural, viz. the 'spongy and porous parts' (Τὰ δὲ σπογγοειδέα τε καὶ ἀραιά 150.13–14 J.). Editors have therefore made various proposals to insert a reference to one of the three organs under discussion (the spleen, the lung, and the breasts) into the text. But it is simpler to suppose that the author has all three organs in mind, despite the masculine singular subject; hence the translation 'But whenever *one of these parts* drinks up'.

22.6 πάσχει, ‘it suffers’: though the author has so far focused on the capacities of the different organs to affect the fluids in the body by attracting or absorbing them, this remark indicates that he is equally concerned with their capacities to *be* affected.

22.6 διὰ τὴν φύσιν τοῦ σχήματος, ‘on account of the nature of its structure’: it is the consistency or texture, rather than the shape, of the spongy and porous structures that determines their behavior; this suggests that φύσις is associated with texture or consistency. Cf. n. below on 22.9 φύσις ... νευρωδεστέρα.

22.7 κοιλίη τε καὶ θώρακι, ‘the belly and the chest’: both these terms refer to cavities in the body. κοιλίη is not always restricted to the lower body cavity or belly, nor is θώραξ restricted to the chest (cf. *De Arte* 10, 236.7 Jouanna, L. 6.18; Festugière 1948, 68). But it seems reasonable to translate the terms in this way here, since the author evidently thinks that taken together they make up the entire body cavity; cf. Jouanna 1990, 151n4.

22.7 ἀποπληρώση, ‘fill up’: so M, Jouanna; Heiberg prints the passive ἀποπληρωθῇ: ‘whatever is not filled up (sc. by the wind) so as to come to rest’. But the active gives a quite satisfactory sense, and ἀποπληρωθῇ occurs only in the second and third hands in A (the reading of A itself is ἀποπληρώσει).

22.7 οἷα ἐν τοῖσιν ἀποφραγεῖσι, ‘such as occur in parts that are blocked off’: ἀποφραγεῖσι (from ἀποφράσσω, ‘to block off’) is Coray’s plausible emendation of M’s ἀποσφαγεῖσι and A’s ἀποσφαγίσι, neither of which gives a satisfactory sense. The notion that numbness follows upon blockage is common enough in the Hippocratics; for an especially clear example cf. *Virg.*, L. 8.466.10–468.8. The author says that if the menstrual blood is unable to flow out of the body it collects around the heart and the diaphragm, causing these parts to become filled (πληρωθῶσιν L. 8.466.17; cf. 8.468.8); this leads to numbness (νάρκη L. 8.466.18; cf. 8.468.1, 8.468.4) and, eventually, madness. The author likens the situation to the way in which the legs and feet become numb after sitting for a long time. This is because the blood is blocked off at the thigh and forced into the legs and feet; the numbness disappears as soon as the person stands up and steps into cold water, allowing the blood to return to its normal condition.

22.8 Ὅταν δ' ἐγκύρῃ πλατεῖ τε καὶ ἀντικειμένῳ, 'When the wind encounters something broad and resistant': the general principles in this section concern the relationship between texture and resistance: soft and porous things yield to air, while hard and dense things resist it.

22.8 φύσει τοῦτο τύχη ἐὼν μήτε ἰσχυρὸν ὥστε δύνασθαι ἀνέχεσθαι τὴν βίην, 'by nature neither strong so as to be able to withstand the force': natural strength is understood as a capacity to hold out against external force, thus maintaining the association between φύσις and δύναμις. Cf. 3.4, 122.2–3 J.: individuals with a stronger φύσις are those who are better able to hold out (ἀντέχειν) against a diet of strong foods.

22.8 φῦσα δ' ἐπιχειομένη αὔξεταί τε καὶ ἰσχυροτέρη γίνεται, 'while the wind streaming towards it grows and strengthens': ἐπιχειομένη, the reading of A, gives a perfectly appropriate sense and is preferable to M's ἐπιδεχομένη 'receiving it': the wind does not 'receive' the organ that it impacts. For the metaphor of a stream (χεῦμα) of air cf. *Flat.* 3, 106.4 Jouanna (L. 6.94). The notion that air builds in strength when it meets resistance might have been suggested by the way in which pressure builds when water is boiled in a closed container. The author of *Flat.* explains that patients yawn at the outset of fever because the air in their body, when it gathers together, forces the mouth open; he compares this with the behavior of steam rising from boiling water (*Flat.* 8, 113.14–114.2 Jouanna, L. 6.102; cf. Lloyd 1966, 345–346).

22.9 φύσις ... νευρωδεστέρη, 'nature ... more sinewy': the adjective 'more sinewy' (νευρωδεστέρη) and the contrast with extension (διάτασις 152.14 J.) shows that φύσις is associated with texture or consistency rather than shape; cf. n. above on 22.6 διὰ τὴν φύσιν τοῦ σχήματος. Again the author's account explains and is confirmed by phenomena familiar from medical experience: the occurrence of abscesses and tumors in the region of the liver and diaphragm and their comparatively greater frequency in the region of the liver.

23

Different affections are correlated with structures of different shapes, and the doctor must have knowledge of these correlations. He must know which affections are associated with heads, necks, bellies, and

chests of various shapes. Knowledge of these differences will enable him to grasp the causes of the affections suffered by human beings in health and disease, and thus to treat them correctly.

The particular differences mentioned here are closely related to the account of the previous chapter. The attractive power of the head (cf. 22.4) will vary with the size and shape of the head and neck, just as differently shaped cupping instruments have different capacities to attract liquids. Susceptibility to flatulence (22.7) will vary with the breadth or narrowness of the chest and the sides. The mention of the belly or κοιλίη recalls chapter 11, where the author explains why certain individuals suffer serious effects if they take an extra meal while others suffer equally strong effects from skipping a meal. These reactions result from differences in their digestive capacities: in some individuals the κοιλίη digests more quickly than in others. But whether a person will digest quickly or slowly could well depend on whether his κοιλίη is long or round (μακρὰ ἢ στρογγύλαι 153.3 J.).

The emphasis on difference is a familiar theme; cf. especially 14.1–2, where the differences between the effects of different kinds of bread and barley cake are stressed, and knowledge of these differences is said to be essential for an understanding of the affections suffered by human beings (τῶν κατὰ τὸν ἄνθρωπον παθημάτων 135.9 J.). Here, as in chapter 14, the author is concerned with the doctor's general knowledge: the doctor must know which affections are brought about by a large head, which by a small head, and so forth. But of course he will also need precise knowledge of the distinctive features of the individual patient in order to prescribe the correct treatment (cf. 20.6). In order to know what affections a patient is likely to suffer, the doctor must know both which shapes contribute to which affections and how the various parts of the patient's body are shaped. As in chapter 20, a keen awareness of individual differences goes hand in hand with an emphasis on general knowledge.

* * *

23.1 Πολλὰ δὲ καὶ ἄλλα ... εἶδεα σχημάτων, 'There are also many other types of structures': εἶδος classifies by outward form or appearance; the meaning is that there are many other types or kinds of structures, distinguished from one another by their shape or form. Cf. n. on 15.1 μηδενὶ ἄλλῳ εἶδει κοινωνέον and Gillespie 1912, 187–188.

23.1 ἃ μεγάλα ἀλλήλων διαφέρει πρὸς τὰ παθήματα, ‘which differ greatly from one another in relation to the affections’: i.e. differences in shape correspond to different affections, and indeed contribute to bringing them about (cf. αἷτια 153.5 J.). Cf. 14.1 (διαφέρει ἐς τὸ σῶμα τοῦ ἀνθρώπου ... οὐδὲν ἢ ἑτέρῃ τῇ ἑτέρῃ ἐοικυῖα) and 20.3: the doctor must know what the human being is in relation to (πρὸς) all the various components of regimen, i.e. he must know the precise effect of each component of regimen on the human being.

23.1 ἄλλα μυρία, ‘and myriad other types’: cf. ἄλλα ... μυρία 135.5 J. (of the δυνάμεις of different kinds of bread and barley cake), καὶ ἄλλα μυρία 136.11 J. (of the substances in the body).

23.1 ὅπως τὰ αἷτια ... ὀρθῶς φυλάσσεται, ‘so that with knowledge of the causes ... take the proper precautions’: knowledge of causes is essential for therapy and prevention; cf. 20.3–6, 21.

24

The author further extends the scope of the knowledge that the doctor needs to have. As well as knowing how the humors interact through the processes of *κρῆσις* and *πέψις*, the doctor needs knowledge of their ‘kinship’ (*συγγένεια*) with one another. For example, a sweet humor that changes spontaneously into another kind will change first into acid. Hence if sweet is the most suitable humor to administer to a patient, acid will be second best (24.1). Such an investigation of the behavior of the humors outside the body will greatly contribute to the ability to prescribe the best treatment (24.2).

In considering transformations between the humors that do not involve *κρῆσις* the author moves away from the cooking model and towards a more deliberate investigation of the humors in themselves. The doctor needs a kind of rudimentary chemistry of the humors that can explain how they change into one another independently of the processes of *κρῆσις* and *πέψις*. The therapeutic importance of such knowledge is stressed; despite some textual uncertainty, there is no reason to suppose that the author endorses the view that opposites are the cure for opposites (cf. n. below on 24.1 Ὁ ἄρα ὀξύς ... ἐπιτηδείοτατος). The general procedure is in line with the analogical method set out in chapter 22: since it is impossible to investigate the behavior

of the humors in the body directly, we must investigate their behavior outside the body and infer what goes on inside the body by analogy. The claim that a sweet humor will change first into acid is comparable to the general principle that hollow and tapering things have the most attractive power (22.2). The author probably has in mind the everyday phenomenon of the spontaneous change of sweet wine into vinegar (cf. Lloyd 1966, 355 and the example of using a tube to draw liquids into the mouth in 22.3). But when he remarks on the need to conduct an investigation of the behavior of the humors outside the body (ζητέων ἔξωθεν 153.16 J.), the verb ζητεῖν suggests more than just the selection of phenomena familiar from everyday life or medical experience. ζητεῖν is the term used of the investigation that led to the discoveries of cooking and of medicine; this is a directed search that involves the deliberate modification of situations furnished by past experience and the systematic evaluation of results (cf. 3, 5). Thus there is a strong suggestion here that the author recognized the need for deliberate modification of situations or instruments familiar from experience in the search for analogies (cf. above, pp. 325–326 and n. on 22.3 αἱ σκύαι). Finally, the chapter sheds some light on the claim made in chapter 20 that a reliable account of human origins and development can be given if one first masters all of medicine (20.2; above, pp. 297–298). For the kind of knowledge of the humors discussed here is of obvious relevance to the project of giving an account of the original constituents of the human being and the way in which it develops from them.

* * *

24.1 Περὶ δὲ δυνάμεων, ‘Concerning the powers’: this announces a return to the discussion of the humors and recalls 22.1, where δύναμις is defined as ‘the acuity and strength of the humors’ and contrasted with σχήματα (‘structures’). Jouanna is therefore right to punctuate after δυνάμεων. The traditional punctuation puts the comma after χυμῶν 153.7 J., making the topic of the chapter the ‘powers of the humors’. But of the two topics the author mentions—‘what each one of the humors in itself is able to do to the human being’ and ‘their kinship with one another’—only the first can be described as concerned with the ‘powers of the humors’.

24.1 ὥσπερ καὶ πρότερον εἴρηται, ‘as has already been said’: for the need to know the powers (δυνάμεις) of foods cf. 14.1–2; for the capacity

of concentrated humors in foods to affect the body cf. 14.3–6; for the importance of concentrated humors (δυνάμεις) in disease cf. 19.5.

24.1 τὴν συγγένειαν, ‘kinship’: for the notion of a cognate humor cf. *Morb.* IV 34, 85.26–28 Joly (L. 7.544): the earth ‘provides every individual plant which grows in it with a humor (ἰκμάς) similar to that humor which each plant possesses congenitally (κατὰ συγγενές) and which is akin to that plant’ (tr. Lonie); *Morb.* IV 34, 86.7–11 Joly (L. 7.546): ‘But if for a particular plant the cognate (κατὰ συγγένειαν) humor in the soil is excessive, the plant becomes diseased ... But if from the beginning there is no cognate humor in the earth for the plant to draw (ἰκμάς ... ἦν ἔλκει κατὰ τὸ συγγενές), it cannot sprout at all’ (tr. Lonie). Cf. also *Nat. Puer.* 17, 59.12–13 Joly (L. 7.496); *Nat. Puer.* 22, 69.25–26 Joly (L. 7.516).

24.1 μεταβάλλοι ἐς ἄλλο εἶδος, ‘were to change into another kind’: εἶδος refers to a type or kind of humor, identified chiefly by its smell or taste (sweet, acid, etc.). Cf. 19.6 ἐς χυμῶν εἶδος διὰ πολλῶν εἰδέων καὶ παντοίων, 15.1 μηδενὶ ἄλλῳ εἶδει κοινωνέον with nn. *ad locc.*

24.1 μὴ ἀπὸ συγκρήσιος, ‘not by blending with something else’: cf. μεταβαλλόντων δ’ ἐς ἄλλην κρῆσιν 19.3, 144.4–5 J.

24.1 ποῖός τις ἂν πρῶτος γένοιτο, ‘what sort would it become first’: cf. Theophrastus *CP* 6.7.2 (= DK 68 A 132), where it is argued that Democritus cannot account for transformations between the humors. Either the atoms must change their shape, or some must depart while the others remain, or some must arrive and others depart; none of these alternatives is possible.

24.1 Ὁ ἄρα ὀξύς ... ἐπιτηδειότατος, ‘Hence an acid ... the most suitable of all’: according to the text of M, the argument is: if sweet is the least suitable (ἀνεπιτηδειότατος), then acid would be the most suitable (ἂν ἐπιτήδειος ... μάλιστα) of the remaining humors. According to the text of A, the argument is: if sweet is the most suitable (ἐπιτηδειότατος), then acid would be the least suitable (ἀνεπιτήδειος ... ἂν τῶν λοιπῶν εἴη μάλιστα). Both MSS thus treat sweet and acid as opposites: if sweet is best (or worst) for the patient, then acid will be worst (or best). Jouanna’s text combines these readings, adopting ἂν ἐπιτήδειος from M in 153.14 J. and ἐπιτηδειότατος from A in 153.16 J. This is justifiable, since

the point of the example is to show how closely akin sweet and acid are to one another. The argument is then as follows: (1) Sweet humor, if it undergoes a spontaneous change (αὐτὸς ἐξιστάμενος 153.12 J.), will first become acid. (2) Therefore, if sweet is the most suitable (ἐπιτηδεί-ότατος 153.16 J.) of all the humors to administer, then acid is the most suitable of the humors *other* than sweet (ἄν ἐπιτήδειος ... τῶν λοιπῶν εἴη μάλιστα 153.14–15 J.). The idea is that acid will affect the body in a similar way to sweet because it is closely akin to it; hence it is second best to administer after sweet. There is no notion here that sweet and acid are opposites, or that if one of them is beneficial, the other must be harmful. In general sweet and acid were not regarded as opposites; the opposite of sweet (γλυκύς) is bitter (πικρός). Cf. Arist. *An.* 422b11, *Sens.* 442a13, *Pr.* 875b2; Bonitz 1870, s.v. γλυκύς.

προσφέρειν 153.14 J. is a plausible emendation of Kühlewein for προσφορῶν A, προσφέρων M; we expect a reference to therapy here. Cf. Jouanna 1990, 153n9.

24.2 ζητέων ἔξωθεν, ‘investigate outside the body’: cf. ἔξωθεν 22.3, 149.16 J.; ἔξω 15.4, 139.1 J.; ἔξωθεν 15.4, 139.2 J. For the significance of ζητέων cf. above, pp. 340–341.

24.2 βέλτιστον δέ ἐστιν ... ἀπέχον, ‘the best ... unsuitable’: this might seem a vague or banal generalization on which to end. But the point may be to play down the doctor’s ability to help: the best one can do is to keep as far as possible from what is unsuitable. There may also be a more specific reference to the doctrine developed in this chapter. If ‘furthest’ (προσωτάτω) is understood in terms of degree of kinship (συγγένεια), then the meaning may be that the best treatment is what is least ‘akin’ to the worst. If the worst thing for the patient is a sweet humor, then the best thing will be what is least akin to the sweet, i.e. what is least likely to change into the sweet of its own accord.

APPENDIX I

VM AND MEDICAL EMPIRICISM

The method of discovery set out in VM could certainly be characterized as an empirical one. As the author describes it, the discovery of medicine was the result of observing the effects of foods on human beings and reflecting on those effects, rather than speculating on the origin and development of the universe. In these respects his position is similar to that of the Empiricist doctors of the Hellenistic period.¹ Yet unlike the Empiricists, the author does not claim that the doctor's knowledge is *limited* to what can be observed by the senses. On the contrary, he requires the doctor to have quite extensive knowledge of aspects of the human constitution that cannot be observed directly, such as the state of the patient's humors and internal organs. The author sets out a systematic method of gaining such knowledge by drawing analogies with phenomena familiar from observation and experience. In general his position is far from a sceptical one. He brands the knowledge of human origins and development associated with the Presocratic inquiry into nature as irrelevant to medicine, but he does not deny that such knowledge can be attained; indeed he claims that it *can* be acquired if the investigation begins from medical experience (20.2). Even his remarks about the study of 'things in the sky and under the earth' in section 1.3, though they do indicate a belief that reliable knowledge on such matters cannot be attained, need not be read as a sarcastic dismissal of such investigations as worthless.² In this appendix I shall explore the contrast between VM and medical Empiricism in more detail. My main point will be that the differences between the two positions stem from the fundamentally epistemological character of the concerns that motivated the Empiricists—concerns which can be traced back to the work of Plato and Aristotle, and which were not shared by the author of VM.

¹ Cf. Introduction, pp. 65–66.

² See the Commentary on ch. 1, introductory note (pp. 118–119 above).

The key feature that distinguishes the author's position from that of Plato, Aristotle, and the Empiricists is his failure to draw a sharp distinction between τέχνη and ἐμπειρία, where the latter is understood as an empirical knack or routine, a body of rough correlations or rules of thumb based solely on observation and memory. The author contrasts τέχνη with τύχη, not with ἐμπειρία; in his view professional competence involves both experience and knowledge.³ The τέχνη-τύχη contrast that is so important in VM and the other Hippocratics was not an epistemological contrast. That is, it was not fundamentally a distinction between types of knowledge, but a distinction between ungovernable, haphazard chance on the one hand and reliable control and mastery on the other (Introduction, sec. 1.1). The contrast between τέχνη and ἐμπειρία was introduced by Plato, elaborated by Aristotle, and formed the basis of the debate between the Empiricists and their opponents, the so-called Rationalists. Though in some respects analogous to the τέχνη-τύχη contrast, it was more specialized and motivated by epistemological considerations. Like the author of VM, Plato held that a genuine τέχνη had to be based on explanatory knowledge of the nature (φύσις) of its subject matter. To overcome τύχη and achieve the control and mastery associated with τέχνη, a practitioner needed the systematic understanding that could only be provided by such explanatory knowledge. But Plato went on to make the epistemological point that this knowledge could only be attained by going beyond sense perception and making use of reason (λόγος). And in several dialogues—notably the *Gorgias*, *Phaedrus*, and *Laos*—he contrasted such knowledge with ἐμπειρία, conceived of as a body of rough correlations or rules of thumb limited to observation and memory of the usual outcomes of certain procedures. The basic question underlying the τέχνη-ἐμπειρία contrast was not simply 'what does the doctor need to overcome τύχη?' but the much more specific question: 'what kind of *knowledge* does the doctor need to overcome τύχη?'

That the ἐμπειρία-τέχνη contrast was a Platonic innovation is strongly suggested by the way in which it is introduced in the *Gorgias*. Near the beginning of the dialogue the character Polus, an admirer of Gorgias, confidently associates ἐμπειρία and τέχνη:

Chaerephon, there are many arts (τέχναι) among human beings that have been discovered empirically (ἐμπειρώς), from experience (ἐκ τῶν

³ See the Commentary, pp. 117 and 133.

ἐμπειριῶν): for experience (ἐμπειρία) makes our life proceed according to art (τέχνη), while inexperience (ἀπειρία) makes it proceed according to chance (τύχη).⁴

Notwithstanding the parody of Gorgianic style, Polus' remark reflects the common pre-Platonic association between τέχνη and ἐμπειρία. Later in the dialogue Socrates attempts to turn Polus' own language against him by agreeing that rhetoric is an ἐμπειρία—an 'empirical knack'—but insisting that as such it is far inferior to a genuine τέχνη (462b–d). Polus reacts with puzzlement to Socrates' attempt to drive a wedge between τέχνη and ἐμπειρία; while he is by no means a particularly astute interlocutor, his confusion suggests that Plato is introducing a new and unfamiliar distinction to his readers. In Socrates' view rhetoric is not a τέχνη at all, but a kind of flattery (κολακεία) that requires a soul that is 'good at guessing and brave and naturally clever at dealing with people'.⁵ The paradigm example of an ἐμπειρία is cooking (ὀψοποιική), which stands in relation to the τέχνη of medicine (conceived of as an art that benefits the body) as rhetoric stands in relation to justice (conceived of as an art that benefits the soul). Cooking aims at the pleasant rather than the good (strictly speaking the term ὀψοποιική refers to the preparation of delicacies) and cannot give a rational account of its procedures in terms of the nature of its subject matter: 'I say that it is not an art (τέχνη) but an empirical knack (ἐμπειρία), because it can give no account (λόγος) of the nature of the things it administers, by means of which it administers them, so that it cannot state a reason (αἰτία) for each of the things [sc. that it does]'.⁶ At 501a4–b1 Socrates expands on this description of cooking: it 'proceeds towards its object in an entirely untechnical manner (ἀτέχνως), without having examined the nature (φύσις) or the cause (αἰτία) of pleasure at all. It proceeds in an irrational manner (ἄλογως), drawing virtually no distinctions, merely preserving by means of experience (ἐμπειρία) and routine (τριβή) the memory of what usu-

⁴ *Grg.* 448c4–7.

⁵ *Grg.* 463a6–8: ἐπιτήδευμα τεχνικὸν μὲν οὐ, ψυχῆς δὲ στοχαστικῆς καὶ ἀνδρείας καὶ φύσει δεινῆς προσομιλεῖν τοῖς ἀνθρώποις.

⁶ *Grg.* 465a2–5: τέχνην δ' αὐτὴν οὐ φημι εἶναι ἀλλ' ἐμπειρίαν, ὅτι οὐκ ἔχει λόγον οὐδὲνα ᾧ προσφέρει ἢ προσφέρει ὅποι' ἄττα τὴν φύσιν ἐστίν, ὥστε τὴν αἰτίαν ἐκάστου μὴ ἔχειν εἰπεῖν. On the text cf. Dodds 1959, 229–230. Cf. also 501a1–3: as a genuine art, medicine 'has examined the nature (φύσις) of the object of its care, and the reason (αἰτία) for the things that it does, and can give an account (λόγος) of each of these things'.

ally happens—and in this way providing pleasure.⁷ ἐμπειρία is thus a kind of knowledge that relies on observation and memory of what happens for the most part, rather than on the explanatory understanding that only reason can provide.⁸ It is a collection of limited generalizations that can often be applied to attain a desired end, but which are not based on a theoretical understanding of their relationship to that end. In the *Gorgias* the epistemological distinction between τέχνη and ἐμπειρία overlaps with an ethical distinction: a genuine art like medicine aims at the good, while cooking and the other forms of flattery such as rhetoric aim only at the pleasant. The reason for the overlap is presumably that Plato thinks that no genuine knowledge of the pleasant is possible, and that knowledge of a thing's nature amounts to knowledge of what is good for it. In any case the ethical aspect of the τέχνη-ἐμπειρία contrast in the *Gorgias* does not alter its basic character as a contrast between two types of knowledge.

In the *Phaedrus* τέχνη is distinguished from ἐμπειρία by its systematic character. To illustrate what it means to have ἐμπειρία and not τέχνη, Socrates uses the example of a person who has learned certain procedures for bringing about different effects in the body but has no idea to whom, or when, or to what extent he should apply them. No one would say that such a person is a genuine doctor (268a8–c4). Those who have acquired only ἐμπειρία have learned a set of effective procedures, but they lack the systematic understanding necessary for applying those procedures to attain a desired end. Medicine must be based on precise knowledge of the φύσις of the body; similarly, only knowledge of the φύσις of the soul can give the rhetorician the systematic grasp of the techniques of persuasion necessary to claim mastery of a genuine τέχνη rather than a mere ἐμπειρία or τριβή (270b4–9).⁹ The *Phaedrus* adds the point that the application of the general knowledge on which a τέχνη is based requires experience. As well as having knowledge of the various types of soul and their capacities to be affected by various kinds of speeches, the rhetorician must also be able to tell when

⁷ *Grg.* 501a4–b1: κομιδῇ ἀτέχνως ἐπ' αὐτὴν (sc. τὴν ἡδονήν) ἔρχεται, οὔτε τι τὴν φύσιν σκεψαμένη τῆς ἡδονῆς οὔτε τὴν αἰτίαν, ἀλόγως τε παντάπασιν ὡς ἔπος εἰπεῖν οὐδὲν διαριθμησαμένη, τριβῇ καὶ ἐμπειρίᾳ μνήμην μόνον σφζομένη τοῦ εἰωθότος γίγνεσθαι.

⁸ Cf. 464c5–6: flattery 'takes notice of' or 'perceives' the genuine arts that it imitates, 'not by knowledge, but by guessing' (ἡ κολακευτικὴ αἰσθομένη—οὐ γνωῦσα λέγω ἀλλὰ στοχασαμένη).

⁹ Cf. 262c1–3, where the distinction between τέχνη and ἀτεχνία is associated with the epistemological contrast between truth (ἀλήθεια) and opinion (δόξα).

he has a certain type of soul before him—a capacity that is developed by training one's perception (αἰσθησις) (271d7–272b2).¹⁰

In two passages of the *Laws*, Plato connects the τέχνη-ἐμπειρία contrast with a distinction between two kinds of medical practitioners. At 720a–e he distinguishes genuine doctors (ἰατροί) from those who are merely their assistants (ὑπηρέται), but who are nonetheless commonly *called* doctors. These assistants may be either free or slave; in either case, 'they acquire the art (τέχνη) by obeying and observing their masters and by experience (κατ' ἐμπειρίαν), but not according to nature (κατὰ φύσιν), in the way that free doctors both learn themselves and teach their children.'¹¹ Here Plato acknowledges that one can acquire a τέχνη through ἐμπειρία, though he insists that this is far inferior to doing so by studying the nature of its subject matter. The assistants do not engage in discussion with each patient about his disease; instead they dash from one patient to the next, merely prescribing 'what seems right to them from experience (ἐξ ἐμπειρίας), as though they had precise (ἀκριβῶς) knowledge, in a self-willed fashion like a tyrant.'¹² The genuine doctors, by contrast, adapt their treatment to the φύσις of the individual patient by questioning each person about the course of his disease from the beginning (ἐξετάζων ἀπ' ἀρχῆς καὶ κατὰ φύσιν 720d3). They both instruct their patients and learn from them, and so persuade them to submit to treatment. At 857c–e Plato describes what would happen if a doctor who practiced medicine 'by means of experience (ἐμπειρία) and without reason (λόγος)' were to come upon a genuine doctor conversing with his patient. Such a doctor 'conducts a discussion that is almost philosophical (τοῦ φιλοσοφεῖν ἐγγύς), seizing upon the disease from its beginning (ἐξ ἀρχῆς), and going back to the whole nature (φύσις) of the body.'¹³ To an empirical practitioner, this would seem more like teaching the patient medicine than restoring him to health. The emphasis in these passages is on the inability of practitioners who have only ἐμπειρία to individualize their treatment. ἐμπειρία is conceived of as a collection of crude generalizations or rules

¹⁰ Cf. Kühn 1956, 94.

¹¹ *Lg.* 720b2–5: κατ' ἐπίταξιν δὲ τῶν δεσποτῶν καὶ θεωρίαν καὶ κατ' ἐμπειρίαν τὴν τέχνην κτώνται, κατὰ φύσιν δὲ μή, καθάπερ οἱ ἐλεύθεροι αὐτοὶ τε μεμαθήκασι οὕτω τοὺς τε αὐτῶν διδάσκουσι παῖδας.

¹² *Lg.* 720c5–7: προστάξας δ' αὐτῷ τὰ δόξαντα ἐξ ἐμπειρίας, ὡς ἀκριβῶς εἰδώς, καθάπερ τύραννος αὐθαδῶς.

¹³ *Lg.* 857d2–4.

of thumb that are not adapted to the distinctive features of particular cases; knowledge of human φύσις that is based on reason is needed to prescribe treatment that takes account of the peculiarities of different individuals and situations.¹⁴

In these passages of the *Laws* τέχνη and ἐμπειρία are much closer than they are in the *Gorgias*; Plato also associates them in other passages where he is not concerned with drawing precise epistemological distinctions. In such contexts ἐμπειρία has its ordinary meaning of ‘experience’, not the technical sense of a knack or routine based on memory and observation alone. For example, at *Laws* 673c the Athenian, attempting to turn the discussion from music to gymnastics, says that it will be easy to discuss this topic with a Cretan and a Lacedaimonian, who have much more experience (ἐμπειρία) in that τέχνη than they do in music.¹⁵

Aristotle shares with Plato the concept of ἐμπειρία as a body of limited generalizations derived solely from perception and memory, as well as the idea that τέχνη must be based on explanatory knowledge that can only be acquired using reason. In the opening chapter of the *Metaphysics* he gives an account of the acquisition of progressively more complex forms of knowledge, from perception and memory to ἐμπειρία and τέχνη. ἐμπειρία, he says, arises from many memories of the same thing.¹⁶ The idea seems to be that repeated observation of one thing following upon another leads to an awareness of the correlation between them, without indicating the reason for it; ἐμπειρία is the knowledge of such correlations.¹⁷ Whereas Plato tends to stress the inferiority of ἐμπειρία to τέχνη, Aristotle says that ἐμπειρία and τέχνη are so close that they seem to be practically the same thing. But then he goes on to quote Polus in support of the idea that τέχνη arises *from* ἐμπειρία:

¹⁴ Cf. Introduction, pp. 11–12 and Appendix 2.

¹⁵ *Ig.* 673c6–7: πολλὸν γὰρ ἐν ταύτῃ τῇ τέχνῃ πλέον ἐμπειρίας ἢ ἐν ἐκείνῃ μετέχετε. Cf. *R.* 582a–583a, where the philosopher is said to be the most qualified person to judge which kind of human life is best because he is the one who has experience (ἐμπειρία) of the pleasures of all three types.

¹⁶ *Metaph.* 980b28–981a1: γίνεται δ’ ἐκ τῆς μνήμης ἐμπειρία τοῖς ἀνθρώποις· αἱ γὰρ πολλαὶ μνήμαι τοῦ αὐτοῦ πράγματος μᾶς ἐμπειρίας δυνάμιν ἀποτελοῦσιν. Cf. the closely parallel formulation at *A Pb.* B 19, 100a3–6.

¹⁷ Cf. Ross 1924, 1:116–117: ‘experience is a stage in which there has appeared ability to interpret the present in the light of the past, but an ability which cannot account for itself; when it accounts for itself it becomes art.’

Experience (ἐμπειρία) seems to be very similar to science (ἐπιστήμη) and art (τέχνη), but really science and art come to men *through* experience; for ‘experience made art’, as Polus says, ‘but inexperience luck’. And art arises, when from many notions gained by experience one universal (καθόλου) judgment about similar objects is produced. For to have a judgment that when Callias was ill of this disease this did him good, and similarly in the case of Socrates and in many individual cases, is a matter of experience; but to judge that it has done good to all persons of a certain constitution, marked off in one class (εἶδος), when they were ill of this disease, e.g. to phlegmatic or bilious people when burning with fever—this is a matter of art.¹⁸

It is not immediately clear from this passage how Aristotle conceives of the transition from ἐμπειρία to τέχνη. *Prima facie* the passage suggests that ἐμπειρία is limited to knowledge of individual cases, while the move to τέχνη brings knowledge of generalizations. But Aristotle’s remarks earlier in the chapter show that this cannot be right: ἐμπειρία already involves a certain level of generalization, since it arises from many memories of the same thing. What is involved in the transition from ἐμπειρία to τέχνη is therefore a move from a lower to a higher level of generalization. Aristotle’s point seems to be as follows. From the experience of treating a number of particular individuals, it is possible to acquire the knowledge that a certain remedy is normally beneficial for people suffering from a certain disease. Such knowledge is a matter of ἐμπειρία, for it involves no more than the memory of repeated observations of the effectiveness of a certain remedy on certain individuals. At this stage one knows that an individual suffering from this disease will probably be helped by the remedy in question. But the person who has acquired τέχνη has grasped much more than this. He knows that the remedy in question is beneficial for *all* individuals belonging to a certain class who are suffering from a certain disease (e.g. the phlegmatic or the bilious who are suffering from fever). τέχνη requires the grasp of a *universal* generalization, the καθόλου.¹⁹ Moreover this generalization is also explanatory: it is *because* the individuals in question belong to this class that they are helped by the treatment. τέχνη is explanatory while ἐμπειρία is not (*Metaph.* 981a28–30); moreover τέχνη

¹⁸ *Metaph.* 981a1–12. Translation Barnes.

¹⁹ Cf. *A Po.* B 19, 100a3–9; 100a16–b1. The latter passage points out that even perception is to some extent of the καθόλου. Perception involves an awareness of certain features that are common to all members of the general class to which the perceived object belongs. But the full grasp of the universal comes only with the acquisition of τέχνη or ἐπιστήμη.

is teachable, whereas ἐμπειρία is acquired through habituation (981a30–b10). To grasp the universal, explanatory generalizations that set τέχνη apart from ἐμπειρία it is necessary to go beyond perception and memory and make use of reason. Hence while Aristotle recognizes that animals have the capacity to acquire ἐμπειρία, he makes the possession of both τέχνη and reason (λογισμός) distinctive of human beings.²⁰

As well as being knowledge of limited generalizations, ἐμπειρία is for Aristotle practical rather than theoretical knowledge. Once τέχνη was viewed as a set of procedures based on a body of explanatory knowledge, it became possible to conceive of a person who had mastered this knowledge but never put it into practice. Hence Aristotle writes that τέχνη does not differ much from ἐμπειρία as far as practice is concerned, and that those who have ἐμπειρία but not τέχνη are often better at treating patients than those who have λόγος (i.e. the theoretical knowledge on which τέχνη is based) but no first-hand experience (ἐμπειρία):

With a view to action experience seems in no respect inferior to art, and we even see men of experience (οἱ ἔμπειροι) succeeding more than those who have theory (λόγος) without experience. The reason is that experience is knowledge of individuals (τὰ καθ' ἕκαστον), art of universals (τὰ καθόλου), and actions and productions are all concerned with the individual; for the physician does not cure a man, except in an incidental way, but Callias or Socrates or some other called by some such individual name, who happens to be a man. If, then, a man has theory (λόγος) without experience, and knows the universal but does not know the individual included in this, he will often fail to cure; for it is the individual that is to be cured.²¹

In saying that ἐμπειρία is knowledge of individuals (τὰ καθ' ἕκαστον), Aristotle does not mean that it involves no generalizations; rather, his point is that ἐμπειρία is practical knowledge that brings with it the ability to act in particular cases. Similarly, the remark that the doctor does not treat man in general but individual men like Callias or Socrates makes the point that the doctor cannot rely exclusively on his general theoretical knowledge: treatment requires the ability to apply this knowledge to particular cases, and this calls for a certain amount

²⁰ *Metaph.* 980b25–28: τὰ μὲν οὖν ἄλλα ταῖς φαντασίαις ζῆ καὶ ταῖς μνήμαις, ἐμπειρίας δὲ μετέχει μικρόν· τὸ δὲ τῶν ἀνθρώπων γένος καὶ τέχνη καὶ λογισμοῖς. Cf. Anaxagoras DK 59 B 21b, where ἐμπειρία, μνήμη, σοφία, and τέχνη are said to enable human beings to overcome the physical superiority of animals.

²¹ *Metaph.* 981a12–24. Translation Barnes.

of first-hand experience. A similar idea is expressed at *EN* 1181b2–6, where Aristotle remarks that people do not become doctors simply by reading books on medicine. Though such books may offer quite detailed descriptions of the treatments that are appropriate for various classes of individuals, they are only useful to those who already have some experience in treating patients. In *EN* 6 Aristotle draws a parallel between practical wisdom (φρόνησις) and ἐμπειρία:

Nor is practical wisdom concerned with universals (τὰ καθόλου) only—it must also recognize the particulars (τὰ καθ' ἕκαστα); for it is practical, and practice is concerned with particulars. This is why some who do not know, and especially those who have experience (οἱ ἐμπειροί), are more practical than others who know; for if a man knew that light meats are digestible and wholesome, but did not know which sorts of meat are light, he would not produce health, but the man who knows that chicken is wholesome is more likely to produce health.²²

The person who knows that light meats are healthy but does not know which meats are light will be less successful in practice than the person with experience (the ἐμπειροῦς), who knows that poultry is healthy but not that it is healthy *because* it is light. Here the ἐμπειροῦς is characterized by the grasp of a somewhat crude but often adequate generalization and by the practical character of his knowledge. To go beyond ἐμπειρία requires grasping the fact that light meats are healthy and that poultry is healthy because it is light.

Although Aristotle often makes the point that theoretical knowledge is useless if it is not accompanied by first-hand experience, he also maintains that practitioners with theoretical knowledge *and* practical experience are on the whole better at treating patients than those who have only ἐμπειρία. At *EN* 1180b3ff., in a discussion of the role of the laws in making the citizens virtuous, Aristotle notes that private education has an advantage over public because it allows more attention to be given to the distinctive needs of different individuals. This is illustrated by examples taken from medicine and gymnastics: rest and abstinence from food may be good in general for people suffering from fever, but bad for a particular individual; similarly a gymnastic trainer will not prescribe the same amount of exercise for all the people in his care. But these examples do not undermine the practical value of the universal, explanatory knowledge characteristic of τέχνη:

²² *EN* 1141b14–21. Translation Barnes; the translation follows Bywater in deleting κοῦφα καὶ in 1141b20.

But individuals can be best cared for by a doctor or gymnastic instructor or any one else who has the universal (καθόλου) knowledge of what is good for every one or for people of a certain kind (for the sciences both are said to be, and are, concerned with what is common); not but what some particular detail may perhaps be well looked after by an unscientific person (ἀνεπιστήμων), if he has studied accurately (ἀκριβῶς) in the light of experience (ἐμπειρία) what happens in each case, just as some people seem to be their own best doctors, though they could give no help to any one else. None the less, it will perhaps be agreed that if a man does wish to become master of an art (τεχνικός) or science (θεωρητικός) he must go to the universal (καθόλου), and come to know it as well as possible; for, as we have said, it is with this that the sciences are concerned.²³

Aristotle acknowledges that the ἔμπειρος can do quite well under certain circumstances. But he lacks the general ability to deal with particular cases that is possessed by the true artisan (τεχνικός), who has knowledge of the universal (καθόλου). The ability to adapt treatment to particular cases requires a highly general theory combined with practical experience.²⁴

Finally it should be noted that Aristotle, like Plato, often treats τέχνη and ἐμπειρία as virtual synonyms in non-specialized contexts. At *Pol.* 1282a1 he says that the person who is best qualified to judge the work of a doctor is a doctor, and the same holds true in regard to all the other ἐμπειρίαί and τέχναι. At *EN* 1181b5–6 he remarks that medical books are useful to the experienced (τοῖς ἐμπείροις) but useless to those who lack knowledge (τοῖς ἀνεπιστήμοισιν). That Aristotle opposes ἔμπειρος to ἀνεπιστήμων in this way indicates that he sometimes connects knowledge and experience as closely as the author of VM.²⁵

The issues raised in these Platonic and Aristotelian passages were at the center of the debate between the Empiricist and Rationalist doctors of the Hellenistic period.²⁶ Like Plato and Aristotle, the Empiricists conceived of ἐμπειρία as a body of knowledge consisting of limited generalizations based entirely on perception and memory. Where they differed from Plato and Aristotle was in claiming that ἐμπειρία, so under-

²³ *EN* 1180b13–23. Translation Barnes.

²⁴ Cf. Appendix 2.

²⁵ Cf. *Pol.* 1297b20; 1309b5, 8; Thucydides 5.7.2; and the Commentary on 1.2 ἄπειροί τε καὶ ἀνεπιστήμονες (p. 133 above).

²⁶ It is important to keep in mind that 'Rationalist' was largely a term of abuse invented by the Empiricists, and that it was used of a wide range of medical theorists with quite divergent views.

stood, was entirely sufficient for both the discovery and the practice of medicine. The Empiricists acknowledged that ἐμπειρία alone could not yield universal knowledge, but they rejected the claim that medicine had to be based on such knowledge. On the other side of the debate, the Rationalists insisted that medicine had to be based on an explanatory theory of the nature (φύσις) of the human body and the causes and cures of disease—the kind of theory that could only be reached by going beyond perception and using reason (λόγος) to make inferences about invisible matters such as the state of the patient's humors or internal organs.

It is clear from the presentation of this debate in sources such as Galen's *On Sects for Beginners* (*Sect. Intr.*) and *On Medical Experience* (*De exp. med.*) that the fundamental issue dividing the Empiricists and the Rationalists was an epistemological one: was it possible to account for the systematic character of medicine on the basis of observation and memory alone, or was reason (λόγος) also necessary? The Empiricists took the view that reason was unable to grasp the hidden nature of things, and supported their position by appealing to the proliferation of incompatible medical theories. If different authorities held radically different views on the same questions, it was a sign that none was correct and that the nature of the matter in question simply could not be grasped.²⁷ But as well as arguing that the theoretical knowledge the Rationalists claimed to have was unattainable, the Empiricists also claimed that such theory was useless in the treatment of patients. The Empiricist speaker in Galen's *On Medical Experience* points out that it is possible to be quite successful in many arts without any knowledge of the nature of their subject matter. But knowledge of natures is not in itself enough for practice; even if one is an expert on the nature of mushrooms, for example, it takes experience to judge which are poisonous and which are not.²⁸ Aristotle had made a similar point in stressing the need for practitioners to have first-hand experience. But the Empiricist draws the more radical conclusion that theory is completely useless.²⁹ Such a conclusion was rendered more plausible by the Empiricists' account of

²⁷ Cf. Celsus, *Med.* prooem. 28–29; Deichgräber 1930, 281ff.

²⁸ Gal. *De exp. med.* ch. IX, pp. 98–99 Walzer.

²⁹ Cf. *De exp. med.* ch. X, p. 102 Walzer, where the Empiricist picks up the point that theoretical knowledge is not sufficient: one needs experience to treat patients well, and experience alone is often enough. But if the doctor with theoretical knowledge needed to have experience also, and the one who had only experience could achieve great success, what need was there for theory?

ἐμπειρία, which was far richer and more sophisticated than anything found in Plato and Aristotle. According to sources such as Celsus and Galen, the Empiricists offered a detailed account of the development of medicine by the gradual accumulation and systematization of observations over a long period of time.³⁰ Medicine was discovered by observing what was helpful and harmful to the sick, not by speculating on the nature of the human body or the causes of disease; moreover, chance experience played a large role in suggesting treatments. Thus a spontaneous nosebleed followed by recovery from fever might suggest the efficacy of bloodletting as a treatment for fever. But it was necessary to repeat an observation again and again under varying circumstances before it could yield the kind of reliable knowledge of correlations that constituted ἐμπειρία.³¹ And sometimes the doctor had to take a still more active role in the investigation by means of a procedure known as ‘transition to the similar’, whereby a remedy effective on one disease was applied to a new disease with similar symptoms, or a remedy effective on one part of the body was applied to another part suffering from a similar condition. The end result of the process of discovery was a collection of finely differentiated correlations between observable phenomena of disease, ranked according to their relative frequency: some held in all cases, others in most, others half the time, and others only rarely.³² The systematic character of this body of knowledge enabled the Empiricists to distinguish their practice from completely irrational activity.³³ Their point was not that medicine was entirely irrational; what they rejected was only the specific kind of reasoning that the Rationalists claimed could yield knowledge of invisible matters. In place of this ἀναλογισμός or inference from the visible to the invisible they claimed to practice ἐπιλογισμός, inference from the visible to the visible.³⁴ For their part, the Rationalists countered by arguing that rea-

³⁰ Gal. *Sect. Intr.* ch. 2; Celsus, *Med.* prooem. 33–35; Deichgräber 1930, frs. 43a–b.

³¹ Cf. Galen’s description of the so-called ‘imitative experience’ (μιμητική πείρα) in *Sect. Intr.* ch. 2, p. 3 Helmreich (K. 1.67): ‘For when they have imitated, not just twice or three times, but very many times, what has turned out to be beneficial on earlier occasions, and when they then find out that, for the most part, it has the same effect in the case of the same diseases, then they call such a memory a theorem and think that it already is trustworthy and forms part of the art’ (tr. Frede).

³² Gal. *Subf. Emp.* 45.24–30 Deichgräber: *emperiam autem dicimus notitiam eorum que ita multoties apparuerunt, ut iam theorematice sint idest ut sciatur, utrum semper aut ut plurimum aut secundum utrumlibet aut raro euenerunt.* Cf. Gal. *De exp. med.* ch. XV, pp. 112–113 Walzer.

³³ Cf. Gal. *Subf. Emp.* 64.12–65.22. Deichgräber; Celsus, *Med.* prooem. 38.

³⁴ On the differences between ἀναλογισμός and ἐπιλογισμός cf. Deichgräber 1930,

son was necessary to bring order and system into the otherwise overwhelming diversity of experience. They alleged that the Empiricists' concept of ἐμπειρία was incoherent because there were no sure criteria for saying just how many times an observation had to be repeated before it could be accepted as reliable. And they claimed that ἐμπειρία by itself could not provide medicine with the flexibility necessary to deal with new diseases and to adapt treatment to the distinctive requirements of individual cases.³⁵

To be sure, there were strengths and weaknesses on both sides of this debate. This helps to explain why it went on for a period of several centuries, from the third century BC down at least to Galen's time.³⁶ Galen claims more than once that the Empiricists and Rationalists agreed on treatment and disagreed only about the nature of the reasoning involved in the discovery and practice of medicine.³⁷ Whether or not this assessment is entirely accurate, the emphasis it places on the epistemological focus of the debate is surely justified.

It should now be apparent that the dispute between the author of VM and his opponents stands outside the tradition of epistemological debate that we have traced through Plato, Aristotle, and the Empiricists. The author's position is clearly quite different from that of the Empiricists. Like them, he rejects certain kinds of theorizing as speculative and irrelevant to medicine. But unlike them he insists that medicine must be based on an explanatory theory of human φύσις that makes reference to factors that cannot be observed directly. Both VM and the Empiricists trace the origin of medicine back to the observation of

fr. 66–70; Gal. *De exp. med.* ch. XXV, pp. 135–139 Walzer; *Sect. Intr.* ch. 5, pp. 11–12 Helmreich (K.1.77–79).

³⁵ For the limitless variety of experience unordered by reason cf. Gal. *De exp. med.* ch. III, pp. 88–89 Walzer; ch. VII, p. 94 Walzer; ch. VIII, p. 98 Walzer; ch. XXII, p. 128 Walzer. For the charge that the concept of ἐμπειρία was incoherent cf. *De exp. med.* ch. VII, pp. 93–97 Walzer; for the Empiricist response see chh. XV–XVIII, pp. 111–121 Walzer and ch. XX, pp. 123–126 Walzer. On the problem of dealing with the variation between individuals and situations see Appendix 2.

³⁶ *On Medical Experience* purports to be Galen's record of a debate between two of his teachers that took place in his youth.

³⁷ Cf. Gal. *Sect. Intr.* ch. 4, p. 7 Helmreich (K.1.73); ch. 5, p. 12 Helmreich (K.1.79). As with any Galenic assessment of a rival view, this judgment cannot be accepted at face value. By presenting the Empiricists and Rationalists as agreeing on therapy, Galen highlights what he sees as the pernicious attempt of the Methodists to introduce innovations in medical practice as well as its epistemological foundations (cf. *Sect. Intr.* ch. 6, p. 12 Helmreich, K.1.79). Empiricist therapeutics was probably more distinctive than Galen chooses to admit; cf. below, p. 373.

what is beneficial and harmful for the sick. But whereas the Empiricists hold that discovery is *limited* to collecting and systematizing such observations, VM's account culminates with the discovery of a theory of the humors and internal organs. The author's use of analogy to draw conclusions about such matters involves exactly the kind of use of reason that the Empiricists were so determined to reject.³⁸ Finally, the author's attitude towards speculation is quite different from the Empiricists'. Whereas they confidently assert that the hidden nature of things cannot be grasped, the author holds that the knowledge of human origins and development sought by the Presocratic inquiry into nature *can* be acquired if one begins from medical experience. Similarly, though he holds that certainty cannot be attained when discussing 'things in the sky and under the earth', this is only because they are not subject to close observation and cannot be confirmed by experience in the way that theories about the humors and organs inside the human body can.

In many ways the author's position seems closer to that of the Rationalists. When he rejects the statement that 'cheese is harmful when eaten in excess' in chapter 20 and insists that medicine must go beyond such descriptive generalizations and be based on an explanatory theory, he adopts a stance similar to that taken by Plato and defended by the Rationalists.³⁹ Like Aristotle, the author holds that the theoretical knowledge on which medicine is based can only be acquired by starting from experience. Unlike Aristotle, he does not seem to envision the possibility that one might possess this theoretical knowledge without having the ability to put it into practice. But in rejecting certain kinds of theorizing as speculative and irrelevant to medicine, the author makes a point similar to Aristotle's observation that theoretical knowledge without first-hand experience is useless in practice. For both VM and Aristotle, the professional competence of the genuine doctor involves both theoretical knowledge and first-hand experience.⁴⁰ Despite these similarities with the Rationalists and their intellectual precursors, however, the author is strictly speaking no more a Rationalist than an Empiricist. He is simply not concerned, as are Plato and Aristotle, to draw a

³⁸ Cf. Gal. *De exp. med.* ch. XII, p. 105 Walzer, where the Empiricist criticizes the Rationalist argument that since food that is easily cooked is more easily digested, digestion must be like cooking. It is just this kind of analogy that underlies VM's conception of medicine as cooking; cf. Commentary, pp. 281–282.

³⁹ Cf. Dodds 1959, 229.

⁴⁰ Cf. Cordes 1994, 174–175 (where, however, the author of VM is erroneously described as rejecting all theoretical foundations for medicine).

sharp distinction between what is known on the basis of experience and observation, on the one hand, and reason on the other. The author sees nothing problematic in the inference to the *κοῖσις* theory; he says quite casually that the discoverers of medicine ‘saw’ (ἐώρων 136.8 J.) that the same substances present in foods were also present in human beings, and that they caused harm. In reacting against the attempt to base medicine on *ὑποθέσεις* and Empedoclean-style *φύσις* theory the author is not motivated by epistemological considerations. Rather, his starting point is a conception of *τέχνη* in which experience and knowledge stand together in opposition to *τύχη*.

APPENDIX 2

VM AND THE IMPRECISION OF MEDICINE

In chapter 9 of VM, the author offers a coherent and sophisticated justification of the view that the degree of precision (ἀκρίβεια) attainable in medicine is inherently limited; in so doing he explains why medicine should still be regarded as a genuine τέχνη despite this limitation. As argued in the Commentary (pp. 185–191), the author’s position is that the imprecision of medicine is due not just to the variation between different individuals and situations, but also to the nature of the tool or μέτρον that the doctor has at his disposal in adapting treatment to the individual constitution or φύσις: the ‘feeling of the body’ (αἴσθησις τοῦ σώματος). Medicine has a μέτρον, and so qualifies as a genuine τέχνη, but it is one that cannot yield completely precise and reliable measurements. Hence the doctor who makes only small errors is worthy of the highest praise; a certain amount of failure is unavoidable in medicine. In this appendix I will compare the author’s position on the imprecision of medicine to the views of Plato, Aristotle, and the Empiricist and Rationalist physicians of the Hellenistic period.

We may begin with *Philebus* 55e1–56c7, where Plato connects a discipline’s claim to be considered a genuine τέχνη with the degree of ἀκρίβεια it can attain (Introduction, pp. 14–15). Medicine is grouped with disciplines such as music, farming, and navigation as being unable to achieve complete ἀκρίβεια, and therefore as failing to qualify as a genuine τέχνη. In this passage the distinction between quantitative and non-quantitative disciplines overlaps with the τέχνη-ἐμπειρία distinction (cf. App. 1): without the ability to make use of quantitative methods, a discipline is nothing but an empirical knack (ἐμπειρία), and its procedure amounts to no more than mere guesswork (στοχάζεσθαι).¹ The close association of τέχνη and ἀκρίβεια in this passage builds on a widely shared idea (cf. Introduction, sec. 1.2). But the sharp distinc-

¹ *Phlb.* 55e5–56a7, esp. ἐμπειρία καὶ τινι τριβῇ 55e6, ταῖς τῆς στοχαστικῆς προσχω-
μένους δυνάμεσιν 55e6–7, οὐ μέτρῳ ἀλλὰ μελέτης στοχασμῷ 56a4, τὸ μέτρον ἐκάστης
χορδῆς τῷ στοχάζεσθαι φερομένης θηρεύουσα 56a5–6. At 55e6 αἴσθησις implies that
only perception (and presumably memory) are involved in this ‘guesswork’.

tion between τέχνη and ἐμπειρία is Plato's innovation, as is the use of στοχάζεσθαι to refer to a kind of haphazard guessing unworthy of a genuine art. Similarly, in the *Gorgias* στοχάζεσθαι is associated especially with rhetoric, the paradigm example of a discipline that is a mere ἐμπειρία and not based on genuine knowledge.² In VM 9, the term στοχάζεσθαι lacks these epistemological connotations. Its primary sense is 'to aim': in prescribing therapy the doctor must aim at a mean (Δεῖ γὰρ μέτρον τινὸς στοχάσασθαι 128.10–11 J.). To the extent that the term has any more specialized connotations, these emerge from the context. First, the doctor's aiming at the mean involves adapting treatment to the peculiar features of an individual case—a use of στοχάζεσθαι that can be paralleled in other Hippocratic texts.³ Second, in aiming at the mean the doctor must rely on imperfect knowledge of the patient's humors and internal organs; to this extent his procedure involves an element of conjecture.⁴ But the author does not claim that στοχάζεσθαι relies on perception alone, and he denies that it amounts only to haphazard guesswork: medicine *does* have a μέτρον, albeit one whose ability to yield precise measurements is limited.

In the *Philebus* ἀκριβεία is associated with disciplines that make use of quantitative methods and are of a theoretical rather than applied character. Dialectic is supreme in ἀκριβεία because it is concerned with the eternal relations that obtain in the world of unchanging Forms, a world which would seem to be as far removed as possible from the variability and imprecision of medicine (57e–59b). In the *Politicus*, however, Plato associates ἀκριβεία with knowledge that takes into account the detail and variation of different situations in the material world.⁵ In a series of analogies between the true statesman or ruler and the expert doctor, Plato stresses the variability of the matters with which medicine is concerned. But he also emphasizes the ability of doctors to deal with this

² *Grg.* 463a6–8 (rhetoric is not a τέχνη, but requires a soul that is 'good at guessing' [στοχαστικός] and clever at dealing with people); 464c5–6 (flattery proceeds not by genuine knowledge but by perception and guesswork: ἡ κολακευτική αἰσθομένη—οὐ γνοῦσα λέγω ἀλλὰ στοχασαμένη). On the possible use of στοχάζεσθαι as a positive term in early rhetoric cf. Dodds 1959, 225; Pohlenz 1918, 415–416; Diller 1952, 398–399 (= 1973, 59–60).

³ Cf. *Medic.* 7, L. 9.214.5–6; *Alim.* 35, 145.4–5 Joly (L. 9.110) (both quoted in the Commentary on 9.3 στοχάσασθαι, pp. 195–196 above).

⁴ Cf. *Ep.* 16, L. 9.346.12–13 (quoted in the Commentary on 9.3 στοχάσασθαι).

⁵ The significance of the *Politicus* for understanding Plato's conception of ἀκριβεία was first emphasized by Herter (1963a). Cf. also Kurz 1970, 114–116; Cordes 1994, 144–146.

variability, take into account the peculiarities of individual cases, and achieve ἀκριβεια in their practice. The *Politicus* describes the ideal ruler as a practitioner of the ‘kingly art’ (βασιλική τέχνη or ἐπιστήμη), whose goal is the attainment of a mean between excess and deficiency (284e2–8). The discussion at 294a10ff. emphasizes the superiority of rule by an expert in this art to the rule of law. This is because fixed laws cannot capture the peculiarities of different individuals and situations in the ever-changing world of human affairs, and hence can achieve only a limited degree of ἀκριβεια:

... law would never be able to capture precisely (ἀκριβῶς) what is best and most just for all at the same time, and so prescribe what is best. For the dissimilarities between individuals and actions, and the fact that practically nothing in human affairs ever remains stable, do not allow any art (τέχνη) whatsoever to make an unqualified (ἀπλοῦν) pronouncement, on any matter, which covers all cases and holds for all time.⁶

The law is like a self-willed, ignorant person who never changes his opinion, no matter what the circumstances (ὥσπερ τινὰ ἄνθρωπον αὐθάδη καὶ ἀμαθῆ 294c1). To explain why laws are necessary despite these limitations, Plato compares lawgivers to gymnastic trainers (294d–295b): they cannot adapt the exercise routine they prescribe to the particular needs of each individual, but must make a general prescription for an entire group. The rule of law is thus only a second best, but it is necessary because the expert ruler cannot constantly be present at the side of an individual throughout his life to prescribe accurately (δι’ ἀκριβείας) what is appropriate for him. The laws are hindrances to those with expert knowledge, and such people are qualified by their expertise to contravene them as they see fit. To illustrate this idea Plato considers the example of a doctor or gymnastic trainer who departs on a journey, leaving behind written reminders (ὑπομνήματα) for his patients indicating what they should do in order to remain healthy in his absence. If the doctor or trainer were to return sooner than expected and determine that different prescriptions were necessary because circumstances had changed, he would not hesitate to contravene his own written instructions (295b–296a). Finally, at 298a–299e the Eleatic Stranger describes an imaginary situation in which the practices of an art such as medicine or navigation are fixed once and for all by a group of non-experts; then they are engraved in stone and no further investigation of them is allowed. Such a situation would amount to the

⁶ *Plt.* 294a10–b6.

end of all genuine expertise. Throughout the discussion the comparison with medicine stresses its ability to adapt to changing circumstances as opposed to relying on fixed written prescriptions. The point that written laws are unable to capture the differences between individuals and situations is similar to the idea, expressed in *VM* 9 and other Hippocratic texts, that it is impossible to set out fixed prescriptions that are adequate for all cases. Like the author of *Vict.*, Plato seems to think that if an expert were constantly present to react to changing circumstances, he could achieve complete ἀκρίβεια in practice.⁷

The medical analogy in the *Laws* also emphasizes the ability of doctors to individualize their treatment. The genuine doctor engages in a dialogue with each patient and persuades him of the efficacy of treatment; the doctors' assistants, who have no grasp of medical theory and act solely on the basis of ἐμπειρία, rush from one patient to another and do not inquire into the cause of each patient's condition.⁸ The distinction between these two types of practitioners corresponds to a distinction between two types of laws: those preceded by an explanatory proem, and those which simply prescribe what is to be done and avoided without any such introduction. The medical analogy thus suggests that the legislative proem can to some extent compensate for the inability of the laws to deal with the variation between individual cases. Thus, whereas the medical analogy in the *Politicus* highlights the deficiencies of the rule of law in comparison to that of the genuine expert, in the *Laws* it suggests a way in which those deficiencies can be overcome.⁹ But even in the *Laws* the rule of law remains inferior to rule by a single individual with true expertise, the ideal expressed in the *Politicus* and *Republic*.¹⁰ Finally we may note that in the *Phaedrus*, the ideal rhetorician is described as having highly precise (ἀκριβής), general knowledge of the φύσις of his subject (the human soul and the way it is affected by different kinds of speeches) as well as the ability to apply this knowledge in particular situations (270b–272b). The model

⁷ Cf. *Vict.* 2, 124.17–24 Joly (L. 6.470) and the Commentary on ch. 9, esp. 9.3 Δεῖ γὰρ μέτρον τινὸς ... τοῦ σώματος τὴν αἴσθησιν (pp. 193–195) and 9.3 οὕτω καταμαθεῖν ἀκριβῶς ... ἔνθα ἢ ἔνθα (pp. 201–202).

⁸ *Lg.* 720a–e, 857c–e; cf. App. 1, pp. 349–350.

⁹ Compare the description of the doctors' assistants in the *Laws* as acting 'like a self-willed tyrant' (καθάπερ τύραννος ἀνθαδῶς 720c6–7) with the remark at *Plt.* 294c1 that the law resembles 'a self-willed and ignorant person' (ὥσπερ τινὰ ἄνθρωπον ἀνθάδη καὶ ἀμαθῆ).

¹⁰ Cf. Cordes 1994, 147–151.

for the rhetorician is the genuine doctor, who knows whom to treat, when he should be treated, and to what extent treatment should be applied (268a–c). There is no suggestion of any limitation on the doctor's or the rhetorician's ability to acquire the knowledge necessary to achieve these ideals.

The upshot of these passages of the *Politicus*, *Laws*, and *Phaedrus* is that a person with genuine understanding of a discipline can achieve ἀκρίβεια in practice if he constantly assesses changing circumstances in the light of his expertise. Although the ἀκρίβεια involved in dealing with individual cases in the material world might at first seem quite distinct from the ἀκρίβεια of the *Philebus*—a quality of highly abstract knowledge of the Forms—in Plato's view the two are in fact intimately linked. Far from being irrelevant to action, the knowledge of the Forms provided by dialectic is what makes it possible to take account of the change and variation in the world of human affairs and so to achieve ἀκρίβεια in practice.¹¹ The close connection between ἀκρίβεια in theory and in practice is clear in the *Republic*, where Socrates indicates that philosopher kings must have experience in the real world if they are to put their knowledge of the Forms into practice.¹² Even in the *Philebus* the best human life is not the life of pure knowledge, but a 'mixed' life in which knowledge is combined with pleasure. At 62a–d Socrates remarks that the philosopher must be able to recognize the imitations of the Forms in the real world. Even arts such as medicine or music, which cannot achieve complete ἀκρίβεια, have a contribution to make to the good life—for without them one could not even find one's way home from a journey (62b8–9). The effect of these acknowledgments is to undercut the implicit claim at 55e1–56c7 that disciplines such as medicine and music fail to qualify as genuine τέχναι, and so to narrow the gap between the treatment of medicine in the *Philebus* and the other dialogues.¹³ In general, then, Plato conceives of doctors as able to achieve complete ἀκρίβεια in their practice, at least in principle. In this respect he is more optimistic than the author of VM about medicine's

¹¹ Cf. Hirsch 1996, 150.

¹² At *R.* 484c–d Socrates says that the philosopher kings must refer constantly to the Forms as models in their attempt to bring about justice on earth; they are to 'gaze upon them as accurately as possible' (θεώμενοι ὡς οἶόν τε ἀκριβέστατα), but must combine their knowledge of them with experience (ἐμπειρία) in the real world. Cf. also 539e–540a, which stresses the need for those educated in dialectic to hold offices in the state and thus gain ἐμπειρία.

¹³ Cf. Hirsch 1996, 155–156.

ability to deal with the complexity and variation of its subject matter. But VM and Plato agree in making a close connection between ἀκρίβεια in theory and in practice. It is the doctor's highly precise, general knowledge that makes it possible for him to deal with the distinctive features of individual cases and so achieve ἀκρίβεια in his practice.

Plato either brands disciplines lacking in ἀκρίβεια as failing to qualify as genuine τέχναι at all, or else suggests that a competent professional can achieve complete ἀκρίβεια if he gives due attention to particular cases. Either way, his idealized picture of professional competence leaves no room for failure: any falling short of complete precision must be due to some deficiency in the practitioner's mastery of his art. Partly in response to Plato, Aristotle recognizes a certain amount of imprecision as an ineliminable feature of some of the arts, especially medicine. The issues are frequently broached in his ethical writings, which make numerous references to medicine as a model.¹⁴ Like Plato, Aristotle associates ἀκρίβεια with mathematics and abstract knowledge. In a passage of the *Posterior Analytics* he gives three criteria for ranking one science as superior to another in ἀκρίβεια: a science has more ἀκρίβεια if it is more explanatory, if it deals with a more abstract subject matter, and if it depends on fewer assumptions or postulates. Thus arithmetic has more ἀκρίβεια than harmonics because it deals not with physical strings but with mathematical units, and more ἀκρίβεια than geometry because it requires the postulate of a unit, not a unit having position.¹⁵ But Aristotle rejects the Platonic idea of ethics as a science modeled on mathematics in which the ἀκρίβεια of theoretical knowledge enables ἀκρίβεια to be achieved in dealing with individual cases. Instead he argues that the ἀκρίβεια that can be attained in any area of study is limited by the nature of its subject matter:

Our discussion will be adequate if it has as much clearness as the subject-matter admits of; for precision (τὸ ἀκριβές) is not to be sought for alike in all discussions, any more than in all the products of the crafts. Now fine and just actions, which political science investigates, exhibit much variety and fluctuation, so that they may be thought to exist only by convention, and not by nature ... We must be content, then, in speaking of such subjects and with such premises to indicate the truth roughly and in outline (παχυλῶς καὶ τύπῳ), and in speaking about things which are only for the most part (ὥς ἐπὶ τὸ πολὺ) true and with premises of the same

¹⁴ On medicine as a model in Aristotle's ethics see Jaeger 1957; Lloyd 1968; Cordes 1994, 177–181.

¹⁵ *A Po.* 87a31–37, *Metaph.* 982a25–28.

kind to reach conclusions that are no better. In the same spirit, therefore, should each of our statements be *received*; for it is the mark of an educated man to look for precision (τὸ ἀκριβές) in each class of things just so far as the nature (φύσις) of the subject admits: it is evidently equally foolish to accept probable reasoning from a mathematician and to demand from a rhetorician scientific proofs.¹⁶

In part, Aristotle's point in this passage is that there are no exceptionless generalizations in ethics because of the wide variation between different individuals and situations. Later in the *Nicomachean Ethics* Aristotle explicitly likens the variability of ethics to that of medicine and stresses the need for doctors to adapt to changing circumstances and aim at the *καίριος*:

But this must be agreed upon beforehand, that the whole account of matters of conduct must be given in outline (τύπων) and not precisely (ἀκριβῶς), as we said at the very beginning that the accounts we demand must be in accordance with the subject-matter; matters concerned with conduct and questions of what is good for us have no fixity, any more than matters of health. The general account being of this nature, the account of particular cases is yet more lacking in exactness (τὸ ἀκριβές); for they do not fall under any art (τέχνη) or set of precepts, but the agents themselves must in each case consider what is appropriate to the occasion (τὰ πρὸς τὸν καιρόν), as happens also in the art of medicine or of navigation.¹⁷

As in the *Politicus*, the parallel between medicine and navigation stresses the need for the doctor to adapt to changing circumstances. Elsewhere Aristotle points to medicine, navigation, and gymnastics as examples of arts in which deliberation is required, as opposed to the art of writing the letters of the alphabet:

And in the case of exact (ἀκριβεῖς) and self-contained sciences there is no deliberation, e.g. about the letters of the alphabet (for we have no doubt how they should be written); but the things that are brought about by our own efforts, but not always in the same way, are the things about which we deliberate, e.g. questions of medical treatment or of money-making. And we do so more in the case of the art of navigation than in that of gymnastics, inasmuch as it has been less exactly worked out (ὅσῳ ἥττον διηκριβώται), and again about other things in the same ratio, and more also in the case of the arts than in that of the sciences; for we have more doubt about the former. Deliberation is concerned with things that

¹⁶ *EN* 1094b11–27. Translation Barnes.

¹⁷ *EN* 1103b34–1104a10. Translation Barnes.

happen in a certain way for the most part (ὥς ἐπὶ τὸ πολὺ), but in which the event is obscure, and with things in which it is indeterminate.¹⁸

A person who has learned to write the letters of the alphabet can do so in any situation; he has no need to deliberate once he has decided which letters he wants to write.¹⁹ In an art like medicine or gymnastics, however, a practitioner must engage in a substantial amount of deliberation in order to apply the general principles of his art to particular cases.

In emphasizing the lack of fixity in medicine and the need for the doctor to adapt to changing circumstances, Aristotle follows a line that Plato and some of the Hippocratics had already sketched out. But whereas Plato conceives of the ideal practitioner as able to achieve the *καιρός* if he gives due attention to the distinctive features of particular cases, Aristotle points to a more fundamental limitation on medical practice. It is not just that practitioners must devote their attention to the peculiarities of individual situations because no general rule can be formulated that covers all cases; even a person who gives his full attention to the distinctive features of a particular situation cannot always expect to succeed. This is illustrated by Aristotle's conception of virtue as a mean. Aristotle thinks that virtue is acquired not by contemplating the Form of the Good, as Plato claims, but in the way that one acquires a *τέχνη* (*EN* 1103b6–25). All *τέχναι* aim at a mean (*μέσον*) between excess and defect. This is not an absolute mean, but one that is relative to a particular individual or situation; thus the right amount of food for the wrestler Milo would be too much for a normal person (*EN* 1106a36–b4). Since virtue has more *ἀκριβεία* than any *τέχνη*, it must be able to come even closer to hitting the mean:

If it is thus, then, that every art does its work well—by looking to the mean and judging its works by this standard (so that we often say of good works of art that it is not possible either to take away or to add anything, implying that excess and defect destroy the goodness of works of art, while the mean preserves it; and good artists, as we say, look to this in their work), and if, further, virtue is more exact (*ἀκριβεστέρα*) and better than any art (*τέχνη*), as nature also is, then it must have the quality of aiming at the mean (*τοῦ μέσου ... στοχαστική*).²⁰

¹⁸ *EN* 1112a34–b9. Translation Barnes.

¹⁹ For the contrast between medicine and the art of writing the letters of the alphabet cf. *Loc. Hom.* 41, 76.15–22 Craik (L. 6.330–332) and the Commentary on 20.2 τῇ γραφικῇ (pp. 306–310).

²⁰ *EN* 1106b8–16. Translation Barnes, slightly modified.

Just as VM emphasizes the difficulty of achieving perfect accuracy (τὸ ἀτρεκέες) in medicine, Aristotle stresses the difficulty of attaining the mean: it is not the person who deviates a little from it who is blamed, but the one who misses it by a lot (*EN* 1109b18–20). Aristotle's discussion of virtue makes it quite clear that even a completely virtuous person cannot expect to attain the mean in every situation: virtue is a matter of *aiming* at the mean, not necessarily hitting it.²¹

In using the term στοχαστικός of virtue in this way, Aristotle rehabilitates the activity of 'aiming' (στοχάζεσθαι) from Plato's attempt to dismiss it as unworthy of a genuine art in the *Gorgias* and *Philebus*. Aiming at the mean is once again a hallmark of the good practitioner's activity. This reflects the emergence in Aristotle of the concept of a stochastic art, the paradigm examples of which were medicine, rhetoric, and navigation. The mark of the competent practitioner in the stochastic arts is that he does everything in his power to achieve a successful result, not that he actually achieves it. The idea is clearly expressed in Aristotle's statement of the goal of rhetoric:

It is clear, further, that its (sc. rhetoric's) function (ἔργον) is not simply to succeed in persuading, but rather to discover the persuasive facts in each case. In this it resembles all other arts. For example, it is not the function (ἔργον) of medicine simply to make a man quite healthy, but to put him as far as may be on the road to health; it is possible to give excellent treatment even to those who can never enjoy sound health.²²

Aristotle's concept of φύσις, according to which what comes about by nature takes place only 'for the most part' (ὡς ἐπὶ τὸ πολὺ), provided him with a justification for the stochastic character of medicine and similar arts. This concept made it possible to explain how a practitioner could possess a body of knowledge that was both highly systematic and complete, yet still not be able to succeed in all cases. A doctor or an orator may have a complete grasp of the nature (φύσις) of the subject matter of his art, and indeed a complete grasp of all the relevant features of a particular case; but this is no guarantee of success, since it only amounts to knowledge of what comes about 'for the most part'. The intervention of external, uncontrollable circumstances may cause the practitioner to fail to attain the result at which he aims, despite

²¹ For the idea of virtue as aiming at the mean (στοχαστική τοῦ μέσου) cf. also *EN* 1109a20–30, 1106b27–35. The latter passage stresses the difficulty of attaining the mean and the many ways one can fail to achieve it (ἁμαρτάνειν).

²² *Rh.* 1355b10–14. Translation Barnes. Cf. *Top.* 101b5–10.

the fact that he does everything that a competent practitioner should. Hence the criterion of competence is downgraded from achieving success to doing everything in one's power to achieve it.²³

To be sure, there are striking similarities between the positions of VM and Aristotle on the question of imprecision in medicine. Both hold that medicine is a genuine τέχνη despite its inability to achieve success in all cases. Both point to an inherent limitation on the precision that can be attained in medicine, a limitation that depends not just on the variation between different individuals and situations. However, VM and Aristotle give quite different reasons for this limitation. To explain why good doctors sometimes do not succeed, the author of VM appeals to the doctor's limited knowledge of the patient's constitution or condition. According to VM the good doctor *does* make mistakes in both diagnosis and therapy, but they are small ones that are excusable given the tools at his disposal. For Aristotle, by contrast, a doctor may fail to cure his patient and yet make no mistake at all, because the knowledge of φύσις on which he relies is only knowledge of what comes about 'for the most part'. Though the author of VM comes close to Aristotle's insight that the criterion for assessing competence in medicine is following a certain method rather than attaining a certain result, he does not quite go this far. This is confirmed by the comparison between the doctor and the navigator at the end of VM 9, the point of which is not that even a good doctor sometimes fails to cure (as is the case in later discussions of medicine as a stochastic art), but rather that the difference between good and bad practitioners is apparent only in difficult cases.²⁴

The Hellenistic debate between the Rationalists and the Empiricists opened up new perspectives on the issue of imprecision in medicine. Both sides in the debate acknowledged that medicine could not always attain perfect success; the challenge was to explain why. The Empiricists conceived of medicine as a body of generalizations correlating observable symptoms of disease, ranked according to relative frequency: some held in all cases, others in most, others half the time,

²³ For the view that the Aristotelian defense of the stochastic arts relies on the idea that knowledge of φύσις holds only 'for the most part' (ὥς ἐπὶ τὸ πλεόν) see Allen 1994, 92–95.

²⁴ Cf. Commentary, pp. 189–191. For a later comparison between medicine and navigation that emphasizes their character as stochastic arts cf. Alex. Aphr. *In Top.* 32.36–33.26 (quoted in the Commentary, pp. 206–207).

others only rarely.²⁵ This made it easy for them to explain occasional cases of failure as due to the fact that the empirical generalization on which the doctor had based his treatment simply did not hold in the situation in question. For the Rationalists, however, the explanation of failure posed a serious problem. They held that medical practice was based on a body of universal, explanatory knowledge; but if so, why were doctors not always successful? The Empiricist in Galen's *On Medical Experience* brings just this charge against his Rationalist opponent:

It is likely that the same thing happens to me which often happens to others, namely, that I fail to attain my object and make mistakes in my medical practice, and do not always act correctly, since my knowledge is not true knowledge based on full investigation of the whole of mankind, but knowledge acquired at haphazard and that falls short of the truth. As for you, if you also say that you are baffled in these matters and fall short of attaining the truth in regard to them, you prove the case against yourself. If you should say, however, that you are not baffled, then pray tell us why you fail to attain your object, since it is incumbent on you, in virtue of your self-advertised claim to possess knowledge of the paltry things even of this degree of minuteness, that you should always be correct and successful and reach your goal, as far as it is humanly possible.²⁶

The typical Rationalist response to this sort of charge was to distinguish between medical theory and its application, and to emphasize the difficulty of the latter.²⁷ To apply the general truths of medicine in particular cases the doctor needed precise knowledge of the patient's constitution or condition; but such knowledge could be quite difficult to attain. Hence the view arose that the diagnosis of the patient's condition and the determination of therapy involved a degree of conjecture or *στοχασμός*. This idea finds ample illustration in Galen, who is in general sympathetic to the fundamental Rationalist claim that reason plays an essential role in both the discovery and practice of medicine. For Galen, medicine aims at grasping the distinctive character of the individual patient's *φύσις*. But this cannot be apprehended in all its detail, at least by a merely human doctor:

True medicine aims conjecturally (*ἐστόχασται*) at the constitution (*φύσις*) of the patient. Many doctors, I believe, call this 'idiosyncrasy' (*ἰδιοσυγκρισία*), and all agree that it cannot be grasped (*ἀκατάληπτον*). Hence they concede true medicine itself to Apollo and Asclepius.²⁸

²⁵ Cf. Appendix 1, p. 356 and n. 32.

²⁶ Ch. XXX, pp. 152–153 Walzer.

²⁷ Cf. Allen 1994.

²⁸ Gal. *De meth. med.* K. 10.209.4–9 (= Deichgräber 1930, fr. 108).

Elsewhere in the same work Galen makes the point that the distinctive character of the individual patient (τὸ ἀκριβῶς ἴδιον) cannot be written down or expressed in words; for this reason, he says, practically all Empiricists and Rationalists agree that it is impossible to write down a therapeutic prescription that is adequate to cover all cases.²⁹ Since the individual φύσις cannot be grasped in all its detail, the doctor has to rely on στοχασμός, a kind of rational conjecture that lies between complete ignorance and genuine knowledge. The doctor must make use of all the signs at his disposal to arrive at a conjectural diagnosis of the patient's condition and a corresponding estimate of the proper therapy:

Now the first mark (σημείον) from which we get the indication of treatment is this sort of bad mixture of the body (sc. an imbalance in the four qualities hot, cold, wet, and dry), not old age or age in general. But since the measure (μέτρον) of bodily conditions (διαθέσεις) is taken by conjecture (στοχαστικῶς), we also examine age. And we make the same use of knowledge of habits and of the so-called antecedent causes. For we are helped by all such things towards more precise (ἀκριβεστεραν) knowledge of the condition (διάθεσιν), though the indication (ἐνδειξις) of treatment does not come from them.³⁰

The conjectural nature of diagnosis and therapy explains why medicine cannot always attain perfect success even though it is based on a body of universal, explanatory knowledge. Moreover, Galen argues that without the ability to practice rational conjecture, a doctor will be unable to adapt his treatment to individual cases. He represents Empiricist diagnosis as largely a matter of recognizing certain 'exact syndromes': groups of observable symptoms that taken together constitute a disease,

²⁹ *De meth. med.* K. 10.181–182 (= Deichgräber 1930, fr. 112). Cf. K. 10.205–206: the need to prescribe different drugs for different individuals indicates the importance of examining the individual constitution, but this cannot be grasped or expressed in words. Hence medicine requires conjectural (στοχαστικῶς) diagnosis of the patient's constitution.

³⁰ Gal. *De san. tuenda* K. 6.360.16–361.6 (= Deichgräber 1930, fr. 86). For the need for στοχασμός to be based on a consideration of a number of diagnostic signs cf. *De loc. aff.* K. 8.265.11–12. For the idea that τεχνικὸς στοχασμός is intermediate between genuine knowledge and complete ignorance see *De loc. aff.* K. 8.14.9–12; cf. also *De cris.* K. 9.562.9–10. Galen emphasizes the importance of στοχασμός in connection with three areas of medicine: diagnosis (e.g. *De san. tuenda* K. 6.365.9; *De loc. aff.* K. 8.14.10, 8.18.12–13, 8.19.1, 8.145.12–13); the prescription of therapies or the preparation of drugs, esp. when the determination of precise quantities is involved (e.g. *De san. tuenda* K. 6.131.5; *De cur. rat. per ven. sec.* K. 11.285.10–12, 11.293.13–14; *De comp. med. per gen.* K. 13.467.2, 13.713.7); and prognosis (e.g. *De cris.* K. 9.552.7, 9.562.9–10, 9.583.3–5, 9.624.8, 9.636.5).

and whose treatment is indicated by experience alone. But such syndromes are only rarely encountered in practice:

For there are only a few cases in which one can discover the so called exact syndromes (συνδρομάς ἡκριβομέναις) of the Empiricists, for example in peripneumonia and pleuritis. The majority of diseases have a conjectural (στοχαστικὴν) diagnosis; this does not come about from a collection of defined symptoms, but rather demands a person who has precise (ἀκριβῶς) knowledge of the condition (διάθεσιν) of the body, and who is able to discover all the individual things that are suitable for such a condition.³¹

Galen alleges that the Empiricists were simply at a loss when confronted with a collection of symptoms that did not correspond exactly to one of their syndromes, and that in such situations they had no choice but to resort to the random modification of existing therapies.³² Empiricist diagnosis and therapy may well have been a good deal more sophisticated than Galen finds it convenient to mention.³³ But his attack at least points to an area in which Empiricism was vulnerable. For all their emphasis on the close observation of individual peculiarities, the Empiricists found it difficult to answer the charge that medicine as they conceived of it lacked the flexibility needed to deal with them in treatment.³⁴

Once again, VM seems closer to the Rationalists than the Empiricists.³⁵ The author's explanation of the imprecision of medicine appeals not to the limited validity of the generalizations on which the doctor's practice is based, but to the difficulty of attaining precise knowledge of

³¹ Gal. *De san. tuenda* K. 6.365.6–13 (= Deichgräber 1930, fr. 131). Cf. *De loc. aff.* K. 8.14.7–17 (Deichgräber 1930, fr. 85), where the need for artful conjecture (τεχνικὸς στοχασμός) is connected with the inadequacy of the Empiricists' so-called 'pathognomic syndromes' (παθογνωμονικαὶ συνδρομαί) as a means of diagnosis. At *De plen.* K. 7.557.1–561.5 (= Deichgräber 1930, fr. 124), Galen describes how in his youth he embarrassed one of his Empiricist teachers by forcing him to admit that bloodletting is appropriate even when the entire set of symptoms making up the 'plethoric syndrome' (συνδρομὴ πληθωρικὴ) is not present.

³² Cf. *De meth. med.* K. 10.195.1–16 (= Deichgräber 1930, fr. 111), 10.173, 10.202–204, 10.169–170 (= Deichgräber 1930, fr. 115).

³³ For some suggestions of ways in which the Empiricists might have been able to meet Galen's criticisms see Allen 1994, 106–108. Cf. App. 1, p. 357 and n. 37.

³⁴ For the Empiricists' concern with the distinctive features of individual patients cf. *De meth. med.* K. 10.207–208 (Deichgräber 1930, fr. 114), esp. 10.207.11–14, where Galen praises them for it. At K. 10.169.13–15 (= Deichgräber 1930, fr. 115) Galen implies that the Empiricists themselves used the term ἰδιοσυγκρίσις and emphasized that it cannot be held in memory.

³⁵ Cf. Appendix 1, pp. 357–359.

an individual patient's humors and internal organs. Still, it would be a serious mistake to attribute to the author anything like Galen's technical notion of artistic conjecture. In his response to the problem of medical failure and imprecision—as on the question whether medicine needs to be based on an explanatory theory—VM is neither a Rationalist nor an Empiricist (cf. App. 1, pp. 358–359). Finally, we may note that the place of medical failure in the Empiricist-Rationalist debate tells against the view that the opponents of VM claimed to be able to achieve complete ἀκρίβεια in treatment.³⁶ The Rationalists agreed with the Empiricists that medicine was a genuine art even if it could not achieve complete precision and reliability in treatment; their problem was to explain how medicine could be based on a body of universal knowledge and nevertheless be unable to guarantee perfect success. The reality of failure was acknowledged on all sides in debates between medical practitioners; the challenge was to explain how it was possible.

³⁶ Cf. Introduction, p. 35 and Commentary, p. 219.

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