HIPPOCRATIC RECIPES

Oral and Written Transmission of Pharmacological Knowledge in Fifth- and Fourth-Century Greece



by

LAURENCE M.V. TOTELIN

BRILL

HIPPOCRATIC RECIPES

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Cover illustration: Aesculapius, the Greek god of medicine, is shown flanked by Apollo and Hippocrates. They are presented with exotic medicinal substances which are, to the right, turned into medicines in a pharmaceutical laboratory. Oil 18th century. By: Johannes Zacharias Simon Prey. Wellcome Library, London.

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To my parents

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MAPS

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ABBREVIATIONS

General

ANRW: Temporini, H. and Haase. W. (eds) (1974–) *Aufstieg und Niedergang der römischen Welt: Geschichte und Kultur Roms im Spiegel neueren Forschung*, Berlin.
DK: Diels, H. and Kranz, W. (1952, 6th ed.) *Die Fragmente der Vorsokratiker*, Berlin.
IG: *Inscriptiones Graecae* (1877–), Berlin.
K: Kühn, K. G. (1821–1833) *Claudii Galeni Opera Omnia*, Leipzig.
L: Littré, É. (1839–1861) *Oeuvres complètes d'Hippocrate*, Paris.
LSJ: Liddell, H. G., Scott, R. and Jones, H. S. (1968, 9th ed. with a Supplement), *Greek–English Lexicon*, Oxford.
MP^3 = base de données Mertens–Pack 3 (http://promethee.philo.ulg.ac.be/cedopal/index.htm)
NP: Cancik, H., Landfester, M. and Schneider, H. (eds) (1996–2003) *Der neue Pauly. Enzyklopädie der Antike*, Stuttgart and Weimar.
OCD^3: Hornblower, S. and Spawforth, A. (eds) (1996, 3rd ed.) *The Oxford Classical Dictionary*, Oxford and New York.
RE: Pauly, A., Wissowa, G., Kroll, W. and Ziegler, K. (eds) (1893–1978) *Real-Encyclopädie der klassischen Altertumswissenschaft*, Stuttgart and Munich.

Works of the Hippocratic Corpus

Acut.	Regimen in Acute Diseases: *De victu acutorum*
Acut. Sp.	Regimen in Acute Diseases (appendix): *De victu acutorum (spuria)*
Aer.	Airs, Waters, and Places: *De aere, aquis, locis*
Aff.	Affections: *De affectionibus*
Aph.	Aphorisms: *Aphorismi*
Artic.	Joints: *De articulis*
Carn.	Fleshes: *De carnibus*
Decent.	Decorum: *De decenti habitu*

Epid.	Epidemics: *Epidemiae*
Fist.	Fistulas: *De fistulis*
Foet. Ex.	Excision of the Foetus: *De foetus exsectione*
Haem.	Haemorrhoids: *De haemorrhoidibus*
Int. Aff.	Internal Affections: *De internis affectionibus*
Loc. Hom.	Places in Man: *De locis in homine*
Morb.	Diseases: *De morbis*
Mul.	Diseases of Women: *De morbis mulierum*
Nat. Mul.	Nature of Woman: *De natura muliebri*
Nat. Puer.	Nature of the Child: *De natura pueri*
Steril.	Barren Women: *De sterilibus*
Superf.	Superfetation: *De superfetatione*
Ulc.	Ulcers: *De ulceribus*
Vict.	Regimen: *De victu*
Virg.	Diseases of Young Girls: *De virginum morbis*
VM	Ancient Medicine: *De vetere medicina*

Other ancient works

Aristophanes [Aristoph.]

Av.	Birds: *Aves*
Ec.	Assembly Women: *Ecclesiazusae*
Eq.	Knights: *Equites*
Lys.	Lysistrata
Nub.	Clouds: *Nubes*
P.	Peace: *Pax*
Pl.	Plutus
Ra.	Frogs: *Ranae*
Thesm.	Women at the Thesmophoria: *Thesmophoriazusae*
V.	Wasps: *Vespae*

Aristotle [Arist.]

EN	Nichomachean Ethics: *Ethica Nichomachea*
GA	Generation of Animals: *De generatione animalium*
HA	History of Animals: *Historia animalium*
Pol.	Politics: *Politica*
Probl.	Problems: *Problemata*

Caelius Aurelianus	
Acut.	Acute Diseases: *Acutae passiones*
Dioscorides	
Mat. Med.	*De Materia medica*
Galen	
Anti.	Antidotes: *De antidotis*
Comm. Epid.	Commentary to Hippocrates' *Epidemics*: *In Hippocratis epidemiarum commentarii*
Comm. Acut. Morb. Victu	Commentary to Hippocrates' *Regimen in Acute Diseases*: *In Hippocratis de acutorum morborum victu*
Comp. Med. sec. Loc.	Composition of Medicines according to Places: *De compositione medicamentorum secundum locos*
Comp. Med. per Gen.	Composition of Medicines according to Types: *De compositione medicamentorum per genera*
Meth. Med.	On the Healing Method: *De methodo medendi*
Simpl.	On the powers of simple medicines: *De simplicium medicamentorum temperamentis ac facultatibus*
Ther. ad Pamphil.	Theriac to Pamphilianus: *De theriaca ad Pamphilianum*
Homer	
Il.	Iliad: *Ilias*
Od.	Odyssey: *Odysseia*
Plato	
Phdr.	Phaedrus
R.	Republic: *Respublica*
Tht.	Theaetetus
Ti.	Timaeus
Pliny	
H.N.	Natural History: *Historia naturalis*

Scribonius Largus	
Comp.	Composite Drugs: *Compositiones*
Soranus	
Gyn.	Gynaecology: *Gynaecia*
Theophrastus	
Caus. Plant.	Causes of Plants: *De causis plantarum*
Hist. Plant.	Enquiry into Plants: *Historia plantarum*
Odor.	On Odours: *De odoribus*
Xenophon	
Mem.	Memorable Facts: *Memorabilia*
Oec.	Economy: *Oeconomicus*
Manuscripts	
L	Petersburg, Public Library, F.v.VI 3
M	Venice, Biblioteca Marciana, gr. 269
P	Paris, Bibliothèque Nationale, lat 11219
S	London, British Library, Sloane 475
V	Rome, Biblioteca Apostolica Vaticana, gr. 276
Θ	Vienna, Österreichische Nationalbibliothek, med. gr. 4
Papyri	
PSI	Papiri della Società Italiana
P. Ryl.	Papyrus Rylands

INTRODUCTION
UNDER THE SPELL OF THE *PHARMAKON*

> Alone I have created remedies (*pharmak'*) against forgetfulness: by establishing consonants, vowels and syllables, I have invented letters for men to learn.
>
> Euripides, *Palamedes* frr. 1–3 (Jouan and van Looy)[1]

In Euripides' *Palamedes*, the hero boasts about having invented writing as a *pharmakon*, a drug, against forgetfulness. Euripides uses the word *pharmakon* in its positive meaning, in the sense of a healing drug. However, *pharmakon* also meant 'poison' in ancient Greek.[2] Thus, the positive analogy offered by Euripides between writing and *pharmakon* could easily be turned on its head, as Plato did in a famous passage of the *Phaedrus*, putting the following words into the mouth of Thamous, the Egyptian king:

> For this <sc. the art of writing> will cause forgetfulness in the minds of those who have learned, because they will neglect their memory. Having put their trust in writing, they will recall to memory things from outside, by means of external marks; not from inside themselves, by themselves. You have invented a *pharmakon* not for memory, but for reminding.[3]

For Plato, writing is an almost poisonous *pharmakon*, which causes forgetfulness, by inciting people to neglect their memory. Plato was particularly suspicious of the use of writing in the transmission of technical knowledge, in fields such as music or medicine.[4] These *technai* could only be acquired through actual practice and through the use of memory, not through books. Reading had created a generation of pedants who believed they knew everything, but mastered nothing.

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[1] If not stated otherwise, translations are mine.

[2] For a study of the notion of *pharmakon* in ancient Greek, see Artelt (1968).

[3] Plato, *Phdr.* 275a. For a study of the notion of *pharmakon* in Plato, see Derrida (1972), in particular p. 112: "Il faut en effet savoir que Platon suspecte le pharmakon en général, même quand il s'agit de drogues utilisées à des fins exclusivement thérapeutiques, même si elles sont maniées avec de bonnes intentions, et même si elles sont comme telles efficaces. Il n'y a pas de remède inoffensif, le pharmakon ne peut jamais être simplement bénéfique."

[4] Plato, *Phdr.* 268c. See p. 246 for a discussion of this text.

When writing this study, I have always kept Plato's words in mind. The recipes included in the Hippocratic Corpus are one of the most extensive sources for the study of ancient pharmacology; but as written artefacts, they are only one aspect of the transmission of pharmacological knowledge in the classical world. Many aspects of this transmission, such as gestures and oral words, are irremediably lost. In the present book, I have attempted to examine the written Hippocratic recipes, whilst assessing the extent and nature of the lost elements in the transmission of ancient pharmacological knowledge.

It is worth noting that, in opposition to other ancient languages, such as Chinese, there is no equivalent of the word 'recipe' in ancient Greek. In the absence of a Greek definition of what a recipe is, I have used a slightly-modified version of Jack Goody's definition: "The recipe is a written formula for mixing ingredients for culinary, medical or magical purposes; it lists the items required for making preparations."[5]

The Hippocratic Corpus, a heterogeneous collection of texts in Ionic Greek, does not include any work devoted to pharmacy *per se*.[6] Neverthless, the Hippocratic Corpus contains over 1,500 recipes.[7] The majority of these recipes are concentrated in the gynaecological treatises (*Diseases of Women* I and II, *Barren Women* and *Superfetation*), but recipes are also found in the nosological treatises (*Diseases* II and III; *Internal Affections*) and in the surgical treatises (*Fistulas; Haemorrhoids*; and *Ulcers*). The Hippocratic treatises including recipes were produced in the second half of the fifth century BC, or the first half of the fourth century, but they certainly include earlier material.

Until the early 1980s, the collections of recipes included in the Hippocratic treatises suffered from scholarly neglect. Studies were devoted to the Hippocratic *materia medica* and to the theoretical systems guiding the administration of drugs in Hippocratic medicine; but the formal characteristics of the recipes, and their role in the transmission of pharmacological knowledge did not attract scholarly attention.[8] There is one significant exception to this rule: the important study of Dietlinde Goltz (*Studien zur altorientalischen und griechischen*

[5] Goody (1977) 137.
[6] See Riddle (1987) 36.
[7] I have counted 1551 recipes in the Hippocratic Corpus.
[8] Studies on Hippocratic *materia medica*: Aliotta et al. (2003); Dierbach (1824); Moisan et al. (1990); Riddle (1987). Studies on theoretical pharmacology: Artelt (1968); Harig (1980); Scarborough (1983); Schulze (2003) 21–28; Stannard (1961).

Heilkunde: Therapie—Arzneibereitung—Rezeptstruktur, 1974), which compares the formal characteristics of Mesopotamian and Greek recipes. However, this book did not spark off interest in the Hippocratic recipes, and was received relatively badly by classicists, who criticised Goltz for comparing material across cultures.[9]

Admittedly, it is not only the Hippocratic recipes that long suffered from neglect, but also the treatises in which they are embedded. The gynaecological and nosological treatises were considered to be writings of the so-called Cnidian School of medicine, a school that was regarded as more primitive—less rational, less scientific—and therefore less worthy of attention than the so-called Coan School of medicine, the School of Hippocrates, the Father of Medicine. Scholars believed the Coan School had innovated in the field of dietetics, whilst the Cnidian School clung to pharmacological remnants of a pre-rational past, to recipes that made use of magical ingredients such as excrement or stag penises.

In the 1970s, the 'Cnidian' treatises finally took central stage, with the important studies of Jacques Jouanna (*Hippocrate: Pour une archéologie de l'école de Cnide*, 1974) and Hermann Grensemann (*Knidische Medizin*, 1975). These scholars discerned chronological 'layers' of composition within the treatises, each characterised by a different vocabulary and style, and presenting slight variations in medical theories. However, both scholars almost ignored the pharmacological material included in the Cnidian treatises; their method was not adequate for apprehending the Hippocratic recipes, which could not easily be divided into layers.

In the 1980s and in the 1990s cultural historians suggested an altogether different approach to this pharmacological material. Instead of studying the recipes uniquely as the textual product of the Cnidian School, scholars such as Aline Rousselle, Ann Hanson, Helen King, John Riddle, Lesley Dean-Jones, Iain Lonie, and Nancy Demand considered this material as an important source for the social history of classical Greece. They argued that, beyond these texts, one could catch a glimpse of an oral tradition of remedies handed down from generation to generation; the recipes could offer insight (even if biased) into the social practice of healing in the ancient world.

[9] See the reviews by Harig (1975); Potter (1976).

I wish to bring the 'philological' and the 'cultural' approaches to the Hippocratic recipes closer together, by building upon the studies on orality and literacy produced by anthropologists, historians and classicists. I study the ways and format in which pharmacological knowledge was transmitted in the classical world, and I assess the sociocultural context in which these recipes were produced and used. In the following pages, after a few words on the Hippocratic Corpus as a whole and the so-called School of Cnidus, I introduce each Hippocratic text studied in this book, as well as the philological key studies available for each treatise. I then briefly outline my own methodology for the study of the Hippocratic recipes.

Sources

General introduction to the Hippocratic Corpus

The 'Hippocratic Corpus' is a collection of approximately sixty texts in Ionic dialect, written by a variety of authors, on a variety of medical topics, and in a variety of styles, grouped under the name of Hippocrates, the famous physician of Cos. The bulk of these treatises was composed in the second half of the fifth century BC and in the first half of the fourth century, although some treatises are considerably later.[10] The question of identifying the genuine treatises of Hippocrates has been discussed by generations of scholars, starting in the Hellenistic period, without any consensus ever being reached. Today, the sceptical view, expressed most prominently by Ludwig Edelstein and Geoffrey Lloyd, that Hippocrates probably authored none of the Hippocratic treatises, is widely accepted.[11] Although I share this scepticism, I frequently use the words 'Hippocratic' and 'Hippocratic Corpus' in the present work: the name of Hippocrates conferred authority on the recipes examined and may have played an important role in their transmission.

The date when the Hippocratic Corpus was first assembled is much disputed. Several scholars believe the Corpus originated in the fifth or fourth century BC. Max Wellmann argued that Diocles of Carystus

[10] For instance *Decorum* may date from the first or second century AD.
[11] Edelstein (1939); Lloyd (1975).

created the earliest edition of the Corpus in the fourth century BC.[12] Although Diocles may have been familiar with some Hippocratic writings, Wellmann's thesis is completely speculative, and based on no firm evidence.[13] Other scholars (Hans Diller, Robert Joly, Jaap Mansfeld, William H. S. Jones) suggested the Corpus originated as a library, possibly the library of Hippocrates himself.[14] This theory has the distinct advantage of accounting for the heterogeneity of the treatises included in the Corpus and, interestingly, a late source (Tzetzes, twelfth century) presents Hippocrates as a librarian, albeit a very bad one.[15]

It is more likely that the Corpus was first assembled in Hellenistic Alexandria.[16] The Library of that city seemingly kept medical texts, including texts attributed to Hippocrates.[17] It is in Alexandria that 'Hippocratic' treatises were first commented on and glossed. Herophilus (*c.* 330–260 BC) was one of the first scholars to deal with Hippocratic lexicography.[18] One of Herophilus' followers, Bacchius of Tanagra (third century BC), whose lexicon is now lost, glossed at least eighteen works transmitted under the name of Hippocrates.[19] This philological activity, however, does not seem to have led to the constitution of a 'canon' of Hippocratic texts, for ancient scholars like Erotian (first century AD) and Galen (AD 129–216) held different views as to which constituted the writings of Hippocrates.[20] The number of treatises in the Corpus only became fixed in 1526, when the Aldine Press printed the *editio princeps* of the Hippocratic Corpus.[21] Each medieval manuscript contains its own selection of Hippocratic texts; as noted by

[12] Wellmann (1901) 64.
[13] See van der Eijk (2001) xxxiii.
[14] Diller (1959); Joly (1983) 43–44; Jones (1923a) xxix; Mansfeld (1983) 61–64.
[15] Tzetzes, *Chiliades* 7.155.955–958. Tzetzes is most probably reflecting practices of his time upon the past; other versions of this story mention an archive or the inscriptions found in the temple of Asclepius instead of a library. Archive: *Vita Hippocratis secundum Soranum* 4 (175.16–18 Ilberg). Inscriptions found in the temple of Asclepius: Pliny, *H.N.* 29.2.4; Strabo 14.657. These texts are discussed in more detail pp. 123, 262 and 297.
[16] See Fraser (1972) 364–369; Nutton (2004) 61; Roselli (2000) 175–178; (2001) 63–64; Smith (1979) 199–202; von Staden (1989) 453–456; Vallance (2000).
[17] See Galen, *Comm. Epid. III*, 2.4 (78.29–79.16 Wenkebach; 17a.605.13–606.15 K.).
[18] See von Staden (1989) 427–439.
[19] See von Staden (1992a) especially 563.
[20] For Erotian's list of Hippocratic writings, see Roselli (2000) 182; for the Hippocratic writings known to Galen, see Anastassiou and Irmer (1997); (2001).
[21] On the Aldine edition, see Nutton (2004) 60; Potter (1998). See Jones (1923b) lvii–lxvi for a list of treatises contained in the most important manuscripts.

Jones, "each independent MS seems to represent a different 'collection' of Hippocratic works."[22] Some of the medieval manuscripts grouped treatises dealing with homogeneous subjects; for instance, Manuscript B (Florence, Biblioteca Laurentiana, 74.7; tenth century) contains four surgical texts (*Surgery; Fractures; Articulations; Wounds in the Head*). The Papyrus Antinoopolis 3.184 (MP^3 545.1; sixth century AD) might indicate that specialised collections of this type were already in circulation in late antiquity, and maybe even before: it preserves fragments of three different gynaecological texts (*Superfetation; Diseases of Women* I and II). On the other hand, some medieval collections included almost all our Hippocratic treatises: the table of contents to Manuscript V (Rome, Biblioteca Apostolica Vaticana, gr. 276; twelfth century) lists 62 treatises (but V only contains 35 treatises);[23] Manuscript M (Venice, Biblioteca Marciana, gr. 269; end of tenth century)[24] includes 50 treatises; and the *Suda* affirms that Hippocrates had written at least 60 treatises.[25]

In the nineteenth century, Émile Littré produced his monumental edition of the Hippocratic Corpus, which still is an invaluable work: Littré's edition remains the only one available for a series of treatises, including large portions of the gynaecological texts. This edition has weaknesses, however. For instance, the French scholar has exaggerated the Ionic character of the texts. More importantly, This edition is based exclusively on Parisian manuscripts; for instance he did not know Manuscript Θ (Vienna, Österreichische Nationalbibliothek, med. gr. 4; eleventh century),[26] the earliest manuscript for some gynaecological and nosological treatises. All the *recentiores* consulted by Littré are derived from M, with the exception of Manuscript C (Paris, Bibliothèque Nationale, gr. 2146), which is derived from V.

Cnidus

As pointed out earlier, the bulk of the Hippocratic recipes are located in the nosological and gynaecological texts of the Corpus, which have

[22] Jones (1923) lxiii.
[23] On MS V, see Angeletti (1991); Irigoin (1999).
[24] For this date, see Wilson (1983) 139.
[25] *Suda* s.v. Ἱπποκράτης 564 (662.33–663.4 Adler).
[26] For this date, see Wilson (1983) 148.

often been presented as Cnidian. In his *Healing Method*, Galen mentions three 'choirs' (χοροί) of ancient physicians: in Cos, Cnidus and Italy.[27] These choirs have often been interpreted as competing 'Schools', each producing their own writings. The treatise entitled *Cnidian Sentences*, mentioned by Galen and criticised by the author of *Regimen in Acute Diseases*, was considered to be the most important writing of the Cnidian School and was seen as an important source for the gynaecological and nosological writings of the Hippocratic Corpus.[28]

The attribution of the nosological treatises to Cnidus was based on the similarity between, on the one hand, a passage of Euryphon quoted by Galen, and on the other hand, a passage of the Hippocratic treatise *Diseases* II.

In his *Commentary on the Epidemics*, Galen reports that some authorities ascribed the *Cnidian Sentences* to Euryphon.[29] A little later in this *Commentary*, Galen attributes to Euryphon a passage on the 'livid disease' closely similar to chapter 68 of *Diseases* II.[30] Bringing these sources together, modern scholars have not hesitated to 1) attribute the *Cnidian Sentences* to Euryphon, 2) see Euryphon's paragraph on the livid disease quoted by Galen as an extract from the *Cnidian Sentences*; and 3) consider this work as the (unique) source for the nosological treatises preserved in the Hippocratic Corpus.[31] However, as pointed out by Robert Joly, this reasoning is flawed: Galen's formulation (ἀναφέρουσι) indicates that the attribution of the *Cnidian Sentences* to Euryphon was disputed. In addition, Galen does not say which one of Euryphon's treatises he is quoting for the description of the livid disease. There undoubtedly is a link between Euryphon and *Diseases* II, but not necessarily between the *Cnidian Sentences* and *Diseases* II. Even if one could attribute the passage on the livid disease to the *Cnidian Sentences*, this paragraph is not sufficient for reconstructing the entire structure of the treatise, which is lost.[32] The *Cnidian Sentences* may have been

[27] Galen, *Meth. Med.* 1.1 (10.6.4–8 K.).

[28] See p. 23 for more details on the criticism of the *Cnidian Sentences* by the author of *Regimen in Acute Diseases*. See Grensemann (1975) for a collection of testimonies on the so-called School of Cnidus.

[29] Galen, *Comm. Epid. VI*, 1.29 (54.1–3 Wenkebach and Pfaff; 17a.886.4–6 K.).

[30] Galen, *Comm. Epid. VI*, 1.29 (55.10–16 Wenkebach and Pfaff; 17a.888.1–9 K.) to be compared to *Morb.* 2.68 (207.1–7 Jouanna; 7.104.1–7 L.).

[31] See for instance Grensemann (1975) 65–66; Jouanna (1974) 17; (1983) 45–48; Littré (vol. 1, 1839) 363; Lonie (1965) 2 (Lonie later changed his opinion).

[32] Joly (1978) 533–534. See also Smith (1979) 165.

an important source for our nosological treatises, but this hypothesis is speculative, and it cannot be grounded on firm evidence.

The attribution of the gynaecological treatises to Cnidus was based on the similarity between, on the one hand, therapies and recipes attributed by Soranus (end of the first century AD/first half of the second century AD) to Euryphon of Cnidus, and on the other, recipes found in the Hippocratic gynaecological treatises. Scholars concluded that the *Cnidian Sentences* (which they believed to be Euryphon's work) included a gynaecological section that had been the source for our extant gynaecological treatises. As in the case of the nosological treatises, this reasoning is flawed, as will be argued in more detail in Chapter One.

Grensemann (1975) argued that only one portion of the gynaecological treatises could be ascribed to the School of Cnidus. On account of differences in style, vocabulary, and medical theories, Grensemann divided the gynaecological treatises into four layers (*Schichten*), corresponding to four different 'authors': author A, author B, author C, and author D. Only the works of author A (active around 450 BC)—to whom Grensemann ascribes most of *Nature of Women* and parts of *Diseases of Women* I and II—are attributable to Cnidus. Author B is less distinct; author C dominates in *Diseases of Women* I and is the author of *Generation, Nature of the Child* and *Diseases* IV; author D dominates in *Barren Women*. In 1987, Grensemann refined further his theory, arguing that layer A could be subdivided into layer A1 (*Nature of Women* 35–109 and parallel chapters in *Diseases of Women*) and A2 (*Nature of Women* 2–34 and parallel chapters in *Diseases of Women*), A1 being older than A2 and probably the most ancient medical writing in Greek. Grensemann did not pronounce himself on the origin of A1, but maintained that A2 was produced in Cnidus and contained material by Euryphon and perhaps Herodicus.

By 1987, the idea that some of our Hippocratic treatises could be attributed to the School of Cnidus had been seriously questioned.[33] Doubts were also expressed about the very existence of a Cnidian School of medicine. Although the presence of physicians at Cnidus in the fifth and fourth centuries BC is unquestionable, this does not necessarily imply that there was an organised School of medicine—an institution—at Cnidus in the classical period. Grensemann acknowledged these

[33] See Di Benedetto (1980); (1986) chapter 3; Lonie (1978a); (1978b); Smith (1973); (1979); Thivel (1981).

developments in Hippocratic scholarship, arguing that he was more concerned with identifying the works of individual physicians (such as Euryphon and Herodicus of Cnidus) within the Hippocratic Corpus than with establishing the existence of a Cnidian School. Grensemann's method, however, was criticised by his reviewers: although they agreed that the gynaecological treatises had coalesced over time and that different viewpoints or layers were discernible, they rejected the idea of attributing these different layers to authors whose works are completely lost. In addition, the reviewers criticised Grensemann for dealing with 'hypothetical treatises', not with the treatises as they were transmitted to us.[34]

The gynaecological treatises

Ten treatises of the Corpus are concerned with gynaecological and embryological matters: *Diseases of Women* I and II; *Barren Women; Nature of Women; Generation; Nature of the Child; Diseases of Young Girls; Seven Months' Child/Eight Months' Child; Superfetation*; and *Excision of the Foetus*. In addition to these treatises, sections of *Aphorisms* V and *Places in Man* deal with gynaecological issues.

Six of the Hippocratic gynaecological treatises contain recipes: *Diseases of Women* I and II, *Barren Women, Nature of Women, Superfetation* and *Excision of the Foetus*. These writings are generally believed to date from the end of the fifth century or the beginning of the fourth century BC, but their relative chronology is disputed (see below).

All the gynaecological treatises are found in Manuscripts M and V; in addition, *Diseases of Women* I and II, and *Barren Women* are found in Manuscript Θ.[35] Finally, Papyrus Antinoopolis 3.184 preserves fragments of *Superfetation* and *Diseases of Women* I and II.

Littré considered the three treatises *Diseases of Women* I, *Diseases of Women* II and *Barren Women* as constituting one large work on women's illnesses, and numbered the chapters continuously. However, these texts were regarded as distinct entities in antiquity; Erotian's

[34] See for instance Smith (1988) 650: "<U>nlike archaeological and geological strata, these imagined strata cannot be verified by their orderly existence anywhere, but nonetheless, actual texts are being dissolved and reconstituted where they fail to match up to the imaginary ones." See also Hanson (1989a) 84; Jones (1989); Kollesch (1989); Nutton (1988).

[35] See Jones (1923b) lviii–lx. *Superfetation* is copied twice in Manuscript V.

and Galen's glossaries of Hippocratic terms, for instance, differentiate between the three works.[36]

Diseases of Women *I*[37]

Diseases of Women I is devoted to women's reproductive life. It starts with theoretical remarks on the difference between men and women, and goes on to describe gynaecological problems and diseases in a chronological order: from menstruation (chapters 1–9), to conception (chapters 10–24), pregnancy (chapters 25–34), and birth and post-partum issues (chapters 35–73). Each chapter describes a different gynaecological problem, and is organised as follows: identification of the disease, symptomatology, and therapy (this section may include recipes, although the twelve first chapters of the treatise do not contain any recipes). Sometimes a chapter may also contain prognostic comments such as 'the disease is dangerous'. (A similar chapter organisation is found in all the gynaecological treatises examined.) The chapters describing individual diseases or ailments are followed by catalogues of recipes (chapters 74–91), classified according to the same chronological principle, from menstruation to birth. The last eighteen chapters of the treatise (chapters 92–109) are catalogues of recipes that are not related to female ailments; these catalogues were qualified as spurious (νόθα) in some medieval manuscripts, and are omitted in other manuscripts. *Diseases of Women* I contains comments written in the first person, including cross-references to *Nature of the Child* and to *Diseases of Young Girls*. In addition, cross-references to *Diseases of Women* I are found in *Diseases* IV (and cross-references to *Diseases* IV are found in *Nature of the Child*).[38] The natural conclusion to draw from these cross-references is that the same author, Grensemann's author C, composed *Nature of the Child, Diseases* IV, *Young Girls*, and *Diseases of Women*. However, it does not seem that these treatises were considered as a unit in antiquity. As noted by Hanson,

[36] Erotianus, *Glossarium*, proemium (9.16–17 Nachmanson).

[37] Editions and key studies: Littré vol. 8, 10–233; Hanson (1975): extracts; Grensemann (1982): layer C; Contouris (1985): layer B; Grensemann (1987): layer A. The edition listed first is that used in the present book. Other editions are listed in chronological order.

[38] See Hanson (1971) 26 for a list of these cross-references.

> The personality of this medical writer … was apparently not strong enough to keep these treatises from being mixed in with the rest of the medical writing attributed to Hippocrates.[39]

The authority of Hippocrates proved more powerful than that of the various authors whose views are recorded in the 'Hippocratic Corpus'.

Diseases of Women *II*[40]

Diseases of Women II contains descriptions of female diseases, roughly divided into three parts: fluxes (chapters 110 and 112–122), the movements of the womb (chapters 123–153), and other uterine diseases (chapters 154–184). Catalogues of recipes against these ailments are found at chapters 192–212. Chapters 185–191 are collections of cosmetic recipes. The second chapter of the treatise (chapter 111) is devoted to the importance of taking into account the nature (φύσις) of women. This chapter has parallels at *Nature of Women* 1 and *Barren Women* 230.

Barren Women[41]

Barren Women starts with an exposition of the causes of women's sterility (chapter 213). The ensuing chapters are devoted to signs indicating that a woman is pregnant or capable of bearing children, and signs indicating the sex of the unborn baby (chapters 214–216). The treatise goes on to describe treatments (some of them very long) to promote conception (chapters 217–231). The end of the treatise is a miscellaneous collection of recipes and descriptions of problems linked to conception, pregnancy, involuntary abortion, and prolapse of the uterus (chapters 232–248). Unlike *Diseases of Women* I and II, *Barren Women* does not end with collections of recipes, but with a short description of the excision of the dead foetus (chapter 249).

Nature of Women[42]

Nature of Women starts with a general introduction on the causes of female diseases (chapter 1), and is composed, as first noted by Johannes

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[39] Hanson (1970) 214.

[40] Editions and key studies: Littré vol. 8, 234–407; see also the studies listed under *Mul.* I.

[41] Editions and key studies: Littré vol. 8, 408–463; see also the studies listed under *Mul.* I.

[42] Editions and key studies: Trapp (1967); Littré vol. 7, 313–431; Andò (2000): text

Jurk, of two sub-treatises (referred to as A and B), each starting with a chapter on dropsy and ending with catalogues of recipes (chapters 2–35 and 35–109).[43] Both sub-treatises lack discernible organisation, and most of their material has parallels in *Diseases of Women* I or II (see below for more details).[44]

Links between Diseases of Women *I and II and* Nature of Women

Most studies of the Hippocratic gynaecological treatises have concentrated on the question of the links between, on the one hand, *Nature of Women* and, on the other hand, *Diseases of Women* I and II.

Some scholars (Littré, Helga Trapp) consider *Nature of Women* as an extract from *Diseases of Women*. For instance, Trapp argued that the two constitutive parts of *Nature of Women* came into existence in the latter part of the fourth century BC, and that they had been extracted from the same sources, namely a shorter version of *Diseases of Women* II and an early version of *Diseases of Women* I.[45] Trapp argued that the text of *Diseases of Women* I was reworked after the composition of *Nature of Women*; the '*Bearbeiter*' of *Diseases of Women* I was responsible for the theoretical orientation of the treatise as we know it today. Trapp considered the chapters of *Nature of Women* that do not have any parallel in *Diseases of Women* as later interpolations.[46]

Other scholars (Franz Zacharias Ermerins, Johannes Jurk, Johannes Ilberg, and Jacques Jouanna) argue that *Nature of Women* and *Diseases of Women* have a source in common: a Cnidian gynaecological work or a gynaecological section of the *Cnidian Sentences*.[47] For instance, Ilberg argued the gynaecological treatises originated as a series of lectures (which he called ἀκροάσεις) taught at the School of Cnidus. These lectures resulted in a Cnidian treatise, which Ilberg imagined to be shorter and better organised than any of our extant treatises. According to this scholar, our *Diseases of Women* I and II are more complete and

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of Trapp with an Italian translation; Bourbon (forthcoming b); see also the studies listed under *Mul.* I.

[43] Jurk (1900) 40. See also Trapp (1967) especially 31.

[44] See Trapp (1967) 28–30 for a list of these parallels.

[45] Trapp (1967) especially 39.

[46] Trapp (1967) 35–36. These chapters are *Nat. Mul.* 16, 50, 59, 71, 77, 82, 86, 88, 99, 101.

[47] See Ermerins (1862) lxxxix–xciii; Grensemann (1975) 56 sqq. Ilberg (1925) 21; Jouanna (1974) 152–160; Jurk (1900) 29–42. See also Bourbon (forthcoming b) 'Nature du fonds'.

less systematic than this Cnidian treatise; our *Nature of Women* is a shorter handbook, extracted from this lost source.[48]

In Chapter Two, I will argue that *Nature of Women* and *Diseases of Women* used common sources, although these sources were not necessarily the type of treatises to which we are accustomed.

Superfetation[49]

Only the first chapter of *Superfetation* is devoted to the phenomenon of superfetation (the formation of a second foetus in a woman/female who is already pregnant). The remaining chapters deal with the reproductive life of women, in the reverse order to that in *Diseases of Women* I: from difficult births (chapter 1–15), to problems in pregnancy, conception, and menstruation (chapters 16–132). The treatise ends with catalogues of recipes (chapters 33–43).

Excision of the Foetus[50]

Only the first chapter of the short treatise *Excision of the Foetus* deals with the extraction of dead foetuses. The other chapters (chapters 2–5) are concerned with difficult birth and post-partum problems.

The nosological treatises

The Hippocratic Corpus includes five nosological treatises (i.e. specifically devoted to the description of diseases): *Diseases* I, *Diseases* II, *Diseases* III, *Affections*, and *Internal Affections*. The numerous parallel redactions of material in these treatises indicate that these treatises used the same source(s). These writings generally date from the second half of the fifth century BC/first quarter of the fourth century BC, but their relative chronology is disputed. All five works are found in Manuscripts Θ and M.

Three of the nosological treatises include recipes: *Diseases* II, *Diseases* III, and *Internal Affections*. In addition, references to a lost recipe book entitled *Pharmakitis* are found in *Affections*.

[48] Ilberg (1925) 22–24.
[49] Editions and key studies: Lienau (1973); Littré vol. 8, 476–509.
[50] Editions and key studies: Littré vol. 8, 512–519.

Diseases *II*[51]

Diseases II is composed of two sub-treatises: chapters 1–11 (II1) and chapters 12–75 (II2). II1 describes fourteen diseases of the head and throat. Each chapter is organised according to the following model: identification of the disease, symptomatology, and aetiology. These fourteen diseases are described again in chapters 12–31, but here the model of exposition of the diseases is slightly different: identification of the disease, symptomatology, therapeutics (sometimes including recipes), and prognosis. II2 goes on to list diseases of the nose, chest and back.

Diseases *III*[52]

Diseases III is composed of three parts: a two-line tag, attaching it to a preceding work on fevers; a nosological work (chapters 1–16), in which the diseases are classified roughly *a capite ad calcem,* and a collection of recipes for cooling remedies (chapter 17). Each nosological chapter is organised in the following way: name of the disease, symptomatology, prognosis, and therapeutics (sometimes including pharmacological recipes). All the diseases described have parallel redactions in *Diseases* II and *Internal Affections*.

Internal Affections[53]

Internal Affections describes fifty-four diseases, classified *a capite ad calcem*, starting with afflictions of the chest. The compiler divides several diseases into a number of varieties (e.g. 4 typhuses, 3 tetanuses). Each chapter is organised as follows: name of the disease, aetiology, symptomatology, therapeutics (sometimes including recipes), and prognosis.

Affections[54]

Affections starts with a preface explaining that all diseases are caused by bile and phlegm. The treatise is divided into two parts: a nosological part (chapters 1–38), in which illnesses are classified from head to

[51] Editions and key studies: Jouanna (1983); Littré vol. 7, 1–115; Jouanna (1974): extracts; Potter (1988a) 190–333.

[52] Editions and key studies: Potter (1980); Littré vol. 7, 116–161; Jouanna (1974): extracts; Potter (1988b) 6–63.

[53] Editions and key studies: Potter (1988b) 70–255; Littré vol. 7, 166–303; Jouanna (1974): extracts.

[54] Editions and key studies: Potter (1988a) 6–91; Littré vol. 6, 208–271.

toe, and a dietetic part (chapters 39–61), which lacks a clear organizing principle. References to a recipe books—or several (called *Pharmakitis* or *Ta pharmaka*) are made in the nosological part. The compiler of *Affections* claims (chapter 1) that he is writing for laymen, but the technicality of some chapters seems to indicate that this work was addressed to physicians.

Fistulas, Haemorrhoids and Ulcers

Recipes are also found in three short surgical treatises: *Fistulas, Haemorrhoids*, and *Ulcers. Ulcers* is found in Manuscript M, whilst *Fistulas* and *Haemorrhoids* are found only in the *recentiores* derived from M.

Fistulas[55]

Fistulas includes a short description of the causes of fistulas, followed by descriptions of their treatment, as well as that of other anal afflictions. *Fistulas* and *Haemorrhoids* were certainly composed by the same author; they could form one work or could be two fragments of a larger work. They are generally dated to the fourth century BC.

Haemorrhoids[56]

Haemorrhoids follows the same structure as *Fistulas*: it discusses the causes of this affliction, and goes on to describe various treatments.

Ulcers[57]

Ulcers is divided into three parts: a general description of ulcers (chapters 1–10); recipes for the treatment of ulcers in general (chapters 11–17); and recipes for particular ulcers (chapters 18–27). This treatise dates from the end of the fifth or beginning of the fourth century BC.

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[55] Editions and key studies: Joly (1978) 138–145; Littré vol. 6, 446–461; Petrequin (1877) 356–384 and 394–403; Potter (1995) 390–407.

[56] Editions: Joly (1978) 146–150; Littré vol. 6, 434–445; Petrequin (1877) 342–355 and 382–393; Potter (1995) 380–389.

[57] Editions and key studies: Duminil (1998) 52–71; Littré vol. 6, 400–433; Petrequin (1877) 266–327; Potter (1995) 342–375.

Other treatises including recipes

Occasional recipes are also found in books V and VII of the *Epidemics* (two treatises dated mostly from the second half of the fourth century BC),[58] in the Appendix to the dietetic treatise *Regimen in Acute Diseases* (end of the fifth century BC?), in the *Aphorisms,* and in *On Sight* (end of the fifth century BC).

Methodology and summary

Over the last twenty to twenty-five years, numerous studies have stressed the fact that medicine in the ancient world was not merely a bookish exercise, but that it was an important social practice.

Social historians of medicine have also stressed that writing was not the only means through which medical knowledge was transmitted in the ancient world; this knowledge was also transmitted orally. In recent years, it has been increasingly common to argue that there was an oral tradition behind the Hippocratic texts, especially behind their recipes. That such an oral tradition existed, both before writing had been used in the transmission of medical knowledge and alongside the use of writing, is asserted in our ancient texts.[59] In particular, the oral word continued to be used in teaching. It is important to keep in mind that oral tradition in the field of medicine was not synonymous with folk tradition,[60] and written tradition was not synonymous with learned tradition: learned physicians heavily relied on the oral word when teaching.

Unfortunately, our only way to access this oral tradition is through written texts. In my opinion, writing is never the exact reflection of spoken language; it transforms the oral word in subtle, yet important, ways. Writing in itself does not transform medicine into a rational 'science'—it does not transform folklore into science—but it does encourage classification and standardisation.

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[58] See Deichgräber (1971) 139 on the greater number of therapeutic descriptions in *Epidemics* V and VII than in any of the other *Epidemics*.

[59] Before the use of writing: see for instance Homer, *Il.* 11.830–832 (the centaur Cheiron teaches Achilles medicaments to treat wounds). Alongside writing: see for instance *VM* 1 (118.1 Jouanna; 1.570.1 L.), text quoted p. 39.

[60] See Thomas (1992) 7.

Even though, in my opinion, writing does impact on pharmacological knowledge, it is important not to dichotomise oral and written traditions. In the introduction to *Signs of Orality*, John M. Foley makes the following remark:

> Contrary to what the history of studies in this area <sc. Homeric Studies> would lead us to expect, the crucial term in the phrase 'oral tradition' is not the former but the latter one.[61]

This sentence could easily be applied to the study of ancient medicinal recipes: ultimately, the fact that there was a tradition of pharmacological knowledge is much more important than whether this tradition took a written or oral form. Instead, we should try to understand the interaction between oral and written word in the transmission of medical knowledge.

I do not attempt to reconstruct this oral tradition, but I acknowledge its existence, and try to point to the existence of 'missing links' in the written tradition, beyond which philological studies cannot go. To list only a few examples, in Chapter One, I wonder why the only point of agreement in all the cantharid recipes preserved in the Hippocratic Corpus is that the wings, legs and head of the beetle should be removed. In Chapter Three, I stress the fact that the Hippocratic compilers of remedies never name their oral sources for pharmacological knowledge. Throughout this study, I point out similarities between the Hippocratic recipes and recipes from other cultures, recipes preserved in authors of the fourth century BC, and recipes preserved in texts composed in the first centuries of our era. However, these similarities never amount to *verbatim* parallels (in the case of Greek recipes) or word-to-word translations (in the case of Egyptian or Mesopotamian recipes). These similarities cannot be explained in a philological way. Historians study texts, and they have invaluable philological tools (like the *stemma*) to study the written word; but it is sometimes necessary to admit that these tools cannot answer all the questions posed by material as complex and challenging as ancient medical recipes; anthropology must play a role in the study of this material.

In Chapter One, I show that there are two pitfalls in the study of the Hippocratic recipes. On the one hand, one can examine the transmission of the written recipes from a philological point of view (with the

[61] Foley (1999) 13.

help of *stemmata*), while forgetting that, beyond the text of the recipes, there is some actual pharmacological knowledge that could lead to the preparation of drugs. In other words, one can forget that writing was only one aspect of the transmission of pharmacological knowledge in the ancient world. On the other hand, one can believe that the recipes are the exact reflection of the oral transmission of pharmacological knowledge. I argue that the recipes are not the unbiased reflection—the simple writing down—of an oral tradition. Following the work of the social anthropologist Jack Goody, I draw a distinction between the medical knowledge the recipes reflect and the written form in which they have been transmitted. As with the pharmacological knowledge it imperfectly reflects, this written format is a cultural product that deserves to be studied in its own right. Describing the formal linguistic characteristics of the written recipes represents one step towards a better understanding of this material.

In Chapter Two, I examine whether the compilers of the Hippocratic treatises had written sources at their disposal. I suggest that these compilers had access to smaller catalogues of recipes comparable to those found on papyri and ostraca from Egypt. I reflect on the reasons that could have led healers to use writing for recording pharmacological material. I take issue with the dominant scholarly view, which argues that healers started to write in response to changes in the social organisation of medical training.

Most of the Hippocratic recipes are found in the gynaecological treatises. This phenomenon has often been explained from a gender point of view: the Hippocratic gynaecological recipes are considered as the product of a female tradition of home remedies, transmitted from mother to daughter before being written down. In Chapter Three, following Helen King, I argue that it is not helpful to distinguish between 'female' and 'male' pharmacological traditions. In addition, the medicine practiced in the household was only one of the possible sources for the Hippocratic collections of gynaecological recipes; other sources included the lore of the 'root-cutters' and religious healing and purification. Finally, the notion of 'home remedy' needs qualification. Many of the Hippocratic recipes include rare, expensive and exotic ingredients which, because of their price, were unlikely to figure in the remedies of many Greek households; they were affordable only to the rich. I suggest that the exotic and luxurious ingredients present in the Hippocratic collections of recipes transformed traditional medicine into

'*Haute Médecine*', an expression modelled on Goody's notion of *Haute Cuisine*. Although the nosological treatises preserve fewer pharmacological recipes than the gynaecological works, they partake of the same *Haute Médecine*. The time- and therefore money-consuming regimens prescribed in these treatises were only affordable to an elite concerned with preserving their good health through all possible means.

In Chapter Four, I list and map the exotic and luxury products listed in the Hippocratic recipes and dietetic prescriptions. While many exotic ingredients came from the East and the South of the Mediterranean, very few came from the North and the West. Similarly, luxury Greek ingredients used in the recipes came mostly from the East and South of the Greek world. The compilers of the written collections of Hippocratic recipes seem to have been influenced by the symbolism attached to the East (positive) and the West (negative) when selecting their ingredients. This chapter also discusses the difficult question of the links between Egyptian, Mesopotamian and Greek pharmacology. Instead of talking in terms of influences, which presupposes the superiority of one culture over another, I suggest talking in terms of interactions, in terms of fluidity of knowledge: opportunities for exchange of pharmacological material, and circulation of medical personnel in the Mediterranean world were not lacking in the first millennium BC.

Chapter Five studies the numerous ingredients used in the gynaecological treatises which symbolically evoked sexuality or the sexual organs in antiquity. Products such as figs, myrtle berries, cucumbers, or roses, that regularly figure in the Hippocratic recipes to cure sexual ailments and fertility problems, were sometimes used as metaphors for the sexual organs in the Attic comedies—the Hippocratic treatises and the Attic comedies exploited the same cultural material in similar ways. It is suggested that the symbolism attached to these products often had roots in religious practices, especially in the cults of goddesses such as Demeter, Hera, and Aphrodite. These cults, the gynaecological treatises and the Attic comedies share one important concern: a concern with fertility—fertility both of the Earth and of the female body. This chapter concludes with comments on the much-debated question of the efficacy of the Hippocratic recipes.

In Chapter Six, I examine how the Hippocratic catalogues of recipes were read, studied and used. Recipes were recorded on rolls of papyrus, a format which makes the action of browsing impossible. The only way of approaching the written collections of recipes was through

time-consuming linear reading. The reader of the recipes needed some prerequisite knowledge in the art of pharmacology in order to understand the material. The recipes of the Hippocratic treatises, it seems, were conceived as *aide-mémoire* for readers already trained in the art of pharmacology. However, the reader could delegate some pharmacological tasks to an assistant or to the patient. The presence of feminine participles in the gynaecological recipes implies that women, most probably women patients, were involved in the preparation of drugs.

In the final chapter of this study, I examine the significance of the name 'Hippocrates' for the transmission of the 'Hippocratic' recipes in later antiquity. The recipes benefited from being transmitted under Hippocrates' name in a series of ways: they were glossed, commented upon and quoted in the works of medical authors such as Pliny the Elder, Galen and the Byzantine encyclopaedists. However, the success of the 'Hippocratic' recipes in later antiquity was not always, seemingly, linked to the name 'Hippocrates'. A late antique Latin translation of the gynaecological recipes is found in some manuscripts without any mention of the Coan physician. It has reverted to the state of the earliest recipes here studied, anonymous prescriptions that encapsulate the wisdom of a bygone antiquity.

Finally, a note on texts, translations and other conventions. I have quoted extensively ancient Greek recipes both in the body of the text and in the footnotes. For other ancient texts, medical or other, I have only given an English translation. For the treatises of the Hippocratic Corpus, when available, I have used recent editions rather than that of Littré. However, I have always given references to the Littré edition in the footnotes. When no modern edition is available, I have quoted Littré's text with minor modifications. Unless stated otherwise, all translations are mine. Information on how I have translated plant names into English can be found in Chapter Four and in the Index of Ingredients. I regularly indicate the number of occurrences of a word or phrase in the Hippocratic Corpus: these numbers I have determined by using a combination of the *Thesaurus Linguae Graecae* and the *Index Hippocraticus* by Alpers et al. With regard to ancient personal names and geographical names, I have used the spelling suggested in the *Oxford Classical Dictionary*, that is a Latinized spelling.

CHAPTER ONE

ORAL TRANSMISSION OF MEDICAL KNOWLEDGE AND WRITTEN RECIPES

Introduction

In the Introduction, I presented the Hippocratic treatises containing recipes: *Diseases of Women* I and II, *Barren Women, Nature of Women, Superfetation, Excision of the Foetus, Diseases* II and III, *Internal Affections*, *Ulcers*, and *Fistulas/Haemorrhoids*. These treatises all have a similar structure, being formed of small elements—descriptions of diseases and recipes—organised in catalogue format. According to Christiane Reitz's definition in the *New Pauly*, a catalogue is "a listing of similar terms in an homogeneous context, which in its form is clearly delineated."[1]

Within these treatises, recipes can be found in two contexts: embedded in a chapter on a particular disease or ailment, or listed in a catalogue of recipes. Such catalogues of recipes are found at the end of *Diseases of Women* I and II, *Nature of Women, Superfetation, Ulcers* and *Diseases* III.[2] These catalogues are of different lengths (varying from one recipe to more than one hundred) and are organised in different ways: by type of medication (pessary, fumigation, etc.),[3] by efficiency (purgative, emmenagogue, etc.),[4] or by ailment to be treated.[5] In the gynaecological treatises, as noted by Dietlinde Goltz, the transition between chapters describing diseases and catalogues of recipes is not always made in an abrupt way. In *Nature of Women*, for instance, chapter 55 introduces

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[1] Reitz (1999). On catalogue structure in the Hippocratic Corpus, see Smith (1983).

[2] *Ulc.*11–22 (58–69 Duminil; 6.410–428 L.); *Morb.* 3.17 (96–100 Potter; 7.156–160 L.); *Nat. Mul.* 32–34 (87–102 Trapp; 7.346–376 L.); 55–109 (112–129 Trapp; 7.396–430 L.); *Mul.* 1.74–91 (8.154–220 L.); 1.92–109 (8.220–232 L.); 2.172 (8.352–354 L.); 2.185–191 (8.366–370 L.); 2.192–212 (8.370–406 L.); *Superf.* 33–43 (92–96 Lienau; 8.500–508 L.).

[3] *Nat. Mul.* 34 (99–102 Trapp; 7.370–376 L.), for instance, is a collection of recipes for fumigations.

[4] *Mul.* 1.75 (8.162–170 L.), for instance, is a collection of recipes aiding conception.

[5] *Morb.* 3.17 (96–100 Potter; 7.156–160 L.), for instance, is a collection of cooling recipes against the disease called *kausos* (a disease accompanied by fever).

a series of short descriptions of diseases, where the symptomatology is limited to a conditional clause, followed by one or two recipes; dietetic recommendations are usually missing. Chapters of this type succeed each other until chapter 93 (a list of recipes to promote the production of milk), the first of a series of catalogues of recipes.[6]

Until recently, the Hippocratic treatises in catalogue format including recipes were studied as the product of the so-called Cnidian School. The two main historians of this School, Jacques Jouanna and Hermann Grensemann,[7] considered these treatises as *compendia* assembled from sources now lost. By locating parallel redactions of material on *stemmata*, it was hoped that these lost original treatises could be reconstituted. In this chapter, I introduce the works of these scholars and argue that compendiast/stemmatic models, models that are exclusively based on the philological analysis of texts, are inadequate for understanding the history of ancient pharmacology, an art that was transmitted both in writing and orally. I follow Ann Ellis Hanson in suggesting that the Hippocratic catalogues of recipes have drawn upon both written and oral sources. Even though I acknowledge the importance of oral sources in the composition of the Hippocratic collections of recipes, I do not accept the assertion made by several scholars that these treatises are the unbiased reflection—the simple writing down—of an oral tradition. Basing myself on the work of the anthropologist Jack Goody, I draw a distinction between the medical knowledge the recipes reflect and the written form in which they have been transmitted to us.

According to Philip van der Eijk, there is much to be gained from the study of the formal characteristics of ancient scientific texts:

> <T>he particular formal characteristics of a scientific text may be said to be elements of a 'grammar of scientific discourse,' a system of rules and conditions pertaining to the possibilities that are available to the users of scientific language in order to present knowledge in a certain way, with a certain purpose, and for a certain audience.[8]

The second part of this chapter is devoted to the description of the formal characteristics of the Hippocratic recipes and catalogues of recipes. I examine the linguistic features of the written recipes, using

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[6] *Nat. Mul.* 93 (119–120 Trapp; 7.410–412 L.). See Goltz (1974) 165–166. The transition between chapters on diseases and catalogues of recipes is quite clear in *Mul.* I; less so in *Mul.* II.

[7] Iain Lonie was for a time a historian of the Cnidian School (1965), but later argued against a division of the Hippocratic Corpus into 'Coan' and 'Cnidian' texts (1978a and b).

[8] Van der Eijk (1997) 82.

recent linguistic studies on recipes as text types. I also study the catalogues of recipes from a linguistic point of view, using Michael Hoey's notion of discourse colony.

The compendiast/stemmatic model and its criticism

Until the publication in the early nineties of two important articles by Ann Ellis Hanson ('Continuity and change: three case studies in Hippocratic gynaecological therapy and theory' [1991] and 'The logic of the gynecological prescriptions' [1992])[9] the Hippocratic recipes, as well as the treatises in which they were embedded, were considered and studied as a product of the School of Cnidus.

The historian of the Cnidian School, Jacques Jouanna, argued that "the polypharmacy, traditionally considered as a criterion of the Cnidian School, cannot reflect the state of Cnidian therapeutics during the earliest period <of the school>."[10] This conclusion was based on the introductory paragraph of *Regimen in Acute Diseases*, in which the authors of the *Cnidian Sentences* are criticised for using only a small number of remedies against a large array of diseases and for having written nothing of value on regimen:

> And not only on this account do I disagree <with them sc. the authors of the *Cnidian Sentences*>, but also because they made use of a very small number of remedies (τοῖσιν ἄκεσιν). Indeed most of their prescriptions, except in the case of acute diseases, are said to consist in administering purges (φάρμακα ἐλατήρια) and in giving to drink, at the proper time, whey and milk. If these <remedies> were good and suited to the diseases for which they recommended giving them, they would be much more worthy of approval because, although being a small number, these <remedies> are sufficient. But this is not the case. However, the later revisers <of the *Cnidian Sentences*> acted more as physicians with regard to the application of remedies for each <disease>. Moreover, the ancients wrote nothing on regimen that is worth mentioning, although this is an important omission.[11]

Jouanna considered that the School of Cnidus developed an interest in pharmacology during the second half of the fifth century BC, that

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[9] Hanson devoted two further articles to the recipes of the Hippocratic gynaecological treatises: Hanson (1998a); (1999). Hanson (1997) also contains important information relating to recipes.

[10] Jouanna (1974) 460. I use the word 'polypharmacy' in a slightly different way below.

[11] *Acut.* 2–3 (36.13–37.4 Joly; 2.226.1–11 L.).

is, after the publication of the first edition of the *Cnidian Sentences*, which he dates to the mid-fifth century BC,[12] and before the publication of *Regimen in Acute Diseases*, which he dates to the end of the fifth century.[13] For Jouanna, the lists of recipes appended to *Diseases* III and to the gynaecological treatises must be a late production of the School; if they were not, the criticism of the author of *Regimen in Acute Diseases* would be difficult to account for. In addition, Jouanna deemed significant the fact that *Affections* (a late treatise according to this French scholar) is the only treatise to mention an independent recipe book: the *Pharmakitis*.[14] Jouanna therefore argues that therapeutics can be used, together with aetiology, as a criterion for measuring the degree of innovation or conservatism of two parallel redactions. However, Jouanna recommends caution in the use of this criterion since it is in the field of pharmacology that the authors of the treatises 'derived from the *Cnidian Sentences*' showed the most independence one from another.[15]

There are several problems with Jouanna's theory. First, it does not explain why there was such an evolution towards the use of more remedies within the Cnidian School. Second, it does not insist enough on the fact that authors can choose not to write on a subject. If therapeutics or aetiology is not covered in an ancient medical treatise, it does not necessarily mean that these fields were not developed at that time.[16] Finally, Jouanna seems to imply that the only medical writing produced before the treatises of the Hippocratic Corpus is the *Cnidian Sentences*, that all the nosological treatises of the Hippocratic Collection derive from this work and follow its structure faithfully.[17]

The history of the Cnidian School also benefited from the important studies of Hermann Grensemann. Whereas Jouanna's studies are cen-

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[12] For this date, see Jouanna (1969) xii.

[13] For this date, see Jouanna (1999) 410.

[14] Jouanna (1974) 460. Jouanna (1999) 374 dates *Affections* to 380 BC. Lonie (1965) 10, on the contrary, suggests that the *Pharmakitis* could be anterior to the writing of the nosological treatises including recipes. For more detail on the *Pharmakitis*, see 98–102.

[15] Jouanna (1974) 481. Jouanna considers *Diseases* II, 1–11 (which he calls B) to be posterior to *Diseases* II, 12 sqq. (which he calls A) because aetiology is more developed in B than in A. On the other hand, B does not contain any information on therapeutics, whereas A has a developed therapeutics. For Jouanna (1974) 134 this 'disaffection' with therapeutics in B is the consequence of the new interests in aetiology at that time. See also Jouanna (1983) 49–50, where Jouanna does not mention the therapeutic criterion but concentrates on the aetiological criterion.

[16] For this criticism, see Joly (1978) 532; Lonie (1965) 10.

[17] For this criticism, see also Thivel (1981) 107.

tered on the nosological treatises, Grensemann's work concentrates on the gynaecological treatises. In 1975, Grensemann argued that the early layer of the gynaecological treatises (what he calls layer A) could contain material from the early fifth century BC, basing himself on the weights mentioned in the recipes. Recipes in *Diseases* II and *Superfetation* only mention Aeginetan weights; whereas in *Diseases of Women* I and II, *Barren Women* and *Nature of Women*, both Aeginetan and Attic weights are used.[18] Grensemann interpreted this phenomenon in the light of the political events in early fifth-century Cnidus. Until 480 BC, Cnidus used weights and coins from Aegina. However, after the Greek victory over Persia, Cnidus became part of the Delian Confederation, dominated by Athens. From that time, both Aeginetan and Attic coins and weights were used on Cnidus.[19] Some parts of the Cnidian treatises of the Hippocratic Corpus—or their model—could have assumed written form before 480 BC at Cnidus.

In his later work (1982), Grensemann argued that only one part of his layer A could securely be attributed to Cnidus (A2). He further suggested that his layer A2 could contain material by Herodicus and Euryphon of Cnidus. As pointed out in the Introduction, Euryphon is considered to be an important figure in the history of Cnidian medicine. Some modern scholars have argued that he was the author of the *Cnidian Sentences*. In addition, they have suggested that he was the author of a gynaecological treatise (or a genealogical section of the *Cnidian Sentences*) that served as a source for our Hippocratic gynaecological treatises. This conclusion was based on the comparison between, on the one hand, passages of the Hippocratic gynaecological treatises, and on the other hand, two testimonies of Soranus (end of first century AD/first half of second century AD). In a chapter on the retention of the afterbirth, Soranus presents a series of expelling remedies and treatments employed by Euryphon of Cnidus, including the infamous ladder technique:

> Περὶ ἐγκατεχομένων δευτέρων…Εὐρυφῶν δὲ ὁ Κνίδιος οὐραγωγοῖς χρῆται ποτίσμασιν τοῖς ἀπὸ δικτάμνου καὶ ἐλελισφάκου, καὶ πεσσοῖς τοῖς αἱμαγωγοῖς διὰ στρουθίου καὶ Ἰλλυρικῆς ἴρεως καὶ κανθαρίδων καὶ μέλιτος, καὶ κατασεισμῷ τῷ διὰ τῆς κλίμακος προσδεδεμένης τῆς καμνούσης.[20]

[18] This was already observed by Fredrich (1899) 11.

[19] Grensemann (1975) 50. See also Hanson (1997) 305, note 53; (1998a) 77; Thivel (1981) 94.

[20] Soranus, *Gyn.* 4.4.14 (144.9 and 23–26 Ilberg).

> Concerning the retention of the afterbirth… Euryphon the Cnidian, on the other hand, employs diuretic potions made from dittany and sage, and emmenagogue pessaries made of soapwort and Illyrian iris and cantharides and honey, and <he employs> shaking by means of a ladder to which the sick woman is attached.

Elsewhere, Soranus describes the ladder technique for cases of prolapsed womb in more detail:

> Μεμφόμεθα πρῶτον <μὲν> Εὐρυφῶντα δι' ἡμέρας καὶ νυκτὸς ὅλης <τὴν> κάμνουσαν ἐξαρτήσαντα τῶν ποδῶν ἀπὸ κλιμακίου κἄπειτα κατακλίναντα μὲν ὑπτίαν, θρέψαντα δὲ πτισάνῃ ψυχρᾷ.[21]
>
> We blame first Euryphon who, for the entire day and night, suspends the sick woman by her feet to a ladder and then lays her on her back, and feeds her with cold barley gruel.

The therapies attributed to Euryphon bear striking similarities to therapies described in the Hippocratic gynaecological treatises.[22] In *Diseases of Women* I, we find the following expulsive and/or emmenagogue remedies: a drink made of dittany;[23] a pessary made of soapwort;[24] a pessary made of turtle's liver, woman's milk and iris oil;[25] and a pessary

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[21] Soranus, *Gyn.* 4.15.36 (149.10–13 Ilberg).

[22] Grensemann (1975) 71; Ilberg (1927) 144; Temkin (1956) 197, note 60.

[23] *Mul.* 1.78 (8.180.11 and 15–17 L.): Ιοτὰ δυνάμενα χορίον τι κρατηθὲν ἐν τῇ μήτρῃ ἐξαγαγεῖν·…Ἢ δίκατμνον Κρητικὸν ὅσον ὀβολὸν ἐν ὕδατι τρίβειν καὶ διδόναι. (Drinks able to cast out the afterbirth fixed to the womb… Or Cretan dittany, in the amount of an *obolos*; crush in water and give.) This recipe has a parallel at *Nat. Mul.* 32 (88.16–17 Trapp; 7.348.16–17 L.).

[24] *Mul.* 1.78 (8.174.7–9 L.): Καθαρτήριον ἐπιμηνίων καὶ λοχείων μάλιστα, καὶ ὕδωρ ἄγει καὶ τὰ ἄλλα· στρουθίου ῥίζαν λεῖον κεκομμένην, ὅσον τοῖσι τρισὶ δακτύλοισιν, ἐν μέλιτι δεύσας, προσθεῖναι. (Purgative of the menses and above all of the afterbirth; brings down water and all the rest: chop finely the root of soapwort, a pinch; soak in honey and apply.) This recipe has a parallel at *Nat. Mul.* 32 (91.2–4 Trapp; 7.354.2–4 L.).

[25] *Mul.* 1.78 (8.172.14–16 L.): Λεχοῖ τὰ λοχεῖα καθαίρει ἄμεινον· χελώνης θαλασσίης ἦπαρ χλωρὸν ἔτι ζώου ἐν γάλακτι γυναικείῳ τρίβειν, καὶ ἴρινον μύρον, καὶ οἶνον ἀναδεῦσαι καὶ προστιθέναι. (Purges better the afterbirth of a woman in childbirth: fresh liver of a turtle still alive; crush in woman's milk and pour iris perfume and wine; apply.) Hanson (1971) 194 did not find any Hippocratic parallel for the pessaries made of soapwort and Illyrian iris mentioned by Soranus.

made of cantharid and honey.[26] The ladder technique is described three times in the Hippocratic gynaecological treatises:

Nature of Women 5 (73.11–15 Trapp; 7.318.11–15 L.)	*Diseases of Women* 2.144 (8.318.5–9 L.)	*Barren Women* 248 (8.462.3–6 L.)
Πρὸς κλίμακα δήσας, κρούειν, κάτω τὴν κεφαλὴν ποιήσας, καὶ τῇ χειρὶ ἐσωθεῖν, ἔπειτα συνδῆσαι αὐτῆς τὰ σκέλεα ἐπαλλὰξ καὶ ἐᾶν ἡμέρην καὶ νύκτα οὕτως, καὶ διδόναι ὀλίγον χυλὸν πτισάνης ψυχρόν, ἄλλο δὲ μηδέν.	Ἔπειτα πρὸς κλίμακα δῆσαι τοὺς πόδας, τὴν δὲ κεφαλὴν κάτω ἔχειν, καὶ τῇ χειρὶ ἔσω ἀπωθέειν· ἔπειτα λύειν, καὶ ξυνδῆσαι αὐτῆς τὰ σκὲλεα ἐναλλάξ, καὶ ἐῇν νύκτα καὶ ἡμέρην οὕτω, καὶ διδόναι ὀλίγον χυλὸν πτισάνης ψυχρόν, ἄλλο δὲ μηδέν.	Ἔπειτα πρὸς κλίμακα δήσας τοὺς πόδας, κρούειν κατὰ τὴν κεφαλήν, καὶ τῇ χειρὶ ἐσωθέειν· ἔπειτα ξυνδήσας τὰ σκέλεα ἐπαλλάξ, ἐῇν ἡμέρην καὶ νύκτα ἀτρέμα· διδόναι δὲ ὀλίγον χυλὸν πτισάνης ψυχρόν, ἄλλο δὲ μηδέν.
Having attached her to a ladder, shake her with the head down, and push <her womb> inside with your hand.	Then attach her feet to a ladder, with the head down, and push <her womb> inside with your hand.	Then having attached her feet to a ladder, shake her with the head down, and push <her womb> inside with your hand.

[26] *Mul.* 1.74 (8.158.16–19 L.): Προσθετὰ δριμέα ἄγοντα αἷμα· κανθαρίδας πέντε, πλὴν τῶν ποδῶν καὶ πτερῶν καὶ κεφαλῆς, καὶ σμύρναν καὶ λιβανωτὸν ἅμα ξυμμίσγειν καὶ μέλι, ἔπειτα βάψας ἐς ἄλειφα ῥόδινον ἢ Αἰγύπτιον προθέσθω τὴν ἡμέρην. (Sharp pessaries bringing blood: five cantharides, without legs, wings and head, myrrh, frankincense; mix together with honey, then soak in rose or Egyptian unguent; let her apply it for the day.) The use of sage (ἐλελίσφακον) indicated by Soranus (as a diuretic) is not recorded anywhere in the Hippocratic gynaecological treatises.

Table (*cont.*)

Nature of Women 5 (73.11–15 Trapp; 7.318.11–15 L.)	*Diseases of Women* 2.144 (8.318.5–9 L.)	*Barren Women* 248 (8.462.3–6 L.)
Then attach her legs together crosswise, and leave her in this way for a day and a night. And give her a little cold juice of barley gruel, otherwise nothing.	Then unfasten her and attach her legs together crosswise, and let her be in that way for the night and the day. And give her a little cold juice of barley gruel, otherwise nothing.	Then having attached her legs together crosswise, let her be so for a day and a night exactly. And give her a little cold juice of barley gruel, otherwise nothing.

Although there are important similarities between, on the one hand, the testimony of Soranus on Euryphon, and on the other hand, the Hippocratic gynaecological treatises, it should also be noted that the recipes attributed to Euryphon are scattered through *Diseases of Women* I and cannot be located in any particular place.[27] Moreover, the ladder procedure attributed to Euryphon by Soranus seems to have been relatively widespread in classical Greece. The author of the Hippocratic treatise *Joints* describes it as an ancient technique employed by many physicians for a variety of cases of dislocation.[28] Although it appears that Euryphon was involved with gynaecology, and that he may have written treatises that contained similar material to our gynaecological treatises, it does not necessarily follow that parts of these treatises should be attributed to Euryphon.[29]

In addition, there is a chronological problem. In order to allow Euryphon to have influenced one of the earliest layers of the Hippocratic collection, Grensemann considers this author to have been active in the first half of the fifth century BC.[30] However, this date is supported only by one source: *The Life of Hippocrates According to Soranus*, which

[27] See Hanson (1971) 194.
[28] *Artic.* 42 (4.182.14–17 and 22 L.; 282.3–6 and 13 Withington). On the use of succussion in the Hippocratic Corpus, see Hanson (1989b) 43.
[29] See Hanson (1971) 194.
[30] Grensemann (1975) 197–202.

presents Euryphon as an older contemporary of Hippocrates.[31] This early date is contradicted by the fact that Plato Comicus, a contemporary of Aristophanes, made fun of a Euryphon.[32] Euryphon was probably alive when Plato Comicus joked about him; if he had not been, the joke would not have made the audience laugh. Consequently, it seems that Plato's Euryphon was active at the end of the fifth century BC or at the beginning of the fourth century, and not earlier.[33] However, one cannot exclude the possibility that Plato's Euryphon is a different doctor from that of the *Life*, thus making it possible for the former to be ridiculed by Plato Comicus, and the latter to have been active in the field of gynaecology in the first half of the fifth century BC.

It is tempting to ascribe the anonymous material transmitted in the Hippocratic treatises to a named authority. However, Soranus only attributed to Euryphon a handful of therapeutic prescriptions. This is very little in comparison with the hundreds of therapeutic and pharmacological prescriptions recorded in the Hippocratic gynaecological treatises. This important collection of material deserves to be studied in its own right, even if it cannot be ascribed to any known medical authority. However, beyond the attribution of some of the therapies of the gynaecological treatises to Euryphon (however problematic this attribution may be), Grensemann has said very little about the gynaecological collections of recipes, attributing them in passing to his layers A1 and A2 and calling for more analysis.[34]

Sybille Ihm (1999) attempted to further Grensemann's analysis of the links between *Nature of Women*, on the one hand, and *Diseases of Women* I and II, on the other, by studying one particular recipe. She analysed these four different versions of a recipe for a cantharid drink to expel the afterbirth in order to understand better the use of the sources in the gynaecological catalogues of recipes:[35]

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[31] *Vita Hippocratis secundum Soranum* 5 (176.4–7 Ilberg). On this story, see Jouanna (1999) 31; Pinault (1992) chapter 3.

[32] Plato Comicus fr. 200 (Kassel and Austin).

[33] See Thivel (1981) 107.

[34] See Grensemann (1982) 4, note 3; (1987) 12 and 36. Hanson (1989a) 84 and Kollesch (1989) 163 criticise Grensemann for not taking into account the recipes of the gynaecological treatises.

[35] The four versions of the cantharid drink are found at *Nat. Mul.* 32 (87.13–88.1 Trapp; 7.346.13–348.1 L.); *Mul.* 1.78 (8.178.1–10 L.); *Mul.* 1.78 (8.182.13–20 L.); *Mul.* 1.84 (8.208.15–210.1 L.).

Nat. Mul. 32 (Ihm [1999] 276–278; 87.13–10 Trapp; 7.346.13–348.1 L.)	*Mul.* 1.78 (Ihm [1999] 276–278; 8.182.13–20 L.)	*Mul.* 1.78 (Ihm [1999] 276–278; 8.178.1–12 L.)	*Mul.* 1.84 (Ihm [1999] 276–287; 8.208.15–210.4 L.)
Ἕτερα ποτὰ καὶ πρόσθετα, χόριον ἐξάγειν καὶ τὰ ἐπιμήνια κατασπάσαι·	Χόριον ἐξάγει καὶ ἐπιμήνια κατασπᾷ, καὶ ἔμβρυον ἡμίεργον ἐξάγει·	Πρόσθετον χόριον ἐξάγει καὶ ἐπιμήνια κατασπᾷ καὶ ἔμβρυον ἀπόπληκτον·	Πρόσθετον καθαρτικὸν χόρια ἐκβάλλει καὶ καταμήναι κατασπᾷ καὶ ἔμβρυον ἐξαγει ἀπόπληκτον·
Other drinks and pessaries to cast out the afterbirth and induce the menses:	Draws out the afterbirth, brings down the menses, and draws down the half-completed embryo:	Pessary able to cast out the afterbirth, bring down the menses and the paralysed embryo:	Purgative pessary, draws out the afterbirth, brings down the menses, and casts out the paralysed embryo:
κανθαρίδας πέντε ἀποτίλας τὰ πτερὰ καὶ τοὺς πόδας καὶ τὴν κεφαλήν· ἔπειτα τριβόλους παραθαλασσίους σὺν τῇ ῥίζῃ κόψας ὅσον κόγχην, καὶ τοῦ ἀνθέμου τοῦ χλωροῦ τὸ εἴσω ξηρὸν τρίψας ὅσον κόγχην σελίνου σπέρμα ἴσον καὶ σηπίης ᾠὰ πεντεκαίδεκα, ἐν οἴνῳ γλυκεῖ κεκρημένῳ δίδου πιεῖν.	κανθαρίδας πέντε ἀποτίλας τὰ πτερὰ καὶ τὰ σκέλεα καὶ τὴν κεφαλήν· ἔπειτα τρίβολον παραθαλάσσιον κόψας σὺν τῇ ῥίζῃ καὶ τοῖσι φύλλοισιν ὅσον κόγχην καὶ τὸ εὐάνθεμον τὸ χλωρὸν τρίψον ἴσον πλῆθος καὶ σελίνου σπέρμα καὶ σηπίης ᾠὰ πεντεκαίδεκα, ἐν οἴνῳ γλυκεῖ κεκρημένῳ ταῦτα ὁμοῦ.	κανθαρίδας πέντε τίλας τὰ πτερὰ καὶ τὰ σκέλεα καὶ τὴν κεφαλήν· εἶτα τρίβολον παραθαλάσσιον κόψας σὺν τῇ ῥίζῃ καὶ τοῖσι φύλλοισι ὅσον κόγχην καὶ βοάνθεμον χλωρόν, τρίψας τὸ ἔξω σκληρὸν ὅσον κόγχην καὶ σελίνου σπέρματος ἴσον καὶ σηπίης ᾠὰ πεντεκαίδεκα ἐν οἴνῳ γλυκεῖ κεκρημένῳ.	κανθαρίδας πέντε ἀποτίλας καὶ τὰ πτερὰ καὶ τὰ σκέλεα καὶ τὴν κεφαλήν· εἶτα τρίβολον παραθαλάσσιον κόψας σὺν τῇ ῥιζῃ καὶ τοῖσι φύλλοισι καὶ τὸ χλωρὸν τὸ ἔξω, τρίψας ἴσον ὄγκον καὶ σελίνου σπέρματος καὶ σηπίης ᾠὰ πεντεκαίδεκα, ἐν οἴνῳ γλυκεῖ κεκρημένῳ.

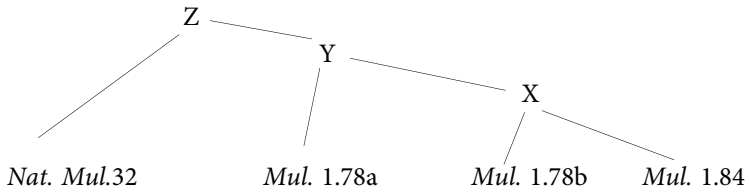
Five cantharides, remove the wings, legs and head. Then crush prickly samphire, together with its root, in the amount of one *konchê*; and crush the inside of fresh chamomile, in the amount of one *konchê*, same amount of celery seed, and 15 eggs of cuttlefish; give to drink in sweet mixed wine.	Five cantharides, remove the wings, legs and head. Then crush prickly samphire, together with its root and leaves, in the amount of a *konchê*; crush the same amount of fresh chamomile, seed of celery, 15 eggs of cuttlefish; these together in sweet mixed wine.	Five cantharides, remove the wings, legs and head. Then crush one *konchê* of prickly samphire, together with its root and leaves; and crush the external, dry, part of fresh chamomile, in the amount of a *konchê*, same amount of seed of celery, 15 eggs of cuttlefish in sweet mixed wine.	Five cantharides, remove the wings, legs and head. Then crush prickly samphire, together with its roots and leaves, and the fresh external part; crush the same amount of celery seed and 15 eggs of cuttlefish in sweet mixed wine.
Καί ἐπὴν ὀδύνη ἔχῃ, ἐν ὕδατι θερμῷ καθήσθω, καὶ μελίκρητα ὑδαρέα πινέτω.	Καί ἐπειδὰν ὀδύνη ἔχῃ, πίνειν, καὶ ἐν ὕδατι θερμῷ ἐγκαθιζέσθω πινέτω δὲ μελίκρητον ὑδαρὲς καὶ γλυκὺν οἶνον λευκόν.	Καί ἐπὴν ὀδύνη ἔχῃ, ἐν ὕδατι θερμῷ καθήσθω, καὶ μελίκρητον ὑδαρες πινέτω, καὶ οἶνον γλυκύν·	Καί ἐν ὕδατι θερμῷ καθιννύσθω καὶ μελίκρητον ὑδαρὲς πινέτω, καὶ οἶνον γλυκύν.
And when there is pain, let her have a sitz-bath in warm water and drink watery *melikraton*.	When there is pain, make her drink these, let her have a sitz-bath in warm water, and let her drink watery *melikraton* and sweet white wine.	When there is pain, let her have a sitz-bath in warm water, and let her drink watery *melikraton* and sweet wine.	Let her sit in a warm bath, and let her drink watery *melikraton* and sweet wine.

Table (*cont.*)

Nat. Mul. 32 (Ihm [1999] 276–278; 87.13–10 Trapp; 7.346.13–348.1 L.)	*Mul.* 1.78 (Ihm [1999] 276–278; 8.182.13–20 L.)	*Mul.* 1.78 (Ihm [1999] 276–278; 8.178.1–12 L.)	*Mul.* 1.84 (Ihm [1999] 276–287; 8.208.15–210.4 L.)
Ἕτερον· βατραχίου τῶν φύλλων καὶ ἄνθεος τετριμμένου ὅσον στατῆρα Αἰγιναῖον ἐν οἴνῳ γλυκεῖ πιεῖν.	Ἢ βατραχίου τοῦ φύλλου καὶ τοῦ ἄνθεος τετριμμένου ὅσον δραχμὴν Αἰγιναίην ἐν οἴνῳ πίνειν γλυκεῖ.	Καί τοῦ τετριμμένου ὅσον στατῆρα Αἰγιναῖον ἐν οἴνῳ πίνειν γλυκεῖ.	Καί τοῦ τετριμμένου ὅσον στατῆρα Αἰγιναῖον ἐν οἴνῳ πίνειν γλυκεῖ·
Another: Crush leaves and flower of *batrachion*, in the amount of an Aeginetan *statêr*; drink in sweet wine.	Or crush leaf and flower of *batrachion*, in the amount of an Aeginetan *drachma*; drink in sweet wine.	And <make> her drink one Aeginetan *statêr* of this ground preparation in sweet wine.	And <make> her drink one Aeginetan *statêr* of this ground preparation in sweet wine.

The differences between these four versions are of varied types. There are variations in the spelling and dialect, variations in the grammar (mood of the verbs, etc.), and variations in the formulation (use of synonyms, slight variation in the order of the words). In addition, there are even variations in the content of the recipe (differences of quantities for instance).

Ihm's careful philological examination led her to establish a *stemma* in which three lost sources (sources Z, Y and X) were supplied to explain the differences between the four versions of the recipe. She does not pronounce herself on the nature of Z (nor Y or X), nor does she suggest whether this recipe was first found in a gynaecological treatise including recipes or in an independent recipe book.



Now Ihm chose a very particular recipe, quite long, in four different versions, with a wealth of details concerning the preparation and the application of the remedy. We may wonder whether her approach could be expanded to the hundreds of parallel recipes found in the gynaecological treatises, and whether the results of this analysis would point in the same direction. In other words, one may wonder whether an analysis of a particular recipe can lead to conclusions about the links between entire treatises.

Stemmata can be useful to study the transmission of a recipe or cluster of recipes, but the conclusions drawn from those *stemmata* cannot necessarily be expanded to entire treatises. In addition, building *stemmata* is not always possible: if we want to build *stemmata* like Ihm's, we need to determine how different versions of a recipe relate to each other; how many lost links we have to supply between versions; when a version is an 'improvement' in comparison with another,[36] etc. However,

[36] A case where an improvement is visible is the way in which fumigations were administered, from a boiling pot placed in a hole in the ground, to a chair set over the hole, to the use of a footstool for the patient to rest her feet. See Hanson (1998) 79. See pp. 233–236 for more detail on the practice of fumigation.

this is impossible in most cases, since we have only two versions of the recipes—at least three versions are required to construct a *stemma*.

There is no such thing as a *verbatim* repetition of a recipe in the Hippocratic gynaecological catalogues, or in the Hippocratic treatises as a whole. There are always variations between two versions of a recipe, and it is often difficult to determine which ones are significant and which ones are not.[37] Above all, it is difficult to perceive which variations were significant for the ancients. An indirect way to approach this question is to look for elements of stability between parallel redactions of recipes.

In most cases of parallel redactions of recipes, the ingredients are listed in the same order from one version to another, as in the following example:

Diseases of Women 1.90 (8.216.11–14 L.)	*Diseases of Women* 2.209 (8.404.7–9 L.)
Κλύσμα ἢν ἡλκωμέναι ἔωσιν αἱ μῆτραι καὶ ἢν στραγγουρίη ἐπιλάβῃ· πράσα, ἀκτῆς καρπόν, σέσελι, ἄννησον, λιβανωτόν, σμύρναν, καὶ οἶνον ἴσον τῷ χυλῷ τούτων, μίξας ταῦτα καὶ ἀναζέσας, ψύχειν, καὶ μετρίως κλύζειν.	Ἕτερος κλυσμὸς, ἢν περιωδυνίη καὶ στραγγουρίη ἔχῃ· πράσου χυλόν, ἀκτῆς καρπόν, σέσελι, ἄννησον, λιβανωτόν, σμύρναν, οἶνον, χύλωσον καὶ μῖξον καὶ κλύσαι.
Injection if the womb becomes ulcerated and if strangury occurs: leeks, elderberry, hartwort, anise, frankincense, myrrh, and wine in the same amount as the juice of these <ingredients>; mix these and bring to the boil, let it cool down; inject moderately.	Other injection if there is excessive pain and strangury: juice of leek, elderberry, hartwort, anise, frankincense, myrrh, wine; extract the juice and mix; inject.

[37] On the problem of *verbatim* quotations (or lack of them) in the ancient world, see Small (1997) chapter 13 and the review of this book by Thomas (2000a) 489. See also Finnegan (1988) 82.

There are several differences between these two versions of the recipe. For instance, the headings under which the recipes are listed are different; and the indications for the preparation of the remedy are much more detailed in *Diseases of Women* I than in *Diseases of Women* II. On the other hand, in both versions, the ingredients are listed in the same order.

This stability in the order of the ingredients is also perceivable when there are more than two parallel redactions:

Nature of Women 32 (95.7–9 Trapp; 7.362.7–9 L.)	*Diseases of Women* 1.84 (8.206.14–16 L.)	*Diseases of Women* 2.205 (8.396.7–9 L.)
Ἕτερον· σύκου τὸ πῖον ξύσας, συμμίξας πόσιας ἐλατηρίου δύο καὶ νίτρον ὅσον τὸ ἐλατήριον, μέλιτι δεύσας, προστίθει.	Ἢ σύκου τὸ πιότατον ξὺν ἐλατηρίου πόσει καὶ νίτρου ἐρυθροῦ τὸ ἴσον καὶ μέλιτος ἴσον, ὡσαύτως.	Σύκου τὸ πῖαρ, ἐλατηρίου δύο πόσιας, νίτρον ἐρυθρόν, ὅσον τὸ ἐλατήριον, μέλι ὀλίγον, ἐν ῥάκει ἢ ἐν εἰρίῳ, βάλανον ποιέειν.
Another: scrape the fat of a fig, add two draughts of squirting cucumber, soda in the same amount as the squirting cucumber, pour honey; apply.	Or the fattest part of a fig, together with a draught of squirting cucumber, the same amount of red soda, and the same amount of honey; in the same way.	The fat of a fig, two draughts of squirting cucumber, red soda, in the same amount as the squirting cucumber, a little honey, in a cloth or in wool; make a pessary.

Cases of parallel redactions in which the ingredients are not listed in the same order occur only rarely, as in the following example:

Nature of Women 32 (95.16–18 Trapp; 7.362.16–18 L.)	*Diseases of Women* 2.205 (8.396.9–10 L.)
Ἕτερον· χολὴν ταύρου, καὶ νίτρον ἐρυθρόν, νέτωπον, κυκλάμινον, τρίψας τουτέων ὅσον κηκῖδα, τοῦ κυκλάμινου δὲ πλεῖστον, μέλιτι συμμίξας, προσθεῖναι.	Ἕτερον· νέτωπον, χολὴν ταύρου, νίτρον, κυκλάμινον, κικίδα, τρίβειν ξὺν μέλιτι.
Another: bull bile, red soda, oil of bitter almond and cyclamen; crush these in the amount of an oak gall, but more of cyclamen; add honey; apply.	Another: oil of bitter almond, bull bile, soda, cyclamen, oak gall; crush with honey.

The case of the cantharid drink is slightly more complicated. Here are the ingredients listed in the four versions of the recipe:

Version A: *Nat. Mul.* 32	Version B: *Mul.* 1.78	Version C: *Mul.* 1.78	Version D: *Mul.* 1.84
5 cantharides without wings, legs and head	5 cantharides without wings, legs and head	5 cantharides without wings, legs and head	5 cantharides without wings, legs and head
Prickly samphire, with its root, 1 *konchê*	Prickly samphire, with its root and leaves, 1 *konchê*	Prickly samphire, with its root and leaves, 1 *konchê*	Prickly samphire with its root and leaves, 1 *konchê*
Inside of fresh chamomile (*anthemon*), 1 *konchê*	Fresh chamomile (*euanthemon*), same amount	The external, dry, part of fresh chamomile, 1 *konchê*	The outside, 1 *konchê*
Celery seed, same amount	Celery seed	Celery seed, same amount	Celery seed, the same amount
15 eggs of cuttle fish	15 eggs of cuttlefish	15 eggs of cuttlefish	15 eggs of cuttlefish
Sweet mixed wine	Sweet mixed wine	Sweet mixed wine	Sweet mixed wine

With the exeption of version D, all versions contain six ingredients: cantharides, prickly samphire, chamomile, celery seed, eggs of cuttlefish and sweet mixed wine. Version D lacks chamomile, but this may be linked to a copyist's mistake. Our versions are in disagreement over the vegetable ingredients: what part of samphire to use (the root only, or the root and the leaves), how to call chamomile (ἄνθεμον, βοάνθεμον, εὐάνθεμον) and which part of that plant to use (the inside or the outside). On the other hand, all versions are on agreement with regard to the animal ingredients of the recipe: fifteen eggs of cuttlefish and five cantharides without head, legs and wings have to be used. The recommendations regarding the parts of the cantharid to use are found in the numerous other cantharid recipes preserved in the Hippocratic Corpus. It should be noted that in later antiquity there was a debate on which cantharid parts were effective: some physicians, like Galen, used the entire cantharid;[38] others used the legs, head or wings;[39] but the Hippocratics removed those very parts. The strong insistence in the Hippocratic recipes on which cantharid parts not to use suggest some pharmacological experimentation, of which no written traces have been preserved. (We now know that the blistering agent cantharidin is found in the entire body of blister beetles, but is more potent in the elytra, a part of the wing.)[40]

To sum up, the four versions of the cantharid drink list the same ingredients, in the same order, but are in disagreement over which parts of the vegetable ingredients to use. It is almost as if this recipe had once been a simple list of ingredients, without any specification of quantities and parts of plants to use, and that various copyists 'filled in the gaps' according to their knowledge. The stability in the order of the ingredients in this recipe, and in most other recipes, means that, for the ancients, this order was significant.[41] Maybe ingredients were listed in the order in which they had to be prepared. In any case, ingredients were the essential part of the recipe, its most important content, its back bone.

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[38] See Galen, *Simpl.* 11.44 (12.364.5–6 K.).

[39] Wings and legs: see Galen, *Simpl.* 11.44 (12.364.3–5 K.). Wings: see Dioscorides, *Mat. Med.* 2.61; Pliny, *H.N.* 29.29.94. Wings, legs and head: see Galen, *Comm. Acut. Morb. Victu* 104 (15.913.8–11 K.). On cantharides in the ancient world, see Beavis (1988)168-173; Davies and Kathirithamby (1986) 92-94; Scarborough (1977); (1979) 13-14; Taberner (1985) 102–111.

[40] See Beavis (1988) 172; Scarborough (1979) 14; Taberner (1985) 102.

[41] The stability was also observed by Hanson (1985) 28; (1996a) xviii–xix; (1997) 303.

On the other hand, the element of the recipes that is the less stable is their grammar. From one redaction to another, infinitives are often substituted for participles, indicatives for infinitives, etc. In addition, different manuscripts often have different verbal forms for the same recipe. It is almost as though the grammar of the recipes 'did not matter' to the ancient and medieval copyists.[42]

Philological studies tend to exaggerate the importance of grammatical variations in the formulation of the recipes. However, in most cases, these variations were probably not considered significant by the ancients. Philological studies are based on differences between versions of a *text* in order to build *stemmata*. However, behind the *text* of a recipe, there is a remedy, or at least the possibility of a remedy; a phenomenon that philological studies tend to ignore. In the present study, I attempt to always keep the balance between these two elements, between text and remedy.[43]

Up to this point, ingredients were chosen as a means to locate parallel redactions of recipes.[44] However, this somehow oversimplifies the problem. There are in the Hippocratic Corpus instances of recipes very similar to each other without having exactly the same ingredients. For instance, there exists, in a chapter on the displacement of the womb, a recipe for an emmenagogue drink (referred to as A) with much in common with the cantharid drink presented earlier (referred to as B):

> Recipe A: Πινέτω *κανθαρίδας τέσσερας* ἀποκολούσασα τοὺς πόδας καὶ τὰ πτερὰ καὶ τὴν κεφαλήν, καὶ γλυκυσίδης κόκκους πέντε τοὺς μέλανας, καὶ *σηπίης ᾠιά*, σπέρμα *λίνου* ὀλίγον ἐν *οἴνῳ*.[45]
>
> Let her drink *four cantharides*, having removed the legs, the wings and the head, five black seeds of peony, *eggs of cuttlefish*, and a little *linseed* in *wine*.

A has three ingredients in common with the cantharid drink examined earlier (B): cantharides, eggs of cuttlefish and wine. Recipe A specifies that one should remove the legs, wings and head of the cantharides. On the other hand, A employs four cantharides instead of five; does

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[42] See Hanson (1996a): xix.

[43] Thivel (1981) 105 makes a difference between three levels in the chapters of the Hippocratic treatises: level of the doctrine, level of the redaction and level of the systematization of the text. See also Andò (2000) 17.

[44] This criterion was also used by Mäkinen (2004) 158.

[45] *Nat. Mul.* 8 (76.1–4 Trapp; 7.324.1–4 L.). See p. 255 for the feminine participle in this recipe. This recipe has a parallel redaction at *Mul.* 2.135 (8.306.17–20 L.), on which see pp. 255 and 290.

not specify how many eggs of cuttlefish to use; does not tell us which type of wine to use; and employs different vegetable ingredients (peony and linseed). The difference between A and B cannot be explained in a philological way: no *stemma* could account for all these differences. On the other hand, in actual practice, these recipes must have been considered very similar: both were emmenagogue drinks, including two animal ingredients (cantharides and eggs of cuttlefish) together with vegetable ingredients. A and B are not parallel redactions of recipes, but they could be called 'variations on the same theme'.

Orality and the Hippocratic catalogues of recipes

Grensemann, Jouanna and Ihm approach ancient medical texts as philologists: they study texts and their transmission and have relatively little interest in the practice of medicine in ancient Greece.[46] As Hanson pointed out, they consider the medical Schools of Cos and Cnidus as "textual communities on the model of philosophical sects of the Hellenistic and later periods, possessing specialized collectings of writings and a library, passed on from the head of the sect to the successor".[47] Within these communities, authors of medical treatises in catalogue format are imagined to be compendiasts, assembling their works by excerpting sources now lost. However, Hanson notes that this model might be a retrojection onto the Hippocratics of 'later compositional practices' common in Alexandria, Rome and Byzantium, and not the reflection of the actual transmission of medical knowledge in classical Greece. In particular, this model does not take into account the fact that pharmacological knowledge must have been transmitted orally in the ancient world; it does not examine the link between oral and written transmission of knowledge.

As the author of the Hippocratic treatise *Ancient Medicine* makes clear, oral and written transmission of medical knowledge cohabited in classical Greece: "All those who have attempted <to discuss> the art of medicine orally or by writing…"[48] It is therefore possible to argue,

[46] This lack of interest in the social history of medicine is less noticeable in Jouanna (1999).
[47] Hanson (1997) 305.
[48] *VM* 1 (118.1 Jouanna; 1.570.1 L.).

as Hanson did, that the Hippocratic treatises in catalogue format drew upon both oral and written sources:

> <A> more flexible compositional model for the catalogs' present form allows them to have drawn upon *traditional* repositories of medical information, *including oral ones*, and to *fossilize only gradually* into the shape and Greek text they now exhibit.[49]

Some scholars have suggested that oral transmission might be one of the possible explanations for the high number of parallel redactions in the Hippocratic Corpus; when two parallel texts (texts A and B) are found in the Corpus, several different scenarios are possible, as expressed by Volker Langholf:

> Text A may be dependent on text B, or B on A, or both may be dependent on a common extant or inferable written source; and more possibilities are conceivable: there may be intermediate written sources and secondary textual changes; *sources may also be 'oral' or rather performative*, i.e. memorized and transmitted within the professional complex consisting of doing plus talking.[50]

Similarly, Valeria Andò believes the repetitions within *Nature of Women* might be the result of an oral transmission of knowledge.[51] In addition, Andò considers the conditional formulae that introduce descriptions of diseases and recipes in the Hippocratic nosological and gynaecological treatises as "a sign (*spia*) of an archaic tradition which has its roots in oral communication".[52] These formulae reveal a "lack of abstraction and conceptualisation" also present in the laws of Solon, which are "written codification" of oral knowledge.[53]

The conditional formulae introducing the recipes are indeed similar to formulae introducing Solon's laws. In relation to these laws, Solon tells us, "I wrote down laws alike for good and bad, awarding straight justice to each."[54] However, Solon does not say whether he transcribed these oral laws word-for-word, or whether he changed their formulation in the process of writing. The same goes for recipes: it is impossible to tell whether recipes were formulated in the same way orally as they

[49] Hanson (1997) 310 (my emphasis).
[50] Langholf (2004) 252 (my emphasis).
[51] Andò (2000) 28.
[52] Andò (2000) 25.
[53] Andò (2000) 26.
[54] Solon fr. 36 (West), lines 18–20. See Thomas (1992) 71.

are in writing. Conditional formulae do not introduce later recipes: they undoubtedly are a sign of the archaic character of Hippocratic recipes, but are they the reflection of the oral tradition? Andò makes a—very common—conflation between 'signs of archaicity' and 'signs of orality'.

Searching for 'signs of orality' is a strong trend in classical studies, first inaugurated by the studies of Albert Lord (1960) and Milman Parry (1971) on Homeric formulae, which were seen as signs of orality. However, Homeric scholars have recently expressed reservations against the search for signs of orality in our ancient sources. Barry Powell, for instance, reminds us that what we have from Homer is a *text*, which is not the exact equivalent to the oral epic songs that preceded the writing down of the *Iliad* and the *Odyssey*:

> Many misunderstand Homer in failing to remember that Homer is a text and that texts are in code; speech, by contrast, is not in code (although it may *be* code). Texts are potentially eternal; speech is ephemeral.[55]

Similarly, one should not forget that our Hippocratic recipes are texts. It might be dangerous to assume that the process of writing was without consequences for the formulation of medical knowledge.[56]

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[55] Powell (2004) 3. See also Powell (2002). For a sophisticated example of a search for 'signs of orality', see Foley (1992).

[56] I am not claiming that writing leads to the development of science, rather that it impacts the formulation of science. Eric Havelock (1963); (1971); (1976) believed that the advent of the alphabet led to the advent of prose texts, and the development of a language necessary for abstract descriptions. The development of this new language in turn led to advances in history, philosophy, and science. Goody and Watt (1963) also saw writing as central to the development of philosophy and science. Geoffrey Lloyd, on the other hand, has always been critical of the idea that literacy played an important role in the rise of science. For instance, Egyptian, Mesopotamian, Chinese, Indian, and Greek civilizations all developed mathematics; however, the notion of mathematical proof is only found in Greece. The difference cannot be attributed to literacy, since all these mathematical systems are dependent on 'equivalent' logographic notations. The reason must therefore be sought elsewhere, in the wider sociological, political and cultural context of Greece. According to Lloyd, in classical Greece, the absence of institutionalised systems of patronage meant that intellectuals had to rely on teaching to make a living. To gain pupils, these intellectuals had to compete against each other, and therefore needed to develop instruments of persuasion. The development of the mathematical proof is linked to the phenomenon of competition, not to literacy alone; the implications of literacy cannot be detached from their socio cultural contexts. See Lloyd (1979) 239–240; (1987) 70–78; (1990) 132–133; (2003a). Goody (1987) chapter 2 is an answer to Lloyd (1979); Olson (1994) chapter 3 expounds the debate between Lloyd and Goody. A similar view to that of Lloyd is held by Dean-Jones (2003) and Miller (1990).

We can only approach ancient medical recipes through texts; we cannot access the experience of their oral transmission. However, anthropological research into societies relying mainly on the oral word can offer some insight into the transmission of therapeutic knowledge in the ancient world.

Goody in his *Domestication of the Savage Mind* (1977) has questioned the very existence of 'recipes' in oral traditions. For the anthropologist, formulae such as equations or recipes are highly abstract and decontextualized forms that are clearly the product of 'graphic reductionism'.[57] Certainly, oral societies also follow relatively standard procedures when cooking, preparing remedies, and practicing magic. However, when talking about peasant cooking, Goody argues that knowledge of cooking transmitted orally, in a face-to-face context, tends to differ from written recipes in three respects:

> Firstly, it relies less on precise quantities, which tend to be specified exactly in the written recipe. Secondly, it tends to be less tied to specific ingredients; one can substitute… Thirdly, there is more flexibility with regard to procedure.[58]

Therefore, in an oral context, instead of using the word 'recipe', it would be more correct to talk about '*recettes de base*' (base recipes), which do not include prescriptive indications regarding quantities, ingredients and procedure. The *recette de base* is a starting point on which a cook can improvise, using the ingredients at his/her disposal.[59] Goody's conclusions about cooking could well be extended to medicine and magic in oral traditions. One could imagine magic and medicinal *recettes de base* upon which one could improvise, although the degree of improvisation might have been less than in the case of cooking, especially when poisonous drugs were involved.[60]

The notion of 'variation on the same theme' I have introduced earlier is particularly relevant to a discussion of orality. In some cases, these variations can be compared to the modifications brought, in oral traditions, to Goody's *recettes de base*; they probably would not be

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[57] On formulae, see Goody (1977) chapter 6; on recipes, see Goody (1977) chapter 7.

[58] Goody (1977) 141.

[59] Goody argues that the number of such *recettes de base* in oral societies is limited by two factors: the number of ingredients readily available, and the capacity of oral memory. As pointed out below, one should not make assumptions about the capacity of oral memory.

[60] There are only few references to poisonous drugs in the Hippocratic Corpus.

considered as distinct recipes in oral traditions. In oral traditions, small modifications to a *recette de base* would probably go unnoticed; but they become much more apparent once written down, once they become 'recipes'. On the other hand, the grammatical variations between parallel redactions of a recipe are better explained as the result of modifications brought to a written text.

A careful study of the written Hippocratic recipes may lead us to the conclusion that an oral tradition preceded their 'writing down', an oral tradition of *recettes de bases* on which one could elaborate; or in other words, a medical knowledge that could be adapted to the needs of the patients and to environmental conditions. On the other hand, it might be wrong to assume that the recipes in the Hippocratic treatises are the exact reflection of this oral tradition; these recipes were not composed orally in the form in which we know them. For a start, certain aspects of the oral transmission of medical knowledge, such as gestures, are never 'translated' into text form. In addition, the Hippocratic recipes are short formulae, which leave out a lot of information (about the quantities or the utensils to be used for instance) that would have been mentioned and/or discussed in the context of a face-to-face transmission.[61] Moreover, when medical knowledge is 'written down' in the form of recipes, it goes through a mould and becomes more formalised and schematic than when presented orally.

Further, Goltz argued that the format in which ancient recipes were collected—the catalogue format—made it unlikely that they were ever composed/transmitted orally.[62] She suggested that it would have been impossible to memorize long catalogues of recipes (or long catalogues of diseases) which, in contrast to the Homeric epics, offer no narrative as an aid for recollection.[63]

Although one should not make assumptions about the capacity of memory, anthropologists such as Goody and Jan Vansina have observed that lists are rare phenomena in oral societies.[64] Lists in oral societies tend to be short, and if they are not, 'backfeeding' from a written

[61] See pp. 242–244 for more detail on the elements of information that are not mentioned in the recipes.

[62] Goltz does not make the difference between oral composition and oral transmission.

[63] Goltz (1974) 304–305.

[64] See Lonie (1977a) 258, note 73 for a warning not to underestimate the capacity of oral memory. For an anthropological approach to lists, see Goody (1997) chapter 5; Vansina (1985) 179.

tradition may be suspected. For Goody, "list keeping is a habit of literate people":

> They <sc. lists> do not represent speech directly. Or rather they stand opposed to the continuity, the flux, the connectedness of the usual speech forms, that is, conversation, oratory, etc., and substitute an arrangement in which concepts, verbal items, are separated not only from the wider context in which speech always, or almost always, takes place, but separated too from one another.[65]

Paradoxically, lists, which are so removed from 'usual speech', seem to be among the first literary forms. The earliest written documents in Sumerian, Akkadian and Egyptian are lists, and Greek literature has preserved early examples of verse and prose lists. The list is a convenient way to systematize a large body of knowledge; the act of writing naturally leading to the constitution of catalogues.

The conclusions we have reached on the written character of the Hippocratic catalogues of recipes may appear compromised by the presence of many references to speaking in the nosological and gynaecological treatises of the Hippocratic Corpus. The verbs λέγω, φήμι, and εἴρω (I say) are used regularly in the gynaecological treatises, especially in the sections of *Diseases of Women* I that Hermann Grensemann has attributed to his authors C, as well as in the treatise *Barren Women* (layer D).[66] On the other hand, references to speaking very rarely occur in the earliest layers of Grensemann (layers A and B).[67] *Nature of Women*, which Grensemann believes to be the earliest treatise of the Hippocratic Collection, does not contain reference to orality, save in its introductory paragraph on the causes of female diseases. The author of this paragraph addresses his audience in the first person singular and claims that he is teaching ("I will start by teaching the healthy moisture").[68] However, it should be noted that this preamble to *Nature*

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[65] Goody (1977) 81.

[66] References to speaking in chapters attributed to layer C: *Mul.* 1.1: φημὶ (8.10.1; 12.6 L.); εἴρηται (8.10.7; 12.6 L.); *Mul.* 1.2: εἴρηται (8.18.18; 20.1 L.); *Mul.* 1.25: ἐρέω (8.64.12 L.); φημὶ (8.64.13 L.); *Mul.* 1.62: εἴρηται (8.126.5 L.); *Mul.* 1.72: εἴρηται (8.152.1 L.).

Layer D: *Steril.* 213: εἴρηται (8.408.2; 412.9 L.); φημὶ (8.408.4 L.); τῶν εἰρημένων (8.408.10; 412.2,12,19; 414.3 L.); εἰρήσεται (8.408.19 L.). On the use of these verbs in the Hippocratic Corpus, see Kollesch (1992) 339.

[67] *Mul.* 1.44 (layer A): εἴρηται (8.102.5 L.); *Mul.* 2.133 (layer B): εἴρηται (8.292.17 L.); κατὰ τὸν ἔμπροσθεν λόγον (8.302.2–3 L.). It should be noted that both these chapters include references to therapy.

[68] *Nat. Mul.* 1 (70.13–14 Trapp; 7.312.12–13 L.).

of Women might have been added to the treatise at a later date, and it should not therefore be used as a proof that this text was originally delivered as an oral lecture.[69]

Even if we accept that parts of the gynaecological treatises were originally delivered orally, I would suggest that the recipes included in these treatises were not part of the original lectures. References to speaking usually appear in chapters that contain no descriptions of therapies.[70] In addition, when references are made to medications, the verb γράφω and its compounds are used.[71] Recipes were probably added whilst authors were revising their lectures for 'publication'.[72]

In the case of the gynaecological treatises, references in the past tense ('as I have written…') refer to therapies described in chapters on individual diseases. For instance, in a chapter on the inflammation of the womb at *Diseases of Women* 2.154, it is recommended to follow the same diet as written in the case of the displacement of the womb

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[69] See Hanson (1971) 45–47 and 274; Langholf (2004) 231. On the other hand, some scholars believe that parts of the gynaecological treatises might have originated as oral medical lectures. See for instance Ilberg (1925) 23; Jouanna (1984) 32; Kollesch (1992) 339–342; Lonie (1981) 51. On the difficulty of determining which treatises were delivered orally, and which were composed directly in writing, see Jouanna (1984) 29–32

[70] References to speaking in chapters that do not include therapies: *Morb.* 2.3: εἴρηται (134.9 Jouanna; 7.10.11 L.); *Morb.* 2.4: εἴρηται (135.17 Jouanna; 7.12.7 L.); *Morb.* 3.1: εἴρηταί μοι (70.1 Potter; 7.118.1 L.); *Mul.* 1.1: φημὶ (8.10.1; 12.6 L.); εἴρηταί μοι (8.10.7; 12.6 L.); *Mul.* 1.2: εἴρηται (8.18.18; 20.1 L.); *Mul.* 1.25: ἐρέω (8.64.12 L.); φημὶ (8.64.13 L.); *Mul.* 1.62: εἴρηται (8.126.5 L.); *Mul.* 1.72: εἴρηται (8.152.1 L.); *Steril.* 213: εἴρηται (8.408.2; 412.9 L.); φημὶ (8.408.4 L.); τῶν εἰρημένων (8.408.10; 412.2,12,19; 414.3 L.); εἰρήσεται (8.408.19 L.); *Nat. Mul.* 1: λέγω (70.1 Trapp; 7.312.1 L.). See Kollesch (1992) 341; Lonie (1981) 51.

References to speaking in chapters that include therapies (these references to speaking are not related to the remedies themselves): *Mul.* 1.44: εἴρηταί μοι (8.102.5 L.); *Mul.* 2.133: εἴρηται (8.292.17 L.); κατὰ τὸν ἔμπροσθεν λόγον (8.302.2–3 L.). *Mul.* 2.133 also uses vocabulary referring to writing: τῶν προγεγραμμένων (8.298.10 L.); τὰ προγεγραμμένα (8.300.2 L.). *Mul.* 2.158 (8.336.2 and 7–11 L.) is the only recipe that includes an expression relating to speaking: Προσθέτοισι μαλθακοῖσι…Ἢ ἐκλέψας κόκκους πεντεκαίδεκα, ἔστω δὲ καὶ Ἰνδικοῦ ποσόν, ἢν δοκέῃ δεῖν, ἐν γάλακτι δὲ γυναικὸς κουροτρόφου τρίβειν, καὶ παραμίσγειν ἐλάφου μυελὸν καὶ τἄλλα ὁκόσα εἴρηται, καὶ μέλιτι ὀλίγῳ μίσγειν· τὸ δὲ εἴριον μαλθακὸν καθαρὸν ἔστω, καὶ προστίθεσθαι τὴν ἡμέρην. (With emollient pessaries…Or fifteen shelled <Cnidian?> berries, let there also be, if it seems necessary, a portion of Indian <remedy; i.e. pepper>; crush in the milk of a woman who has borne a boy. Add deer marrow and all the other <ingredients> mentioned; mix with a little honey. Let the wool be soft and clean; apply for the day.) Note also, that at the beginning of the same chapter, the expression ὡς εἴρηται is used to refer to the insertion of a lead probe. One had to read back to *Mul.* 2.133 (8.290.6–296.12 L.) to find a long description of this method.

[71] On the use of γράφω in the Hippocratic Corpus, see Usener (1990).

[72] See Thomas (2003) on 'publications' of oral lectures.

to the side: καὶ τὴν λινόζωστιν ἐσθιέτω, καὶ τὸ γάλα μεταπινέτω, ὡς ἐπὶ τοῦ πλευροῦ γέγραπται (And let her eat mercury and drink milk afterwards, as written <in the chapter on the displacement of the womb> to the side.)[73] Such recommendations are indeed found at *Diseases of Women* 2.131, a chapter on the displacement of the womb to the side.[74] On the other hand, references in the future tense ('as I will write…') refer to the catalogues of recipes located at the end of the treatises. For instance, at *Diseases of Women* 2.110 (a chapter on the white flux) the compiler recommends treating a flux with a remedy which he will expose later: πρωὶ μὲν διδόναι πρὸς τοὺς ῥόους φάρμακον πίνειν, ὧν ἂν ἐγὼ γράψω (Give to drink, in the morning, a remedy against fluxes, as I will write.)[75] A collection of remedies against fluxes is found at *Diseases of Women* 2.192.[76]

In the nosological treatise *Affections*, references to the now-lost *Pharmakitis* are always in the past tense. For instance, in a chapter on pains occurring during the summer, reference is made to the *Pharmakitis* in the following manner: διδόναι δὲ τοῖσι τὰ τοιαῦτα ἀλγήματα ἀλγέουσι καὶ τῶν φαρμάκων ἃ γέγραπται τῆς ὀδύνης παύοντα ἐν τῇ Φαρμακίτιδι. (Give to those suffering this kind of pains also, among the remedies prescribed in the *Pharmakitis*, those which stop the pain.)[77]

Hippocratic compilers refer to their descriptions of therapies and to their catalogues of recipes as written artefacts to be consulted by their readers; these compilers do not utter recipes, they write them down. Pharmacological knowledge was certainly transmitted orally in the ancient world, but not in the form of recipes; instead it was transmitted through apprenticeship, through training which involved the actual preparation of the drugs. Recipes are a written genre; they cannot be easily delivered orally as part of medical lectures.

The written format of the recipes is a cultural product that deserves to be studied from a linguistic point of view.

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[73] *Mul.* 2.154 (8.330.9–10 L.).
[74] *Mul.* 2.131 (8.278–280 L.).
[75] *Mul.* 2.110 (8.236.5–6 L.).
[76] *Mul.* 2.192 (8.370–374 L.).
[77] *Aff.* 15 (28.3–5 Potter; 6.224.6–8 L.).

Linguistic approaches to recipes and catalogues of recipes

Having outlined the problems posed by interpreting the Hippocratic recipes as the unbiased reflection of an oral tradition, I shall now present recipes and catalogues of recipes as written artefacts. I start at the level of the recipes and introduce recent studies on recipes as text types. I then turn to catalogues of recipes, basing myself on recent work on discourse colonies.

Recipes as text types

In general, the formal characteristics of ancient technical texts have been neglected by both historians and grammarians, as pointed out by Philip van der Eijk:

> <Ancient technical> writings have been studied almost exclusively with a view to their scientific or philosophical contents; their form was considered to be irrelevant to their interpretation and unimportant from a literary or linguistic point of view, since they were thought to lack any significant degree of linguistic or stylistic organization. [78]

However, recipes are—to a certain extent—an exception to this rule, having benefited from the thorough study of Goltz on Akkadian and Hippocratic *Rezepte* (*Studien zur altorientalischen und griechischen Heilkunde: Therapie—Arzneibereitung—Rezeptstruktur*, 1974). Insights into the formal characteristics of recipes are also offered by the studies of Ruth Caroll (1999), Manfred Görlach (1992), Jerry Stannard (1982), and Irma Taavitsainen (2001).

Goltz deplored the fact that recipes had not been the object of literary or historical studies despite the existence of the word *Rezeptliteratur* (recipe literature) in the German vocabulary.[79] Her book goes a long way towards the linguistic description of Mesopotamian and Hippocratic *Rezepte*, and to a lesser extent to their historical interpretation. The German word '*Rezept*' is not the exact equivalent of the English 'recipe' and may extend to the notion of 'prescription'. Goltz identifies four possible constitutive elements of each Greek *Rezept*: the 'indication' (*Indikation*), the 'therapy' (*Therapie/Rezeptur*), the 'application'

[78] Van der Eijk (1997) 80.
[79] Goltz (1974) 303.

(*Anwendung*), and the 'prognosis' (*Prognose*).[80] My study is limited to recipes in the English sense of the word, and does not include considerations on prognosis.

Stannard (1982) describes medieval recipes as containing six classes of *Fachinformation*: 1) the purpose of the recipe; 2) requisite ingredients and equipment; 3) rules of procedure; 4) application and administration; 5) rationale; and 6) incidental data. Most of these classes are found in the Hippocratic recipes which usually consist of 1) a heading that includes information on the purpose and/or on the type of medication the recipe is describing; 2) a list of requisite ingredients and sometimes the utensils involved in the preparation of the recipe; 3) rules of procedure; 4) indications for the application/administration; and 5) (rarely) incidental data.[81] The rationale for the efficacy of the medication is never expressed in the Hippocratic recipes.

Stannard considered medieval medicinal, culinary and *secreta* recipes as 'species' of *Fachliteratur*, "insofar as they have as their common aim the transmission of practically useful information."[82] The word 'species' chosen by Stannard is slightly awkward, and might reflect an uneasiness *vis-à-vis* the use of theory-laden words such as 'genre'.

The label 'text type'—a recent addition to the instrumentarium of linguistics—has been applied to recipes by Görlach, Caroll and Taavitsainen. The notion of 'text type' was constructed as an alternative to the notion of literary genres. Indeed, literary genres constitute only a small proportion of written texts, but have received more attention than texts such as telegrams, addresses of welcome, recipes or limericks, to mention only a few examples.[83] These neglected texts can be grouped under the label of text type, which Görlach defines as follows:

> A text type is a specific linguistic pattern in which formal/structural characteristics have been conventionalized in a specific culture for certain well-defined and standardized uses of languages so that a speaker/hearer or writer/reader can judge: a) the correct use of linguistic features obligatory or expected in a specific text type…; b) the adequate use of the formula with regard to topic, situation, addressee, medium, register, etc.; c) the

[80] Goltz (1974) 102.

[81] Incidental data will not be considered here. Barras (2003) 254–255; (2004) 96 enumerates three constants in the recipes of the Hippocratic Corpus: the purpose of the recipe; the ingredients; and the rules of procedures. He does not mention the information pertaining to the application/administration of the drug.

[82] Stannard (1982) 59.

[83] Görlach (1992) 737.

identification of intentionally or inadvertently mixed types, or their misuse; d) the designation of text type.[84]

In Görlach's definition, the most important features of the text type are linguistic features (a). All the other features—social features (b), technical features (c), and features relating to text type (d)—are secondary.[85] Other scholars have gone even further in considering that text types are defined by linguistic features only.[86]

Although the notion of text type was constructed in opposition to literary genres, Görlach notes that "a particular type of text can be included in the 'genre' column…if there is an established convention".[87] Taavitsainen, for instance, has argued that recipes constituted a genre, if a functional definition of genres is adopted.[88] The function of medical recipes is indeed clear and has remained stable over time: transmitting information for the preparation of remedies. In the following paragraphs, I describe the information contained in the Hippocratic recipes, focusing on their text type (linguistic) characteristics.

Purposes of the recipes and types of medications

Hippocratic recipes are introduced by a heading or rubric indicating the purpose of the remedy and/or the form in which the remedy has to be administered (pessary, drink, etc.).

The purpose of the recipe is generally expressed in a conditional clause of the type 'if this disease/problem arises':

> *Ἢν δὲ γυνὴ μὴ δύνηται τίκτειν πρόσθεν τίκτουσα*, νίτρον καὶ ῥητίνην καὶ σμύρναν καὶ κύμινον Αἰθιοπικὸν καὶ μύρον τρίβειν ἐν τωὐτῷ, καὶ προστίθεσθαι.[89]
>
> *If a woman who has borne a child previously cannot bear a child*: soda, resin, myrrh, Ethiopian cumin <sc. nigella>, and perfume; crush all together and apply.

[84] Görlach (1992) 738–739.

[85] See also Caroll (1999) 28. Görlach and Caroll retain eight linguistic features for the study of culinary and medical recipes in English: 1) form of the heading; 2) degree of ellipsis in sentences; 3) forms of verbs used; 4) use of possessive pronouns; 5) deletion of objects; 6) temporal sequence and adverbs; 7) complexity of sentences; and 8) loanwords or genteel diction.

[86] See Caroll (1999) 28.

[87] Görlach (1992) 739.

[88] Taavitsainen's work is based on Tzvetan Todorov's interpretation of genres.

[89] *Mul.* 1.75 (8.164.17–19 L.). The heading is indicated in italics in this example and those following. On these conditional clauses, see DiBenedetto (1986) chapter 4; Goltz (1974) 107 and 157.

The recipe immediately follows a conditional sentence briefly describing the ailment to be treated.

If the recipe is embedded in a nosological paragraph, this recipe is introduced by a phrase of the type 'when it is like this':

> Ἑτέρη κυνάγχη·… [description of the disease] *Ὅταν οὕτως ἔχῃ*, τρίψας μίνθην χλωρὴν καὶ σέλινον καὶ ὀρίγανον καὶ λίτρον καὶ τῆς ῥόου τῆς ἐρυθρῆς, μέλιτι διείς, παχὺ ποιέων, ἐσχρίειν τὴν γλῶσσαν ἔσωθεν ᾗ ἂν οἰδῇ.[90]
>
> Another sore throat… *When it is like that*, crush fresh mint, celery, oregano, soda, red sumach; soak with honey; make <the preparation> thick. Anoint the tongue inside where it is swollen.

The phrase introducing a recipe within a chapter on a particular disease may include a pronoun referring to the person to be treated. In the gynaecological treatises, this pronoun is generally a dative:

> Ἢν ῥόος ἐν τῇσι μήτρῃσιν ἐγγένηται, αἷμα ῥέει πολλὸν… [description of the disease] *Ταύτῃ, ὁκόταν ὧδε ἔχῃ*, ὄλυνθον ξηρὴν κόψας καὶ διασήσας ἐς ὀθόνιον ἐνδῆσαι καὶ προσθέσθαι.[91]
>
> If a flux occurs in the womb, blood flows abundantly… *For her, when it is like that*, chop a dry caprifig, sieve, tie into a cloth and apply.

On the other hand, in *Internal Affections*, this pronoun is generally an accusative:

> Ἢν δ' ἐρυσίπελας ἐν τῷ πλεύμονι… [description of the disease] *Τοῦτον, ὅταν οὕτως ἔχῃ*, ὧδε μελετᾶν· μίξας γάλα καὶ μέλι καὶ ὄξος καὶ ὕδωρ, ταῦτα ἐγχέας εἰς χυτρίδα…[92]
>
> If there is an *erysipelas* in the lung… *For him, when it is like that*, administer a treatment in this way: mix milk, honey, vinegar, and water; pour these in a pot…

Conditional rubrics of this type do not appear in later recipes; they are signs of the archaicity of the Hippocratic recipes. However, I argued earlier that these rubrics cannot be read as a 'sign of orality' of the Hippocratic recipes.

In other cases, Hippocratic recipes are introduced by a phrase describing the efficacy of the remedy in a more direct way, through an indicative clause or a noun phrase:

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[90] *Morb.* 2.28 (163.14–164.3 Jouanna; 7.46.1 and 3–6 L.).
[91] *Mul.* 2.112 (8.240.5 and 13–14 L.).
[92] *Int. Aff.* 6 (88.19–20 and 90.18–20 Potter; 7.180.3 and 19–21 L.). On the use of this formula see Goltz (1974) 111; Jouanna (1974) 288, note 1.

> Indicative clause: *Λοχεῖα καθαίρει·* ἐρύσιμον τρῖβε ἡσύχως, καὶ ἀναφυσᾶν θέλε τὸ κέλυφος… (*Purges the lochia*: crush gently hedge mustard, and remove the shell by blowing…)[93]
>
> Noun phrase: *Πειρητήριον·* μώλυζαν σκορόδου ἀποζέσας προσθεῖναι. (*Means of testing*: boil a head of garlic; apply.)[94]

Noun phrases are sometimes accompanied by a prepositional phrase describing the action of the medication:

> Ἕτερα μαλθακά, ὑφ' ὧν καθαίρεται ὕδωρ καὶ αἷμα, καὶ ἐπιμήνια ἄξει, εἰ μὴ πουλυχρόνια ᾖ, καὶ τὸ στόμα μαλθάσσει· [a list of pessaries follows].[95]
>
> Other softening <remedies> by which water and blood are purged, which draw the menses, if it <sc. their disappearance> is not ancient, and which soften the mouth.

When a catalogue includes several recipes for the same purpose, only the first recipe has a rubric; the following recipes are introduced by the conjunction ἢ (or), by the adjectives ἄλλον or ἕτερον (another), or by expressions such as τὸν αὐτὸν τρόπον (in the same way).[96]

The rubrics introducing the Hippocratic recipes sometimes indicate the form in which the remedy has to be administered, as in the following example:

> *Προσθετά·* σκορπίου θαλασσίου τὴν χολὴν ἐν εἰρίῳ τιθεὶς καὶ ξηρήνας ἐν σκιῇ προστίθει. (*Pessaries*: place the bile of the bullhead <litt. sea scorpion> in wool and dry in the shade; apply.)[97]

The Hippocratic treatises include recipes for oral medications, external medications, vaginal and rectal medications, and for 'vapour' medications.[98]

The largest number of recipes in the Hippocratic Corpus is for drinks (ποτόν, πότημα), which are often used as emetics. A thicker drink,

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[93] *Mul.* 1.78 (8.174.13–14 L.).

[94] *Mul.* 1.78 (8.178.14–15 L.). A medication can be: ἄδηκτον, χοληγόν, ψυκτικόν, κοῦφον, στρυφνόν, καθαρτήριον, καθαρτικόν, μαλθακτήριον, ὑστερικόν, οὐρητικόν, στυπτικόν, φάρμακον κάτω, φάρμακον ἄνω, ἐκβόλιον, ὠκυτόκιον, ἀτοκίον, κυητήριον, κατασπαστικόν, ὀφθαλμικόν. See Goltz (1974) 156; 160; 169–170.

[95] *Nat. Mul.* 32 (96.8–9 Trapp; 7.364.8–9 L.).

[96] On ways to separate recipes within a catalogue, see also pp. 228–229.

[97] *Mul.* 1.78 (8.178.17–18 L.).

[98] The different types of medications for which we have recipes in the Hippocratic Corpus are listed and well described by Goltz (1974) 197–237. I have also listed these different types of medications in the Appendix to this chapter (pp. 64–66).

made of barley flour to which are added other ingredients, the *kykeôn* (κυκεών), is also recommended, as is the soup (ῥόφημα, ῥύφημα). Some recipes for more substantial foods (ὄψον, σιτίον, σῖτος, δεῖπνον) are also included in the Corpus.

The electuary (ἐκλεικτόν, ἐλλεικτόν), pill (καταπότον), and gargle (ἀναγαργαρίστον) are also administered by mouth. The instillation (for which no name is given in the Corpus) is made through the nostrils, and the inhalation through the mouth and nose (ὁλκή). Some infusions (ἔγχυμα, ἔχυτον), fumigations (θυμίημα, θυμίησις) and 'enemas' (κλύσμα, κλυσμός) are administered through the mouth, but these three forms of medications are most often recommended in the treatment of uterine diseases, and are thus administered to the vagina, as are the fomentations (πυριά, πυρίημα, πυρίησις). The aim of a fumigation is to bring to a part of the body a dry smoke, whereas the aim of a fomentation is either to bring to a part of the body a wet and hot vapour or to put a part of the body in contact with a wet and warm cloth. However, the difference between the two techniques is far from being strict.[99]

Recipes for pessaries or vaginal applications (βάλανος, πρόσθετον, πρόσθεμα) are extremely common in the gynaecological treatises. The suppository is designated by the same words as the pessary, but differentiated by the orifice in which it is inserted (ἐς τὴν ἕδρην).

The ointment (ἄλειφα), plaster (ἔμπλαστον), cataplasm (κατάπλασμα, ἐπίπλασμα), and medical powder (ἔπαστον, ἐπίπαστον, παράπαστον) can be applied to all parts of the body. The affusion and bath (λουτρόν) are used most often to cleanse the head or the sexual parts. Finally a few recipes for drugs to be fastened to a part of the body (ἐπιδετόν) are found in the Hippocratic Corpus.

Requisite ingredients and utensils

The ingredients listed in the Hippocratic recipes are mainly vegetal, although mineral and animal ingredients are sometimes used.[100] Many of the ingredients are qualified with an adjective: adjective of colour, of odour, of taste, of age, of size, or of provenance.[101] Pieces of equip-

[99] See Gourevitch (1999), especially p. 208.

[100] For studies of particular ingredients in the Hippocratic Corpus, see Byl (1999): honey; Girard (1988); (1990): hellebore; Jouanna (1996): wine; Laskaris (2005): milk; López Salvá (1992): milk; Moisan (1990): narcotic plants; Villard (1992): earth; Villard (1997); (1999): wine in gynaecological treatises.

[101] On adjectives of odour, see Byl (1989); on adjectives of provenance, see Chapter Four.

ment necessary for the preparation or administration of the remedies are rarely mentioned in the Hippocratic recipes.[102]

The Hippocratic recipes are generally short, containing on average four to five ingredients, to which a vehicle is added (generally wine or water). Hippocratic recipes with more than six ingredients are extremely rare. Polypharmacy, i.e. the multiplication of the number of ingredients in compound drugs, only became a general trend in Greek medicine in the first century BC.[103]

If all the ingredients have to be accommodated in the same way, they are usually listed at the beginning of the recipe, linked by the conjunction καὶ (and) or in asyndeton:

> Linked by a conjunction: Ἢ ἀβροτόνου δραχμὴν καὶ κεδρίδας καὶ ἄννησον ἐντρίψας ἐν γλυκέος οἴνου κυάθῳ, παραχέας ὕδατος παλαιοῦ κύαθον, δὸς πιεῖν. (Or one *drachma* of wormwood, juniper berries, anise; crush in a *kyathos* of sweet wine, pour a *kyathos* of old water; give to drink.)[104]
>
> In asyndeton: Ἔναιμον· λιβανωτοῦ μοῖρα, σμύρνης μοῖρα, κηκίδος μοῖρα, κρόκου τρεῖς μοῖραι· τούτων ξηρὸν ἕκαστον τρίψαι ὡς λειότατον… (Stanching blood: one part of frankincense, one part of myrrh, one part of oak gall, three parts of saffron; crush each of these <ingredients> dry, as smooth as possible…)[105]

In the previous examples, as is usual, the name of the ingredients are in the accusative if no quantity is specified (e.g. κεδρίδας) and in the genitive if quantities are mentioned (e.g. λιβανωτοῦ μοῖρα).

If the ingredients have to be accommodated in different ways, the recipe assumes the form of short clauses, each describing the way in which ingredients have to be prepared, in chronological order:

> Μετὰ δὲ πινέτω ὀρίγανον καὶ γλήχωνα καὶ ἄλφιτον ἐν ὕδατι, ἐπιπάσσουσα δάφνης φύλλα κεκομμένα καὶ τετριμμένα λεῖα, κόμμι παραμίξας, καὶ διεὶς ὕδατι, πίνειν διδόναι.[106]

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[102] See pp. 233–238 for more details.

[103] Although Mantias (c. 165–90 BC), physician of the school of Herophilus, was referred to in antiquity as the first great writer on compound drugs (see von Staden [1989] 515–518), such remedies do not seem to have had much success before Aelius Gallus' expedition to Arabia (26–25 BC).

[104] *Mul.* 1.77 (8.170.11–12 L.)

[105] *Ulc.* 12 (61.7–9 Duminil; 6.414.6–8 L.). On the grammatical links between ingredients in recipes, see Goltz (1974) 175.

[106] *Steril.* 242 (8.456.12–14 L.)

> After this, let her drink oregano, pennyroyal, and barley meal in water, sprinkle with bay leaves chopped and well crushed, mix with gum, and soak with water; give to drink.

Choices of ingredients are often offered in Hippocratic recipes, indicating a sensibility to the problem of availability, as in this example where a choice between goat's or donkey's milk is offered:

> Σίδια δριμέα ἐκχυλώσας καὶ κυκλάμινον—ὅσον ὀξύβαφον τῶν σμικρῶν ἑκατέρου ἔστω—, ἔπειτα ὀπὸν σιλφίου τρίψας ὅσον κύαμον, διεῖναι καὶ συμμῖξαι γάλακτος ὅσον ὀξύβαφον αἴγειον ἢ ὄνειον, τοῦτο χλιερὸν ἐγχεῖν.[107]
>
> Squeeze out the juice of sharp pomegranate peels and cyclamen, let each be in the amount of a small *oxybaphon*. Then crush the juice of silphium, in the amount of a bean; soak, add goat's or donkey's milk in the amount of an *oxybaphon*; inject this lukewarm.

A variety of systems are used to express the quantities required for the preparation of the drugs. The main measure of capacity used is the κοτύλη, its subdivisions and multiples (κόγχη: half of a κύαθος; κυάθος: sixth part of the κοτύλη; ὀξυβάφον: fourth part of the κυάθος; χοῦς or χοεύς: twelve κοτύλαι). Other measures of capacity used are the χοῖνιξ (a dry measure, used especially for grains); the ἐμβάφιον (a measure equivalent to the ὀξύβαφον); the κύλιξ (wine cup used as a measure); the σκάφις (a drinking vessel used as a measure); and the χηραμίς (a scallop shell used as a measure).[108] The main measure of weight used is the δραχμά and its subdivisions (ὀβολός: one sixth of the δραχμή); but the λεκίσκον (small measure of weight), the στατήρ, and the σταθμός are also employed.[109] The measure of length used is the δάκτυλος (finger). Some of these weights and measures are accompanied by the geographical epithets Ἀττικός (Attic) or Αἰγιναῖος (Aeginetan), but most of the time the geographical epithet is not given.

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[107] *Morb.* 2.47b (180.7–10 Jouanna; 7.68.1–4 L.).

[108] Χοῖνιξ: see for instance *Nat. Mul.* 34 (102.2 Trapp; 7.376.2 L.); ἐμβάφιον: see for instance *Mul.* 1.75 (8.162.1 L.); κύλιξ: see for instance *Nat. Mul.* 63 (114.9 Trapp; 7.400.9 L.); σκάφις: see for instance *Morb.* 2.64 (203.14 Jouanna; 7.98.19 L.); χηραμίς: see for instance *Morb.* 3.16 (92.18 Potter; 7.150.5 L.).

[109] Λεκίσκον: see for instance *Mul.* 1.109 (8.232.17 L.); στατήρ: see for instance *Nat. Mul.* 32 (88.1 Trapp; 7.348.1 L.); σταθμός: see for instance *Nat. Mul.* 34 (100.9 Trapp; 7.372.9 L.).

The required volume of an ingredient could also be expressed in terms of pinches, or palms;[110] in terms of beans, vetches, galls, and olives;[111] or in terms of proportions.[112]

Sometimes, the part of the plant to use is specified (root, leaves, etc.). In any case, there is no attempt at standardization, and often no quantities are specified.[113]

Rules of procedure

The rules of procedure (i.e. the information on how to prepare the ingredients of a recipe) are usually spelled out in the Hippocratic recipes, even if they are extremely simple, as in the following examples:

> Καθαρτήριον ὑστερέων· τοῦ ῥοῦ τὰ φύλλα καὶ ἐρύσιμον λεῖα ποιήσας ἐν οἴνῳ, ἄλφιτα ἐπιβάλλων, δίδου πιεῖν.
> Ἕτερον· μίσυος ὅσον δύο ὀβολοὺς τρίψας ἐν οἴνῳ, φυρήσας προσθεῖναι.
> Ἕτερον· λίνου καρπὸν τρίψας ἐν οἴνῳ φυρήσας προσθεῖναι.
> Ἕτερον· τριφύλλου τὸν καρπὸν ἐν οἴνῳ πιεῖν δοῦναι.[114]
>
> Purgative of the womb: leaves of sumach and hedge mustard, crush well in wine, add barley meal; give to drink.
> Another: crush two *oboloi* of copper ore in wine, knead; apply.
> Another: crush linseed in wine, knead; apply.
> Another: seed of clover in wine; give to drink.

Although the last recipe in this list does not give any rules of procedure, it is implied that the seed of clover had to be prepared in the same way as the linseed of the previous recipe.

Ingredients in the Hippocratic recipes have to be dried (ξηραίνω, αὐαίνω), roasted (φώγω, φρύγω, ὀπτάω, καίω, κατακαίω), melted (τήκω), chopped (κόπτω), crushed (τρίβω, λειαίνω), ground (ἐρείκω,

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[110] Pinch, ὅσον τοῖσι τρισὶ δακτύλοισι (literally: with three fingers): see for instance *Mul.* 1.34 (8.80.22 L.); palm, ὅσον παλαιστήν: see for instance *Mul.* 1.80 (8.200.4 L.).

[111] Bean, ὅσον κύαμος: see for instance *Mul.* 1.46 (8.106.3 L.); bitter vetch, ὅσον ὄροβον: see for instance *Mul.* 1.74 (8.160.18 L.); oak gall, ὅσον κικίδα: see for instance *Mul.* 1.81 (8.202.11 L.); olive, ὅσον ἐλαίην: see for instance *Mul.* 1.91 (8.218.13 L.).

[112] See for instance *Nat. Mul.* 34 (101.9–11 Trapp; 7.374.9–11 L.): Ἐρεβίνθους λευκοὺς δύο τρίψας, τῆς δὲ σταφίδος τρίτον, ἐπιχέας ἥμισυ ὕδατος, ἐνεψεῖν, ἔπειτα ἀποχέας, ἐς τὴν αἰθρίην θεῖναι, καὶ τῇ ὑστεραίῃ δοῦναι πίειν. (Crush two parts of white chickpeas, a third of raisins, pour half a part of water on this, boil; then pour off, expose to the clear, cold air of the night, and give to drink the next day.)

[113] See pp. 238–242 for more detail.

[114] *Nat. Mul.* 32 (91.12–17 Trapp; 7.354.12–17 L.). The rules of procedures are underlined once and the application/administration verb is underlined twice in this example and those following.

ἀλέω), sifted (σήθω, κατασήθω, διασήθω, διαττάω), their juice has to be squeezed out (ἐκχυλίζω, χυλόω, ἐκθλίβω, ἐκπιέζω). These ingredients are mixed together (μίσγω, μείγνυμι, κεράω, κεράννυμι), a liquid vehicle is poured onto them (χέω, περιχέω, ἐπιχέω, παραχέω, ξυγχέω), or they are steeped in liquid (δεύω, ἀναδεύω, διΐημι, βρέχω, σβέννυμι). Semi-solid preparations are kneaded (φυράω). Liquid preparations are stirred (ἀναταράσσω, ἀνακινέω), boiled (ἕψω, ἀφέψω, συνέψω), heated up (ζέω, ἀναζέω), left to cool down (χλιαίνω, ἀναχλιαίνω, παραχλιαίνω), and filtered (ἠθέω, ἀπηθέω, διηθέω). The liquid that has served for boiling is sometimes completely poured off (ἀποχέω) and preparations are sometimes exposed to the cold air of the night (πρὸς τὴν αἰθρίην).[115]

One pervasive feature of the Hippocratic recipes (indeed most recipes in general) is that they are composed of short clauses organised in a sequence corresponding to the order in which the procedures have to be executed. Adverbs such as εἶτα and ἔπειτα (then) reinforce this feeling of 'experiential iconicity'.[116] The time necessary for some procedures is sometimes specified:

> Ἢν τὰ ἐπιμήνια μὴ γίνηται ἐν τῷ καθεστηκότι χρόνῳ, κράμβης πέταλα καὶ πήγανον τρίψας λεῖα, ἔπειτα ἄχυρα ἀπὸ τῶν κριθῶν ὅσον χοίνικα βρέξας ὡς ἂν τέγγηται, ἐξαιθρίασον· ἔωθεν δὲ ἀπηθήσας ὅσον κοτύλην, διεῖναι τὴν κράμβην καὶ τὸ πήγανον, ἔλαιον ἐπιχέας, ἀναταράξας δοῦναι πιεῖν.[117]
>
> If the menses do not occur at the fixed time: leaves of cabbage and rue; crush well. Then steep a *choinix* of barley chaff until it is wet; place in the clear, cold air of the night. In the morning filter the amount of one *kotylê* <of this preparation>. Soak the cabbage and the rue <with this>, pour oil, stir and give to drink.

From a grammatical point of view, the rules of procedures are expressed by verbs subordinate to the main verb of the recipe: the application/administration verb. These rules of procedures are expressed through a variety of grammatical forms: (1) imperatival infinitives,

[115] For a list of rules of procedure, see Goltz (1974) 179–194. For the vocabulary of boiling and roasting in the Hippocratic Corpus, see Tacchini (1999).

[116] See Taavitsainen (2001). Some therapies of the Hippocratic Corpus, however, are not presented in a sequence corresponding to the order in which the procedured have to be carried out. See the passage of *Mul.* 2.133 discussed pp. 233–235.

[117] *Nat. Mul.* 59 (113.7–11 Trapp; 7.398.7–11 L.). Temporal indications are marked by dashed underlining in this example.

(2) participles (mostly aorist) and, more rarely, (3) imperative second person singular.[118]

1. Imperatival infinitives: Ἡ δάφνης καὶ μυρσίνης φύλλα κόψαι καὶ κυπείρου καρπόν, ὀργάσασθαι Αἰγυπτίῳ λευκῷ μύρῳ καὶ νετώπῳ, καὶ ἐπὶ βολβίτῳ θυμία. (Or chop bay leaves and myrtle, and the seed of cyperus, moisten with Egyptian white perfume and oil of bitter almond; fumigate on cow's dung.)[119]
2. Participles: Ἢν ἀφθήσῃ τὰ αἰδοῖα, μύρτα ἑψήσας ἐν οἴνῳ διακλυζέσθω τὰ αἰδοῖα. (If the genitals are ulcerated: boil myrtle bays in wine; let her wash her genitals <with this preparation>.)[120]

   These participles are usually in the active voice, although participles in the middle voice are sometimes used, as in this example: Κλύσματα πρὸς τὰ παλαιὰ ἕλκεα· χυλῷ κράμβης ἑψημένης κλύζειν. (Injections against old ulcerations: boil the juice of cabbage; inject.)[121]

   When the administration/application verb is an imperatival infinitive, the procedure participles can be either in the nominative or, more rarely, in the accusative, as in the following example: Ὁκόταν ὧδε ἔχῃ, τῆς κυκλαμίνου χρὴ τρίψαντα καὶ ἁλὸς καὶ σύκου ὁμοῦ μίσγοντα καὶ ἀναποιοῦντα μέλιτι προστιθέναι. (When it is like that, it is necessary to crush some cyclamen, salt, and fig; mix together, mix up with honey, and apply as a pessary.)[122]

   The manuscripts of the gynaecological treatises sometimes have feminine participles, either in the nominative or in the accusative: Nominative: Διεκβόλιον, ἢν ἀποθάνῃ τὸ ἔμβρυον· χαλβάνης ὅσον ἐλαίην ἐνελίξασα ἐς ὀθόνιον, ἐς κέδριον ἐμβάψασα, προστιθέσθω πρὸς τὸ στόμα τῆς μήτρης. (Expulsive, if the embryo has died < inside the womb>: galbanum, in the amount of an olive; wrap in a cloth and soak in cedar oil. Let her apply it to the mouth of the womb.)[123]

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[118] On the forms of these verbs, see Jouanna (1983) 20, note 1; Goltz (1974) 177–179.

[119] *Mul.* 2.206 (8.398.17–19 L.). On the imperatival infinitive, see Gildersleeve (1902) 131; Goltz (1974) 113.

[120] *Nat. Mul.* 60 (113.15–16 Trapp; 7.398.15–16 L.).

[121] *Mul.* 1.78 (8.192.16–17 L.).

[122] *Nat. Mul.* 36 (103.24–104.2 Trapp; 7.378.24-380.3 L.)

[123] *Mul.* 1.91 (8.218.13–15 L.). See pp. 248–257 for more details on feminine participles.

Accusative: Ἐκβόλιον· σικύου ἀγρίου τὸν ὀπόν ὅσον πόσιν, ἐς μᾶζαν ἐμπάσασαν, προσθεῖναι, προνηστεύσασαν ἐπὶ δύο ἡμέρας. (Expulsive: juice of wild cucumber, one draught; knead into a dough. Apply after a fast of two days.)[124]

3. Imperative second person singular: imperatives are usually used in conjunction with participles, as in this example: Προσθετὸν ἄλλο καθαρτικόν, ἢν τὰ γυναικεῖα μὴ φαίνηται· στύρακα καὶ ὀρίγανον τρίψας λεῖον καὶ ξυμμίξας, ἐπίχεε χηνὸς ἔλαιον, καὶ προστίθει. (Other purgative pessary, if the menses do not appear: crush well styrax and oregano, mix, pour goose oil; apply.)[125]

There is a strong absence of any formulaic aspect in the use of these grammatical forms, which, it seems, can be used almost interchangeably, as in the following example, which has one imperatival infinitive, two participles (one masculine and one feminine), and one imperative second person singular:

> Ἐκβόλιον προσθετόν· ἅλας Αἰγυπτίους, καὶ μυόχοδα καὶ ἀγρίην κολοκύντην, καὶ μέλιτος ὅσον τεταρτημόριον ἐπιχεῖν ἡμίεφθον, καὶ λαβὼν ῥητίνης δραχμὴν μίην, ἔμβαλε ἐς τὸ μέλι καὶ τὴν κολοκύντην καὶ τὰ μυόχοδα, ξυντρίψασα πάντα καλῶς, καὶ ποιήσασα βαλάνους, πρὸς τὴν μήτρην προσθέσθω, ἕως ἂν δοκέῃ καιρὸς εἶναι.[126]
>
> Expelling pessary: Egyptian salt, mouse's dung, wild colocynth; pour a quarter of half-boiled honey. Take a *drachma* of resin; add it to the honey, the colocynth and the mouse's dung. Crush well all these, make pessaries; let her apply to the womb as long as it seems suitable.

Moreover, there are many grammatical variations in the manuscripts of the Hippocratic nosological and gynaecological treatises. As pointed out above, it is almost as if grammar did not matter much to those who copied the Hippocratic recipes.

Application and administration

The application/administration verb is often the only way to determine what is the purpose of a recipe. Thus, for instance, the verb θυμιάω will help the reader determine that he is dealing with a fumigation recipe, as contrasted to a recipe for a fomentation, for which the verb

[124] *Nat. Mul.* 95 (120.16–17 Trapp; 7.412.15–16 L.).
[125] *Mul.* 1.74 (8.156.18–20 L.).
[126] *Mul.* 1.78 (8.188.8–13 L.), also quoted by Goltz (1974) 178.

πυριάω would be used. The application/administration verbs used in the Hippocratic Corpus are listed in the Appendix to this chapter.

From a grammatical point of view, the application/administration verb is the main verb of the recipe.[127] This verb is usually found at the end of the recipe, providing us with an easy way to determine where the recipe stops:

> Προσθετόν· Αἰγυπτίην στυπτηρίην μαλαθακὴν εἰρίῳ περιειλήσασα προστιθέσθω. Πρόσθετον· ἀρτεμισίην τρίψασα ἐν οἴνῳ λευκῷ δεύσασα προστιθέσθω.[128]
>
> Pessary: soft Egyptian alum; let her wrap up in wool. Let her apply it. Pessary: crush wormwood, let her pour white wine; let her apply it.

To indicate where a recipe ended, and where another started, was particularly important in a writing system that hardly made use of punctuation.[129] Sometimes, however, the application verb is situated at the beginning of the recipe. This usually only happens in the case of recipes embedded in chapters on particular illnesses, as in this example taken from *Diseases of Women* 2.117, a chapter on the white flux:

> Ὑποκάπνιζε δὲ ζειὰς καὶ ὀλύνθους χειμερινοὺς καὶ ἐλαίης πέταλα καὶ ψώρας, καὶ σικύης λέμματα τρίτον μέρος, τὰ δ' ἄλλα ἴσον.[130]
>
> And fumigate emmer, winter caprifigs, leaves and gall of olive tree, one third of peeled rind of bottle gourd, for the rest the same amount.

In *Diseases* II and *Internal Affections* the application verb sometimes appears twice, once at the beginning, once at the end of the recipe:

> Τῆς δὲ ὀδύνης ἕνεκα τάδε χρὴ διδόναι πίνειν· ἀλεκτορίδος ᾠοῦ ἐφθοῦ τὸ ὠχρὸν τρίψας, παραχέαι στρύχνου χυλοῦ ἡμικοτύλιον, καὶ μελίκρητον ἐπιχέαι ἐν ὕδατι πεποιημένον ἥμισυ ἡμικοτύλιου, τούτοισι διεὶς διδόναι πίνειν, καὶ παύσεις τὴν ὀδύνην· διδόναι δὲ ἑκάστης ἡμέρης, τέως ἂν ἡ ὀδύνη παύσηται.[131]
>
> For the pain it is necessary to give this to drink: crush the yolk of a boiled fowl's egg, pour half a *kotylê* of juice of nightshade and add one quarter of a *kotylê* of *melikraton* mixed with water; let them stand and soak, give to drink and you will stop the pain. Give every day until the pain stops.

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[127] For a list of these verbs, see the Appendix to this chapter.

[128] *Superf.* 35 (94.24–26 Lienau; 8.506.8–10 L.). The application/administration verb is underlined twice in this example and those following.

[129] See p. 228 for more detail.

[130] *Mul.* 2.117 (8.254.1–2 L.).

[131] *Int. Aff.* 27 (166.9–15 Potter; 7.238.3–7 L.).

Times of applications and number of times of application are sometimes mentioned. In the gynaecological treatises, remedies are often applied or administered after a bath and/or whilst fasting:

> Ἄγει ἐξ ὑστερέων καὶ τὸ στόμα μαλθάσσει· νάρκισσος, κύμινον, σμύρνα, λιβανωτός, ἀψίνθιον, κύπειρος, αὐτὰ ταῦτα καθ' ἑωυτὰ καὶ ξὺν ῥοδίνῳ ἢ λευκῷ ἐλαίῳ, προσθέσθω δὲ λουσαμένη.[132]
>
> Brings <things> out of the womb and softens the mouth <of the womb>: narcissus, cumin, myrrh, frankincense, wormwood, cyperus; these <ingredients> mixed together and with rose oil or white oil; let her apply it after a bath.
>
> Ἄλλο· καρκίνους ποταμίους πέντε καὶ λαπάθου καὶ πηγάνου ῥίζαν, καὶ αἰθάλην ἀπὸ τοῦ ἰπνοῦ τρίψασα ὁμοῦ πάντα καὶ ἐνώσασα ἐν μελικρήτῳ, ὑπαίθριον θεῖσα, πινέτω νῆστις τρίς.[133]
>
> Another: five freshwater crabs, root of sorrel and rue, and soot from the oven; crush these together and mix in *melikraton*, place in the clear, cold air of the night; let her drink this three times whilst fasting.

As in the case of the instruction verbs of the Hippocratic recipes, the application verbs can assume different grammatical forms:[134]

1. Imperatival infinitive: Ἕτερον καθαρτικόν· κνίδης καρπὸν καὶ μαλάχης χυλὸν ἐν χηνὸς στέατι τρίψαντα προσθεῖναι. (Another purgative: seed of nettle and juice of mallow; crush in goose suet and apply.)[135]
2. Imperative second person singular: Ἢ ἀλήτου σητανίου ὀξύβαφον, κόμμεως λευκοῦ ἥμισυ, μάννης τρίτον μέρος, καὶ σχοίνου ὀλίγον, ἢ πίτυος, ἢ κυπαρίσσου διεὶς ὕδατι πίνειν δίδου δὶς τῆς ἡμέρης. (Or an *oxybaphon* of this year's flour, half <this quantity> of white gum, a third part of *manna* <sc. frankincense powder?>, and a little rush, or pine, or cypress; soak in water, give to drink twice a day.)[136]
3. Imperative third person singular: Ἢ γλήχωνα ξηρὴν ἐν ὀθονίῳ προστιθέσθω. (Or let her apply dried pennyroyal in a cloth.)[137]

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[132] *Mul.* 2.205 (8.394.14–16 L.).
[133] *Mul.* 1.91 (8.220.3–6 L.).
[134] See Jouanna (1983) 20–21.
[135] *Nat. Mul.* 109 (127.21–22 Trapp; 7.426.21–22 L.).
[136] *Mul.* 2.192 (8.372.2–4 L.).
[137] *Mul.* 1.75 (8.164.19–20 L.).

The first person is never used.[138] Verbs in the second person singular refer to actions to be performed by the reader according to the instructions of the compiler. Orders expressed in the imperative second person singular are also common in ancient culinary literature.[139] Verbs in the third person singular refer to actions to be performed by the patient according to the reader's orders; this patient is one step further removed from the compiler than is the reader.[140]

Conclusion

In conclusion, recipes in the Hippocratic Corpus are all built on the same principle: rubric, instructions for the preparation of ingredients, and instruction for the application/administration of the remedy. Instructions are generally given in the chronological order in which they are to be executed. Hippocratic recipes are constituted of short clauses, sometimes linked by the conjunction καί. These recipes are usually syntactically 'complete', i.e. there is no 'telegrammatic' style: Hippocratic recipes do not usually take the form of a list of ingredients.

A basic formulary is therefore recognizable in the Hippocratic recipes. However, within this formulary, different grammatical forms are used: different moods (infinitive, participle, imperative), tenses (present and past) and persons (second singular and third singular). In this respect, Hippocratic recipes differ from Akkadian recipes in which a strict grammatical formulary is applied.[141]

Catalogues of recipes as collections of fragments and as discourse colonies

Hippocratic recipes can be found in two settings: embedded in nosological descriptions or in catalogues of recipes. In both cases, a recipe is, to use Goltz's expression, a '*geschlossener Bericht*', a small unit whose meaning does not depend on adjacent units.[142] If a recipe is removed

[138] The first person singular is sometimes used in Babylonian cooking recipes. See Bottéro (1987). With regards to the Greek tradition, Galen often talks of his own pharmacological practice in the first person (singular or plural).
[139] See Degani (1990) 43.
[140] See Jouanna (1983) 20; Green (1989) 71.
[141] See Goltz (1974) 194.
[142] Goltz (1974) 305.

or added from a catalogue, or if it is replaced by another, the catalogue remains a catalogue.

Hanson argued that each recipe in a catalogue could be qualified as a medical fragment, "in the sense that its text can easily be excerpted from one context and inserted into another."[143] She adds:

> Catalog-format is easily shattered, but the constituent fragments can be set into new surroundings and other collections, maintaining a textual integrity which strongly suggests that these therapies and medicaments continued to meet the expectations of doctors and patients alike.[144]

Recently, linguists have started to examine such characteristics of catalogues. Michael Hoey (1986) grouped cookery books, shopping lists, classified ads, newspapers, dictionaries and directories under the denomination of 'discourse colony'. Discourse colonies, by opposition to 'mainstream written discourses', do not "take the form of continuous prose composed of complete sentences semantically related in respect of their lexis and the propositions they articulate".[145] To contrast discourse colonies with mainstream discourses, Hoey used the imagery of, on the one hand, the beehive or ant colony, and on the other, the human body. A mainstream discourse can be compared to a human body: the human body is made of interconnecting parts; if these parts are 'jumbled up', a human dies.[146] A discourse colony can be compared to a beehive or ant colony: a hive is composed of many bees that are not interconnected in a physical sense; if one bee dies, the beehive survives. However, in many ways, the hive functions as if it were a single individual. Hoey discerned nine characteristics of the discourse colony: 1) The component parts of a discourse colony do not derive their meaning from the sequence in which they are placed; 2) the adjacent units of a discourse colony do not form continuous prose; 3) a discourse colony needs a framing context which will provide conditions for the interpretation of the colony or alternatively provide a characterisation of the colony; 4) a discourse colony usually has either no named author or has multiple authors; 5) one may make use of a component of a discourse colony without referring to other components; 6) a component of a discourse colony

[143] Hanson (1997) 303.
[144] Hanson (1997) 304.
[145] Hoey (1986) 1.
[146] Hoey (1986) 3.

can join a new discourse colony; 7) discourse colonies may change over time; 8) many of a colony's components serve the same function in the colony; and 9) most discourse colonies make use of some form of arbitrary sequence (usually alphabetical or numerical).

The two first characteristics of the discourse colony are clearly discernible in the Hippocratic catalogues of recipes: within a catalogue, the recipes do not derive their meaning from the sequence in which they are placed, and the recipes following each other do not form continuous prose. With regard to the third characteristic, the catalogues of Hippocratic recipes usually have a title indicating which types of recipes are going to be listed. In addition, most of the Hippocratic treatises including catalogues of recipes have a *proemium*, in which the compiler declares his intentions.[147] With regard to the fourth characteristic, the recipes discussed are known to us under the name of Hippocrates, but it is unlikely that Hippocrates actually authored any of them. There is a strong possibility that these recipes, and the treatises in which they are embedded, were transmitted anonymously before being ascribed to the physician of Cos. Characteristics 5 to 8 of the discourse colony are fulfilled. A recipe in a Hippocratic catalogue could be used without reference being made to the other recipes of the catalogue. As the phenomenon of the 'parallel redactions' indicates, Hippocratic recipes could be excerpted from one context and inserted into another, and the Hippocratic catalogues seem to have evolved and changed over time. The last characteristic of the discourse colony is not always fulfilled in the case of the Hippocratic catalogues: the ordering of the catalogues at the end of the gynaecological treatises either follows the ordering of matters in the main text or a 'chronological order' (from conception to delivery), and the descriptions of diseases in the nosological treatises are usually classified *a capite ad calcem*. However, these ordering principles are not always followed, and within individual catalogues of recipes, organisational principles cannot be discerned.

Hoey suggested that discourse colonies arose in response to a 'reading strategy': "they are organised so as to allow the reader to select what he or she needs."[148] Ancient medical writers may have adopted the catalogue format because this was the best format for their readers

[147] *Mul.* II does not have such a proemium. None of the Hippocratic treatises in catalogue-format has a formal conclusion. See Hanson (1971) 269–270; Groningen (1960) 247–255; Roselli (2001).

[148] Hoey (1986) 23.

to absorb and retrieve information. I would also suggest that ancient medical writers chose the catalogue format because it was extremely flexible: recipes could be added or removed, and small catalogues could be collected together to form larger catalogues or treatises.

Appendix Types of medications and application/administration verbs

Type of medication	*Name of the medication in Greek*	*Number of recipes in the CH*	*Verbs of application*
Oral medications			
Drink	Ποτόν, τό, πότημα, τό	439	Πίνω, πιπίσκω, δίδωμι πίνειν, δίδωμι ἐκπιεῖν, δίδωμι μεταπιεῖν, δίδωμι καταπιεῖεν, παρέχω
Soup	Ῥόφημα, τό, ῥύφημα, τό	40	Ῥοφέω, ῥοφάνω, ῥυφάνω, προροφάνω, καταρυφάνω, ἐπιρυφάνω
Electuary	Ἐκλεικτόν, τό, ἐκλεικτικόν, τό, ἐλλεικτόν, τό	17	Ἐλλείχω, δίδωμι λείχειν, λείχειν
Something to eat	Ὄψον, τό, σιτίον, τό, σῖτος, ὁ, δεῖπνον, τό	11	Δειπνέω, ἐσθίω, δίδωμι ἐσθίειν, καταφαγεῖν, τρώγω, ψωμίζω
Kykeôn	Κυκεών, ὁ	4	Δίδωμι ἐσθίειν, διδώμι καταφαγεῖν, τρώγω
Gargle	Ἀναγαργάρισ-τον, τό	3	Ἀναγαργαρίζω

Appendix (*cont.*)

Type of medication	*Name of the medication in Greek*	*Number of recipes in the CH*	*Verbs of application*
Pill	Καταπότ(ι)ον, τό	2	Καταπίνω
Toothpaste	–	1	Τρίβω
External medications			
Ointment	Ἄλειφα, τό	77	Χρίω, διαχρίω, ἀποχρίω, ἐπιχρίω, ἀποσμήχω, ἐγχρίω, ἀλείφω, ἀναλείφω, ἐπαλείφω,διαλείφω
Cataplasm	Κατάπλασμα, τό, ἐπίπλασμα, τό	56	Καταπλάσσω, ἐπιπλάσσω, προσ-πλάσσω
Plaster	Ἔμπλαστ(ρ)ον, τό	32	Ἐμπλάσσω, ἐπιδέω, προσπλάσσω
Powder	Ἔπαστον, τό, ἐπίπαστον, τό, παράπαστον, τό	32	Ἐπίπασσω, ἐμπάσσω, καταπάσσω, παραπάσσω
Affusion, (sitz-)bath	Λουτρόν, τό	26	ἀπονίζω, διανίζω, ἐγκαθίζω, καθ-αίρω, κατανίζω, λούω, νίζω, περι-νίζω, περιπλύνω
Medicament to be fastened on/amulet	Ἐπιδετόν, τό	5	Ἐπιδέω, περιάπτω

Appendix (*cont.*)

Type of medication	*Name of the medication in Greek*	*Number of recipes in the CH*	*Verbs of application*
Instillation in the nostrils	_	1	Ἐνστάζω
Vaginal and rectal medications			
Pessary/vaginal application	Βάλανος, ἡ πρόσθετον, τό, πρόσθεμα, τό	422	Προστίθημι, πρόσκειμαι, προσάγω, ἐντίθημι, ἐμβάλλω, προσίσχω
Suppository		13	Ἐντίθημι, ἐνίημι (ἐς τὴν ἕδρην)
'Vapour' medications			
Fumigation	Θυμίημα, τό, θυμίησις, ἡ	92	Θυμιάω, ἀποθυμιάω, ἀποκαπνίζω
Fomentation	Πυριά/η, ἡ πυρίημα, τό, πυρίησις, ἡ	59	Πυριάω, ξυμπυριάω, προσπυριάω
Inhalation	Ὁλκή, ἡ	1	Ὁλκάζω
Liquid medications to be poured into the body (mouth, vagina or rectum)			
Enema	Κλύσμα, τό, κλυσμός, ὁ	200	Κλύζω, ἀποκλύζω, μετακλύζω, διακλύζω, προσκλύζω, ἐνίημι
Infusion	Ἔγχυμα, τό, ἔγχυτον, τό	24	Ἐγχέω
Total		*1554*[149]	

[149] I have counted 1551 recipes in the Corpus, but some recipes can be administered in two different ways. See p. 158 for an example of such a recipe.

CHAPTER TWO

THE HISTORY OF THE WRITTEN CATALOGUES OF RECIPES

Introduction

This chapter examines the ways in which written catalogues of recipes were composed and transmitted in classical Greece.

In the first part of this chapter, I identify short, self-contained collections of recipes within the Hippocratic gynaecological treatises. I argue that small collections of written recipes, comparable to those found on papyri and ostraca from Egypt, were available to the compilers of these treatises. In the second part of this chapter, I suggest that in the late fifth century BC or early fourth century BC, the compilers of the gynaecological treatises made a selection of these short catalogues and included them in their writings. Although the compilers of *Diseases of Women* and *Nature of Women* had the same material at their disposal, I suggest that they organised and structured it independently of each other.

I then ask when the production of small collections of written recipes may have started, taking into account the cultural reasons that might have encouraged physicians or healers to use writing.

In the fourth section of this chapter, I discuss whether the compiler of *Affections* was referring to a particular recipe book or to a tradition of several recipe books when he mentions the collection of remedies entitled *Pharmakitis* or *Ta Pharmaka*. I also reflect on the reasons for the disappearance of this/these treatise(s).

I conclude this chapter by examining the similarities between therapies described in the Hippocratic Corpus, on the one hand, and by authors active in the fourth century BC, on the other. I stress the fact that in addition to the rich written tradition of pharmacological writing studied in this chapter, there was also a thriving oral tradition.

The composition of the Hippocratic gynaecological collections of recipes

Identification of small collections of recipes within the Hippocratic gynaecological treatises

In Chapter One, I discussed the phenomenon of the parallel redactions of recipes in the gynaecological treatises. Together with Ann Hanson and Sybille Ihm, I considered these parallel redactions as an indication that written sources were available to the compilers of these treatises. However, I argued that no general conclusions for the composition of the gynaecologies could be drawn from the study of the parallel redactions of a single recipe.

In addition to parallel redactions of individual recipes, there are numerous examples of repetitions, in the same order, of series of recipes in different gynaecological treatises, as in the following example:[1]

A = *Nature of Women* 109 (125.23–126.11 Trapp; 7.422. 23–424.11 L.)	B = *Diseases of Women* 1.78 (8.174.16–176.8 L.)
1. Γυναικεῖα καθαρτήρια, ἢν μὴ πορεύηται ἡ κάθαρσις· λαβὼν σικύης ἐντεριώνην ὅσον τριώβολον καὶ ἀρτεμισίην ποίην καὶ λιβανωτοῦ ὀβολόν, τρίψας, ἐν μέλιτι μίξας, ἐς εἴριον ἐνελίξας, πρόσθες πρὸς τὸ στόμα τῆς μήτρης, ἅπαξ τῆς ἡμέρης πεντάκις τοῦτο ποιεῖν.	1. Ἢν μὴ κατίῃ ἡ κάθαρσις ἡ λοχείη, λαβὼν σικύης ἐντεριώνης ὅσον τριώβολον, καὶ ἀρτεμισίην ποίην, καὶ λιβανωτοῦ ὅσον ὀβολόν, τρίψας, ἐν μέλιτι μίξας, ἐς εἴριον ἐνειλίξας, πρόσθες πρὸς τὸ στόμα τῆς μήτρης, νυκτὸς ἀεὶ καὶ ἡμέρης, ἄχρις ἡμερέων πέντε τοῦτο ποιέειν.

[1] For ease of reference, I shall refer to these series as Series A and Series B respectively.

Table (*cont.*)

A = *Nature of Women* 109 (125.23–126.11 Trapp; 7.422.23–424.11 L.)	B = *Diseases of Women* 1.78 (8.174.16–176.8 L.)
Feminine purgatives if the purgation does not come: take the inside of a bottle gourd, in the amount of three *oboloi*, wormwood herb, and one *obolos* of frankincense; crush, mix with honey. Wrap in wool; apply to the mouth of the womb once a day. Do this for five days.	If the lochial purgation does not occur: take the inside of a bottle gourd, in the amount of three *oboloi*, wormwood herb, and frankincense, in the amount of one *obolos*; crush, mix with honey. Wrap in wool; apply to the mouth of the womb, day and night. Do this until five days have elapsed.
2. Ἕτερον· τὸ ἀμπέλιον τρίβων χλωρὸν ἐν μέλιτι, ἐς εἴριον ἐνελίξας, προστιθέναι τὸν αὐτὸν τρόπον.	2. Ἢ τὸ ἀμπέλιον τρίβειν χλωρόν, καὶ μέλιτι μίσγων, ἐς εἴριον ἐνειλίξας, προστιθέναι τὸν αὐτὸν τρόπον.
Another: crush fresh vine in honey; wrap in wool, apply in the same way.	Or crush fresh vine; mix with honey; wrap in wool, apply in the same way.
3. Ἕτερον· τῆς κυπαρίσσου τὸν καρπὸν καὶ λιβανωτὸν τρίψας ἐν τῷ αὐτῷ, ῥοδίνῳ μύρῳ διεὶς καὶ μέλιτι, ἐς εἴριον ἐνελίξας, προστιθέναι.	3. Ἢ τῆς κυπαρίσσου τὸν καρπὸν καὶ λιβανωτὸν τρίψας ἐν τῷ αὐτῷ, ῥοδίνῳ διεὶς καὶ μέλιτι, ἐς εἴριον ἐνειλίξας, προστιθέσθω.
Another: crush together seed of cypress and frankincense; soak with rose perfume and honey. Wrap in wool; apply.	Or crush together seed of cypress and frankincense; soak with rose <oil or perfume> and honey. Wrap in wool; let her apply it.

Table (*cont.*)

A = *Nature of Women* 109 (125.23–126.11 Trapp; 7.422.23–424.11 L.)	B = *Diseases of Women* 1.78 (8.174.16–176.8 L.)
4. Ἕτερον· ἀβροτόνου ὅσον τριώβολον τρίψας ἐν μέλιτι, ἐς εἴριον ἐνελίξας, προστιθέναι.	4. Ἢ ἀβρότονον ὅσον δραχμήν, καὶ σικύης ἐντεριώνην ὅσον ὀβολὸν τρίψας ἐν μέλιτι, ἐς εἴριον ἐνειλίξας, προστιθέναι.
Another: crush wormwood, in the amount of three *oboloi*, in honey. Wrap in wool; apply.	Or wormwood, in the amount of one *drachma*, the inside of a bottle gourd, in the amount of one *obolos*; crush in honey. Wrap in wool; apply.
5. Ἕτερον· ἐλατηρίου ὀβολὸν καὶ σμύρνης ὀβολὸν τρίψας ἐν μέλιτι, ἐς εἴριον ἐνελίξας, προστιθέναι.	5. Ἢ ἐλατηρίου ὀβολὸν καὶ σμύρνης τρίψας ἐν μέλιτι, ἐς εἴριον ἐνειλίξας, προστιθέσθω.
Another: one *obolos* of squirting cucumber and one *obolos* of myrrh; crush in honey. Wrap in wool; apply.	Or one *obolos* of squirting cucumber and myrrh; crush in honey. Wrap in wool; let her apply it.
6. Ἕτερον· κυπαρίσσου τὸν καρπὸν καὶ σικυώνης ἐντεριώνην καὶ λιβανωτὸν τρίψας ἐν τῷ αὐτῷ μέλιτι, ἐνελίξας ἐν εἰρίῳ, πρόσθες τὸν αὐτὸν τρόπον.	6. Ἢ κυπαρίσσου καρπὸν καὶ σικύης ἐντεριώνην καὶ λιβανωτὸν μέλιτι μίξας, ἐν εἰρίῳ προστιθέσθω.
Another: seed of cypress, inside of a gourd and frankincense; crush together in honey. Wrap in wool; apply in the same way.	Or seed of cypress, inside of a bottle gourd and frankincense; mix with honey. Let her apply it in wool.

The similarities between these two series of recipes are very pronounced. On the other hand, there are small variations between the versions of the individual recipes.[2] For instance, A4 has three *oboloi* of wormwood, and honey; whereas B4 has one *drachma* of wormwood, one *obolos* of cucumber, and honey. In addition, A5 recommends using one *obolos* of squirting cucumber and one *obolos* of myrrh; whereas B5 specifies that one *obolos* of squirting cucumber be used, but is silent on the quantities of myrrh required. There are also several grammatical differences between the versions of the individual recipes; but, as suggested in Chapter One, these differences are not significant.

Both series are introduced by a similar title (A: Γυναικεῖα καθαρτήρια, ἢν μὴ πορεύηται ἡ κάθαρσις; B: Ἢν μὴ κατίῃ ἡ κάθαρσις ἡ λοχείη). Series B is followed by a series of recipes for a similar purpose, introduced by the title Καθαρτήριον, ἢν ἐκ τόκου μὴ καθαρθῇ (purgative if she does not purge herself after childbirth),[3] whereas series A is followed by a series of recipes for a slightly different purpose, introduced by the title Ἢν γυνὴ μὴ κυΐσκηται, καθαρτήριον (purgative if a woman cannot bear children).[4] In other words, Series A and B are parallel redactions of a self-contained collection of recipes. The parallel redactions of self-contained collections of recipes within the Hippocratic gynaecological treatises point to the existence of smaller catalogues that were later absorbed within the treatises.

Small catalogues could include recipes for a series of different purposes, organised by type of medication, as in the following example:[5]

[2] In Littré's edition, there are variations in the order of the recipes: A6 is placed in third position, between the recipe with vine and honey (A2) and the recipe with cypress, frankincense, rose oil and honey (A3).

[3] *Mul.* 1.78 (8.176.8 L.).

[4] *Nat. Mul.* 109 (126.11 Trapp; 7.424.11 L.).

[5] For ease of reference, I shall refer to these series of recipes as Series C and Series D respectively.

C = *Nature of Women* 95, 96 and 97 (120.16–121.9 Trapp with small changes by Andò 186–188; 7.412.15–414.9 L.)	D = *Diseases of Women* 1.78 (8.178.12–180.1 L.)
1. Ἐκβόλιον· σικύου ἀγρίου τὸν ὀπὸν ὅσον πόσιν, ἐς μᾶζαν ἐμπάσασαν, προσθεῖναι, προνηστεύσασαν ἐπὶ δύο ἡμέρας.	1. Ἐκβόλιον ὑστέρων· σικύου ἀγρίου τὸν ὀπὸν ὅσον ποιεῖν ὡς μαζίον ἐμπλάσασα προστιθέναι, προνηστεύσασα ἐπὶ δύο ἡμέρας, οὐκ ἂν εὕροις τούτου ἄμεινον.
Expulsive: the juice of wild cucumber <sc. squirting cucumber>, in the amount of a potion; sprinkle into a dough. Apply having fasted for two days.	Expulsive from the womb: the juice of wild cucumber <sc. squirting cucumber>, enough to make as it were a little cake; apply as a plaster, having fasted for two days. You will not find anything better.[6]
2. Πειρητήριον· μώλυζαν σκορόδου ἀποζέσας, προσθεῖναι πρὸς τὰς μήτρας· τῇ δὲ ὑστεραίῃ τὸν δάκτυλον ἐσαφάσσουσα σκοπείτω, καὶ ἢν μὲν ὄζῃ τὸ στόμα· εἰ δὲ μή, πάλιν προστιθέναι.	2. Πειρητήριον· μώλυζαν σκορόδου ἀποζέσας προσθεῖναι.
Test: boil a head of garlic, apply to the womb. The next day, let her examine herself with her finger, and <see> if the mouth smells; if not, apply again.	Test: boil a head of garlic; apply.
3. Πειρητήριον· νέτωπον ὀλίγον ἐν εἰρίῳ εἰλίξας, καὶ ὀρῆν, ὅθεν ἂν τοῦ στόματος ὄζῃ.	3. Ἕτερον πειρητήριον· νέτωπον ὀλίγον εἰρίῳ ἐνελίξας προσθεῖναι, καὶ ὀρῆν ἢν διὰ τοῦ στόματος ὄζῃ.

[6] For more details on this recipe and on the use of the expression οὐκ ἂν εὕροις τούτου ἄμεινον (unique in the Hippocratic Corpus), see p. 218.

Table (*cont.*)

C = *Nature of Women* 95, 96 and 97 (120.16–121.9 Trapp with small changes by Andò 186–188; 7.412.15–414.9 L.)	D = *Diseases of Women* 1.78 (8.178.12–180.1 L.)
Test: wrap a little oil of bitter almond in wool, and see whether the mouth smells.	Another test: wrap a little oil of bitter almond in wool; apply and see whether it smells through the mouth.
4. Προσθετά· σκορπίου θαλασσίου τὴν χολὴν ἐς εἴριον εἰλίξας καὶ ξηρήνας ἐν σκιᾷ, προστίθει.	4. Προσθετά· σκορπίου θαλασσίου τὴν χολὴν ἐν εἰρίῳ τιθεὶς καὶ ξηρήνας ἐν σκιῇ προστίθει.
Pessaries: wrap the bile of bullhead in wool and dry in the shade; apply.	Pessaries: place the bile of bullhead in wool and dry in the shade; apply.
5. Ἕτερον· γλήχωνα ξηρήν, λείην ποιήσας, μέλιτι δεύσας, ἐν εἰρίῳ προστίθει.	5. Ἢ γλήχωνα ξηρήνας, λείην ποιήσας, ἐν μέλιτι δεύσας, ἐν εἰρίῳ προστιθέναι.
Another: crush well dry pennyroyal, soak in honey; apply in wool.	Or dry pennyroyal; crush well, soak in honey; apply in wool.
	6. Ἢ ἄνθος χαλκοῦ ἐν μέλιτι ἐς ὀθόνιον ἐνδήσας προσθεῖναι.
	Or flower of copper in honey; bind in a cloth; apply.
6. Ἕτερον· σικύου σπέρμα καὶ ὄστρακον κατακαύσας, οἴνῳ δεύσας, ἐν λαγωῇσι θριξὶ καὶ ἐν εἰρίῳ προσθεῖναι.	7. Ἢ σικύου σπέρμα καὶ ὄστρακον κατακαύσας, ἐν οἴνῳ τε δεύσας, ἐν λαγωῇσι θριξὶν ἢ εἰρίῳ προστιθέναι.
Another: seed of cucumber and burnt potsherd; soak with wine. Apply in hare's fur and in wool.	Or seed of cucumber and burnt potsherd; soak with wine. Apply in hare's fur or in wool.

Table (*cont.*)

C = *Nature of Women* 95, 96 and 97 (120.16–121.9 Trapp with small changes by Andò 186–188; 7.412.15–414.9 L.)	D = *Diseases of Women* 1.78 (8.178.12–180.1 L.)
7. Ἕτερον· στυπτηρίην Αἰγυπτίην εἰρίῳ καθελίξας, προστίθει.	8. Ἄλλο προσθετόν· στυπτηρίην Αἰγυπτίην ἐν εἰρίῳ κατελίξας προσθεῖναι
Another: wrap Egyptian alum in wool; apply.	Another pessary: wrap Egyptian alum in wool; apply.

Series C and D are parallel redactions of a catalogue of pessaries including a recipe for an expulsive drug, two recipes for conception tests, and pessary recipes for which a purpose is not specified. (Series C and D have several other pessary recipes in common, which for reasons of space I have not included here.)[7] Series C is followed by a drink recipe to prevent a woman from becoming pregant;[8] whereas Series D is followed by recipes for expulsive drinks.[9]

In modern editions, Series C is divided into three chapters: *Nature of Women* 95, 96 and 97; whereas Series D is part of the longest chapter of *Diseases of Women* I: chapter 78. Thus, at times, the ways in which our modern editions are divided into chapters conceal the existence of small self-contained collections of recipes within these chapters.

When three—or more—parallel redactions of small collections exist, it becomes possible to draw *stemmata,* as in the following example:[10]

[7] *Nat. Mul.* 97 (121.10–19 Trapp; 7.414.9–19 L.) = *Mul.* 1.78 (180.1–15 L.).
[8] *Nat. Mul.* 98 (121.20–21 Trapp; 7.414.20–21 L.).
[9] *Mul.* 1.78 (180.15–182.13 L.).
[10] For ease of reference, I shall refer to these series of recipes as Series E, F and G respectively. Series E and F have 14 further injection recipes in common.

E = *Nat.Mul.* 33 (97.16–98.6 Trapp; 7.366.16–368.6 L.)	F = *Mul.* 1.78 (8.192.16–194.4 L.)	G = *Mul.* 2.209 (8.404.7–404.19 L.)
1. Ἕτερον· πράσα ἑψήσας ἐν ὕδατι, ἀκτῆς καρπόν, ἄννησον, λιβανωτόν, σμύρναν, οἶνον, τῷ χυμῷ τουτέων κλύζειν.		1. Ἕτερος κλυσμός, ἢν περιωδυνίη καὶ στραγγουρίη ἔχῃ· πράσου χυλόν, ἀκτῆς καρπόν, σέσελι, ἄννησον, λιβανωτόν, σμύρναν, οἶνον, χύλωσον καὶ μῖξον καὶ κλύσαι.
Another: boil leeks in water, elderberry, anise, frankincense, myrrh, and wine; inject their juice.		Another injection, if there is excessive pain and strangury: juice of leek, elderberry, hartwort, anise, frankincense, myrrh and wine; express their juice, mix and inject.
2. Ἕτερον· κράμβην ἑψήσας ἐν ὕδατι, ἐν τῷ χυμῷ τῆς κράμβης ἔψε τὴν λινόζωστιν, παρεμβάλλων λίνου σπέρμα μικρόν· ἔπειτα ἀποχέας κλύζε.	1. Κλύσματα πρὸς τὰ παλαιὰ ἕλκεα· χυλῷ κράμβης ἑψημένης κλύζειν· καὶ λινόζωστιν ὁμοίως· καὶ νίτρον παράμισγε ἐρυθρὸν ὀλίγον.	
Another: boil cabbage in water. In the juice of the cabbage boil mercury; add a little linseed. Then filter off and inject.	Injections against old ulcerations: inject the juice of boiled cabbage. And similarly with mercury. And add a little red soda.	

Table (*cont.*)

E = *Nat.Mul.* 33 (97.16–98.6 Trapp; 7.366.16–368.6 L.)	F = *Mul.* 1.78 (8.192.16–194.4 L.)	G = *Mul.* 2.209 (8.404.7–404.19 L.)
3. Ἕτερον· σμύρνης ὅσον ὀξύβαφον, λιβανωτόν, σέσελι, ἄννησον, λίνου σπέρμα, νέτωπον, ῥητίνην, μέλι, χηνὸς ἔλαιον, ὄξος λευκόν, τὸ Αἰγύπτιον, τουτέων ἑκάστου τὸ ἴσον τρίψας, διεῖναι οἴνου λευκοῦ κοτύλαις δυσίν· ἔπειτα χλιερῷ κλύζειν.	2. Σμύρνης ὀξύβαφον, λιβανωτόν, σέσελι, ἄννησον, σελίνου σπέρμα, νέτωπον, ῥητίνην, μέλι, χήνειον στέαρ, ὄξος τὸ λευκόν, μύρον τὸ λευκὸν Αἰγύπτιον, ἐν τωὐτῷ τρίβειν ἴσον ἑκάστου λεῖα, εἶτα οἴνῳ διεὶς λευκῷ κοτύλῃσι δυσὶ· χλιηρῶς κλύζειν.	2. Ἢ σμύρνης ὀξύβαφον, λιβανωτοῦ ἴσον, μελανθίου καὶ κυπείρου ἴσον, σέσελι, ἄννησον, σελίνου σπέρμα, νέτωπον, μέλι, ῥητίνην, χηνὸς στέαρ, ὄξος λευκόν, μύρον Αἰγύπτιον, τούτων ἴσον ἑκάστου διεῖναι οἴνῳ λευκῷ γλυκεῖ καὶ κλύζειν.
Another: Myrrh, in the amount of an *oxybaphon*, frankincense, hartwort, anise, linseed, oil of bitter almond, resin, honey, goose oil, white vinegar, the Egyptian <perfume?>; of each crush the same amount. Soak with two *kotylai* of white wine; then inject lukewarm.	An *oxybaphon* of myrrh, frankincense, hartwort, anise, celery seed, oil of bitter almond, resin, honey, goose suet, white vinegar, white Egyptian perfume; crush well together the same amount of each. Then soak with two *kotylai* of white wine; inject lukewarm.	Or an *oxybaphon* of myrrh, the same amount of frankincense, the same amount of love-in-a-mist and cyperus, hartwort, anise, celery seed, oil of bitter almond, honey, resin, goose suet, white vinegar, Egyptian perfume, of each the same amount; soak with sweet white wine and inject.

Table (*cont.*)

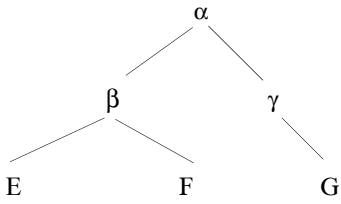
E = *Nat.Mul.* 33 (97.16–98.6 Trapp; 7.366.16–368.6 L.)	F = *Mul.* 1.78 (8.192.16–194.4 L.)	G = *Mul.* 2.209 (8.404.7–404.19 L.)
4. Ἕτερον· λινόζωστιν ἐν ὕδατι ἑψήσας, ἀπηθήσας, σμύρνης ὀξύβαφον, λιβανωτοῦ, νετώπου, ἴσον ἑκάστου μίξας, χλιερῷ κλύζειν.	3. Ἢ λινόζωστιν ἑψεῖν ἐν ὕδατι καὶ ἀπηθεῖν. Ἢ σμύρνης ὀξύβαφον, λιβανωτόν, σέσελι, νέτωπον, ἴσον ἑκάστου, χλιαρῷ κλύζειν.	3. Ἢ λινοζώστιος ὕδωρ ἀφεψήσας ξὺν σμύρνῃ, λιβανωτῷ, νετώπῳ.
Another: boil mercury in water; filter off. Having mixed in an *oxybaphon* of myrrh, frankincense, oil of bitter almond, of each the same amount; inject lukewarm.	Or boil mercury in water and filter off. Or an *oxybaphon* of myrrh, frankincense, hartwort, oil of bitter almond, of each the same amount; inject lukewarm.	Or boil down water of mercury; <inject> with myrrh, frankincense, and oil of bitter almond.
5. Ἕτερον· ἐλελίσφακον καὶ ὑπερικὸν ἐν ὕδατι ἑψήσας, τῷ ὕδατι κλύζε.	4. Ἢ ἐλελίσφακον καὶ ὑπερικόν, ἐν ὕδατι ἑψήσας, κλύζειν τῷ ὕδατι.	4. Ἢ ἐλελίσφακον, ὑπερικόν, ἑψεῖν ἐν ὕδατι καὶ κλύζειν.
Another: boil sage and St John's wort in water; inject the water.	Or boil sage and St John's wort in water; inject the water.	Or boil sage and St John's wort in water and inject.
		5. Ἢ λίνου καρπόν, ἄννησον, μελάνθιον, σέσελι, σμύρναν, κασσίης καρπὸν ἐν οἴνῳ ἑψεῖν καὶ κλύζειν.
		Or linseed, anise, love-in-a-mist, hartwort, myrrh, seed of cassia; boil in wine and inject.

Table (*cont.*)

E = *Nat.Mul.* 33 (97.16–98.6 Trapp; 7.366.16–368.6 L.)	F = *Mul.* 1.78 (8.192.16–194.4 L.)	G = *Mul.* 2.209 (8.404.7–404.19 L.)
6. Ἕτερον· ἀκτῆς καρπόν, δαφνίδας, ἑκατέρου τὸ ἴσον, ἐν οἴνῳ ἕψε, ἔπειτα τῷ οἴνῳ κλύζε.	5. Ἢ ἀκτῆς καρπὸν καὶ δαφνίδας ἑκατέρων ἐξ ἴσου ἕψε ἐν οἴνῳ, εἶτα τῷ οἴνῳ κλύζε.	6. Ἕτερος κλυσμός, ἢν ὀδύνη ἴσχῃ σφοδρὴ μετὰ κάθαρσιν· ἀκτῆς καρπὸν καὶ δαφνίδας ἑψεῖν ἐν οἴνῳ μέλανι καὶ κλύσαι.
Another: elderberry, bayberries, of each the same amount; boil in wine. Then inject the wine.	Or elderberry and bayberries; boil the same amount of each in wine. Then inject the wine.	Another injection, if a violent pain takes hold <of her> after the purgation: boil elderberry and bayberries in red wine and inject.

Although the recipe with leeks (E1=G1) is not present in Series F, Series E and Series F are generally closer to each other than they are to Series G. For instance, the recipe with cabbage and mercury (E2=F2) is not present in Series G; recipe G2 has two more ingredients than its parallels (E3 and F3): love-in-a-mist (*melanthion*) and cyperus. In addition, E4 and F3 specify that the ingredients have to be used in the same quantity and injected lukewarm; these specifications are not found in G3. Series G sometimes specifies the colour or sweetness of the wine to be used, while Series E and Series F are silent (see E3=F2=G2; E6=F5=G6). Furthermore, Series G has a recipe that is not present in the two other series (G5): this recipe may have been part of the model for these three redactions but omitted in Series E and F; it may have been added to this model by the compiler of Series G; or it may have been present in an intermediary copy. One could draw a *stemma* (p. 79) for the transmission of this series of recipes.

As I have noted in Chapter One, *stemmata* can sometimes be useful for understanding the transmission of individual recipes or catalogues of recipes, but they do not necessarily reflect the history of the gynaecological treatises in their entirety.



Nat. Mul. 33 *Mul.* 1.78 *Mul.* 2.209

This conclusion is reinforced by the fact that small catalogues of recipes are sometimes repeated twice in the same treatise, as in the following example:[11]

H = *Diseases of Women* 2.158 (8.336.2 and 12–21 L.)	J = *Diseases of Women* 2.205 (8.392.17–394.5 L.)
1. Προσθέτοισι μαλθακοῖσι…Ἄριστον δὲ ὠοῦ τὸ πυρρὸν καὶ αἰγὸς στέαρ καὶ μέλι καὶ ἔλαιον ῥόδινον, τουτέοισιν ἀναφυρῆν, παραχλιαίνειν δὲ παρὰ τὸ πῦρ καὶ τὸ ἀποστάζον εἰρίῳ ξυλλέγειν καὶ προστιθέναι.	1. Μαλθακτήρια ὑστέρης· ὄϊος στέαρ, ὠῶν λέκιθος, μέλι, ἔλαιον ῥόδινον, τούτοισιν ἀναφυρήσας ἄλητα, παραχλιαίνειν ἐν πυρὶ μαλθακῷ, τὸ ἀποσταζόμενον ἐς εἴριον ἀναμαλάσσειν, καὶ προστιθέναι.
With softening pessaries…Excellent: egg yolk, goat suet, honey, rose oil; mix these, warm slightly over a fire, and collect the drops onto wool and apply.	Softening <remedies> for the womb: sheep suet, egg yolks, honey, rose oil; mix these with flour, heat up on a slow fire, soften thoroughly the drops onto wool and apply.
2. Ἢ στέαρ ἐρυθρὸν τὸ ἡδυντὸν χηνός, μύρον ῥόδινον, ταῦτα ξυμμίσγειν, καὶ προστιθέναι εἴριον ἀναδεύσασα.	2. Ἢ στέαρ ἡδυντὸν τὸ ἐρυθρόν, χηνὸς ἄλειφα, ῥοδίνον ἔλαιον, ξυντήξας καὶ ἐς εἴριον ἀναφυρήσας, προσθεῖναι.
Or seasoned red goose suet, rose perfume; mix these, and having soaked wool <with these>, apply.	Or seasoned red suet, goose oil, rose oil; melt these together and mix onto wool; apply.

[11] For ease of reference, I shall refer to these series as Series H and J respectively. See also the example of the cantharid recipe examined pp. 30–33, which is repeated three times in *Mul.* I (twice in *Mul.* 1.78 and once in *Mul.* 1.84).

Table (*cont.*)

H = *Diseases of Women* 2.158 (8.336.2 and 12–21 L.)	J = *Diseases of Women* 2.205 (8.392.17–394.5 L.)
3. Ἄμεινον δὲ χηνὸς ἔλαιον, ἢ ὄϊος στέαρ, κηρὸς λευκός, ῥητίνη, νέτωπον, ἔλαιον ῥόδινον, ταῦτα ὁμοῦ τῆξαι καὶ μῖξαι· λουσαμένη δὲ προστιθέσθω χλιερὰ εἴσω πρὸς τὸ στόμα τῶν ὑστερέων.	3. Χηνὸς ἄλειφα ἢ μήλειον στέαρ, κηρὸν λευκόν, νέτωπον, ῥόδινον ἔλαιον, ὡς ἄριστα ταῦτα ἀναμὶξ ποιέειν, καὶ ῥάκεα ἐγκατατίλλειν λεπτά, καὶ αὐτίκα λουσαμένη, προστιθέσθω χλιαρὰ πρὸς τὸ στόμα.
Better: goose oil, or sheep suet, white wax, resin, oil of bitter almond, rose oil; melt these together and mix. Having bathed herself, let her apply these lukewarm inside, to the mouth of the womb.	Goose oil or sheep suet, white wax, oil of bitter almond, rose oil, all of these as good as possible; mix well. Shred strips of cloths finely, and immediately after having bathed herself, let her apply these lukewarm to the mouth <of the womb>.
4. Ἢ ἐλάφου μυελὸν καὶ στέαρ χηνὸς τήξας ῥοδίνῳ ἢ ἰρίνῳ ἐλαίῳ ἀναφυρῆν· εἴριον δὲ μαλθακὸν ἄγαν προστιθέναι.	4. Ἢ ἐλάφου μυελὸν καὶ στέαρ τῆξαι ἐν ῥοδίνῳ ἐλαίῳ ἀναφορύξασα εἴριον μαλθακόν, προστιθέσθω.
Or melt deer marrow and goose suet; mix with rose or iris oil. Apply in very soft wool.	Or melt deer marrow and suet, mix well with rose oil; let her apply it in soft wool.

Although these two redactions are very similar, they are preserved in different contexts.[12] Series H is found at the end of a chapter describing treatments for a disease in which the mouth of the womb is hard and closed (*Mul.* 2.158). Series J, however, is not embedded in a nosological chapter, but is a section of a long catalogue of softening pessaries (*Mul.* 2.205). The compact format of these small catalogues allowed them to be inserted into a variety of contexts: into chapters on individual diseases or into sections devoted entirely to recipes.

[12] Again, there are small differences between the individual versions of the recipes. For instance, H1 recommends goat suet, whereas J1 has sheep suet.

I would suggest that collections of recipes were circulated independently before being included into the gynaecological treatises. These collections could be transmitted on materials such as sheets of papyrus, small rolls of papyrus, wooden tablets, or ostraca.[13]

Such collections of recipes have been preserved on Egyptian papyri and ostraca.[14] In fact, more than half of the Greek medical papyri that have come down to us contain recipes: in total, some 100 papyri contain about 400 recipes.[15] The size of these collections varies from one or two recipes written on the back of a documentary or literary text to receptaries that are very long.[16] Our earliest example of the latter type (Papyrus Rylands 3.531 = MP^3 2418) dates from the end of the third century BC or the beginning of the second century BC. The papyrus preserves the upper part of a roll bearing three columns of recipes on the recto and two columns on the verso.[17]

The three recipes preserved on the second column of the papyrus can be compared with recipes from *Diseases of Women* II:[18]

K = *P. Ryl.* 3.531, recto col. ii (166.10–18 Roberts)[19]	L = *Diseases of Women* 2.200 and 201
1. Κάθαρσιν ποιεῖν μαράθου καρπὸν κρήθμου φλοιὸν ἐν οἴνωι δίδου πίειν.	1. *Mul.* 2.201 (8.384.8–10 L.) Ὅταν δὲ ὀδύνη ἔχῃ καὶ πνίγηται, μαλάχης ῥίζαν, ἢ ὀξύμελι ἢ φλοιὸν μαράθου καὶ κρῆθμον ἐν ὕδατι δοῦναι πίνειν, ἄριστον δὲ ἐρυγγάνειν καὶ διανακαθίζειν.

[13] See pp. 226–228 for more details on the materials on which pharmacological texts could be transmitted in antiquity.

[14] On recipes on papyri and ostraca see Andorlini (1981); (1993); (1997 ed.); (1999); (2001 ed.), esp. 109–159; (2004a ed.); Calame (1983); Gazza (1955); Marganne (1981); (1994); (2001); (2004) 78–80 and 113; Marganne and Mertens (1997); Préaux (1956).

[15] See Marganne (2004) 173; (2006) 65.

[16] Short collection: see for instance the two *kollyria* recipes preserved on *P. Berolinensis* inv. 1944 verso (MP^3 2391.61) edited by Hanson (2001). Long collection: see for instance PSI 10.1180 (MP^3 2421) edited by Andorlini (2004b).

[17] See p. 228 for more details on the presentation of the recipes on this papyrus.

[18] For ease of reference, I shall refer to these series as Series K and L respectively. Recipes L1 and L2 have parallels in *Nat. Mul.* 32 (93.12–13 Trapp [=L2] and 15–16 [=L1]; 7.358.12–13 and 15–16 L.); L3 has a parallel at *Mul.* 2.203 (8.388.11–14 L.).

[19] Thanks to David Leith for helping with the accentuation.

Table (*cont.*)

K = *P. Ryl.* 3.531, recto col. ii (166.10–18 Roberts)	L = *Diseases of Women* 2.200 and 201
Provokes a purgation: seed of fennel, bark of samphire; give to drink in wine.	When there is pain and suffocation: root of mallow, or oxymel, or bark of fennel and samphire; give to drink in water. It is excellent to belch and to sit up.
2. Πρὸς τοὺς ἀπὸ τῶν ὑστέρων πνιγμοὺς ἐνυδρίδος τοὺς νεφροὺς ξηράνας δίδου ὅσον τοῖς τρισὶν δακτύλοις λάβειν ἐν οἴνωι εὐώδει τοῦτο καὶ πρὸς τοὺς τῶν διδύμων πόνου<ς> βοιηθεῖ καὶ κλυστήριόν ἐστιν ὑστέρων.	2. *Mul.* 2.200 (8.382.12–13 L.) Ὅταν πνίγηται ὑπὸ ὑστερέων· κάστορα καὶ κόνυζαν ἐν οἴνῳ χωρὶς καὶ ἐν ταὐτῷ πινέτω.
Against suffocations from the womb: give dried otter kidneys, as much as can be taken with three fingers <i.e. a pinch>, in sweet-smelling wine. It also helps against pains in the testicles and is a clyster for the womb.	When she is suffocated by the womb: castoreum and fleabane; let her drink these in wine separately or together.
3. Ἄλλο ἐὰν μετὰ τοῦ πνίγεσθαι καὶ βήσσηι [σα]νδαράκης = (2 ὀβ.)[20] θείου ἀπύρου τὸ ἴσον ἀμύγδαλα π[έν]τε ἢ δ ἀποκαθάρας συμμείγνυε εἶτα ταῦτα [….].τηι ἐν οἴνω[ι].	3. *Mul.* 2.200 (8.382.15–18 L.) Ὅταν δὲ πνίγωσι καὶ ὁμοῦ βήσσῃ, σανδαράχης ὅσον ὀβολὸν καὶ θείου ἀπύρου ἴσον καὶ ἀμύγδαλα πικρὰ καθήραντα ξυμμίσγειν τρία ἢ τέσσαρα, καὶ διδόναι ἐν οἴνῳ εὐώδει.

[20] The papyrus bears the symbol = for two *oboloi*. See Hanson (1998a) 80, note 30.

Table (*cont.*)

K = *P. Ryl.* 3.531, recto col. ii (166.10–18 Roberts)	L = *Diseases of Women* 2.200 and 201
Another if there is cough with the suffocation: realgar, two *oboloi* native brimstone, an equal amount, five or four almonds; cleanse and mix well. Then <give> these in wine.	When <the womb> causes suffocation together with coughing: realgar, in the amount of one *obolos*, native brimstone, the same amount; add three or four cleansed bitter almonds; give in sweet-smelling wine.

K3 and L3 are parallel redactions of the same recipe, with small variations in the quantities indicated. (L3 indicates that one *obolos* of realgar should be used, whereas K3 recommends two. In addition, L3 recommends using three or four almonds, whereas K3 recommends four or five almonds.)

K1 and L1 are both drinks including fennel and samphire, but L1 suggests two alternatives to fennel (root of mallow or oxymel). K1 should be taken in wine, whereas L1 should be taken in water. In addition, these recipes have different purposes: K1 is a cathartic, whereas L1 is prescribed in case of suffocation.

K2 and L2, at first sight, present fewer similarities. They are both drink recipes against uterine suffocation. However, K2 has a pinch of dried otter kidneys in sweet-smelling wine, while L2 has castoreum and fleabane in wine. There are no mentions of otter kidneys in the Hippocratic Corpus, nor in any other classical medical writing. However, as the editor of the papyrus (C. H. Roberts) noted, in the early modern period, otter testicles could be used as a substitute for castoreum.[21] Otter kidneys may have been more easily available in Egypt than castoreum, and, as suggested by Isabella Andorlini, closer to the religious traditions of the people using the recipe: according to Herodotus, the otter was a sacred animal in Egypt.[22]

[21] Roberts (1938) 167.

[22] Andorlini (1999) 442–443. See also Hanson (1998a) 80. On otters in Egypt, see Herodotus 2.72.

Scholars, starting with Claire Préaux in 1956, have argued that the source for this papyrus could be 'Hippocratic' or 'Cnidian'; they imply that the compiler of the papyrus has read a treatise of the Hippocratic Corpus.[23] The fact that this papyrus collection is chronologically later than the Hippocratic gynaecological treatises makes this hypothesis plausible. In addition, it should be noted that the papyri bearing texts from treatises now known as Hippocratic far outnumber papyri of any other ancient medical authors—Hellenophones in Egypt did read texts of the 'Hippocratic Corpus'.[24]

However, one should not exclude the possibility that the compiler of our papyrus collection of recipes had never read any Hippocratic treatise, but had had access to small collections of recipes that had been absorbed independently into the Hippocratic writings.

Not all recipes on Papyrus Rylands 3.531 have parallels in the Hippocratic Corpus. For instance, the third column of the papyrus bears a recipe for an ἀτοκεῖον (contraceptive) that has no parallel in the Hippocratic gynaecologies:

> Ἀτοκεῖον· κηκίδος καὶ ῥόα[ς] τὰ .[
> διὰ φύσεως τῶν κόκκων κ[25]

The Hippocratic treatises contain only one recipe for an ἀτοκεῖον, at *Diseases of Women* 1.76: Ἀτόκιον· ἢν μὴ δέῃ κυΐσκεσθαι, μίσυος ὅσον κύαμον διεὶς ὕδατι, πίνειν διδόναι, καὶ ἐνιαυτόν, ὡς ἔπος εἰπεῖν, οὐ κυΐσκεται. (Contraceptive, if she does not want to bear children: copper ore, in the amount of a bean; soak with water. Give to drink and for a year, so to say, she will not bear children.)[26]

It seems that more ἀτοκεῖον recipes were circulated in fifth- and fourth-century Greece than were integrated in the Hippocratic Corpus—unless the recipe of Papyrus Rylands was 'invented' after the writing down of the Hippocratic gynaecological treatises. The similarities between the recipes of the Hippocratic treatises and the recipes on

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[23] Andorlini (1981) 38; (1999) 440–443; Hanson (1998a) 79 talks about "subsequent recontextualization of Hippocratic medicaments"; Marganne (2001) 61 and (2004) 113 suggests that the papyrus may have had a Hippocratic or Cnidian source, or that the papyrus and *Mul.* had a source in common; Préaux (1956) 147.

[24] See MP³ 537.1 to 545.3; Marganne (2001) 51–60.

[25] P. Ryl. 3.531, recto col. III (166.25–26 Roberts). The combination of oak gall and pomegranate appears in the Hippocratic Corpus, in a recipe against red flux: *Mul.* 2.192 (8.372.19–21 L.).

[26] *Mul.* 1.76 (8.170.7–8 L.).

papyri must not necessarily be considered in a simplistic way, namely by suggesting that the Hippocratic treatises influenced the papyri. It is better, in my opinion, to consider the Hippocratic treatises and the papyri as only two manifestations of a complex and extended transmission of pharmacological knowledge in antiquity. There are many missing links, much lost material, in this transmission.

I have suggested that small collections of gynaecological recipes were in circulation before—and after—the compilation of the Hippocratic gynaecological treatises. These collections may have been called *Gynaikeia* (women's things), a word mentioned twice in *Diseases of Women* to refer to collections of recipes.[27] These collections were most probably circulated anonymously. They cannot be called Hippocratic; they became Hippocratic when the treatises in which they were included were ascribed to the physician of Cos.

The small collections are integrated into treatises

As discussed in the Introduction, there are two competing interpretations of the links between *Nature of Women* and *Diseases of Women* I and II: some scholars believe *Nature of Women* to be an extract from *Diseases of Women*, while others argue that these treatises use one or several common source(s). I would argue the latter interpretation is to be favoured for the history of catalogues of recipes. However, my interpretation differs from that of scholars who subscribe to the common source(s) hypothesis in that I do not conceive of these common sources as treatises, but rather as small collections of recipes and disease descriptions, to which must be added oral sources. The compilers of the gynaecological treatises first collected small collections of recipes, which they used to create the large catalogues of recipes found at the end of *Nature of Women* and *Diseases of Women* I and II. In other words, the compilers of the three main gynaecological treatises drew upon the same 'stock' of recipe collections, but organised them in different ways.

As was first noticed by Helga Trapp, the catalogues of recipes at the end of *Diseases of Women* I and II are not merely disorganised addenda

[27] *Mul.* 1.64 (8.132.23–24 L.): Καὶ τῶν γυναικείων ὅ τι ἂν μάλιστα προσδέχηται πιπίσκειν. (And among the <remedies> for women give to drink those which are best accepted.) *Mul.* 2.113 (8.244.4–5 L.): Καὶ τῶν γυναικείων πειρώμενος, ὅ τι ἂν μᾶλλον προσίηται πιπίσκειν. (And among the <remedies> for women, try to give to drink those which are best accepted.) See Hanson (1990) 310; (1992a) 235.

to these treatises.[28] The catalogues of recipes are organised in the same way as the nosological chapters of these treatises, i.e. a 'chronological' order from menstruation to birth in *Disease of Women* I,[29] and an organization by themes in *Diseases of Women* II.[30]

This observation leads to the conclusion that the catalogues of recipes were integrated into the structure of *Diseases of Women* I and II when these treatises were first organised as we know them. According to Hermann Grensemann and Iain Lonie, this is likely to have happened at the end of the fifth century BC (Lonie: *c.* 420 BC; Grensemann: *c.* 400 BC).

Collections of recipes breaking away from the structure of the treatises—such as the non-gynaecological recipes found at the close of *Diseases of Women* I (*Mul.* 1.92–109) and the cosmetic recipes included in *Diseases of Women* II (*Mul.* 2.185–191)—might have been added after this date. Prior to that, these two collections of recipes may have circulated independently.

The non-gynaecological collection of recipes at *Diseases of Women* 1.92–109 is qualified as spurious (νόθα τῇ τελευτῇ τοῦ πρώτου περὶ γυναικείων βιβλίου προσκείμενα) in some manuscripts, and is even

[28] Trapp (1967) 37. See also Bourbon (forthcoming b) 'Les catalogues' 4; Hanson (1971) 29 and 267; (1991a) 98–99, note 19.

[29]

Descriptions of diseases	Corresponds to collection(s) of recipes
Chapters 1–9: menstruation	Chapter 74: remedies to draw down the menses
Chapters 10–24: conception	Chapter 75: remedies to assist conception Chapter 76: contraceptive
Chapters 25–34: pregnancy	No collection of recipes
Chapters 35–73: birth and ailments occurring after the birth	From chapter 77 (remedies to promote a quick childbirth) to 91 (remedies to expel the embryo if it is dead) Chapters 92–109: non-gynaecological recipes

[30]

Descriptions of diseases	Corresponds to collection(s) of recipes
	Chapters 185–191: cosmetics recipes
Chapters 110–122: fluxes	Chapters 192–199: recipes for fluxes
Chapters 123–153: the wandering womb	Chapters 200–204: recipes for the wandering womb
Chapters 154–184: other afflictions of the uterus or genitals	Chapters 205–212: recipes for other gynaecological afflictions

omitted entirely in other manuscripts.[31] It starts with some recipes for children's ailments (*Mul.* 1.92–93), followed by recipes for named remedies (the 'septic' remedy, the 'roasted' remedy, the black remedy: *Mul.* 1.94–96), and remedies for common ailments (sore throat, gout, eye ailments). It ends with remedies to purge bile and phlegm (*Mul.* 1.109).

One of the medications for which a recipe is given in this section, the black remedy (τὸ μέλαν φάρμακον; recipe at *Mul.* 1.94), is recommended at *Diseases of Women* 2.126 for cases of displacement of the womb to the hypochondria, where it is stipulated that this remedy is 'for the head'.[32] Interestingly, the black remedy is also recommended in another Hippocratic treatise, *On Head Wounds*, for head injuries.[33]

Another recipe included in this section is similar to a recipe listed at *Diseases of Women* 1.81:

Diseases of Women 1.109 (spurious) (8.230.21 and 232.5–6 L.)	*Diseases of Women* 1.81 (8.200.18–21 L.)
Ἢν δὲ θέλῃς χολὴν ἄγειν·…Ἕτερον· κολοκυνθίδος δραχμὴν τρίψας καὶ προβρέξας ἐν γάλακτι ὀνείῳ, μίσγειν τὰ αὐτά.	Ἢν δὲ χολώδης ᾖ, κολοκυνθίδας δύο ἀποβρέξαι ἐν γάλακτι ὀνείῳ ἐφθῷ ὅσον τέσσαρσι κοτύλῃσι, καὶ ἀπηθήσαντα κλύσαι, ξυμμῖξαι δὲ ἔλαιον ναρκίσσινον ἢ ἄνθινον.
If you want to draw the bile…Another: crush a *drachma* of colocynth, soak beforehand with donkey's milk; mix these <ingredients>.	If <the patient> is bilious: soak beforehand two colocynths in boiled donkey's milk, in the amount of four *kotylai*; filter <this preparation> and inject it, having added narcissus or lily oil.

[31] The word νόθα does not appear in all the manuscripts: for instance, it does not appear in Theta. These collections of recipes are omitted from Manuscript M. See Hanson (1971) 129.

[32] *Mul.* 2.126 (8.270.15–16 L.): Ἐς δὲ τὰς ῥῖνας, τοῦ φαρμάκου τοῦ μέλανος, τοῦ τῆς κεφαλῆς, λαβόντα τῇ μήλῃ ἐμπλάσαι. (Having taken some black remedy, which is for the head, with a probe, plaster it onto the nostrils.)

[33] *De capitis vulneribus* 14 (82.15 Hanson; 3.240.1–2 L.).

These recipes are what I have called variations on the same theme: they are used for the same purpose (purge bile) and have two ingredients in common (colocynth and donkey's milk), but the quantities indicated differ from one version to another. Also, the recipe at *Diseases of Women* 1.81 includes a sweet-smelling ingredient (narcissus or lily oil), probably to make the preparation more pleasant.

It should also be noted that at *Diseases of Women* 2.177, the compiler recommends to use, to treat a wind in the womb, the suppository used to purge the belly of a child, which is made of unwashed wool dipped in honey.[34] The same recipe is recorded in the spurious section of *Diseases of Women* I.[35]

The recipes of the spurious section were probably qualified as 'spurious' simply because they were non-gynaecological; they do not seem to partake in a different type of pharmacology from the recipes prescribed in the remainder of the gynaecological treatises.

I would follow Émile Littré in seeing this collection of recipes as a fragment of a *Pharmakitis*, a remedy book that circulated indepently from *Diseases of Women*.[36] Because this remedy book contained recipes for children's ailments it was then appended to our gynaecological treatise; it should be noted that Soranus' *Gynaecology* contains advice on how to treat children.[37]

Recipes may also have been added to *Diseases of Women* I and II whilst preserving the 'original' structure of these treatises. For instance, chapters 192–199 of *Diseases of Women* II are collections of recipes against fluxes. The first five chapters are systematically organised by types of medication,[38] but are followed by eight recipes against fluxes (chapters 197–199) jumbled up together, perhaps added at a later date.[39]

Recipes 'invented' in the fourth century may also have been integrated to the structure of the treatises. This may be the case for a recipe

[34] *Mul.* 2.177 (8.360.14–15 L.).
[35] *Mul.* 1.92 (8.222.3–4 L.).
[36] Littré, vol. 8, p. 221.
[37] Soranus, *Gyn*. 2.49–57 (87.30–93.8 Ilberg).
[38] Chapter 192: drinks; 193: cataplasms; 194: injections; 195: fumigations; 196: pessaries.
[39] Chapter 197: two infusions and one pessary against a watery flux; 198: a cataplasm against a watery flux; 199: one pessary and three drinks against fluxes.

including a drug named φιλιστίον.[40] Hanson argues that the recipe involving φιλιστίον was one of the last entries in the gynaecological treatises; it can be used as a *terminus ante quem* for the composition of the gynaecological treatises. Like other scholars, she considers this drug to be named after Philistion (Φιλιστίων), the Sicilian physician whose acme is situated in the middle of the fourth century BC.[41] However, there is no way of telling whether the φιλιστίον of the Hippocratic treatises was named after the Sicilian physician. The Galenic lexicon of Hippocratic words does not raise this possibility.[42] In addition, there is no drug (whether simple or compound) named after a physician in the Hippocratic treatises: this seems to be a practice uncommon in classical Greece.[43]

Although the mention of the φιλιστίον is difficult to use as a *terminus*, it should be noted that, at some point in time, the process of recipe accretion within the gynaecological treatises stopped; the treatises *Diseases of Women* I and II, including their catalogues of recipes, froze. The catalogues contain none of the long poly pharmaceutical recipes fashionable in the late Hellenistic and Roman period. In addition, many recipes are introduced by formulae of the type 'if…then' which were not used in later recipes.[44] It is likely that the catalogues of recipes froze during the Hellenistic period, probably when *Diseases of Women* I and II were included in the collections of the Alexandrian library and attributed to Hippocrates.

Nature of Women is composed of two different treatises: treatise A (*Nat. Mul.* 1–34) and treatise B (*Nat. Mul.* 35–109). In neither of these two sub-treatises does the organisation of the catalogues of recipes follow the organisation of the nosological chapters.[45]

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[40] *Mul.* 2.201 (8.386.9–10 L.): Ἢ φιλίστιον ὅμοίως προστίθει. (Or apply *philistion* in the same way.) See also *Nat. Mul.* 32 (94.14–15 Trapp; 7.360.14–15 L.).

[41] Hanson (1996a) xxi; (1997) 305; (1998a) 76. See also Andò (2000) 291, note 343; Thivel (1981) 96 who believes that the name of the physician probably became a plant name at the end of the fourth century BC. This recipe was long believed to be a *terminus post quem* for the composition of the gynaecological treatises instead of a *terminus ante quem*: see Gossen (1913) col. 1830; Wellmann (1901) 17.

[42] Galen, *Glossarium* s.v. φιλίστιον (19.151.9–10 K.): Φιλίστιον· τὸ αὐτο καὶ τοῦτο ἔοικεν εἶναι τῇ ἀπαρίνῃ καὶ φιλεταιρίῳ. (Philistion: it seems to be the same as *aparinê* and *philetairion*.)

[43] The practice of naming a remedy after a physician or after a famous character becomes common in Roman times. The Mithridatic antidote, named after Mithridates VI, King of Pontus, is one example. See Totelin (2004).

[44] See pp. 40–41.

[45] Trapp (1967) 32 and 36.

In *Nature of Women* A, the catalogues of recipes (*Nat. Mul.* 32–34) are organised by types of medications.[46] They share a large amount of material with the recipe collections of *Diseases of Women* I and II, but use an entirely different criterion of organisation.[47]

In *Nature of Women* B, the catalogues of recipes (*Nat. Mul.* 93–109) are organised either by efficacy or by types of medications.[48] There are strong parallels between the organisation of the catalogues in *Nature of Women* B and *Diseases of Women* II. For instance, the catalogues found at *Nature of Women* 102–105, organised by types of medications, are shorter versions of catalogues of recipes found at *Diseases of Women* 2.193–195.[49] However, whereas the latter catalogues list recipes against fluxes, the purpose of the recipes listed in the former catalogues is not indicated.

In addition, *Nature of Women* B also includes recipes that are not found anywhere else in the Hippocratic Corpus.[50] Here again the treatise may have been created by accretion of sources, independently from the compilation of *Diseases of Women*.

The compiler(s) of *Nature of Women* A and B often refer, in the nosological sections, to remedies, whose recipes are to be found in the catalogues at the end of both sub-treatises, generally in prominent places, at the beginning of a chapter, or after a subtitle.[51] For instance, at *Nature of Women* 8, reference is made to a pessary made with squill (σκίλλα).[52] The recipe for that pessary is to be found at *Nature of Women* 32.[53] Thus, as in the case of the catalogues of recipes attached to *Diseases of Women* I and II, it seems that catalogues of recipes were attached to *Nature of Women* A and B when these treatises were first organised as we know them. If we follow Grensemann's

[46] Chapter 32: drinks and pessaries; 33: enemas; 34: fumigations. For more details on the organisation of these chapters, see Bourbon (forthcoming b) 'Les catalogues'.

[47] *Nat. Mul.* 32 has recipes in common with 7 chapters of *Mul.* I (1.74; 78; 79; 81; 84; 91; 109); 6 chapters of *Mul.* II (2.192; 200; 201; 205; 206) and with *Nat. Mul.* 109; *Nat. Mul.* 33 has recipes in common with three chapters of *Mul.* I (1.78; 80; 90) and one chapter of *Mul.* II (2.209). *Nat. Mul.* 34 has recipes in common with two chapters of *Mul.* II (2.195 and 203) and one recipe in common with *Nat. Mul.* 103. See Bourbon (forthcoming b) 'Les catalogues'.

[48] See Bourbon (forthcoming b) 'Les catalogues'.

[49] Chapter 102 (cataplasms) see *Mul.* 2.193; 103 (fumigations) see *Mul.* 2.195; 104 (injections) see *Mul.* 2.194; 105 (fomentations) see *Mul.* 2.193.

[50] See for instance *Nat. Mul.* 99 and 101.

[51] Florence Bourbon, personal communication.

[52] *Nat. Mul.* 8 (75.18–19 Trapp; 322.18–19 L.).

[53] *Nat. Mul.* 32 (96.6–7 Trapp; 7.364.6–7 L.).

chronology, this is likely to have happened in the second half of the fifth century BC.[54]

However, written collections of recipes could have been in circulation even earlier. Dividing the catalogues of recipes into layers, using philological criteria, as was suggested by Grensemann, would prove almost impossible. On the other hand, it is important to ask when small collections of recipes started to be written down.

The beginnings of the tradition of small collections of recipes

Hanson noted that a pennyroyal recipe recommended in *Diseases of Women* II was "in use more than a century or two before a medical writer subsumed it into his collection".[55] At the end of the seventh century, a recipe for a *kykeôn* (i.e. a sort of porridge) containing pennyroyal first appeared in written form in the Homeric *Hymn to Demeter*, where it provides an aetiological myth for the consumption of the *kykeôn* at the Eleusinian mysteries:

> Τῇ δὲ δέπας Μετάνειρα δίδου μελιηδέος οἴνου
> πλήσασ', ἡ δ' ἀνένευσ'· οὐ γὰρ θεμιτόν οἱ ἔφασκε
> πίνειν οἶνον ἐρυθρόν, ἄνωγε δ' ἄρ' ἄλφι καὶ ὕδωρ
> δοῦναι μίξασαν πιέμεν γλήχωνι τερείνῃ.
> ἡ δὲ κυκεῶ τεύξασα θεᾷ πόρεν ὡς ἐκέλευε.[56]
>
> Metaneira filled a goblet with honey-sweet wine and offered it to her <sc. Demeter>, but she refused saying that it was not righteous for her to drink red wine; and she prompted her to mix barley and water with the tender pennyroyal and give it to her as a drink. So she <sc. Metaneira> prepared the *kykeôn* and gave it to the goddess, as she requested.

A similar recipe for pennyroyal *kykeôn* is found in *Diseases of Women* II in a chapter on the red flux:

> Καὶ τῆς ψώρας τῆς ἀπὸ ἐλαίης, καὶ κικίδα, καὶ πήγανον, καὶ ὀρίγανον, καὶ γλήχωνα ἐν ἀλφίτοισι σῆσαι καὶ φυρῆσαι, καὶ κρίμνα ἀπ' ἀλφίτων ἁδρὰ φῶξαι, καὶ πύανα καταλέσας, καὶ τυρὸν αἴγειον περιξύσας τὸ αἶσχος, τῶν μὲν ἄλλων ἴσον ἑκάστου μίσγε, ὀριγάνου δὲ καὶ πηγάνου καὶ ψώρας καὶ κικίδος ἥμισυ, ταῦτα πίνειν νῆστιν πρωὶ πρὸ τῆς κινήσιος·

[54] For an early date of circulation of *Nat. Mul.* see also Hanson (2004a) 294.
[55] Hanson (1997) 305. See also (1996a) xxi; (1998a) 77–79.
[56] *Hymnus ad Cererem* 206–210.

> κιρνάναι δὲ χρὴ καὶ ἐς χρῆσιν· ἢν δριμέα ἴῃ, καὶ κυκεῶνα διδόναι, ἓν μὲν τοῦ φαρμάκου μέρος ἔστω, ἓν δὲ τοῦ τυροῦ, ἓν δὲ τῶν ἀλφίτων. ἐς ἑσπέρην δὲ τοῦ μέλιτος ξυμμίσγοντα πιπίσκειν.[57]
>
> Moss from olive tree, oak gall, rue, oregano, pennyroyal, with barley meal; sieve, knead; and roasted coarse barley meal, ground *pyana* (sc. mixture of a variety of pulses), goat's cheese from which the filth (?) is removed; mix an equal amount of each, except the oregano, the rue, the moss and the oak gall, of which there is half <a portion>. Give to drink while fasting in the morning before any movement. One must stir before using <this preparation>. If <the flux> is pungent, give a *kykeôn*: let there be one portion of the previous remedy, one of cheese, one of barley meal. Towards the evening, add some honey and give to drink.

The two recipes have several points in common: they both include the traditional ingredient of the *kykeôn* (barley groats, ἄλφιτον) to which water is added.[58] Both recipes also include pennyroyal (γλήχων), a plant associated with female ailments in classical literature.[59] Finally, both the Hippocratic and Homeric *kykeônes* have to be taken while fasting, an act laden with religious connotations in antiquity.[60]

There are also differences between the two recipes. First, the Hippocratic recipe has more ingredients than the Homeric one. Second, the context of transmission is different: the *Hymn* recipe is transmitted in a verse literary text, whereas the Hippocratic recipe is transmitted in a prose technical text.

It should be noted that recipes for *kykeônes* are the only recipes found in the Homeric Corpus. In the tenth book of the *Odyssey*, Circe concocts a *kykeôn* spiced up with baneful drugs for Odysseus' companions.[61] And in the eleventh book of the *Iliad*, Hecamede prepares

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[57] *Mul.* 2.113 (8.244.8–16 L.).

[58] On ἄλφιτον, see Amouretti (1986) 123–124; Braun (1995); Dalby (2003) 46 (s.v. barley); Moritz (1949) and (1958) 151–152. The use of water is not expressly mentioned in the recipe of *Mul.* 2.113 but is implied.

[59] See pp. 205–206 and 209 for more details on pennyroyal.

[60] On the practice of fasting in ancient medicine, and its relations to religious practice, see Thivel (1999) 157–158. In other passages of the Hippocratic gynaecological treatises, the administration of a *kykeôn* is preceded by fasting and a bath and followed by sexual intercourse—a series of acts laden with symbolic and religious connotations in antiquity. See for instance *Mul.* 2.162 (8.342.2–4 L.): Λουέσθω, καὶ διανιψαμένη ὕδατι ψυχρῷ κυκεῶνα πινέτω ἄναλτον, σίτου δὲ μὴ ἀψάσθω· ξυνευδέτω δὲ τῷ ἀνδρὶ δύο ἡμέρας ἢ τρεῖς. (Let her bathe, and having made her ablutions with cold water, let her drink a *kykeôn* without salt, and let her not take any food. Also, let her sleep with her husband for two or three days.)

[61] *Od.* 10.234 sqq.

a *kykeôn* for Nestor and the wounded Machaon.[62] Food preparation is usually not considered elevated enough a topic to be included in epics, but for the *kykeôn*, an exception is made.[63]

It is difficult to determine whether these Homeric recipes for *kykeônes* presupposed an extended tradition of recipe writing in the archaic period. No recipe has been preserved on papyrus, ostracon, stone, or any other material for this period. Although undocumented, the existence of such a tradition is possible from a theoretical point of view. Contrary to what happened in Egypt and the Near East, where literacy was the privilege of a caste of scribes, Greek artisans and merchants learnt to use writing soon after the adoption of the alphabet (*c.* 750 BC). In archaic Greece, medical practitioners were craftsmen who may have started to use writing as early as the seventh century BC.[64] However, even if such a tradition is theoretically possible, sociological aspects have to be taken into account, as noted by Lonie:

> <W>e must remind ourselves that the Greek doctor did not *need* to use writing in his craft, and that therefore he must have made a conscious decision to do so, because he saw some particular advantage in it. Although medicine, like other crafts, permits personal variations in performance… it also, like other crafts, tends to be traditional, discourages innovation, and protects its corporate nature. The private notebook, even if all it contains is a collection of private remedies, offers the means of breaking away from this corporate nature.[65]

Modern scholars generally believe that physicians started using writing for teaching purposes, when the art opened itself to people who were not members of medical families.[66] This conclusion is based on two passages from Galen. In the first, the opening lines of *On Anatomical Procedures*, Galen tells us that the ancients were so knowledgeable in anatomy that they did not need any written treatises on the topic; it is only when the medical profession opened itself to people who did not come from medical families that written texts became necessary.[67]

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[62] *Il.* 11.638 sqq.

[63] An exception is also made for roasting meat (meat was a luxury), but this does not involve recipes.

[64] On the status of physicians as craftsmen, see Hortsmanshoff (1990); Nutton (1992).

[65] Lonie (1983) 156. See also Marganne (2004) 16–17.

[66] See Boudon (2004) 199; Dean-Jones (2003) 98–99; Kudlien (1970) 5–6; Marganne (2004) 21.

[67] Galen, *De anatomicis administrationibus* 2.1 (2.280.1–282.1 K): Nor do I blame

Written treatises were aimed at supplementing the lack of training of these people. Galen's story is not very plausible—the evidence indicates that human anatomy was not practiced in the classical period, and that even animal dissection was rarely performed. However, modern scholars accept as true one part of Galen's text: they generally believe that the treatises were written for teaching purposes.

In the second passage, preserved only in the Arabic tradition, Galen explains why it was felt necessary around the time of Hippocrates to teach medicine to people who were not members of medical families. According to the Pergamene, Hippocrates himself decided to open the medical profession to people who were not descendants of Asclepius because of the near extinction of the traditional Greek medical families: the medical families from Rhodes, Cnidus and Cos.[68] In order to protect the art the physician of Cos made new members of the profession swear the Oath. Jacques Jouanna believes Galen's explanation should be 'taken seriously';[69] but why would the traditional medical families have become

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the ancients for not having written on the subject of practical anatomy, and I praise Marinus for having written <on this subject>. For the ancients, indeed, it was superfluous to write such treatises for themselves or for others, since, from childhood, they learnt from their parents how to dissect as well as how to read and write… But then, as time went by, it seemed good to share this art not only with family members but also with people from outside the family. Following this, first the practice of anatomy from childhood was lost; for they shared the art with adult men whom they judged worthy of this honour because of their virtue… Thus, the art having come out of the family of the Asclepiads, and having become constantly weaker through many successions, they needed handbooks (ὑπομνημάτων) to preserve its theory.

[68] Galen, *In Hippocratis jusjurandum. Commentarii.* The following fragment is transmitted by Ibn Abî Usaybiʿah 1.24 (Müller), translation Rosenthal (1956) 80–81: 'The places in which the craft of medicine was studied were, according to the information mentioned by Galen in his *Commentary on the Book of the Oaths by Hippocrates,* three in number: One was in the city of Rhodes, the second in the city of Cnidus, and the third in the city of Cos. <Medical> instruction in the city of Rhodes had disappeared, because the masters had no heirs. <Medical instruction> in the city of Cnidus was <nearing> extinction, because those who were heirs to it were just a few persons. In the city of Cos, where Hippocrates resided, <medical instruction> still persisted, <but only> a few remnants remained of it, because those who were heirs to it were few. Now, Hippocrates looked into the craft of medicine and found that it had almost disappeared, because there were few children in the family of Asclepius to inherit it. Therefore, he was of the opinion that he <should> spread it everywhere on earth, hand it over to the rest of mankind, and teach it to those who were deserving of it, so that it might not disappear. He said that "benefits should be liberally extended to all who deserved them, whether they be one's relatives or not." He took in strangers and taught them the craft of medicine. He established the written *Covenant* for them and made them swear the oaths contained in it.'

[69] Jouanna (1999) 46.

extinct in the fifth century BC? For Vivian Nutton, the intra-familial model of knowledge gradually lost its relevance in the mobile society of the classical period,[70] and Burkhard Meissner relates the reduction in the importance of the intra-family model of knowledge transmission (in the field of medicine, but also in the transmission of poetry, etc.) to political events. With the development of the city-state (*polis*) and of Greek colonization (eighth to sixth centuries BC), the Greek states came to play a more important role in the transmission of knowledge, and compromised the family model of transmission. By the classical period, the family model was outdated.[71] On the other hand Ludwig Edelstein, although he admits that in many cultures it is customary for a son to follow his father's choice of trade, argues that skills such as medicine were never restricted to particular families in the Greek world—one should not interpret too literally the word 'Asclepiad'.[72]

In any case, Galen's explanation in terms of medical family extinction does not explain why physicians started to use writing: a master could teach orally apprentices that were not members of his family. I believe the scenario might have been the exact opposite of what Galen suggests: physicians started to write about their art; these writings attracted people who were not members of medical families; the medical profession had to open itself to new members. Physicians might have started to use the written medium, not so much for practical reasons (i.e. for teaching), but for symbolic reasons.

One of the interesting—and most conspicuous—characteristics of the Hippocratic catalogues of recipes is the accumulation of recipes for a single purpose. For instance, I have presented earlier six recipes for pain after purgation listed at *Diseases of Women* 2.209.[73] This chapter contains four further recipes for the same purpose, two preceding the recipes presented earlier, two following them.[74]

[70] Nutton (1992) 19.
[71] Meissner (2003) 159.
[72] Edelstein and Edelstein (1945) 57.
[73] See pp. 75–78.
[74] *Mul.* 2.209 (8.404.1–7 and 404.19–406.4 L.). For more details on this collection of recipes, see pp. 125–126.

Why did the Hippocratic compilers feel the need to record so many recipes for the same purpose? One possible answer would be that the ingredients necessary to prepare a remedy were not always readily available, hence it was important to offer alternatives. Although this explanation is valid, it is not sufficient in itself. A closer look at this collection of recipes will reveal that the fourth recipe of this chapter (8.404.9–13 L.) is almost the same as its first recipe (8.404.1–5 L.). However, it does not seem that this repetition is the error of a copyist: recipe 4 is not a *verbatim* repetition of recipe 1 (the word *embaphion* is used in recipe 1, whilst the word *oxybaphon* is used in recipe 4). Recipe 4 is not an alternative to recipe 1, it is the same recipe expressed in a slightly different way. In addition, the third recipe of the chapter (8.404.7–9 L.) is also very similar to recipes 1 and 4. The compiler of this collection of recipes certainly did not do a good job at being economical with papyrus; he could have merged these three recipes into one. However, this compiler might have found some advantage in having long collections of recipes.

Indeed, by accumulating recipes in writing, healers could demonstrate the extent of their medical knowledge. In other words, writing could act as a means to display pharmacological knowledge in a very concrete manner. Once written down in the form of recipes, the extent of this knowledge becomes more tangible, less abstract. To demonstrate the extent of one's pharmacological knowledge might have been particularly important in ancient Greece, where many different types of healers competed in the 'medical market'.[75]

It seems that the primary aim of the compiler of Hippocratic recipes was symbolic: they used recipes as a display means. By doing so, they created a huge storehouse of pharmacological knowledge, a huge external memory, which was probably filled with more recipes than human memory could retain. Yet, I doubt whether these compilers considered their external memory to be superior to human memory; medical writers throughout antiquity insisted on the importance of practicing the art of memory in the field of pharmacology.[76] Proper

[75] See pp. 114–124 for more detail.

[76] See pp. 244–245 for more detail on the use of memory in the transmission of pharmacological knowledge.

pharmacological knowledge had to be 'digested' by human memory to be useful. No written collection of recipes could ever replace the human memory, nor could it ever replace oral training in the art of pharmacology. Writing would always be an imperfect *pharmakon* for these practical purposes.

One question remains unanswered: where and when did physicians start to use writing? The earliest physician credited with having written on medical matters is Democedes of Croton (sixth century BC).[77] The source (the Byzantine *Suda*) telling us that Democedes wrote a medical book might not be trusted; however, Diogenes Laertius tells us that another Crotoniate, Alcmaeon, 'talked' (λέγει) about medical matters.[78] Both Democedes and Alcmaeon were close to Pythagoras: Democedes is said to have married the daughter of the famous Pythagorean athlete Milo,[79] and Alcmaeon was close to Pythagorean circles. Another Western philosopher, Empedocles of Agrigento (early fifth century BC) wrote on drugs.[80] Each of these cases taken alone is problematic, but taken together they point to a link between writing on medical matters and Western philosophy. This link was observed by Celsus:

> At first, the science of healing was considered as part of philosophy, so that the treatment of diseases and the contemplation of the nature of things originated under the same authorities, undoubtedly because treatment was required most by those whose bodily strength had been weakened by restless thinking and nocturnal wakefulness. For that reason we find that many among the professors of philosophy were experts in medicine, the most famous among them being Pythagoras, Empedocles and Democritus. But it was, as some believe, a disciple of the last, Hippocrates of Cos, the first out of all of them to be worthy of remembrance, a man remarkable both for his skill and eloquence, who separated this discipline from the study of philosophy.[81]

Celsus' explanation of the link between philosophy and medicine, and the role of Hippocrates in detaching both disciplines, is certainly a fantasy. On the other hand, the link between medicine and philosophy does

[77] *Suda* s.v. Δημοκήδης 442 (42.32–43.3 Adler).
[78] Diogenes Laertius 8.83. See Althoff (1993) 211–212.
[79] See Herodotus 3.137.
[80] Empedocles fr. 31B111 (DK).
[81] Celsus, *De Medicina*, proemium 7–8.

exist and should not be ignored. In my opinion, writing was applied to the transmission of medical knowledge and natural philosophy roughly at the same time, at the end of the sixth and the beginning of the fifth century BC. It might be argued that it is around this time that small collections of recipes were first written down.

The disappearance of the Pharmakitis?

The Hippocratic gynaecological treatises were transmitted together with their catalogues of recipes. However, a book—or several books—on drugs referred to several times in *Affections* is now lost. This book (or books) is sometimes called *Pharmakitis*, sometimes *Ta Pharmaka*.[82] Scholars have generally assumed that there was a particular treatise to which the compiler of *Affections* was referring. However, Elizabeth Craik has argued that this compiler may have had several different recipe books in mind:

> It is usually supposed that a particular treatise is intended. However, the different modes of allusion <sc. *Pharmakitis*, *Ta Pharmaka*> seem to suggest a fluid body of material; and as in Greek idiom the definite article is frequently used in place of a possessive pronoun, it may be that the meaning is 'your'—rather than 'the'—recipe book, the reader being enjoined to refer to his files on drugs.[83]

If one follows Craik's suggestion, one must imagine physicians consulting their own—different—copy of a *Pharmakitis*, a Recipe Book, in parallel with *Affections*. However, these various *Pharmakitides* must have had shared characteristics.

[82] *Pharmakitis: Aff.* 15 (28.5 Potter; 6.224.8 L.); 18 (32.13 Potter; 6.228.4–5 L.); 23 (42.20 Potter; 6.234.23 L.); 28 (50.7 Potter; 6.240.9 L.); 40 (64.4 Potter; 6.250.12 L.). *Ta Pharmaka*: *Aff.* 4 (12.4 Potter; 6.212.10 L.); 29 (50.25 Potter; 6.240.22 L.). See Craik (2006) 17.

[83] Craik (2006) 17.

Indeed, the references in *Affections* suggest that the remedies in the *Pharmakitides* were classified by disease to be cured or by action (analgesic, pyretic, etc.). In addition, the references to the *Pharmakitides* always mention medications (φάρμακα) in the plural. It therefore seems that these recipe books included lists of alternative recipes, such as the one found at *Diseases* 3.17,[84] or in the gynaecological treatises.

The *Pharmakitides* also included information on what we would call diet, as can be seen from the following reference: Δυσεντερίη ὅταν ἔχῃ…τὰ δὲ πώματα καὶ ῥυφήματα καὶ τὰ σιτία προσφέρειν κατὰ τὰ γεγραμμένα ἐν τῇ Φαρμακίτιδι. (When there is dysentery…administer drinks, thick gruels and foods according to what is written in your *Pharmakitis*.)[85] However, as I will argue in Chapter Three, the distinction between what we call 'dietetics' and 'pharmacology' was not necessarily well established in the classical period.

As an example, one may suggest that, when the compiler of *Diseases* 2.42–43 recommended particular recipes to cure tertian and quartan fevers, the compiler of *Affections* 18 was enjoining his readers to refer to their own recipe books for the same diseases. These texts are quoted as an appendix to this chapter, on pp. 105–110.

The chapters of *Diseases* II on tertian and quartan fevers are centred on the treatment of these diseases, whereas the parallel redaction at *Affections* 18 is centred on their aetiology. Recipes and detailed dietetic prescriptions in *Diseases* 2.42–43 are replaced by references to the reader's own *Pharmakitis* in *Affections* 18 (the relevant passages are underlined). The compiler of *Affections* is not interested in listing recipes; he knows that he can rely on a body of recipe books available to his readers, wherever they are.

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[84] Ermerins (1862) lxiv interpreted *Morb.* 3.17 as a fragment of the *Pharmakitis*. Scholars disagree on whether this chapter was part of the original treatise *Morb.* III. See Jouanna (1974) 365, note 5 and 442–443 for bibliography. Jurk argued that, from a stylistic point of view, *Diseases* 3.17 is concordant with the rest of the treatise. The recipes are linked by τοῦτο μέν…τοῦτο δέ, expressions which are characteristic of the style of *Morb.* III, and which are not generally used for linking recipes in the texts of the Hippocratic Corpus. Ilberg, on the other hand, argued that this chapter was part of *Sevens*, a treatise that recommends the use of cooling remedies in the treatment of causus (8.657 and 9.455 L.).

[85] *Aff.* 23 (42.9 and 18–21 Potter; 6.234.15 and 21–23 L.).

I have postulated the existence of several recipe books at the time when the compiler of *Affections* was active. None of these *Pharmakitides*, however, has come down to us in full. There are no traces of a treatise entitled *Pharmakitis* in the manuscript tradition of the Hippocratic Corpus, nor is there any mention of a *Pharmakitis* in relation to Hippocrates in the works of Galen or any other important medical writer of late antiquity.

Fragments of individual *Pharmakitides* may have survived, however. For instance, a short fragment, entitled ἐκ τοῦ περὶ φαρμάκων Ἱπποκράτου (*Peri Pharmakôn*), transmitted to us by a single Greek manuscript (Rome, Biblioteca Apostolica Vaticana, Urbinas gr. 64; end of the tenth or eleventh century), may be an introduction to one of the lost *Pharmakitides*. Hermann Schöne (1924) identified a correspondence between this fragment—which does not give any recipe—and a passage of *Affections* 36.

Peri Pharmakôn (Monfort [2002] 706)	*Affections* 36 (6.246.8–11 L.; see also 58. 8–13 Potter)
Χρὴ οὖν πρῶτον διδόναι τοῖσι μὲν χολώδεσι ὅ τι χολὴν καθαίρει, τοῖσι δὲ φλεγματώδεσιν ὅ τι φλέγμα, τοῖσι δὲ ὑδρωποιειδέσι ὅ τι ὕδωρ, τοῖσι δὲ μελαγχολώδεσιν ὅ τι μέλαιναν χολήν.	Τουτοῖσι τοῖσι φαρμάκοισιν ἀποκαθαίροντα ὧδε χρῆσθαι· ὅσοι μὲν χολώδεές εἰσι, διδόναι τὰ ὑφ᾽ ὧν χολὴ καθαίρεται· ὅσοι δὲ φλεγματώδεες τὰ ὑφ᾽ ὧν φλέγμα· ὅσοι δὲ μελαγχολῶσι, τὰ ὑφ᾽ ὧν μέλαινα χολή· τοῖσι δὲ ὑδρωπιῶσιν, τὰ ὑφ᾽ ὧν ὕδωρ.
First, it is necessary to give to those who are full of bile, something that purges bile; to those who are full of phlegm, something that purges phlegm; to those who are full of water, something that purges water; and to those who are full of black bile, something that purges black bile.	Whilst cleansing, use these remedies in the following manner: whenever they <sc. the patients> are bilious, give remedies that purge bile; whenever they are phlegmatic, give medications that purge phlegm; whenever they are melancholic, give medications that purge black bile; and to those who suffer from dropsy, give medications that purge water.

W. Artelt deleted the two last clauses from the text of *Affections* (ὅσοι δὲ μελαγχολῶσιν, τὰ ὑφ' ὧν μέλαινα χολή· τοῖσι δὲ ὑδρωπιῶσιν, τὰ ὑφ' ὧν ὕδωρ) because they refer to the humours dark bile and water, which are not mentioned anywhere else in the treatise.[86] However, although these two clauses were probably added after the first redaction of *Affections*, they are found in the manuscripts.

It is therefore possible, although impossible to prove, that the *Peri Pharmakôn* was an introduction to one of the *Pharmakitides*, which had been attributed to Hippocrates.[87]

A fragment of a *Pharmakitis* transmitted under the name of Hippocrates may also be identified in Aetius:[88]

> Ἱπποκράτης δὲ περὶ ὑπερκαθάρσεως οὕτω λέγει· ὅταν ὑπερκάθαρσις καταλάβῃ τὸν ἄνθρωπον, εὐθὺς εἰς βαλανεῖον ἐμβιβάσας αὐτόν, οἶνόν τε ἐπιπίνειν οἰκεῖον καὶ πρὸ τοῦ βαλανείου καὶ μετὰ τὸ βαλανεῖον κιρρὸν τὸ χρῶμα καὶ λευκὸν τῇ συστάσει.[89]
>
> Hippocrates says the following concerning *hyperkatharsis*: when *hyperkatharsis* seizes a man, directly make him take a bath, and have him drink, both before the bath and after the bath, a suitable wine, orange in colour, and transparent in consistency.

This kind of dietetic recommendation could indeed have been found in the *Pharmakitis*. However, the word ὑπερκάθαρσις—a very rare word (maybe referring to hellebore purge)—does not appear in the Hippocratic Corpus: it is not a disease covered by any of the Hippocratic nosological treatises. In addition, the word βαλανεῖον (bath, probably a small tub) appears only once in the Corpus, although it does appear several times in Aristophanes.[90] It is therefore difficult to determine whether the prescription found in Aetius is really a fragment of any lost recipe book of the classical period.

The fact that none of the *Pharmakitides* has come down to us in full should not surprise us—recipe books tend to be ephemeral, although

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[86] Artelt (1968) 87. See also Potter (1988) 58–60. *Aff.* adopts a two-humour theory (phlegm and bile), expounded in chapters 1 and 37.

[87] Goltz (1974) 140–141 refused to see *Peri Pharmakôn* as an introduction to *Pharmakitis*, because in her opinion, the references to the *Pharmakitis* in *Affections* do not mention purgative remedies, which she sees as the object of *Peri Pharmakôn*. See also Harig (1980) 225. However, Marie-Laure Monfort (2002) 698 argued that *Peri Pharmakôn* is concerned with remedies in general, not with purgative remedies only. On the modern history of this fragment, see also Monfort (2000).

[88] See Deichgräber *ap*. Olivieri (1935) 307.

[89] Aetius 3.118 (307.3–7 Olivieri).

[90] *Epid.* 7.46 (80.11–12 Jouanna; 5.414.10 L.). Aristophanes: see for instance *Pl.* 535.

recipes themselves can have remarkable longevity. As noted in Chapter One, recipe catalogues can easily be broken into their constituents, the recipes. These constituents are then reorganised into new catalogues. We know many recipes allegedly 'invented' in the Hellenistic period and the early Roman Empire through quotations by authors such as Galen and the Byzantine encyclopaedists. Yet, with the exception of Scribonius Largus' *Composite Drugs*, none of the numerous medical recipe books written in those periods is preserved in its original form. Similarly, none of the cookbooks written in antiquity survives complete, as noted by John Wilkins and Shaun Hill:

> Cookbooks can be influential in what they inspire, and ephemeral in themselves. They are a form of treatise that the author thinks worth writing, but that people do not keep in the long term. We should note that nearly all the cookery books cited by Athenaeus do not survive and had probably not survived to his day.[91]

Rewriting of pharmacological books is sometimes linked to changes in medical theory. Although Galen, for instance, excerpts many of his predecessors in his pharmacological treatises, he does not always agree with their organising principles and the way in which they explain the efficacy of remedies. Authors such as Galen or Soranus describe the efficacy of 'old' drugs in accordance with their 'new' medical theories, and reorganise them according to their own principles.[92]

Thus, medical authors active in later antiquity may have had access to *Pharmakitides* transmitted under the name of Hippocrates. These recipe books, however, then ceased to be copied in full as the newer collections, such as those of Galen and Oribasius, had superseded these ancient collections.

Conclusions: So much lost…

The *Pharmakitides* circulating at the time of Hippocrates are lost, but I would argue that even more ancient pharmacological knowledge has irremediably disappeared.

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[91] Wilkins and Hill (1996) 147.

[92] For instance, the Hippocratic gynaecological texts prescribe smell therapy to recall to its place a wandering womb. Soranus rejected the idea of a wandering womb (*Gyn.* 3.29.5; 113.1–6 Ilberg). However, Soranus does prescribe sweet-smelling aromas for a prolapsed uterus, probably in the belief that this would tonify the uterus (*Gyn.* 4.38.3; 151.11–12 Ilberg). On reinterpretation of old therapies, see King (1998) 223; on smell therapy, see Byl (1989).

Some of the medicaments included in the Hippocratic treatises were familiar to writers active in the fourth century BC. Diocles seemingly employed medicines similar to those found in the Hippocratic gynaecological treatises. Indeed, Soranus reports that Diocles used a series of ingredients, including garlic, applied as pessaries to predict whether a woman could conceive or not.[93] Several conception tests by means of a garlic pessary are recorded in the Hippocratic Corpus.[94] In addition, Aristotle mentions two means for testing whether a woman is barren or not:

> They test women by means of pessaries <to see> whether the smell <of the pessary> penetrates upwards from below to the breath which goes out, and by means of colours rubbed onto the eyes <to see> whether they colour the saliva in the mouth. For if these <effects> do not occur, it is clear that, in the body, the passages through which the residue is secreted are mixed up and obliterated.[95]

As already pointed out, the tests by means of pessaries are recommended in the Hippocratic gynaecological treatises. Furthermore, Simon Byl has recognised the test by means of colours at *Nature of Women* 99:

> Ἢν βούλῃ γυναικὸς ἐκπειρηθῆναι, εἰ ἔστι παιδιοῦσα εἴτε μή, τῇ ἐρυθρᾷ λίθῳ τοὺς ὀφθαλμοὺς ὑπαλεῖψαι, καὶ ἢν μὲν ἐσέλθῃ τὸ φάρμακον, παιδιοῦσα γίνεται· ἢν δὲ μὴ, οὔ.[96]
>
> If you want to test whether a woman is fertile or not, rub her eyes with the red stone: if the drug penetrates, she will become pregnant; if not, she will not.

There are many other examples of parallelisms between Aristotle's biological works and some Hippocratic treatises, especially *Generation*, *Nature of the Child* and *Diseases* IV.[97] However, these parallelisms never amount to *verbatim* quotations.

It is not impossible that Aristotle and Diocles might had read some of the gynaecological treatises as we know them; I have suggested earlier that these treatises may have assumed their structure (to which

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[93] Soranus, *Gyn.* 1.35 (24.20–23 Ilberg) = Diocles fr. 172 (276.9–13 van der Eijk): "He <sc. Diocles> particularly pays attention to an indication <that women can conceive> that make use of pessaries, such as resin, rue, garlic, cress, and coriander. For if the quality of the pessaries themselves is carried upward to the mouth, he says, these women can conceive; if not, the opposite." According to van der Eijk (2001) 315–317, this fragment is dubious.

[94] *Mul.* 1.78 (8.174.13–14 L.), on which see p. 51; *Steril.* 214 (8.416.2–5 L.), on which see p. 181.

[95] Arist., GA 2.7 (747a.7–14).

[96] *Nat. Mul.* 99 (122.1–3 Trapp; 7.416.1–3 L.). See Byl (1980) 40.

[97] See Byl (1980); Oser-Grote (2004).

some recipes could still be added, however) towards the end of the fifth century BC. These treatises were not necessarily attributed to Hippocrates in the fourth century BC; they may have circulated under another authorial name (for instance that of Euryphon) or indeed they may have circulated anonymously.[98] As noted by Byl, Aristotle never names Hippocrates in the biological treatises, nor does he attribute the opinions that have parallels in our Hippocratic Corpus to any other medical authority.[99] It is probably at Alexandria, at the very end of the fourth century, or at the beginning of the third, that the gynaecological treatises became 'Hippocratic'. And even so, their attribution to the Coan was debated.[100] As will be argued in Chapter Seven, the gynaecological recipes benefited from their attribution to Hippocrates in a variety of ways: they were commented upon, glossed and quoted by medical authors throughout antiquity.

However, one need not assume that Aristotle and Diocles had access to the gynaecological treatises as we know them, or even to earlier treatises. These authors might have been using recipes that are lost and/or reporting ideas that they had heard. The prescription at *Nature of Women* 99 is an aphorism that could easily be remembered and transmitted orally; the same goes for the indication to use smelling ingredients to test women's fertility. In both cases (lost recipe books, oral transmission of pharmacological knowledge), one has to postulate the existence of a thriving pharmacological tradition which we can only access in the most indirect of ways. Besides the recipes preserved in the Hippocratic Corpus as we have it, there were many *Gynaikeia*, many *Pharmakitides*. Of these written recipe collections, we can catch glimpses through our written material, especially through the papyrus evidence. The oral tradition may have been even richer, with a multitude of participating actors, as I will discuss in Chapter Three.

[98] See Thomas (2003) 182–183 on anonymous medical treatises in the classical period.

[99] Aristotle does mention Hippocrates at *Pol.* 1326a15, but he does not say that Hippocrates ever wrote anything.

[100] When the authorship of a Hippocratic book was disputed in antiquity, it was often attributed to one of Hippocrates' family members or one of his pupils. For instance, Galen reports that *Diseases* II was thought by some to be the work of Hippocrates Junior, the grandson of Hippocrates and son of Thessalus. In doing so, ancient scholars had found a way of explaining the heterogeneity of the Hippocratic Corpus, while still recognising the authority of Hippocrates.

Diseases 2.42 and 43 (173.16–75.8 Jouanna; 7.58.22–60.24 L.)		*Affections* 18 (30.6–32.13 Potter; 6.226.4–228.5 L.)	
		Καὶ τριταῖοι δὲ καὶ τεταρταῖοι πυρετοὶ ἐκ τῶν αὐτῶν γίνεσθαι πεφύκασιν. αὕτη ἡ κατάστασις τῶν νοσημάτων μάλιστα μὲν τοῦ θέρεος γίνεται· γίνεται δὲ ἐνίοισι καὶ τοῦ χειμῶνος.	Both tertian and quartan fevers are disposed by nature to arise from the same cause. This kind of diseases occurs usually during the summer. However for some, it also occurs in the winter.
Ἢν τριταῖος πυρετὸς ἔχῃ, ἢν μὲν μὴ παρεὶς τρεῖς λήψιας τῇ τετάρτῃ λάβῃ, φάρμακον πῖσαι κάτω· ἢν δέ σοι δοκῇ φαρμάκου μὴ δεῖσθαι, τρίψας τοῦ πενταφύλλου τῶν ῥιζέων ὅσον ὀξύβαφον ἐν ὕδατι, δοῦναι πιεῖν. Ἢν δὲ μηδὲ	If there is a tertian fever, if not having slackened three attacks it attacks with the fourth, give to drink a medication acting downwards. If <the patient> does not seem to you to need a medication, crush roots of cinquefoil, in the	Τριταῖος δὲ πυρετὸς ὅταν ἔχῃ, ἢν μέν σοι δοκέῃ ἀκάθαρτος εἶναι, τετάρτῃ φάρμακον δοῦναι. Ἢν δὲ μή σοι δοκῇ φαρμάκου δεῖσθαι, διδόναι φάρμακα ποτά, οἷσι μεταστήσεται ὁ πυρετὸς ἢ ἀπολείψει· διδόναι δ’	When <the patient> has a tertian fever, if he seems to you not to be purified, give him a medication on the fourth day. If, on the other hand, he does not seem to you to need a medication, give him medicinal drinks that will

τοῦτῳ παύηται, λούσας αὐτὸν πολλῷ θερμῷ, πῖσαι τὸ τρίφυλλον καὶ ὀπὸν σιλφίου ἐν οἴνῳ ἰσοκρατεῖ καὶ κατακλίνας ἐπιβαλεῖν ἱμάτια πολλὰ ἕως ἱδρώσῃ· ἐπὴν δ' ἐξιδρώσῃ, δοῦναι πιεῖν ἄλφιτον καὶ ὕδωρ· ἐς ἑσπέρην δὲ κέγχρον ἑψήσας λεπτὸν ῥυφησάτω καὶ οἶνον ἐπιπιέτω· ἕως δ' ἂν διαλείπῃ, σιτίοισιν ὡς μαλθακωτάτοισι χρήσθω.

amount of an *oxybaphon*, in water; give to drink. If <the fever> does not stop after this, wash him with a lot of warm water, give to drink clover and juice of silphium in wine mixed with equal quantity of water, put him to bed and cover him with many blankets so that he sweats. When he has sweated thoroughly, give him barley meal and water to drink. Towards the evening, boil thin millet and let him drink it as a gruel, and let him drink wine afterwards. Until the fever has discontinued, let him use the most emollient foods.

ὥσπερ γέγραπται ἐν τοῖς Φαρμάκοις· καὶ τῇ μὲν λήψει ῥυφήμασι καὶ ποτῷ διαιτᾶν, ταῖς δὲ διὰ μέσου, σιτίοισι διαχωρητικοῖσι. Καὶ λαμβάνει δὲ ὡς ἐπὶ τὸ πολὺ οὐκ ἐπὶ πλεῖστον· ἢν δὲ μὴ θεραπεύηται, ἐθέλει μεθίστασθαι ἐς τεταρταῖον καὶ γίνεσθαι πολυχρόνιος.

make the fever change or cease. Give these as it is written in your *Remedies*. During the attack prescribe gruels and drinks, and on the days in between, laxative foods. In general, this disease does not attack with severity, but, if it is not treated, it is likely to change into a quartan fever and to become chronic.

Appendix (*cont.*)

Diseases 2.42 and 43 (173.16–175.8 Jouanna; 7.58.22–60.24 L.)		*Affections* 18 (30.6–32.13 Potter; 6.226.4–228.5 L.)	
43. Τερταρταῖος πυρετὸς ὅταν ἔχῃ, ἢν μὲν ἐξ ἄλλης νούσου λάβῃ ἀκάθαρτον, φάρμακον πῖσαι ἄνω, ἔπειτα τὴν κεφαλὴν καθῆραι, ἔπειτα φάρμακον πῖσαι κάτω· ἢν δὲ μηδὲ ταῦτα ποιήσαντι παύηται, διαλείπων δύο λήψιας μετὰ τὴν κάτω κάθαρσιν, λούσας αὐτὸν πολλῷ θερμῷ, πῖσον τοῦ καρποῦ τοῦ ὑοσκυάμου ὅσον κέγχρον, καὶ μανδραγόρου ἴσον, καὶ ὀποῦ τρεῖς κυάμους, καὶ τριφύλλου ἴσον, ἐν οἴνῳ ἀκρήτῳ πιεῖν. Ἢν δ' ἐρρωμένος καὶ ὑγιαίνειν δοκέων, ἐκ κόπου ἢ ἐξ ὁδοιπορίης	43. When there is quartan fever, if it attacks <a patient> who has not been purified after another disease, give him a medication acting upwards to drink, then purge his head, and then give him a medication acting downwards to drink. If the fever does not stop when <the patient> does these things, leaving an interval of two attacks after the downwards purge, wash him with a lot of warm water, have him drink henbane seed, in the amount of a millet grain, and the same amount of mandrake, and	Ἢν τεταρταῖος λαμβάνῃ, ἢν μὲν ἀκάθαρτος ᾖ, καθαίρειν πρῶτρον μὲν τὴν κεφαλήν· καὶ διαλιπὼν τρεῖς ἢ τέσσερας ἡμέρας, φάρμακον δοῦναι ἄνω αὐτῇ τῇ λήψει· διαλιπὼν δέ, ἕτερον κάτω αὐτῇ τῇ λήψει. Ἢν δὲ μὴ πρὸς ταῦτα παύηται, διαλιπών, λούσας πολλῷ καὶ θερμῷ, δοῦναι τῶν φαρμάκων ἃ γεγραπται. ποτοῖσι δὲ καὶ ῥυφήμασι καὶ τῇ ἄλλῃ διαίτῃ χρῆσθαι, ὥσπερ ἐπὶ τοῦ τριταίου. Λαμβάνει δὲ οὗτος ὁ πυρετὸς τοὺς μὲν πλείστους πολὺν χρόνον, τοὺς δὲ καὶ ὀλίγον.	If a quartan fever seizes <a patient> when he is not purified, first purge his head. And leaving an interval of three or four days, give a medication acting upwards during the attack. Leaving another interval, give a medication acting downwards during the next attack. If with these <remedies> the fever does not end, leaving an interval, cleanse him with a lot of warm water, and give one of the remedies which are written.

πυρετήνας, καταστῇ ἐς τεταρταῖον, πυριήσας αὐτόν, σκόροδα δοῦναι ἐς μέλι βάπτων· ἔπειτα ἐπιπινέτω φάκιον, μέλι καὶ ὄξος μίξας· ἐπὴν δ' ἐμπλησθῇ, ἐμεσάτω· ἔπειτα λουσάμενος θερμῷ, ἐπὴν ψυχθῇ, πιέτω κυκεῶνα ἐφ' ὕδατι· ἐς ἑσπέρην δὲ σιτίοισι μαλθακοῖσι καὶ μὴ πολλοῖσι διαχρήσθω· τῇ δ' ἑτέρῃ λήψει λούσας θερμῷ καὶ πολλῷ, ἱμάτια ἐπιβαλὼν ἕως ἐξιδρώσῃ, πῖσαι παραχρῆμα λευκοῦ

three beans of <mandrake> juice, and the same amount of clover; give to drink in pure wine. If, on the other hand, <a patient> who seems strong and healthy falls ill with fever as a result of fatigue or travelling, and his fever changes into a quartan fever, foment him, give him <heads of> garlic dipped in honey. Then let him drink a decoction of lentils, mixed with honey and vinegar. After he has filled himself, let him vomit. Then let him wash himself with warm water. When he has cooled down,

Use the drinks, gruels and the rest of the diet, as in the case of the tertian fever. This fever attacks most patients for a long time, but others for a short time.

Appendix (*cont.*)

Diseases 2.42 and 43 (173.16–175.8 Jouanna; 7.58.22–60.24 L.)	*Affections* 18 (30.6–32.13 Potter; 6.226.4–228.5 L.)
ἐλλεβόρου τῶν ῥιζέων ὅσον τριῶν δακτύλων μῆκος, καὶ τοῦ τριφύλλου ὅσον δραχμὴν μέγεθος, καὶ ὀποῦ δύο κυάμους, ἐν οἴνῳ ἀκρήτῳ· καὶ ἢν ἐμεσίαι μιν ἔχωσιν, ἐμεσάτω· ἢν δὲ μή, ὁμοίως· μετὰ δὲ τὴν κεφαλὴν καθῆραι· σιτίοισι δὲ χρήσθω ὡς μαλθακωτάτοισι καὶ δριμυτάτοισιν· ὅταν δὲ ἡ λῆψίς μιν ἔχῃ, μὴ νῆστις ἐὼν τὸ φάρμακον πινέτω.	let him drink a *kykeôn* with water. Towards the evening, let him use emollient foods, but not in large amounts. During the next attack, wash him with a lot of warm water, cover him with blankets so that he sweats thoroughly, and let him drink immediately roots of white hellebore, three fingers in length, clover in the amount of a *drachma* and two beans of juice, in pure wine. And if <the patient> shows disposition to vomit, let him vomit. If not, <treat him> similarly,

and afterwards purge his head. Let him use foods as emollient and as sharp as possible. When there is an attack, he should drink the medication while not fasting.

Καὶ γίνεται μὲν ὁ τριταῖος καὶ ὁ τεταρταῖος ὑπὸ χολῆς καὶ φλέγματος· διότι δὲ τριταῖος καὶ τεταρταῖος ἐτέρωθί μοι γέγραπται. Δύναμιν ἔχει δὲ τούτων τῶν πυρετῶν τὰ φάρμακα πινόμενα, ὥστε τὰ σώματα κατὰ χώρην εἶναι ἐν τῇ ἐωθυίῃ θερμότητι καὶ ψυχρότητι, καὶ μήτε θερμαίνεσθαι παρὰ φύσιν μήτε ψύχεσθαι· διδόναι δὲ ὡς ἐν τῇ Φαρμακίτιδι γέγραπται.

The tertian and quartan fevers also occur because of bile and phlegm. This is why I have written about the tertian and quartan fever elsewhere. Remedies drunk for these fevers have a power such as to leave the bodies undisturbed in their usual heat or cold, neither heated nor chilled against nature: give them as written in your *Pharmakitis.*

CHAPTER THREE

HIPPOCRATIC RECIPES BETWEEN HOME REMEDIES AND *HAUTE MÉDECINE*

Introduction

In the previous chapter, I argued that the compilers of those Hippocratic treatises which include recipes had written sources at their disposal. I speculated that the writing down of the recipes now preserved in the Hippocratic Corpus may have started as early as the sixth century BC. In this chapter, I turn to the question of the oral sources available to those who wrote down these recipes.

Those recipes in the gynaecological treatises represent the vast majority (more than 80%) of the recipes recorded in the Hippocratic Corpus.[1] For most scholars this discrepancy between the gynaecological and 'non-gynaecological' treatises of the Corpus in their number of recipes is not a mere coincidence, as argued, for instance, by Iain Lonie:

> If we exclude diet, therapy in Hippocratic texts reduces to a few simple formulae for purges and emetics. The one exception to this generalization is offered by the gynaecological texts… This apparent contrast between the gynaecological texts and other texts dealing with internal diseases may *not be accidental*. The gynaecological texts deal with a *distinct social group*, which may originally have been serviced by a *distinct medical personnel*, the midwives… Other, less tangible, considerations are consistent with the possibility that *before the application of literacy to medicine internal medicine hardly existed in Greece*.[2]

I have suggested in Chapter Two that there were non-gynaecological *Pharmakitides* circulating at the time when the author of *Affections* was active (probably the beginning of the fourth century BC). The gender issues raised by the high number of recipes in the gynaecological treatises of the Hippocratic Corpus must nevertheless be discussed.

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[1] There are 285 recipes in non-gynaecological treatises and 1551 recipes in total: that is, 18.37% of the recipes are non-gynaecological.

[2] Lonie (1983) 153–154 (my emphasis).

Lonie's explanation in terms of a distinct social group with its own healers is commonly held. Since the publication of Aline Rousselle's article 'Images médicales du corps: observation féminine et idéologie masculine: le corps de la femme d'après les médecins grecs' in 1980, the recipes of the Hippocratic gynaecological treatises have been frequently interpreted as 'home remedies', transmitted orally by mothers to daughters for generations before assuming written form.[3]

For Rousselle, the role of the male doctor in the Hippocratic gynaecological treatises was only to 'write down' a medical knowledge that was based on women's accurate observations of their own bodies.[4] With regards to recipes, Rousselle imagined the Greek woman as a "*cuisinière à son fourneau*, preparing in her kitchen, potions, infusions, pessaries, and injections according to the recipes given by the midwife, the physician or tradition."[5] The French scholar therefore raised the possibility that some of the recipes originated outside of the female tradition and that a certain level of interaction between men and women was possible in the field of pharmacology.

Several scholars followed Rousselle in considering the Hippocratic gynaecological recipes as female knowledge written down by male doctors.[6] Most scholars, however, adopted a more nuanced picture of the respective roles of men and women in the creation of the Hippocratic gynaecologies. The treatises absorbed female knowledge, but male physicians did not merely write it down—they transformed it in the process. Ann Hanson, one of the main proponents of this hypothesis, argued that the role of the Hippocratic male physicians was to organise these home remedies and traditional concepts into "a coherent anatomy, physiology, and pathology".[7]

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[3] See also Rousselle (1983) chapter 2. Manuli's article 'Fisiologia e patologia del femminile negli scritti ippocratici dell' antica ginecologia greca', also published in 1980, reached the exact opposite conclusion, i.e. that Hippocratic gynaecology was a male science in which the relationship between male doctor and female patient reflected the links of subordination between female and male in Greek society. See also Manuli (1983) 154–162.

[4] See also Rousselle (1983) 38–40.

[5] Rousselle (1980) 1096. See also (1983) 53 (treatments for amenorrhea); 62 (abortive recipes).

[6] See McLaren (1990), especially p. 28; Riddle (1992), especially pp. 81–82.

[7] Hanson (1990) 310. See also (1989b) 40–41; (1991a); (1992a); (1992b). Hanson has since changed her position and given up the notion of 'home remedies'. See below. See also Dean-Jones (1995) 47; Demand (1994); (1998); Andò (1999); (2000).

Helen King has pointed out some important issues with these various attempts to 'find female voices' in the gynaecological recipes.[8] Firstly, scholars have simply assumed that the Hippocratic gynaecological recipes are the type of information mothers would transmit to their daughters. Although drug administration is often associated with women in Greek literature, nowhere is it explicitly said in the Hippocratic Corpus that the gynaecological recipes are the creation of women. The fact that the recipes are called *gynaikeia* is not conclusive since this word is also used to designate women's genitalia, the menses and women's diseases in general.[9] Secondly, King considers that certain types of ingredients used in the gynaecological recipes may cast doubts on the idea of a transmission from mother to daughter. For instance, we may wonder if recipes including ingredients from the *Dreckapotheke* ('filthy' ingredients, which appear only in gynaecological recipes, as pointed out by the studies of Heinrich von Staden) are the reflection of women's lore or whether they are the expression of men's conception of female impurity.[10] In addition, rare, expensive, imported ingredients, such as myrrh or frankincense, are not likely to feature in women's home remedies, but seem to be used by Hippocratic physicians 'to impress'.

Despite these issues, King does not reject the possibility that some recipes might have stemmed from female self-help practices. She finds Hanson's interpretation of the recipes as 'home remedies' that physicians integrated in a coherent theoretical framework a 'valuable compromise'.[11] King disagrees most with scholars who interpret recipes as a 'transparent' source for the history of ancient Greek women, and the physicians who wrote them down as mere 'reporters'. She reminds us that the Hippocratic gynaecological treatises, together with their recipes, are texts; as with any other texts, we should try to understand the motivations of their authors.[12]

In this chapter, I follow King in arguing that a polarization into female and male traditions is not helpful to understanding the gynaecological recipes. One of the most salient characteristics of the Hippocratic treatises is that, in contrast with later medical or botanical writings,

[8] King (1995a) 138–139; (1995b) 207; (1998): chapter 7, especially 132–133.
[9] King (1995a) 138.
[10] For more details on the use of ingredients from the *Dreckapotheke* in Hippocratic gynaecology, see pp. 212–214.
[11] King (1995b) 208.
[12] King (1995b) 202.

they never mention their informants for pharmacological knowledge; their recipes are always anonymous.[13]

I suggest that pharmacological knowledge, even when pertaining to female ailments—perhaps especially when pertaining to female ailments, was diffused throughout Greek society. Conception of healthy babies was crucial for the functioning of Greek cities, and men certainly took an interest in gynaecological issues. When a woman's problems could not be solved within her household, experts—whether midwives, root-cutters, physicians or priests—made their entry; they possessed special powers, used chants and incantations, or had knowledge of dangerous and/or exotic plants.

As noted by Helen King and Geoffrey Lloyd, the presence of exotic, expensive, flamboyant ingredients is particularly conspicuous in the Hippocratic collections of recipes. I argue that these types of ingredients might have acted as a means of transforming traditional medicine into *Haute Médecine*. Another way for the medical writers to mark themselves off from traditional medicine was to regiment every aspect of their clients' lives through regimen; pharmacology was only one aspect of *Haute Médecine*.

In the final part of this chapter, I reconsider the contrast between the gynaecological and 'non-gynaecological' treatises of the Corpus. I suggest that the relative lack of recipes in the 'non-gynaecological' treatises might be due more to the use of different literary conventions than to a difference in actual practice; the nosological treatises often recommend *pharmaka*, but do not give recipes for the preparation of these drugs. Although the nosological treatises preserve fewer pharmacological recipes than the gynaecologies, they partake of the same *Haute Médecine*: a dietetic medicine geared towards the elite.

The sources of the compilers of gynaecological recipes

As noted by Hanson, the authors of the Hippocratic gynaecological treatises distinguish between two types of woman: the woman of experience (i.e. 'the intelligent layperson who works with the doctor to maintain health or to combat illness') and the shy and modest woman who lacks experience.[14]

[13] The only possible exception to this rule is the φιλιστίον drug; see p. 89.
[14] Hanson (1990) 310.

Inexperienced women are difficult patients to treat, according to this passage of *Diseases of Women* I, because they are ashamed of their illnesses:

> And sometimes they do not know themselves what they are suffering from, before they have experienced the diseases occurring because of the menses and are older. Then necessity and time teach them the cause of their diseases. Often for those women who do not know the origin of their suffering, diseases have become incurable before the doctor has been properly told by the sick woman of the origin of her disease. Indeed, they are ashamed of talking, even if they know. And, because of their inexperience and ignorance, their <diseases> seem to them to be shameful.[15]

By contrast, women of experience know their body; a body that men can not really understand, because they are men.[16] Women of experience talk among themselves about their reproductive systems and know the exact time when they have conceived, as in this anecdote narrated by the author of *Nature of the Child*:

> I will describe how I came to see six-day old seed. There was, <in the house> of a woman related to me, a musician of high value who frequented men and who could not become pregnant lest she lost her value. This musician had heard what women say among themselves, namely that, when a woman has conceived, the seed does not come out, but stays inside. Having heard these things, she understood and always kept a watch and when she realised that the seed had not come out, she told her mistress, and the story came to my ears. Having heard it, I ordered her to jump up and down, <touching> her buttocks <at each jump>. After she had jumped no more than seven times, the seed fell out, there was a noise, and she looked at it in great surprise.[17]

The author of this anecdote readily believes the claims of the flute-girl regarding the age of her foetus, or at least he sees no problem in creating a fictional female character uttering such claims—this may all be 'male bluff'.[18] However, whenever it suits them best, the physicians of the Hippocratic Corpus do not hesitate to contest women's calculations

[15] *Mul.* 1.62 (8.126.7–14 L.). On the interview of the female patient, see Lloyd (1983) 76–79. On women as untrustworthy patients, see also Dean-Jones (1995) 48–49.

[16] On the experienced woman see also Dean-Jones (1995) 55 and 58; King (1998) 48.

[17] *Nat. Puer.* 13 (55.7–18 Joly slightly modified; 7.490.2–12 L.). On this story, see Hanson (1996b) 166–167; King (1998) 136; Lonie (1977b); (1981) 53. *Carn.* 19 (200–201 Joly; 8.608–610 L.) has a similar story.

[18] King (1998) 136.

of the time of conception.[19] One Hippocratic author even refuses to believe that women can tell when they have conceived by interpreting bodily signs: "She will know <that she has conceived> if her husband tells her he has ejaculated; the woman will not know it through the dryness <of her vagina>."[20] Thus, the Hippocratic writers reserve for themselves the right to judge in which circumstances they will accept women's knowledge.[21]

An experienced woman also knows how to do an internal examination of herself, as Phrontis—the only named woman in the Hippocratic gynaecological treatises—does when her lochia fail to occur after giving birth.[22]

If the Hippocratic writers admit that women have some knowledge of their bodies, they are silent about women's knowledge of how to heal their diseases. The use of feminine participles in some recipes seems to indicate that women were expected to prepare remedies.[23] However, it is often difficult to tell whether these feminine participles refer to the patient herself, to her domestic slave, or to a doctor's attendant. In addition, these feminine participles do not imply that the recipes are the 'invention' of women, only that women are involved in the preparation of medicines. There are, in the entire Hippocratic Corpus, only two—rather vague—references to women administering drugs. The first is a criticism of women's use of harsh pessaries: Ἢν δὲ γυνὴ ἐκ τρωσμοῦ τρῶμα λάβῃ μέγα, ἢ προσθέτοισι δριμέσιν ἑλκωσῇ τὰς μήτρας, οἷα πολλὰ γυναῖκες δρῶσί τε καὶ ἰητρεύονται… (If a woman receives a large lesion after an abortion, or wounds her uterus by harsh pessaries such as women always do when they treat themselves.)[24] The second is found in the *Epidemics*: Τῇ Σίμου τὸ τριηκοσταῖον ἀπόφθαρμα· πιούσῃ τι ἢ

[19] See *Epid*. 4.20 (114.1–5 Smith; 5.160.6–8 L.): abortion of a sixty-day foetus; 4.22 (112.3–5 Smith; 5.162.4–7 L.): abortion of a thirty-day foetus. See King (1998) 45; Lloyd (1983) 68.

[20] *Steril*. 220 (8.424.18–19 L.). This paragraph has a parallel at *Superf*. 26 (82.15–16 Lienau; 8.490.6–7 L.). See Hanson (1999) 244.

[21] See King (1998) 138.

[22] *Mul*. 1.40 (89–98.5 L.). On Phrontis, see King (1998) 48. On internal examinations, see also p. 249.

[23] See pp. 248–257 for an analysis of these feminine participles.

[24] *Mul* 1.67 (138.3–4 Grensemann 1982; 8.140.14–16 L.): Littré's edition has the active ἰητρεύουσι. However, the main manuscripts have the middle ἰητρεύονται. See Hanson (1996b) 173; Grensemann (1982) 138 and 171.

αὐτόματον τοῦτο ξυνέβη. (The wife of Simus, abortion on the thirtieth day; it happened after she drank something or spontaneously.)[25]

One might expect midwives—be they 'professional' midwives or only experienced women acting as female healers—to have administered drugs in classical Greece. According to Plato, μαῖαι (a term frequently translated as 'midwives') were able to provoke labour and cause abortions by means of drugs and chants (φαρμάκια καὶ ἐπᾴδουσαι).[26] However, midwives are almost invisible in the Hippocratic Corpus; the word μαῖα does not appear in the Corpus,[27] and there are only three occurrences of words that can be translated as 'the midwife': ἡ ὀμφαλητόμος (the cutter of the umbilical cord), ἡ ἀκεστρίς (the female healer), and ἡ ἰητρεύουσα (the healing woman).[28] However, these 'midwives' are mentioned in relation to childbirth, especially in relation to cutting the umbilical cord. Midwives do not provide drugs in the Hippocratic writings.

In contrast to the picture emerging from the Hippocratic gynaecological treatises, women are frequently presented as possessing pharmacological knowledge in other Greek texts. It is not rare for women in Greek myths and legends to be skilful in the preparation of drugs: witness Helen, Medea and Circe, to mention only a few.[29] In tragedies and comedies, 'real women' are often represented concocting love philtres and poisons—Greek women, it seems, only use their pharmacological knowledge to negative ends, whereas men are pictured preparing healing medicines.[30] However, this portrayal of women as

[25] *Epid*. 5.53 (24.11–12 Jouanna; 5.238.4–5 L.). This paragraph has a parallel at *Epid*. 7.74 (93.4–5 Jouanna; 5.432.2–21 L.).

[26] Plato, *Theaetetus* 149c.

[27] See Hanson (1996b) 168; Manuli (1983) 186–187 and the bibliography there given.

[28] The word ἡ ὀμφαλητόμος (the cutter of the umbilical cord) appears at *Mul.* 1.46 (8.106.5–8 L.). On the fact that the cutter of the umbilical cord is faulted for cutting too early, see Hanson (1996b) 173. The word ἡ ἀκεστρίς (the female healer) appears at *Carn.* 19 (202.22–203.1 Joly; 8.614.8–12 L.). The word ἡ ἰητρεύουσα (the healing woman) appears at *Mul.* 1.68 (8.144.22–24 L.).

[29] Helen: see for instance *Od.* 4.219 sqq. Medea: see for instance the tragedy of Sophocles entitled *Rhizotomoi* (*The Root-cutters*) (frr. 491–493 Nauck) in which Medea is presented as gathering poisonous herbs. Circe: see for instance *Od.* 10.213.

[30] Women preparing philtres: see for instance Euripides, *Hippolytus* 479 and 509; Aristophanes, *Thesm.* 561. See also references in Ehrenberg (1951) 152; 198 and 262; Just (1989) 265–268. On men preparing healing drugs, see for instance Aristophanes, *Thesm.* 483–486 (see below). See also references in Ehrenberg (1951) 198, note 9. See

poisoners and enchantresses might be the result, to use the expression of John J. Winkler, of "fictitious denial and transfer"; the reading of the Greek magical papyri suggests that men were as likely as women to prepare and purchase philtres and charms.[31] This is not to say that women did not possess any pharmacological knowledge in ancient Greece; rather, it seems that our written sources are biased when picturing this knowledge.

In these circumstances, should we polarize pharmacological knowledge in classical Greece into female and male traditions? It is important to note that, if the authors of the Hippocratic gynaecologies do not mention women as a source for their recipes, they do not mention men either. I believe it is unhelpful to consider the Hippocratic recipes as the product of a 'female' tradition, or as the product of a 'male' tradition for that matter. Is it possible to suggest that, in some cases, pharmacological knowledge was shared by men and women alike in classical Greece, even when this knowledge pertained to gynaecological ailments?

As I will stress in Chapter Five, one of the main concerns of the gynaecological treatises is fertility, the production of healthy children. Fertility was of the utmost importance for the functioning of the city, and it is doubtful men would have left issues such as reproduction, contraception and abortion entirely in the hands of women.[32] Women might have shared some secrets regarding their reproductive lives, but it is likely that in most cases, gynaecological interventions and therapies were discussed by all members of the household. Modern anthropological research in rural Greece has shown that issues such as conception and abortions are discussed between husband and wife.[33] One should also keep in mind the fact that the person paying for a woman's treatment in ancient Greece would have been her *kyrios*, that is, her father or husband.[34] Unless the remedies used in these gynaecological treatments were entirely constituted of cheap, readily available ingredients, it is likely that men would have known what drugs their wives or daughters were employing.

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also PSI 1.64: a marriage contract in which the woman promises not to put *pharmaka* in her husband's food and drinks. The text is translated in Rawlandson (1998) 322–323.

[31] Winkler (1990) 90. See also Demand (2002) 38.

[32] See Barras (2004) 102; Kapparis (2002) chapter 5.

[33] See Blum and Blum (1965) 74–77.

[34] See King (1998) 22.

Laymen may even at times have prepared remedies to treat their wives' gynaecological problems. Admittedly, we do not have any clear example of this in the extant literature, but in a passage of Aristophanes' *Women at the Thesmophoria*, a husband prepares a remedy for his wife's alleged stomach-ache (in reality an excuse to go out to meet her lover).[35] More seriously, the author of *Affections* acknowledges the fact that laypeople knew how to prepare drugs and could play a role in the elaboration of pharmacological knowledge:

> It is worth learning from everyone about medications that are drunk or applied to wounds. Indeed men do not discover these by reasoning, but rather by chance, and not more by experts (οἱ χειροτέχναι) than by laymen (οἱ ἰδιῶται). But whatever is discovered in the art of medicine by reasoning, whether about foods or about drugs, must be learnt from those who have discernment in the art <of medicine>, if you want to learn anything.[36]

Although experts in the art of pharmacology existed in classical Greece, pharmacological knowledge—knowledge of *materia medica* and therapeutical practices—belonged to society in general.

The author of *Affections* does not define his categories 'laymen' and 'experts'; admittedly, his 'experts' category might have included only himself and a few physicians sharing his views on therapies. In any case, laypeople probably did not deal with all pharmacological ingredients, as pointed out by Anthony Preus:

> The mystique surrounding the *pharmakon* does help preserve the monopoly of the root digger or drug seller: if gathering the plant requires a complicated ritual to avoid coming to harm, the layman is the more likely to keep away from it.[37]

In classical Greece, there were numerous types of 'experts' who could be consulted on pharmacological matters: the midwives, the *rhizotomoi* (root-cutters), *rhizopolai* (root sellers), *pharmakopolai* (drug sellers), and the priests of Asclepius and other healing gods.[38] All these experts are possible sources for the recipes of the gynaecological treatises: scholars

[35] Aristoph., *Thesm*. 483–486.
[36] *Aff*. 45 (68.14–22 Potter; 6.254.9–14 L.).
[37] Preus (1988) 79.
[38] The first attestation of the word *rhizotomoi* is in Sophocles' play entitled *Rhizotomoi* (now lost); the first occurrences of *rhizopolai* and *pharmakopolai* are in Critias (460–403 BC) fr. 88B70 (DK).

have found important overlaps between the Hippocratic recipes, religious healing, and the lore of the *rhizotomoi*.

The *rhizotomoi* are acknowledged as an important source on medicinal plants by Theophrastus in the ninth book of his *History of Plants*, although he is sometimes careful to distance himself from their lore through the use of expressions such as 'they say'.[39] There is some overlap between the lore of the *rhizotomoi* as described by Theophrastus and the recipes of the Hippocratic Corpus. For instance, Theophrastus recommends the root of cyclamen as a pessary for women, adding that some use it as an amulet for speeding up childbirth.[40] Cyclamen appears frequently in pessary recipes in the Hippocratic Collection, but it does not appear in the amulet recipes preserved in the Corpus.[41]

Large areas of overlap have also been discovered between 'Hippocratic' medicine and the cult of healing divinities.[42] These similarities pertain both to the vocabulary used and the ingredients involved. For instance, the word κάθαρσις (purification) and its cognates are used in both medical and religious contexts.[43] With regards to ingredients, the studies of Heinrich von Staden have shown how ingredients such as sulphur, bitumen, squill and laurel were used both in ritual purifications and in the Hippocratic gynaecological recipes.[44] In addition, Julie Laskaris has noted that many exotic ingredients listed in the gynaecological recipes were also used in the cult of healing divinities. For instance, she pointed out that frankincense, cassia and myrrh—all ingredients occurring in the Hippocratic recipes—were offered to Apollo Paion, i.e. Apollo Healer.[45] She concluded that the cults of healing divinities provided a context for the transmission of medical knowledge:

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[39] See Lloyd (1983) 122; Scarborough (1978); (1991) 146. Theophrastus even gives the name of some of the *rhizotomoi*—they are all men. See Scarborough (1991) 166, note 38.

[40] Theophrastus *Hist. Plant*. 9.9.3. See Lloyd (1983) 129.

[41] See for instance *Nat. Mul.* 9 (76.10 and 15 Trapp; 7.324.10 and 15 L.): Ἢν ἐκ τόκου μὴ καθαρθῇ…προσθεῖναι τὴν κυκλάμινον. (If the purgation does not occur after childbirth…Apply cyclamen.)

[42] See for instance Edelstein (1937); Kudlien (1967); (1968); Laskaris (1999); Lloyd (1983); Lloyd (2003b) chapter 3; von Staden (1991); (1992b).

[43] See Lloyd (1983) 132; von Staden (1992b) 15.

[44] Von Staden (1991) 55–60; (1992b) 19–20.

[45] See Sappho fr. 44 (Lobel and Page), lines 30–34. See Laskaris (1999) 5–6. See below and Chapter Four for the use of exotic ingredients in the Hippocratic recipes.

> <T>he medicinal properties, real or imagined, of plants sacred to an archaic healing deity were known by the archaic period and their sacred status was, at least in part, owed to these properties.[46]

Although there is a significant overlap between the medicine of the 'Hippocratic' writers, on the one hand, and the medicine practiced by the *rhizotomoi* and priests, on the other, scholars—most prominently Lloyd—have stressed one important difference: there are no references to special rites, chants or prayers in relation to the application of drugs in the Hippocratic collections of recipes. Lloyd argues:

> The omission of references to special rites or prayers when using particular plants is, to be sure, in line with the *rationalist tendencies* that are prominent in a number of Hippocratic works and that are made explicit in the polemic against superstitious beliefs and practices in *On the Sacred Disease*…No doubt some of the clients in view in the Hippocratic pharmacological writings would expect their authors to maintain the *hard-headed rationalist stance* that some of the polemical treatises adopt. At the same time when we ask why it is that some of these plant substances are used at all, or why used in the particular way recommended, in some cases a full answer will have to include reference to the folklore surrounding them.[47]

If some polemical treatises of the Hippocratic Corpus reject superstitious beliefs, the rationality of the 'Hippocratic' texts must not be overstated.[48] It is important to stress that there is no such thing as a homogeneous 'Hippocratic' medicine: the 'Hippocratic Corpus' is a heterogeneous collection of texts. Some of these texts adopt what appears to us to be a rationalist stance; others, such as the gynaecological treatises, are,

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[46] Laskaris (1999) 1. See also Laskaris (2002) 6. Further links between ancient religion and Hippocratic medicine will be discussed in Chapter Five.

[47] Lloyd (1983) 131–132 (my emphasis).

[48] Laskaris (2002) 1–2 believes the rational character of treatises such as *On the Sacred Disease* has been misinterpreted: "The treatise has often been interpreted as having easily banished from medicine magical and religious elements, and as having done so with the aim of providing it with the rational premise upon which modern biochemical medicine rests, or as having represented scientific medicine in the ancient world, or as having aided medicine's progress in becoming scientific. But such interpretations are anachronistic; positivist; and beg the questions of how science and rational premises are defined, what relationship they bear to each other, and whether modern medicine can indeed be considered entirely scientific or to function solely on a rational basis. More importantly, such interpretations overlook the true motivation for the polemic: the competitive tensions with the healers who come under attack."

to use the expression of von Staden, "replete with the 'otherness' of Greek science".[49]

One may point out that chants or prayers never accompany the recipes of the Hippocratic Corpus, but gestures that evoke religious practice appear frequently. Fasting, bathing and abstinence from sexual activity—all acts that were loaded with religious symbolism in the ancient world—often accompany the administration of the medicaments recommended in the gynaecological treatises; we are far from the hard-headed rationalist stance described by Lloyd.

Turning to temple medicine, it should be noted that when Aristophanes describes a drug administered by the god Asclepius to Neocleides in his *Plutus*, he does not mention any prayers or special ritual either:

> Πρῶτον δὲ πάντων τῷ Νεοκλείδῃ φάρμακον
> καταπλαστὸν ἐνεχείρησε τρίβειν, ἐμβαλὼν
> σκορόδων κεφαλὰς τρεῖς Τηνίων. Ἔπειτ' ἔφλα
> ἐν τῇ θυείᾳ συμπαραμιγνύων ὀπὸν
> καὶ σχῖνον· εἶτ' ὄξει διέμενος Σφηττίῳ,
> κατέπλασεν αὐτοῦ τὰ βλέφαρ' ἐκστρέψας, ἵνα
> ὀδυνῷτο μᾶλλον.[50]
>
> First of all, for Neocleides, he <sc. Asclepius> set himself to knead a plaster, throwing in three cloves of Tenian garlic. Then, he crushed them in the mortar, mixing them together with verjuice and mastic. Then, he soaked <the mixture> with Sphettian vinegar, and turning out the eyelids of the man, he plastered them to make him suffer more.

Although one may wonder whether such painful drugs (all the ingredients would have irritated the eyes of Neocleides) were administered in Asclepius' temple, it is reasonable to trust Aristophanes' description of how the drug was administered, that is without chants and prayers.

It should also be noted that in an earlier play, *The Assembly Women*, Aristophanes included a similar recipe for the eyes of Neocleides, but this time it was imagined by Blepyrus, a layman:

> ΒΛ. 'Σκόροδ' ὁμοῦ τρίψαντ' ὀπῷ
> τιθύμαλλον ἐμβαλόντα τοῦ Λακωνικοῦ
> σαυτοῦ παραλείφειν τὰ βλεφαρα τῆς ἑσπέρας,'
> ἔγωγ' ἂν εἶπον, εἰ παρὼν ἐτύγχανον.[51]

[49] Von Staden (1992c) 584. See also van der Eijk (2004).
[50] Aristophanes, *Pl.* 716–721.
[51] Aristoph., *Ec.* 403–407. See pp. 176–177 for more details on these two recipes by Aristophanes.

> "Crush garlic with verjuice, add Laconian spurge; cover your eyelids with this ointment in the evening." This is what I would have said if I had been there <sc. at the assembly>.

For Aristophanes, there was very little difference between the medicines prepared in the temple of Asclepius and those prepared by laymen.

Interestingly, it was believed in later antiquity that Hippocratic medicine had its origins in temple medicine. In the twenty-ninth book of his *Natural History*, Pliny reports a story about Hippocrates he has read in Varro:

> Then <sc. during the Peloponnesian war>, Hippocrates called it <sc. medicine> back to light. He was born on the island of Cos which was particularly renowned, powerful and dedicated to Asclepius. As it had been the custom for those freed from disease to write in the temple of that god what had helped them, so that thereafter a similar case might benefit, he is reported to have copied these <inscriptions>, and, as Varro among us believed, after the temple had been burnt, he instituted that medicine which is called clinical.[52]

This story represents a hostile tradition towards Hippocrates: Hippocrates is a thief who established clinical medicine through sacrilege. However, beyond its improbability, this story shows that some ancient writers considered 'Hippocratic' medicine and temple medicine to be close enough for one to derive from the other. To these writers the source of Hippocratic medicine was clearly in temple medicine.[53]

Thus, the remedies used by the Hippocratics might have been very similar to those used by religious and other 'traditional' healers. Hanson (who in her latest articles on recipes gave up the expression 'home remedies') acknowledges the fact that the Hippocratic gynaecological recipes include examples of amulets[54] (a form of medication favoured

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[52] Pliny, *HN*. 29.2.4 (T 795 Edelstein and Edelstein). See pp. 5 and 262 for this story. On this story, see Pigeaud (1988) 326.

[53] This story also accounts for the fact that people in later antiquity knew no medical writings anterior to Hippocrates, and in particular no medical writings including cures. See Pinault (1992) 11–12.

[54] On amulets in the Hippocratic Corpus, see Hanson (1995); (1998a) 82–84; (2004b). I count three amulet recipes in the Hippocratic gynaecological treatises: 1) *Mul.* 1.77 (8.172.2–4 L.). Ἕτερον ὠκυτόκιον· τοῦ σικύου τοῦ ἀγρίου, ὅστις ἂν ἤδη λευκὸς ᾖ, τὸν καρπὸν ἐμπλάσας κηρῷ, εἶτα εἰρίῳ ἐνελίξας φοινικέῳ, περίαψον περὶ τὴν ὀσφύν. (Another means to speed up the birth: plaster the seed of wild cucumber, already white, on wax; then wrap it in purple wool, tie around the <woman's> loins.); 2) *Mul.* 1.78 (8.186.12–13 L.). Ἄλλο ἐπιδετόν· ῥητίνην καὶ στέαρ ὄρνιθος τρίψασα ἅμα καὶ μίξασα ἐπιδησάσθω ἐπὶ τὸν ὀμφαλὸν καὶ τὴν γαστέρα. (Another medicament to be fastened on: crush resin and poultry suet together; mix. Let her tie this to her navel and belly.);

by the *rhizotomoi*) and other glimpses of a "less sophisticated medical past".[55] By this expression, she means a time when the efficacy of the remedies was linked to religious or magical systems of explanation, that is, systems of explanation that rely on the principle that like cures like. The Hippocratics, in contrast, recommended treating diseases following the mechanical principle of opposites as cures for opposites. When they recorded traditional remedies, according to Hanson, the Hippocratics either reinterpreted them to fit their system of explanation (opposites are cures for opposites) or, as in the case of the amulets, they "missed the fact" that these medicaments were appealing to the opposite system of explanation (like cures like).

The Hippocratics might have wanted to differentiate themselves from their competitors in the field of pharmacology by using mechanical systems of explanation for the efficacy of their remedies. However, did the similarities between their remedies and those of the *rhizotomoi*, priests and other healers escape their readers or clients? As I will argue in Chapter Five, these users of the Hippocratic recipes were probably often aware of the symbolic (and, in particular, the religious) connotations attached to ingredients and practices recommended in the gynaecological remedies. In practice, 'secular' healers could not easily distinguish themselves from other healers in the field of pharmacology.[56]

To sum up, I have identified various possible sources for the Hippocratic collections of gynaecological recipes: midwives, *rhizotomoi* and *rhizopolai*, priest-healers, magicians, and laypeople. Laypeople—that is laymen and laywomen—had a certain pharmacological knowledge; they could even at times prepare their own drugs, their home remedies. However, they probably did not deal with certain types of ingredients. 'Experts' in pharmacology, on the other hand, knew how to handle 'dangerous' ingredients. They also knew how to exploit the powers of exotic and rare *materia medica*.

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3) *Mul.* 1.91 (8.218.13 and 15–18 L.): text quoted pp. 214–215. Amulets are criticised by Theophrastus at *Hist. Plant.* 9.19.2.

[55] Hanson (1997): 309. See also Hanson (1996b) 178; (1998a) 74 for the use of the word 'sophisticated'.

[56] See Laskaris (2002) 13.

The High and the Low

The use of exotic, rare ingredients is particularly conspicuous in the Hippocratic collections of gynaecological recipes. For instance, in the collection of ten recipes for pain after purgation examined in Chapter Two (*Diseases of Women* 2.209), six recipes at least include imported ingredients: myrrh and frankincense were products of Arabia; cassia originated from South-East Asia; and although Egyptian perfume was not necessarily produced in Egypt, it nevertheless included imported ingredients such as myrrh.[57]

Because of their price and the way they were valued, exotic and luxury ingredients were unlikely to figure in 'home remedies'. Or, more correctly, these ingredients were unlikely to figure in the remedies of the majority of Greek households; they were affordable only to the rich. Perfume in particular was a status symbol in the ancient world.[58]

However, other recipes in this example are composed of very affordable and widely available ingredients in Greece, such as elderberries (recipes 3, 8 and 9), bayberries (recipe 8) and St Johns' wort (recipe 6). Simple recipes including only readily available ingredients are presented as alternatives to 'expensive' recipes: the users of the gynaecological treatises could choose the recipes suited to their needs and financial means. In total around 40 to 45% of the Hippocratic recipes include exotic or luxury ingredients. This use of 'impressive' ingredients may be linked, as suggested by Geoffrey Lloyd, to the organisation of medicine in ancient Greece. In a society where there was no medical licence, healers resorted to a variety of methods to convince potential clients of their powers: rhetoric, elaborate bandaging, impressive medicaments, etc. This competitive climate put pressure on physicians to innovate.[59]

One should not forget, however, that 55 to 60% of the recipes preserved in the Hippocratic Corpus are made of ingredients readily available in most parts of Greece, and indeed in many other parts of the Mediterranean.[60] Moreover, if we examine further one of the

[57] Recipe 1 includes myrrh, frankincense and Egyptian perfume; recipe 3 includes frankincense and myrrh; recipe 4 includes myrrh, frankincense and Egyptian perfume; recipe 5 includes myrrh and frankincense; recipe 7 includes myrrh and cassia; and recipe 10 includes the 'spices that are used in perfume'. These recipes are discussed on pp. 75–78 and 95–96.

[58] See for instance Aristophanes, *Nub.* 46–52.

[59] Lloyd (1983) 82. See also King (1995b) 207.

[60] 40 to 45% of the Hippocratic recipes include one or more of the exotic or luxury

'expensive' recipes of our example (recipe 1 and its parallel, recipe 4) we understand that the 'author' has attempted to accumulate as many emollient ingredients as possible in order to soothe the irritated vagina.[61] The idea of using an emollient enema in this situation may have come from a 'home' tradition. In addition, many of the ingredients of this recipe—honey, resin, goose suet, white vinegar and sweet wine—were readily available ingredients, the type of ingredients one would expect to find in a 'home remedy'. In short, this recipe looks like a remedy that could have been designed in a 'self-help' environment, to which a number of expensive, imported ingredients were added. There are many other cases of this kind in our collections of Hippocratic gynaecological recipes. For instance, Egyptian perfume may have been added to the following recipe in order to make it more luxurious: Ἕτερον· τῆς γλυκυσίδης μέλιτι δεύσας καὶ μύρῳ ῥοδίνῳ καὶ Αἰγυπτίῳ, ἐν εἰρίῳ προσθεῖναι. (Soak peony in honey, rose perfume and Egyptian perfume; apply in wool.)[62] Since this pessary had to be dipped in honey and rose perfume, to dip it also in Egyptian perfume was not strictly necessary; but it certainly added to the cost of the recipe.

It is this combination of, on the one hand, cheap, readily available ingredients, and on the other, highly expensive, exotic products, that leads me to consider the Hippocratic recipes as the product of *Haute Médecine*, an expression modelled on Jack Goody's notion of *Haute Cuisine*.

Goody, in his *Cooking, Cuisine, and Class* (1982) links the emergence of an *Haute Cuisine* in ancient societies (Mesopotamia, Egypt, India, China and the Persian Empire) to the growth of temple and royal hierarchies in these societies: 'units of food preparation' were created in the temples and palaces that were the centres of power of these civilizations.[63] In these units, cooks invented recipes based on new exotic ingredients, but they also incorporated recipes for daily cooking and transformed them into an *Haute Cuisine* suitable for the courts or

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ingredients presented in Chapter Four. The uncertainty in the numbers is due to the fact that some Greek names could designate several different species of plants.

[61] *Mul.* 2.209 (8.404.1–5 and 9–13 L).

[62] *Nat. Mul.* 32 (90.17–18 Trapp; 7.352.17–18 L.). This recipe has a parallel at *Mul.* 1.78 (8.176.16–17 L.), although there the Egyptian perfume is offered as an alternative to the much cheapter rose perfume.

[63] Goody (1982): chapter 4. On Mesopotamian *Haute Cuisine*, see also Bottéro (1985); (1987); van der Steen (1995).

temples in which they worked. Thus, *Haute Cuisine* depends on two elements: 'traditional' recipes and new recipes based on ingredients coming 'from outside'.[64] Goody also noted that the organisation of *Haute Cuisine* is accompanied by a 'sexual transposition of domestic tasks',[65] that is, male cooks were in charge in the 'food units' of the ancient temples and palaces, whereas in traditional societies women did the daily cooking.

Goody did not study the cuisine of ancient Greece, but classicists have shown that, there too, food served as a status symbol, and that the division between High and Low Cuisine was observable.[66] In the words of Peter Garnsey,

> *Haute cuisine* Greek- and Roman-style was marked by variety of foods (home-produced and imported), elaboration, novelty, professionalism and luxury. The diet of the poor and lowly was basic and repetitive, built around the staples of cereals and dry legumes, with simple and cheap additions.[67]

In addition, *Haute Cuisine* in Greece and Rome was in the hands of male cooks, whereas women did the daily cooking.

Along the same lines, we could imagine that wealthy Greeks had access to *Haute Médecine*, characterized by variety, novelty, and luxury. If we consider the Hippocratic catalogues of recipes as a type of *Haute Médecine*, immediately their eclectic nature becomes less puzzling; *Haute Médecine* is characterised by variety, by the mingling of expensive, 'fashionable' remedies with re-interpreted folk remedies of all kinds. Like chefs, Hippocratic physicians created their *répertoires* of recipes by picking up from a variety of traditional sources, but above all by creating new recipes based on 'exotic', luxury and flamboyant ingredients.

We could also suggest that, as is the case with *Haute Cuisine, Haute Médecine* experienced a sexual transposition of tasks: it was in the hands of male physicians, whereas folk medicine in Greek society could be practiced by both men and women. As noted by Monica Green, in the Middle Ages, male and female healers sometimes used very similar remedies but, whilst women used common ingredients, men chose

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[64] Goody (1982) 105.
[65] Goody (1982) 101.
[66] See for instance Garnsey (1999) chapter 8; Mazzini (1994); Nenci (1989); Purcell (1996).
[67] Garnsey (1999) 113.

expensive alternatives in order to distance their remedies from those of women.[68] In Greek society, men probably had an easier access to the places where luxury products were sold. It seems that shopping generally was a man's job, and this must particularly have been the case in wealthy families.[69] On the other hand, women were in charge of the storeroom, in which exotic products were sometimes kept.[70] As pointed out above, the presence of feminine participles in some recipes of the Hippocratic Corpus suggests that women sometimes prepared recipes including this kind of ingredients. For instance:

> Τὸν δὲ χρόνον τοῦτον ἐψοῦσα ἐν οἴνῳ λευκῷ ὡς ἡδίστῳ γλυκεῖ δαῖδα πινέτω πιοτάτην κατασχίσασα λεπτά, καὶ σελίνου καρπὸν κόψασα, καὶ κυμίνου Αἰθιοπικοῦ καρπόν, καὶ λιβανωτὸν ὡς κάλλιστον· τούτου πινέτω νῆστις ὁκόσον δοκέει μέτριον εἶναι πλῆθος, ἡμέρας ὁκόσας ἂν δοκέῃ καλῶς ἔχειν.[71]
>
> During this time, let her cut in little pieces pine twigs, as oily as possible, and boil them in sweet white wine, as pleasant as possible; let her drink it. And chop seed of celery, seed of Ethiopian cumin <sc. nigella> and frankincense, as good as possible. Let her drink this while fasting, in an amount that seems sufficient, and for a number of days that seems sufficient.

Although this recipe includes two exotic ingredients (Ethiopian cumin and frankincense), the presence of feminine participles suggests that a woman is expected to prepare the remedy.[72] Admittedly, the woman preparing the drug could be a female attendant to the doctor. However, if this woman is the patient herself or her domestic slave, the implications are important. Indeed, if a doctor asked his female client (or a member of her household) to prepare one of his recipes, it meant that this recipe was not secret, but rather became part of a pool of recipes accessible to everyone. Once a woman had learnt a recipe from a Hippocratic doctor, she could circulate it. The creation of *Haute Médecine* did not preclude a continuing dialogue between Hippocratic physicians and women; this was a dialogue in the proper sense of the term, not an appropriation of female knowledge by male physicians.

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[68] Green (1989) 63.

[69] See for instance Aristophanes, *V.* 789; *Ra.* 1068; *Ec.* 502; Theophrastus, *Characteres* 9.4. See Dalby (1993); Davidson (1998) 78; Ehrenberg (1951) 200–201.

[70] See Xenophon, *Oec.* 7.25. Exotic goods in the storeroom: see Euripides, *Melanippe* fr. 14 (Jouan and Van Looy).

[71] *Steril.* 217 (8.420.6–10 L.). The feminine participles are underlined twice; the exotic products are underlined once. See also *Superf.* 29 (8.496.12–16 L.), on which see p. 198.

[72] See pp. 248–257 for a more detailed discussion of these feminine participles.

Two qualifications have to be brought to this notion of *Haute Médecine*. First, *Haute Médecine* is culturally determined. To be *Haute*, medicine has to make use of exotic and luxury ingredients. It must be noted, however, that the content of the categories '*exotica*' and 'luxuries' may vary with time and place, economical and political changes. As shown by the studies of Arjun Appadurai and Christopher Berry, luxury is not an intrinsic quality of goods; almost any good can potentially be a luxury.[73] Each society defines which products are luxuries, and this definition is part of the 'social grammar' of the society. Chapter Four will examine in more details which ingredients of the Hippocratic recipes were considered luxuries in the classical period.

Second, as is the case with foods, it is probable that no drug—whether simple or compound—was completely monopolized by the rich.[74] However, the rich could make use of expensive remedies on a regular basis, and they could afford long treatments involving various medical interventions and remedies. For instance, only a wealthy Greek woman could have afforded the following fertility treatment:

> Ἄλλη θεραπείη· πυριήσας τὸ σῶμα ὅλον, πῖσαι, καθῆραι ἄνω καὶ κάτω, εἶτα ὄνειον γάλα μεταπίσαντα πυριῆν τὰς μήτρας δι' αὐλοῦ, δύο μὲν ἡμέρας οὔρῳ γυναικείῳ σαπρῷ καὶ λίτρον ἐμβάλλειν, τῇ δὲ τρίτῃ βοείῳ οὔρῳ· τῇ δὲ τερτάρτῃ καὶ πέμπτῃ τρίψας μαράθρου σπέρμα καὶ ἀκτῆς φύλλα καὶ δάφνην καὶ κυπαρίσσου πρίσματα, ταῦτα ἑψῆσαι ὕδωρ ἐπιχέαντα· δεῖ δὲ μετὰ τὴν πυρίησιν λουσαμένην πολλῷ θερμῷ προστιθέναι στέαρ ἡδυντὸν ἐκ τῆς πυρίης εὐθὺς καὶ ἐς νύκτα· μετὰ δὲ σκευάζειν, ξυμμιγνὺς σμύρναν στακτὴν καὶ βούτυρον καὶ χηνὸς ἄλειφα καὶ ἐλάφου μυελὸν καὶ ῥητίνην καὶ νέτωπον· τουτέων ἴσον ἑκάστου ξυμμίξαντα, διατήξαντα, προστιθέναι ἐν εἰρίῳ Μιλησίῳ μαλθακῷ ὡς εὐειροτάτῳ· μετὰ δὲ ἀναστομοῦν τὴν μήτρην μολιβδίοισιν ἐληλασμένοις ὀκτωδακτύλοισι πέντε· τὸ πρῶτον ἔστω λεπτόν, τὸ δὲ δεὐτερον παχύτερον, καὶ τἄλλα θάτερον θατέρου παχύτερον· ἀναστομοῦν δὲ πέντε ἡμέρας· ἐπὴν δὲ ἀναστομώσῃ, προσθεῖναι καθαρτικόν, τρίψας κανθαρίδας πέντε καὶ σικυώνης μακρῆς σπόγγον καὶ σμύρναν· ταῦτα μέλιτι ἐφθῷ φορύξαντα καὶ φυρήσαντα βαλάνιον εἰρίῳ κατειλίξαι πλὴν τοῦ ἄκρου· ἔπειτα εἰς ἄλειφα βάψαντα ὡς ἥδιστον, προσθεῖναι· χρῆσθαι δὲ καθαρτικῷ καὶ τούτῳ τῇ χολῇ τοῦ ταύρου, καὶ ἄνθει ὀπτῷ καὶ λίτρῳ καὶ σμύρνῃ, μέλιτι ὀλίγῳ διέντα, ὀθόνιον λεπτὸν ἀποδήσαντα, καὶ ἄνω τὸ ὀθόνιον περιελίξαντα τῷ φαρμάκῳ, προστιθέναι· χρῆσθαι δὲ καὶ βουπρήστει ξὺν τῇ σμύρνῃ, καὶ ἐλατηρίῳ ξὺν τῷ μέλιτι ἐφθῷ, καὶ τῇσι κανθαρίσι ξὺν τῷ ἐλατηρίῳ τε καὶ τῇ σμύρνῃ. Ἐπὴν δὲ καθαρθῇ,

[73] Appadurai (1986); Berry (1994) chapter 1.
[74] For foods, see Garnsey (1999) 127.

τῇ ὑστεραίῃ λούσαντα κλύσαι τὴν μήτρην· κύμινον Αἰθιοπικὸν τρίψας καὶ μελάνθιον καὶ ῥητίνην καὶ ἄλειφα καὶ μέλι καὶ οἶνον γλυκύν· ταῦτα μίξας καὶ ἀναχλιήνας κλύσαι· ἐπὴν δὲ κλύσῃς, ἀναστήσας, περιιέναι κελεύειν, ὅκως τὸ κλύσμα διασείηται. Προσθεῖναι δὲ κρόκον καὶ σμύρναν καὶ λιβανωτὸν ἐν ῥάκει λιναίῳ ἀποδέοντα ξηρὸν ἴσον ἑκάστου, ξυμμίσγοντα χηνὸς ἄλειφα, περιχρίοντα τὸ ῥάκος· τοῦτο δὲ προστιθέναι ἑπτὰ ἡμέρας· τῇ δὲ ὀγδόῃ θυμιῆσαι σμύρνῃ καὶ ἀσφάλτῳ καὶ κριθῇ, εὐώδει ἀλείφατι πεφυρημένα ἐπὶ μαλθακὸν πῦρ ἐπιβαλὼν, θυμιῆν δι' αὐλοῦ. Ἐπὴν δὲ θυμιήσῃς, τῇ ὑστεραίῃ τρῖψαι κάστορος ὄρχιν, οἶνον λευκὸν παραχέων, καὶ αὐτὸν μήλῃ ἀμφιπλάσας καὶ εἰρίῳ κατελίξας προσθεῖναι ἐς νύκτα· ὄρθρου δὲ ἀνελομένη καὶ διαμαλαξαμένη ἴτω παρὰ τὸν ἄνδρα, καὶ ξυγκοιμηθεῖσα ἀτρεμείτω· καὶ ἂν μὴ ἐπὶ τοῦ πρώτου κυήσῃ, αὖθις προσθεμένη αὐτὸ τοῦτο, παρὰ τὸν ἄνδρα ἐλθέτω. Ἄρχεσθαι δὲ χρὴ φαρμακεύοντα, ἐπειδὰν ἔλθῃ τὰ καταμήνια· ληγόντων δὲ χρὴ τὸ κυητήριον προσθεμένην ξυγκοιμᾶσθαι· τοῦ δὲ πρόσθεν χρόνου μήτε ἡ γυνὴ ἴτω ἆσσον τοῦ ἀνδρός, μήθ' ὁ ἀνὴρ παρὰ τὴν γυναῖκα.[75]

Another therapy <to make the woman fertile>: Foment the entire body; give to drink a purgative acting upwards and a purgative acting downwards. Then, having administered donkey's milk, foment the womb by means of a pipe, for two days, adding putrid woman's urine and soda. On the third day, <foment> with cow's urine. On the fourth and fifth days, crush seeds of fennel, leaves of elder tree, sweet bay, and sawdust of cypress; pour water over these <ingredients> and boil. It is necessary, after the fomentation, to wash with a lot of warm water, and to apply perfumed suet, immediately after the fomentation and for the night. Afterwards, prepare the following: mix together oil of myrrh, butter, goose oil, deer's marrow, resin and oil of bitter almond. Mix an equal amount of each, melt and apply in soft Milesian wool, as fleecy as possible. Then open the womb with five leaden tubes, eight fingers in length: let the first be thin, the second thicker, and the rest each thicker than the other. Open the mouth for five days. After having opened <the womb>, apply a purgative pessary: crush five cantharides, the spongy part of a large colocynth and myrrh. Mix these with boiled honey and knead into a pessary, wrapping it into wool, apart from the extremity. Then dip it in perfume, as sweet as possible; apply. Also use the following purgative: bull bile, roasted <copper> flower, soda and myrrh; soak with a little honey, bind fast a thin cloth, smear the top of the cloth with the remedy; apply. Also use *bouprêstis* <sc. a blister beetle> with myrrh; and squirting cucumber with boiled honey; and cantharides with squirting cucumber and myrrh. After the purgation, the next day, after a bath, make an injection to the womb: crush Ethiopian cumin, love-in-a-mist, resin, perfume, honey and sweet wine; mix these, leave it to cool down and inject. After the injection, urge her to get up and walk around so that the injection is shaken about.

[75] *Steril.* 221 (8.424.22–428.14 L.).

> Apply also saffron, myrrh, and frankincense, tied up in a thin strip of cloth. <Use these> dry, of each the same amount; add goose oil, anoint the strip of cloth. Apply this for seven days. On the eighth day, fumigate with myrrh, bitumen and barley. Mix with sweet-smelling perfume, place on a mild fire; fumigate through a tube. After the fumigation, on the next day, triturate a beaver testis, add white wine, spread this around a probe, wrap with wool and apply for the night. In the morning, having removed it and softened <her vagina>, let her go to her husband; and after having slept with her husband, let her keep still. If she does not become pregnant after the first time, having applied this <pessary> again, let her go to her husband. One must start the treatment when the menses start. When they have stopped, she must apply the pessary aiding conception and sleep with her husband. But before this time, the woman must not approach her husband, nor the husband <approach> his wife.

This fertility treatment lasts for an entire menstrual cycle and involves purgations, fumigations, applications of pessaries, baths, applications of leaden tubes to open the mouth of the womb, and sexual encounters. Long treatments of this kind abound in the Hippocratic gynaecological treatises; pharmacology is only one aspect of such cures that regiment every aspect of the patient's life: diet, bathing, exercising, sexual intercourse, etc. This type of dietetic *Haute Médecine*—and I use the word 'dietetic' in the widest acceptation of the term—was only available to an elite concerned with preserving their good health through all possible means.

Studies on the notions of luxury have stressed how the consumption of luxury goods can act as a status symbol. Arjun Appadurai, for instance, gives the following definition:

> I propose that we regard luxury goods not so much in contrast to necessities (a contrast filled with problems), but as goods whose principal use is *rhetorical* and *social*, goods that are simply *incarnated signs*.[76]

In the classical world, conspicuously consuming expensive drugs may have been a strategy towards being seen as part of the elite. Patients encouraged their physicians to design impressive treatments, and physicians and healers competed against one another to answer this demand and seek status for themselves.

[76] Appadurai (1986) 38.

Are the gynaecological recipes an exception?—Dietetics and pharmacology in the Hippocratic treatises

In the previous sections of this chapter, I argued that one could not explain the abundance of pharmacological recipes in the Hippocratic gynaecological treatises by suggesting that these recipes were the reflection of women's lore. Women—including midwives—might have contributed a certain amount of recipes to the compilers of the gynaecological writings, but they provide only one of their sources. The compilers of the Hippocratic gynaecological writings gathered recipes from a variety of sources in order to create their brand of *Haute Médecine.*

I also noted that pharmacology was only one component of the *Haute Médecine* described in the gynaecological treatises—a medicine that regimented every aspect of women's life, whether in disease or in health. The gynaecological treatises can be listed among the dietetic treatises of the Hippocratic Corpus, as was done by the lexicographer Erotian (first century AD): "On dietetics: *Diseases* I and II, *Ptisanê, Places in Man, Diseases of Women* I and II, *Food, Barren Women, Waters*".[77]

Dietetic treatises represent an important part of the Hippocratic Corpus, but they probably only represent a portion of the dietetic treatises written in the classical period. The genre of the dietetic treatise was already well developed at the end of the fifth century BC, if we may believe the author of *Regimen* who tells us that the topic of dietetics (περὶ διαίτης ἀνθρωπίνης τῆς πρὸς ὑγιείην) had already been treated by authors of the past, although not in a satisfactory manner.[78] At approximately the same period, the playwright Aristophanes compared dietetic medicine to tragedy, accusing it of being pedantic and bookish:

> Ἀλλ' ὡς παρέλαβον τὴν τέχνην παρὰ σοῦ τὸ πρῶτον εὐθὺς
> οἰδοῦσαν ὑπὸ κομπασμάτων καὶ ῥημάτων ἐπαχθῶν,
> ἴσχνανα μὲν πρώτιστον αὐτὴν καὶ τὸ βάρος ἀφεῖλον
> ἐπυλλίοις καὶ περιπάτοις καὶ τευτλίοισι λευκοῖς,
> χυλὸν διδοὺς στωμυλμάτων ἀπὸ βιβλίων ἀπηθῶν.[79]

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[77] Erotianus, *Glossarium*, proemium (9.15–17 Nachmanson). *Ptisanê* was probably an alternative title for *Regimen in Acute Diseases*, a treatise which opens on a discussion of barley gruel (πτισάνη).

[78] *Vict.* 1.1 (1.1–8 Joly; 6.466.1–7 L.).

[79] Aristophanes, *Ra.* 939–943. On the imagery of this passage, see Rodríguez Alfageme (1999) 375; Jouanna (2000) 191–193; Taillardat (1965) 452.

> Immediately when I <sc. Euripides> first took over the art <sc. tragedy> from you <sc. Aeschylus>, swollen by boasts and ponderous words, I first of all reduced the swelling and made her lighter by means of versicles, digressions and white beet; and I gave her nonsense-juice extracted from books.

Dietetics provides Aristophanes with an opportunity to joke by playing on words: the word περιπάτοις means both 'digressions' and 'walks'; and the word ῥημάτων (ponderous words) is similar in form to the word ῥευμάτων (fluxes).

More seriously, Plato in the *Republic* accuses dietetics of having dangerous effects on the functioning of society:

> 'When a carpenter,' I said, 'is sick, he expects his physician to give him a drug in order to vomit the disease out, or get rid of it by purging downwards or using cautery or the knife. But if someone prescribes him a long diet, wrapping his head with compresses and their accompaniments, soon he says he has no leisure to be sick and that there is no advantage in living such a life, paying heed to his disease and neglecting the work at hand. And thereupon, saying good-bye to this type of doctor and entering upon his usual diet, he becomes healthy and lives practicing his own affairs. Or, if his body is not strong enough to resist, he dies and is free of all his troubles.'[80]

Dietetics is a medicine only affordable to the wealthy; a carpenter could not afford the time to embark on a long treatment. Rather, he had to use a *pharmakon* to get rid of the *materia peccans* as fast as possible.

Although dietetics appeared to be well developed at the end of the fifth century BC, the ancients commonly regarded it as a sixth- or fifth-century BC invention. The ancients had noted the absence of regimen in Homer, where only surgery and application of (external) medicaments are described, and concluded that dietetics did not exist at the time of the epic poet, but had been invented later.[81] There was, however, considerable debate on who was the inventor: some considered Pythagoras of Samos deserved the title, for some it was Herodicus of Selymbria, and for others it was the physician Hippocrates of Cos.[82]

However, not all ancient authors regarded dietetics as a late invention. For instance, the author of *Ancient Medicine* considers the invention

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[80] Plato, *R.* 3.15 (406d–e). In the *Timaeus* (89b–d) Plato has a more positive attitude towards dietetics.

[81] The sources are conveniently collected in Longrigg (1988) 146–147.

[82] See sources in Longrigg (1998) 147–148.

of dietetics to be contemporary with the birth of medicine.[83] Most modern scholars reconcile these divergent views by arguing that a 'primitive' dietetics, an attention to food, had always existed in Greece. In the fifth century, this 'primitive' dietetics dramatically changed and came to embrace most aspects of daily life: diet, obviously, but also exercises, baths, even sexual intercourse—whether in sickness or in health.[84] Lonie, followed by James Longrigg, linked the developments in fifth-century dietetics to the cosmological and physiological speculations of the pre-Socratic philosophers, who postulated a series of affinities between man and his environment.[85] Wesley D. Smith, on the other hand, believes it is not necessary to imagine such an influence from natural philosophy upon dietetics.[86] In addition, several modern scholars suggest the historical Hippocrates contributed to the development of dietetics, although they do not agree on the exact form of this influence. For instance, Smith argues that Hippocrates composed the treatise *Regimen*, whereas Antoine Thivel suggests Hippocrates wrote *Regimen in Acute Diseases*.[87]

Whether they regard dietetics as a late invention or the culmination of a long development, most modern scholars would agree with the Roman encyclopaedist Celsus in seeing dietetics as the most prestigious branch of ancient therapeutics (the two other branches being surgery and pharmacology).[88] Dietetics, it is often suggested, is the epitome of 'rational' medicine; in the words of Michel Foucault, "Alors que les médicaments ou les opérations agissent sur le corps qui les subit, le régime s'adresse à l'âme, et lui inculque des principes."[89] In contrast to dietetics, pharmacology and surgery are considered to have developed very little in the classical period. For instance, Maria M. Sassi writes:

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[83] *VM* 3 (120.16–121.5 Jouanna; 1.574.12–576.1 L.).

[84] See for instance Lonie (1977a); Nutton (2004) 97. Longrigg (1998) 155, on the other hand, dismisses the views of the author of *Ancient Medicine*: "Although the author of *Ancient medicine* regards the administration of diet as virtually conterminous with the art of medicine and this view has been widely accepted by modern scholars, it is difficult to determine precisely at what time he conceived the inception of the art of medicine to have taken place, and allowance here must be made for polemical exaggeration." See also Longrigg (1999).

[85] Lonie (1977a); Longrigg (1999).

[86] Smith (1980) 446.

[87] Smith (1980) 440; Thivel (1999). See also Craik (1995a); (1995b).

[88] Celsus, *De medicina*, proemium 12.

[89] Foucault (1984) 121. See also, for instance Temkin (1953) 221: "Dietetics was the great dynamic element within Greek medicine," the element that "induced the leech to become a physician."

> <Greek medicine> focused on the causes of a given illness, refining its methods of investigating and describing a patient's condition. Within this framework, developments in etiology also gave rise to the search for remedies *connected* with the cause of the disease itself and intended as acting directly on the organism. Yet such research continued to be pursued in one area only—diet—while the overall situation was one of *therapeutical stasis*.[90]

This therapeutical stasis, it is argued, particularly affected internal pharmacology—external pharmacology is well represented in the Hippocratic treatises *Ulcers, Haemorrhoids* and *Fistulas*, and the gynaecological treatises. As noted at the beginning of this chapter, Lonie observed that most plants are 'used dietetically' in the Hippocratic texts and concluded that "If we exclude diet, therapy in Hippocratic texts reduces to a few simple formulae for purges and emetics." Is it possible to argue that, rather than developing a curative medicine based on *pharmaka*, physicians in the classical period concentrated their efforts on a preventive medicine based on regimen? Can we conclude that there was a pharmacological stasis from the extent writings of the Hippocratic Corpus? Before answering this question, it is important to take into considerations three remarks.

First, it is unclear whether a distinction between food and drug (or in the words of Lonie between substances 'used dietetically' and 'purges and emetics') is clearly drawn in any of the Hippocratic writings. Some substances, such as hellebore or henbane (which have a strong purgative effect), must have been considered as *pharmaka*, and others, such as lentils or chickpeas, must have been considered as foods; but there were cases in which the distinction was more difficult to draw. For instance, myrrh was extensively used in the ancient world in cult practices, but it was also used in perfumery, to spice wine, and in medical practice; clearly myrrh does not fall in any of the categories drawn by Lonie: it was a drug, a food, and much more.[91]

The treatise *Places in Man* (which probably dates from the fifth century BC)[92] shows that medical writers were attempting to define the notion of *pharmakon* in opposition to food:

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[90] Sassi (2001) 142 (my emphasis).

[91] See pp. 148–149 for more details on myrrh. See King (1995c) 355 on the difficulty of determing what constitutes a *pharmakon* in the gynaecological treatises.

[92] Craik (1998) 29 argues this treatise was written in the first half of the fifth century BC; Jouanna (1999) 405 believes the treatise dates from the fourth century BC.

> All things that cause change in the present state <of the patient> are drugs (φάρμακά), and all <substances> that are rather strong cause change. It is possible, if you want, to bring about change by means of a drug (φαρμάκῳ), or, if you do not want <to use a drug>, by means of food (σιτίῳ).[93]

Although the author of *Places in Man* manages to define the notion of *pharmakon* (something rather strong that causes changes in the present state), he is not successful at defining the notion of food, and the difference between a food and a drug.

Second, contrasting the gynaecological treatises to other treatises of the Hippocratic Corpus can be dangerous because, as pointed out in Chapter Two, many medical texts—and in particular recipe books—composed in the classical period might be lost. To put it more strongly, numerous *Pharmakitides* composed in that period are irremediably lost; recipe books tend to be ephemeral. We should also remember that 'gynaecological' writers did not always include recipes in their writings: the author of parts of *Diseases of Women* (Author C in Grensemann's terminology) probably also wrote *Generation/Nature of the Child*, a treatise which included no recipes.[94]

Third, mentions of *pharmaka* are extremely frequent in the Hippocratic Corpus: there are 643 occurrences of the noun φάρμακον and cognate words (φαρμακεύω, φαρμακεία, or φαρμακοποσία)—most of them referring to internal administration of drugs—distributed over various treatises of the Corpus, with a concentration in the gynaecological treatises, *Diseases* I–III, *Affections, Internal Affections, Places in Man* and *Nature of Man*.[95] However, in most cases, these *pharmaka* simply consist of one ingredient or their composition is not specified. For instance, *Places in Man* has numerous mentions of *pharmakon* administration, but not a single recipe. Recipes for *pharmaka* administered internally, outside of the gynaecological treatises, are concentrated in *Diseases* II and III, *Internal Affections* and *Regimen in Acute Diseases* and amount to a rather small number. In other words, there

[93] *Loc. Hom.* 45 (82.20–24 Craik; 6.340.3–5 L.).

[94] See Hanson (1992b) 33–34.

[95] The other treatises in which the word appears are: *Airs, Waters and Places; Ancient Medicine; Aphorisms; Breaths; Coan Prenotions; Decorum; Epidemics; Fistulas/Haemorrhoids; Fractures; Generation/Nature of the Child; Humours; Joints; Letters; Nutriment; Oath; Physician; Prognostic; Precepts; Prorrhetic; Regimen; Regimen in Acute Diseases; On the Sacred Disease; Sevens; Sight; The Art; Ulcers; Use of Liquids; Wounds in the Head.*

are very few formulae, very few recipes for *pharmaka* outside of the gynaecological treatises.

The compilers of medical treatises might have chosen not to include recipes, because they wanted to keep their pharmacological knowledge secret. Alternatively, these compilers could also have decided to leave the administration of drugs to the appreciation of the reader. According to the author of *Regimen in Acute Diseases*, physicians often disagreed over what to prescribe in the case of acute diseases:

> Physicians are not accustomed to propose such questions <whether barley gruel should be administered in acute diseases>; and even if they were discussed, they would probably not be solved. And yet the whole art suffers from a very bad reputation among laymen, to the point that there does not seem to be any medical <art>. Indeed if, with regard to the most acute diseases, experts (χειρώνακτες) differ from each other to the point that <the remedies> prescribed by one, because he believes them to be the best, are considered by another to be bad; then one may indeed argue that the art resembles divination, for seers consider the same bird to be a good sign if it is on the left, and a bad one if it is on the right, while other seers argue the opposite.[96]

According to this author, physicians differed so much from each other in their prescriptions that the art resembled divination; by not including exact recipes for medicaments in nosological descriptions, medical writers avoided being forced to take a position. These writers knew that recipe books, *Pharmakitides*, existed to which their readers could refer themselves, and chose the remedies best suited to the ecological circumstances (region, period of the year, etc.) and the condition of the patient.

I would argue that the contrast between the gynaecological and 'non-gynaecological' treatises that have come down to us could be explained by the use of two different literary conventions, two different writing policies: whereas the gynaecological treatises clearly specify which medicaments to use in which circumstances, the 'non-gynaecological' treatises leave it to their readers to chose which remedies to administer. The relative absence of recipes in the 'non-gynaecological' treatises of the Corpus need not be read as a sign of a pharmacological stasis in the classical period. In practice, physicians certainly administered drugs for both internal and external treatments. In addition, they did not hesitate

[96] *Acut.* 8 (39.8–20 Joly; 2.240–242 L.).

to write down recipes for external treatments. On the other hand, the preserved Hippocratic treatises include very few recipes for internal diseases, with one main exception: gynaecological diseases. These diseases, which affect mostly the vagina and the womb, could be treated by *pharmaka* applied both internally and externally. For instance, one of the purgative remedies listed at *Nature of Women* 109 can be either applied as a pessary or taken by mouth:

> Μητρέων καθαρτικόν· ὁκόταν παιδίου ἐναποθανόντος αἷμα ἐμμένῃ, κολοκύνθην ἀγρίην τρίψας ἐν μέλιτι, λειχέτω ἢ προστιθέσθω.[97]
>
> Purgative of the womb, when, the child having died, there is blood retention: crush a wild colocynth in honey; let her lick it or apply it as a pessary.

The vagina and the womb might have assumed a special status in the classical period: they might have been considered to be neither entirely internal nor entirely external. For that reason, gynaecology may have been a privileged area for experimentation with recipe writing.

Conclusions

The large number of recipes in the gynaecological treatises has often been explained by a gender argument: the gynaecological recipes are the reflection of a tradition of home remedies transmitted by women. If many of the recipes recorded in the Hippocratic gynaecological treatises could indeed have been prepared within the household, it is doubtful whether they were women's secrets. 'Household medicine', however, is only one possible source for the Hippocratic collections of recipes; others included the lore of the *rhizotomoi*, magicians and religious healers. The Hippocratics collected recipes from a variety of traditional sources, transformed them—by adding exotic, rare or extraordinary ingredients—and integrated them into their system of *Haute Médecine*.

Although the nosological treatises preserve fewer pharmacological recipes than the gynaecologies, they partake of the same *Haute Médecine*: a dietetic medicine that controlled all aspects of their patients' lives. Instead of opposing dietetics (the epitome of 'rational' medicine)

[97] *Nat. Mul.* 109 (128.9–11 Trapp; 7.428.9–11 L.). I am grateful to Florence Bourbon for pointing out this example to me.

to pharmacology (the domain of women and other charlatans), I suggest regarding pharmacology as part of dietetics. Dietetics and pharmacology do not appear as distinct branches of medicine in the early treatises of the Hippocratic Corpus. However, the 'boom' in dietetic medicine in the fifth century BC might have led to reflections on what exactly a drug—a *pharmakon*—is and how it differs from a food. The culmination of the reflection is found in the Aristotelian *Problems*:

> A drug is the opposite of a food. What undergoes coction by natural forces is assimilated into the body and we call it food. The nature of a drug, on the other hand, is that it is not naturally disposed to be overcome and penetrates into the vessels, where it causes disturbance due to an excess of heat or cold.[98]

In the fifth century, the line of demarcation might not have been between pharmacology and dietetics, but rather between internal and external medicine, with gynaecology falling in neither category, or rather in both categories.

[98] [Aristotle], *Probl.* 1.42 (864b7–11). Translation: Touwaide (1996) 16. See also Scarborough (1983).

CHAPTER FOUR

IMPORTS, GEOGRAPHICAL DETERMINISM AND INFLUENCES: THE USE OF EXOTIC AND LUXURY INGREDIENTS IN THE HIPPOCRATIC CATALOGUES OF RECIPES

> Somehow the outer parts of the inhabited world were allotted the most beautiful features.
>
> Herodotus 3.106

Introduction

In Chapter Three, I argued that the exotic, luxury and flamboyant ingredients included in the Hippocratic recipes transformed traditional medicine into *Haute Médecine*. In this chapter, I will attempt to determine with more precision which exotic and luxury products were used in the Hippocratic recipes and dietetic prescriptions. This, in turn, will help us understand the socio-economic context in which these prescriptions were created. Also, it will offer insights into how Hippocratic compilers valued different regions of the world.

Following a note on the naming of plants in ancient Greece, in the second part of this chapter, I systematically list the imported ingredients mentioned in the Hippocratic recipes, that is, the products that, for ecological reasons, could not grow in Greece or in Asia Minor.[1] I have also included ingredients, which, although they could be produced in Greece, are accompanied by an epithet of foreign geographical origin. I present these imported ingredients in four sub-categories according to their geographical origin.[2] In order to determine the origin of each exotic ingredient, and the routes they followed to reach Greece, I have drawn upon the studies of scholars working in a variety of disciplines: historians, linguists, botanists, and archaeologists.[3]

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[1] Byl (1995) lists many of these exotic ingredients.

[2] This approach is similar to Dalby's in his book *Empire of Pleasures* (2000), where he maps the 'pleasures' of the Roman Empire.

[3] Archaeological evidence is unfortunately rather slim. Exotic organic goods, such as

I start with ingredients coming from the East, i.e. from the Levant (Syria, Lebanon, and Palestine), Arabia, and from 'Further East' (India, China, etc.). Then, I consider ingredients coming from the South, i.e. from Egypt, Ethiopia, and Libya. In most accounts of the contacts between Greece and overseas, Egypt and Ethiopia are presented together with the regions of the Near East, even though John Boardman pointed out that this can lead to confusion.[4] In the case of our recipes, it is particularly important to dissociate imports from Egypt and Ethiopia from imports from the Near East. Indeed, these two sub-categories of *exotica* are presented in a very different way in the recipes. Moreover, scholars have generally considered that Greek medicine, and particularly Hippocratic gynaecology, was influenced more by Egyptian medicine than by Mesopotamian medicine or any other medicine from the Near East. My fourth sub-category includes *exotica* from the North, i.e. regions around the Black Sea. Finally, I consider ingredients imported from the western Mediterranean.

The exotic products listed in the Hippocratic treatises could have been divided into different sub-categories; for instance, these products could have been divided amongst the ancient continents. However, the number and boundaries of the continents were much disputed in fifth-century Greece. Some ancient authors, criticised by Herodotus, divided the world into three continents: Europe, Asia and Libya.[5] Others, like the author of *Airs, Waters and Places* divided the world into two parts: Europe and Asia (which included Ionia, Egypt and Ethiopia). Herodotus himself, it seems, rejected the notion of continent altogether.[6] In view of this confusion, I have chosen a more arbitrary repartition following the four cardinal points.

The Greeks could learn about, or discover, the medicinal qualities of exotic drugs in a variety of ways. In some cases, Greek physicians themselves may have learnt the medicinal properties of exotic drugs from foreigners. Indeed, physicians constituted, from at least Homeric

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spices and gums, leave very few traces in archaeological contexts for the simple reason that they were consumed; we are left only with the containers. There is however one archaeological context in which luxury organic goods are preserved: shipwrecks. See Haldane (1993) 349.

[4] Boardman (1999) 111. See also Guralnick (1997) who differentiates between 'orientalizing' art and 'Egyptianizing' art.

[5] See Herodotus 2.16.

[6] See the discussion by Thomas (2000b) chapter 3.

times, a mobile part of Greek society, together with craftsmen, seers, and singers.[7] The Hippocratic *Epidemics* tell us of the travels of physicians within Greece. In addition, several Greek physicians exercised their art at the Persian court. In the sixth century BC, the Crotoniate physician Democedes was made prisoner by Darius.[8] Other Greek physicians entered the services of the Persian king of their own accord: Apollonides of Cos was doctor to Artaxerxes I, and Ctesias of Cnidus to Artaxerxes II.[9] Late *vitae* report that Hippocrates travelled far and wide. Although this probably only reflects the attempts of these biographical authors "to make the Corpus yield historical information",[10] travels to far-away countries may have been a reality for some of Hippocrates' contemporaries. During their trips, these physicians may have learnt of the properties of indigenous plants.

But one need not have been a physician to transmit knowledge about exotic plants. Merchants (Greek or foreign) who sailed the Mediterranean brought back to Greece not only exotic drugs, but also information about these products and how to use them. When ill, Greek merchants visited medical personnel in foreign lands, and thus learnt about new remedies.

In fact, the medicinal qualities of exotic drugs could be transmitted from one culture to another in many ways, which are listed by Julie Laskaris as follows: "trade, gift exchange, the spread of empire, contact with foreign slaves and the advent of immigrant free populations, intermarriage of Greeks with foreigners."[11] In addition, we should not exclude the possibility that the Greeks themselves discovered the medicinal properties of some products initially used in a different context, for instance in cooking, perfumery or religious practice. We will indeed notice that most exotic products listed in the Hippocratic treatises were used outside medicine.

In the third part of this chapter, I examine the mundane goods coming from Greece—Greece is here defined as Mainland Greece, the Ionian and Aegean islands, the Greek cities of Asia Minor, Crete,

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[7] *Od.* 17.383–386. See Burkert (1983); (1992) chapter 1; Zaccagnini (1983).

[8] The story of Democedes is reported by Herodotus 3.130–138. On this story, see Griffiths (1987).

[9] On Apollonides of Cos, see Ctesias fr. 14.44 (Lenfant). On Ctesias, see references in Högermann (1999).

[10] Hanson (1996b) 161.

[11] Laskaris (1999) 7–8.

Rhodes and Cyprus—which are distinguished in our recipes by the use of geographical epithets. In many cases, these epithets are used as a means to distinguish a commodity from its luxurious equivalent.

After a final discussion of the exotic and luxury products listed in the recipes, I conclude this chapter on a discussion of the question of influences of Egyptian and Mesopotamian pharmacology upon Greek medicine, stressing the historiographical problems related to this important issue.

A note on naming materia medica *in ancient Greece*

When the Greeks borrowed a drug from a foreign country, they could either adopt its foreign name or give it a Greek name. Both methods are illustrated in the Hippocratic treatises.

Many ingredients in the Hippocratic treatises bear a name borrowed from a foreign language.[12] A foreign name, however, is not necessarily a sign that the *materia medica* was any longer imported into Greece. For instance, the Greek name for cumin (*Cuminum cyminum* L.)—κύμινον—is borrowed from a Semitic language;[13] but cumin was part of Greek agriculture probably as early as the second millennium BC.[14]

Native sodium carbonate (soda) is another case in point: the Greek words used to designate this product—λίτρον or νίτρον—are derived from the Egyptian *nṯr*.[15] However, in the Hippocratic Corpus, these words seem to designate any native soda, not only the Egyptian variety. The authors of *Airs, Waters and Places* advises his readers to look for presence of νίτρον in the waters of any city:

> The second <worst> would be those <waters> whose springs <come> out of rocks—for these are necessarily hard—or which come from a land where the waters are warm, or in which there is iron, or copper, or silver, or gold, or brimstone, or alum, or bitumen or soda.[16]

In order to differentiate the Egyptian variety from any other variety of νίτρον, the Hippocratic compilers of recipes used the epithet 'Egyptian'.

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[12] For the etymology of Greek plant names, see Carnoy (1959).
[13] See Carnoy (1959) 100.
[14] See Zohary and Hopf (1993) 189.
[15] See Fournet (1989) 64; Hemmerdinger (1968) 240; McGready (1968) 249.
[16] *Aer*. 7.9 (201.15–202.1 Jouanna; 2.28.22–30.2 L.).

On the other hand, some ingredients bearing a foreign name could not grow in Greece for ecological reasons: this is the case, for instance, of myrrh and frankincense, the geographical distribution of which is extremely limited and which bore names borrowed from a Semitic language.

The Greeks could also give a Greek name to a foreign *materia medica*, naming it by analogy with a product from Greece. For instance, the name Αἰθιοπικὸν κύμινον was given to our *Nigella sativa* L. by analogy with the cumin grown in Greece, the epithet 'Αἰθιοπικὸν' ('Ethiopian') allowing differentiation between these two species.

As already pointed out, geographical epithets were attached to other products than plants: for instance we find mention of 'Chian wine' or 'Milesian wool' in the recipes, as we do in other classical texts, mainly in comedies. However, as students of Aristophanes have noticed, such epithets may be misleading in determining the geographical origin of ingredients. For instance, the 'Syracusan cheese' of the Aristophanic plays might be made in Athens, while the 'Persian bird' was the commonplace cock fowl.[17] On the other hand, 'Chian wine', for instance, was produced only on the island of Chios. In consequence, one cannot regard this use of geographical epithets as a strict system of '*appellations contrôlées*', but it seems that when the ancient consumer bought geographically labelled products, he was expecting a certain standard of quality.[18]

Exotic ingredients[19]

The East

Most of the *exotica* listed in the Hippocratic recipes were imported from the East—a huge territory which I will subdivide into three parts: the Levant, Arabia and 'Further East'.

Reference to φοινικικοὶ κόκκοι is made once in *Nature of Women* in a recipe to provoke the menses.[20] This reference could be interpreted either as 'Phoenician grains' or 'red grains'. Translators have favoured

[17] See Braund (1994) 42; Ehrenberg (1951) 137–138.
[18] See Brun (1997) on the absence of *appellations contrôlées* in antiquity.
[19] These ingredients are listed on Tables One (pp. 190–192) and Two (pp. 192–194).
[20] *Nat. Mul.* 32 (90.4–5 Trapp; 7.352.4 L.).

the latter interpretation: the adjective 'φοινικικός' is probably here referring to the colour of the grains rather than to their geographical origin. Anuce Foes tentatively identified these grains with the Cnidian berries frequently listed in the Hippocratic recipes and which, according to Theophrastus, were red.[21]

Although the φοινικικοὶ κόκκοι did not come from Phoenicia, a series of products listed in the Hippocratic recipes originated in the Levant and might have been traded by the Phoenicians: terebinth (Gr. τέρμινθος; *Pistacia terebinthus* L.) or its resin, turpentine;[22] galbanum (Gr. χαλβάνη), the resin produced by *Ferula galbaniflua* Boiss. & Buhse;[23] styrax (Gr. στύραξ), the gum produced by *Styrax officinalis* L.;[24] and sumach (Gr. ῥοῦς; *Rhus coriaria* L.).[25] It should be noted that two of these products' Greek names are Semitic in origin: χαλβάνη and στύραξ.[26]

In addition, some occurrences of the plants σχοῖνος and κάλαμος in the Hippocratic Corpus might refer to plants from the Levant: both names designated a variety of marsh plants, many of which grew in Greece. However, according to Theophrastus, species of these plants grew East of the Lebanon:

> *Kalamos* and *schoinos* grow beyond the Lebanon-mountains, between the Lebanon-mountains and another small mountain-range, in the hollow thus formed.[27]

These oriental plants have been identified with our sweet flag (*Acorus calamus* L.) and our ginger-grass (*Cymbopogon schoenanthus* Spreng.), respectively.[28]

Some of the Levantine ingredients were perhaps imported to Greece as early as the Bronze Age. In 1984, a shipwreck containing large cargoes

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[21] Foes *ap.* Littré, vol. 7, p. 352, note 3. See Theophrastus, *Hist. Plant.* 9.20.2. See also Andò (2000) 280, note 287. See below for more details on the 'Cnidian berry'.

[22] Identification: Amigues (2006) 339 (s.v. τέρμινθος); Dalby (2003) 323–324 (s.v. terebinth) and bibliography.

[23] Identification: Amigues (2006) 346 (s.v. χαλβάνη); Dalby (2003) 29 (s.v. asafoetida) and bibliography.

[24] Identification: Amigues (2006) 337 (s.v. στύραξ).

[25] Identification: Amigues (2006) 331 (s.v. ῥοῦς); Dalby (2003) 315 (s.v. sumach) and bibliography.

[26] Χαλβάνη: Carnoy (1959) 74; Masson (1967) 60. Στύραξ: Carnoy (1959) 255.

[27] Theophrastus, *Hist. Plant.* 9.7.1.

[28] Identification: Amigues (2006) 102–103; Hort (1916) 454 and 480.

of organic goods was found at Uluburun, off the coast of Asia Minor. The ship was sailing probably to Greece or Egypt (or to both destinations, in a circular journey around the eastern Mediterranean), and sank at the end of the fourteenth century BC, at the time of the Eigtheenth Dynasty in Egypt, and Helladic IIIC in Greece.[29] Aboard the shipwreck, among other goods, remains of sumach seeds were found, as well as large quantities of resin (about a metric ton). At first, this resin was thought to be frankincense resin;[30] but further analysis showed that it should be identified with the resin from *Pistacia terebinthus*.[31] Now, it may be possible to recognise a reference to terebinth resin on Linear B documents from Cnossus, where important amounts of a product named ki-ta-no are mentioned.[32] The identification of ki-ta-no with the Greek τέρμινθος is based on a late gloss by Hesychius: κρίτανος· τέρμινθος.[33] If there was a Bronze Age trade in terebinth, sumach and other ingredients from the Levant, we cannot—in the current state of research—determine whether this trade was interrupted after the collapse of the Mycenaean civilization, and if it was interrupted, when it resumed.

In the archaic and classical periods, the use of these Levantine ingredients is well documented outside medicine. Turpentine, styrax and galbanum were scented gums employed in the production of perfumes; sweet flag and ginger-grass were scented herbs that were also used in perfumery;[34] and the use of sumach as a spice is documented in writing from the sixth century BC.[35]

The Hippocratic Corpus contains only one reference to a product originating from the Persian territory: sagapenum (Gr. σαγάπηνον), the resin of *Ferula persica* Willd.[36] The use of this plant is not otherwise documented until the first century AD when Dioscorides described it.[37]

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[29] On this shipwreck, see Bass (1986); (1997); Pulak (1998). On the organic remains found on the site of the shipwreck, see Haldane (1990); (1991); (1993).

[30] Beck in Bass (1986) 277. See below for more details on frankincense.

[31] See Mills and Whites (1989); Hairfield and Hairfield (1990).

[32] On ki-ta-no, see Melena (1974); (1976) 180–183.

[33] See Melena (1976) 181.

[34] See below.

[35] Solon fr. 41 (West). Dalby (2003) 315 suggests that sumach is "one of the first exotic spices to find a use in Greek cuisine". It is more correct to say that it is one of the first spices whose use is recorded in writing.

[36] Identification: Dalby (2003) 29 (s.v. asafoetida) and bibliography. Occurrence at *Mul.* 1.78 (8.184.5–8 L): text quoted p. 241.

[37] Dioscorides, *Mat. Med.* 3.81. See p. 151 on how the Persians called pepper.

The two exotic ingredients listed the most in the Hippocratic treatises—myrrh (Gr. σμύρνα), the oleo-gum produced by *Commiphora myrrha* Engl.[38] and frankincense (Gr. λιβανωτός), the oleo-gum extracted from *Boswellia sacra* Flückiger and *Boswellia carterii* Birdwood[39]—have a very limited geographical distribution: both grow only in South Arabia and the Horn of Africa. The Greek names for both ingredients are borrowed from a Semitic language.[40]

We cannot find any trace of the use of frankincense in the Aegean before the archaic period. Myrrh, on the other hand, may have been used in the production of perfumed oil in Mycenaean Cnossus, if Anna Sacconi's interpretation of the ideogram MU is correct.[41] It could be suggested that the myrrh employed at Cnossus was imported from Somaliland, through the intervention of Egyptian merchants. I do not think the possible presence of myrrh in Bronze Age Crete can be interpreted as a sign of early trade in Arabian myrrh.[42]

In any case, after the collapse of the Mycenaean palace civilization, we completely lose track of both oleo-gums in Greece. No mention of them is made in either Homer or Hesiod, a fact of which the ancients were aware.[43] The imports seem to have (re)started around 700 BC.[44] Outside medicine, frankincense and myrrh were used mainly in cult practices, which, according to Walter Burkert, expanded with the trade.[45] In addition, myrrh was used to spice wine and in the preparation of perfumes[46]—the Greek word for perfume (μύρον) was so similar to the word for myrrh (σμύρνα or μύρρα) that the ancients believed the former to be derived from the latter.[47]

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[38] Identification: Amigues (2006) 335 (s.v. σμύρνα); Dalby (2003) 226–227 (s.v. myrrh) and bibliography.

[39] Identification: Amigues (2006) 308 (s.v. λίβανος); Dalby (2003) 150–151 (s.v. frankincense) and bibliography, to which should be added Müller (1978). On both incenses, see also Détienne (1972) chapter 2; and the collection of essays edited by Avanzini (1997): especially D'Agata, Liverani, Retsö, and Zacagnino.

[40] See Carnoy (1959) 161 and 183; Masson (1967) 53–56.

[41] Sacconi (1969).

[42] D'Agata (1997) 89 advances this hypothesis, even though she finds it doubtful.

[43] See for instance Pliny *H.N.* 13.1.2. See Burkert (1985) 62.

[44] The first written mentions of the incenses are in Sappho: fr. 2 (frankincense) and fr. 44 (myrrh).

[45] See Burkert (1985) 62.

[46] Wine spicing: see for instance Theophrastus, *Odor.* 7.32. Perfumery: see for instance the list of *arômata* in Theophrastus, *Hist. Plant.* 9.7.3 (text quoted below) and numerous mentions in *On Odours*.

[47] See Archilochus *ap.* Athenaeus 15.37 (688c). According to Carnoy (1959) 183, this etymology for *myron* is fanciful.

In archaic and classical Greece, the main source of myrrh and frankincense was Arabia, although some early Greek authors believed these were products of Syria.[48] These plants do not grow in Syria, but it is probably from there that Phoenician merchants shipped them to Greece. Herodotus is the first preserved author to mention the Arabian origin of myrrh and frankincense. In his account, Arabia appears as a mysterious country, and its plants are surrounded by myths and legends:

> Again, of all the inhabited lands, Arabia is the furthest to the south, and it is the only land that yields frankincense, myrrh, cassia (κασίη), cinnamon (κινάμωμον) and gum-ladanum (λήδανον). All of these, with the exception of myrrh, are difficult to get for the Arabians. They collect frankincense by burning styrax, which the Phoenicians bring to Greece. By burning it, they gather <the frankincense>. For a large number of small, dappled, winged snakes guard the frankincense-bearing trees, many around each tree: these are the snakes that attack Egypt. Nothing drives them away from the trees, but the smoke of styrax.[49]

Herodotus then goes on to describe how the Arabians collected κασ(σ)ία and κινάμωμον (two products also listed in the Hippocratic recipes): the former from a shallow lake protected by winged animals similar to bats, and the latter from the nests of birds inhabiting high mountains.[50] Pliny deplored such stories, which he saw as a means to increase the price of these imports: "Regarding cinnamon and cassia, a fabulous story has been narrated by antiquity, led by Herodotus… They augment the price of these goods with these lies."[51]

Ancient writers situated the land producing κασ(σ)ία and κινάμωμον either in Arabia or in Eastern Africa.[52] The spices today called cinnamon (the bark of *Cinnamomum zeilanicum* Nees) and cassia (the bark of *Cinnamomum cassia* Blume) do not come from Arabia but from South-East Asia. In consequence, modern scholars are divided on whether the ancients knew the south-eastern spices,[53] or whether they

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[48] See for instance Hermippus fr. 63.8 (text discussed below). See Zacagnino (1997) 102 for further references.

[49] Herodotus 3.107.

[50] Herodotus 3.110–111. See Détienne (1972) 'Les parfums de l'Arabie' for a structuralist analysis of these stories.

[51] Pliny, *H.N.* 12.42.85–86.

[52] Arabian origin: see for instance Theophrastus, *Hist. Plant*. 9.4.2. East African origin: see for instance Pliny, *H.N.* 12.42.86.

[53] See for instance Amigues (1996) 662–663; (2006) 295 (s.v. κασσία) and 297 (s.v. κινάμωμον); Dalby (2003) 87–88 (s.v. cinnamon).

applied the names κασ(σ)ία and κινάμωμον to other plants, native to Arabia or the Horn of Africa.[54]

In any case, Phoenicians must have played a role in the trade of these spices: κασ(σ)ία and κινάμωμον are words of Semitic origin,[55] and Herodotus affirmed that the Greeks had leant the word κινάμωμον from the Phoenicians: "the barks that we have learnt from the Phoenicians to call *kinamômon*."[56]

Basing herself on Herodotus' testimony, Sacconi has identified the monogram KAPO on Mycenaean tablets as the equivalent of the classical Greek word 'κάρφος', referring to cinnamom bark.[57] However, it seems to me that this identification is highly dubious. In the current state of research, it is wiser to argue that the trade in the spices called κασ(σ)ία and κινάμωμον started in the early archaic age, at the time of the Orientalizing Revolution.

Similarly to frankincense and myrrh, cinnamon and cassia were used as incenses in religious practices and in the production of perfumes.[58]

The geographical origin of other East Asian products used in the Hippocratic recipes is less disputed by modern scholars: pepper (Gr. πέπερι, *Piper* L. spp.) is a product from North-Eastern India;[59] cardamom (Gr. καρδάμωμον, *Elettaria cardomomum* White & Maton) originates in South-Eastern India;[60] spikenard (Gr. νάρδος, *Nardostachys jatamansi* DC);[61] and amomum (Gr. ἄμωμον, *Amomum subulatum* Roxb.)[62] come from the Himalayas. All these plants have a name of non-

[54] See for instance Raschke (1978) 655. De Romanis (1996) in his study of cinnamon and cassia in the ancient world refused to pronounce himself on the identification of these plants (see in particular p. 33), but tries to locate them in Oriental Africa (see in particular p. 109).

[55] Carnoy (1959) 67 and 82; Masson (1967) 48–50.

[56] Herodotus 3.111.

[57] Sacconi (1972).

[58] Religious practice: see for instance Sappho fr. 44 (Lobel and Page). Perfumery: see for instance Theophrastus, *Hist. Plant*. 9.7.2 (text quoted p. 152).

[59] Identification: Amigues (2006) 321 (s.v. πέπερι); Dalby (2003) 254–255 (s.v. pepper) and bibliography.

[60] Identification: Amigues (2006) 295 (s.v. καρδάμωμον); Dalby (2003) 74 (s.v. cardamom) and bibliography. Raschke (1978) 651 and note 1023 argues that cardamom grew in Egypt. This is incorrect: Raschke confuses the Greek word 'κάρδαμον' which designates our cress (*Lepidium sativum* L.) and the word 'καρδάμωμον' which designates our cardamom (*Elettaria cardomomum* Maton). On the links (or absence of links) between these two Greek words, see Amigues (2006) 109–110.

[61] Identification: Amigues (2006) 315 (s.v. νάρδος); Dalby (2003) 229–230 (s.v. nard) and bibliography.

[62] Identification: Amigues (2006) 268 (s.v. ἄμωμον); Dalby (2003) 8 (s.v. amomum) and bibliography.

Greek origin: πέπερι is borrowed from Sanskrit;[63] ἄμωμον is borrowed from some unidentified Oriental language;[64] and νάρδος is borrowed from Sanskrit via Semitic.[65]

Pepper is qualified with the geographical epithet 'Indian' in the following recipe of *Diseases of Women* II:

> Ἕτερον πρόσθετον· ἐκλέψας κόκκους τριήκοντα, τὸ Ἰνδικόν, ὃ καλέουσιν οἱ Πέρσαι πέπερι, καὶ ἐν τουτέῳ ἕνι στρογγύλον, ὃ καλέουσι μυρτίδανον, ξὺν γάλακτι γυναικείῳ ὁμοῦ τρίβειν καὶ μέλιτι διιέναι.[66]
>
> Another pessary: peel 30 grains—the Indian <grain> which the Persians call pepper (and in this there is a round <grain> which they call *myrtidanon*)—together with woman's milk; crush and soak with honey.

This recipe informs us that the Greeks learnt the word 'πέπερι'—and probably the uses of pepper—from the Persians, who may have served as intermediaries in the trade of this plant.[67]

The other East Asian products listed in the recipes are not qualified with geographical epithets, and there is no way of knowing whether the compilers of the recipes knew their geographical origin. Theophrastus records the divergent opinions of ancient authorities on this topic: for some ancients, cardamom and amomum were from Media; whereas for others these products came from India, together with spikenard.[68]

All the products from 'further East' listed in the Hippocratic recipes were used outside medicine. Interestingly, the use of pepper for cooking is not documented until the fourth century. Andrew Dalby therefore concluded that pepper was used in medicine before the Greeks discovered its culinary properties.[69] However, it seems dangerous to use the argument *e silentio* in this manner: pepper may have been used as a condiment well before it was first recorded in a written text.

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[63] Carnoy (1959) 208.

[64] Carnoy (1959) 22; Casevitz (1993) 405.

[65] Carnoy (1959) 185; Casevitz (1993) 405; Masson (1967) 56.

[66] *Mul.* 2.205 (8.394.7–10 L.). See also *Mul.* 1.81 (8.202.15–17 L.). See Filliozat (1949) 212–212.

[67] Thomas (2000b) 72, note 99, notes that this is the only mention of the Persians in the Hippocratic Corpus. In another recipe, pepper is called 'the Median remedy': *Nat. Mul.* 32 (96.1–4 Trapp; 7.364.1–4 L.). The notion of pepper as a treatment for the eyes is surprising: maybe it was supposed to make the patient cry, thus cleansing the eyes? In any case, the use of pepper in very common in eye-salves recommended in Galen's pharmacological books.

[68] Theophrastus *Hist. Plant.* 9.7.2.

[69] Dalby (1996) 137. Pepper appears, for instance, in a list of condiments in Alexis fr. 132 (Kassel and Austin).

Like most of the oriental products reviewed so far, spikenard, cardamom and amomon were characterised by their pleasant smell and figure in Theophrastus' list of *arômata* used in perfumery:

> Here are, approximately, <the plants> used as *arômata*: cassia, cinnamon, cardamom, spikenard, *maron* (μᾶρον, *Origanum sipylaeum* L.?), balsam (βάλσαμον), camelthorn (ἀσπάλαθος), styrax, iris, *nartê* (νάρτη), costus (κόστος), all-heal (πάνακες), saffron crocus (κρόκος), myrrh, cyperus (κύπειρον), ginger-grass, sweet flag, marjoram (ἀμαρακον), melilot (λωτὸς), anise (ἄννησον)… Some of them grow in many places, but the most extraordinary and the most fragrant all come from Asia and from hot regions. None of them is from Europe itself, apart from the iris.[70]

For Theophrastus, there is a strong link between the geographical origin of the *arômata* and their wondrous qualities: all ingredients but iris are products of 'Asia', a continent that included Ionia.

If the recipes given by Theophrastus in *On Odours* are anything to go by, eastern ingredients also entered in the composition of the numerous perfumes mentioned in the Hippocratic recipes: iris perfume, narcissus perfume, myrtle perfume, marjoram perfume, white perfume and above all, Egyptian perfume.

To sum up, Hippocratics made use of a large number of eastern ingredients in their recipes. There are well over 300 references to eastern ingredients in the Corpus, to which should be added references to perfumes including eastern products. Most of these oriental products retain foreign names, and only one ingredient is qualified with an epithet: the Indian pepper.[71] None of these products was used solely in medicine; they were also used in one or more of the following: perfumery, cooking and religious practice. The polyvalence of these ingredients should not surprise us: it is very unlikely that a trade in *materia medica* existed independently from trade in other goods in the ancient world. Specialised trade did not exist in early Greece, as noted in studies on food trade. For instance, David Braund pointed out that, in the Greek world:

> Trade in food is not distinguished from trade in other goods: even individual cargoes were regularly composed of a plethora of different items… there was no 'food' trade, but trade in food was a large proportion of total trade.[72]

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[70] Theophrastus, *Hist. Plant.* 9.7.3.
[71] Thomas (2000b) 73 also noticed this absence of epithets.
[72] Braund (1995) 164.

Recent archaeological discoveries of shipwrecks have stressed the importance of highly heterogeneous cargoes in antiquity.[73] The fluidity we have observed in the previous chapter between medicine, religious practice and cooking was, it seems, reinforced by the nature of ancient trade.

The South

The compilers of recipes exploited the riches of three Southern regions: Egypt, Ethiopia (the land to the South of Egypt) and Libya.

Perfumes of the Egyptian 'family' (Egyptian oil, Egyptian white oil, Egyptian perfume, and Egyptian white perfume) occur frequently in the gynaecological treatises. Theophrastus in his *On Odours* tells us that Egyptian perfume was composed of several ingredients, including cinnamon and myrrh.[74] A few centuries later, Erotian glosses the word 'Egyptian perfume', informing us that 'Egyptian oil' (ἔλαιον Αἰγύπτιον) is a synonym used in *Diseases of Women* II.[75] The Galenic glossary of Hippocratic terms, on the other hand, makes a difference between Egyptian oil (made with the oil from the castor plant); Egyptian perfume (made with the flower of the Egyptian *akantha*); white Egyptian oil (made with lilies); and white Egyptian perfume (made with lilies and spices).[76]

Since we have different recipes for Egyptian perfume in different sources, it might be wondered whether the expressions 'Egyptian perfume' and 'Egyptian oil' were used to designate a standard of quality, a kind of preparation, rather than a fixed recipe. The scent could have been manufactured in Greece itself; indeed, fragments of comedies indicate that Egyptian perfumers were established at Athens.[77]

In addition to the Egyptian perfume, we find in the Hippocratic treatises a series of products bearing the epithet Egyptian: Egyptian κύαμος, Egyptian βάλανος, Egyptian ἄκανθα, Egyptian κρόκος, Egyptian στυπτηρίη, Egyptian νίτρον, Egyptian λίνον, and Egyptian or Theban ἄλς.

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[73] See for instance Parker (1992) 16–22.
[74] Theophrastus, *Odor.* 6.28.
[75] Erotianus, *Glossarium* s.v. μύρον Αἰγύπτιον (61.3–6 Nachmanson).
[76] Galen, *Glossarium* s.v. μύρον Αἰγύπτιον (19.70.11–71.4 K.).
[77] For mentions of Egyptian perfumers in Athens, see for instance Strattis fr. 33 (Kassel and Austin): Perfumer Deinas the Egyptian. See Froidefond (1971) 60. On perfume recipes, see Manniche (1999) 61–89.

'Egyptian κύαμος', literally 'Egyptian bean', is usually identified with the pink lotus (*Nelumbo nucifera* Gaertn.).[78] The name 'bean' was chosen by the Greeks because of the shape of this plant's seeds, which Theophrastus describes as follows: "Above this <sc. the stem>, the head is similar to a round wasp-nest. And in each of its cells, there is a 'bean' slightly raised; at the most there are thirty of these."[79] The epithet 'Egyptian' was then added to differentiate this plant from beans in the ordinary sense.

Similarly, the 'Egyptian βάλανος', literally the 'Egyptian acorn', took its name from its fruits, according to Theophrastus: "The *balanos* takes its name from its fruit."[80] Modern scholars usually identify the 'Egyptian βάλανος' with *Balanites aegyptiaca* Delile,[81] but Suzanne Amigues believes Theophrastus' description rather points to an identification with *Moringa peregrina* Forsk.[82] Besides its medicinal use, 'Egyptian βάλανος' was used in antiquity to produce an oil used as a base in perfumery.[83]

The name 'ἄκανθα' was given to many plants by the Greeks, but one ἄκανθα was particular to Egypt according to Theophrastus;[84] it is identified as *Acacia nilotica* Willd. by modern scholars.[85] This plant produces a gum called κόμμι in Greek, a loan-word from the Egyptian.[86] This gum is also recommended in the Hippocratic treatises.

The case of the 'Egyptian κρόκος' is more enigmatic: the phrase does not appear outside the Hippocratic Corpus. The Greek word κρόκος was most commonly used to designate the saffron crocus (*Crocus sativus* L.),[87] a plant that was not grown, it seems, in ancient Egypt.[88] There were other varieties of ancient κρόκος, however, which Theophrastus listed as 'sweet-smelling κρόκος', 'white κρόκος' and 'thorny κρόκος'.[89] According to Amigues, the 'thorny κρόκος' can be identified with saf-

[78] Identification: Amigues (2006) 305 (s.v. κύαμος ὁ Αἰγύπτιος); Dalby (2003) 199–200 (s.v. lotus) and bibliography.
[79] Theophrastus, *Hist. Plant.* 4.8.7.
[80] Theophrastus, *Hist. Plant*. 4.2.6.
[81] See for instance the identification by Hort in the Liddell-Scott-Jones.
[82] See Amigues (1989) 207 and bibliography.
[83] See for instance Theophrastus, *Odor.* 4.15.
[84] Theophrastus, *Hist. Plant*. 4.2.1.
[85] See Amigues (1989) 209; (2006) 265 (s.v. ἄκανθα ἡ Αἰγυπτία).
[86] See Fournet (1989) 62; Hemmerdinger (1968) 243; McGready (1968) 249.
[87] See Amigues (2006) 303 (s.v. κρόκος); Dalby (2003) 289–290 (s.v. saffron) and bibliography.
[88] See Darby (1977) 805–806.
[89] Theophrastus *Hist. Plant*. 7.7.4.

flower (*Carthamus tinctorius* L.), a plant with saffron coloured flowers growing in Egypt, most commonly called κνῆκος in Greek.[90] Κνῆκος is recommended in several Hippocratic recipes, and outside of medicine was used as a dye.

The plants just presented were particular to Egypt. On the other hand, λίνον (linseed), νίτρον (native sodium carbonate), στυπτηρίη (alum) and ἅλς (salt)[91] could be found in other places around the Mediterranean, but it seems that the Greek considered them of better quality if they came from Egypt. In the case of salt, in particular, the epithet is used to differentiate a simple commodity from its more luxurious equivalent.

The use of Egyptian drugs in the Hippocratic Corpus is not surprising since Egyptian medicine was highly regarded in Greece;[92] some Greek authors even maintained medicine was an Egyptian invention.[93] Egyptian drugs received particular praise, as in this passage of the *Odyssey*:

> Such cunningly good drugs the daughter of Zeus had;
> drugs Polydamna, mistress of Thon, had provided her
> in Egypt, where food-giving fields yield most
> kinds of drugs: many good when mixed, many baneful.
> And each physician there is knowledgeable beyond all
> human; for they are of the race of Paean.[94]

Archaeological records suggest that exchanges of pharmacological substances between the Aegean world and Egypt occurred well before the writing-down of the Homeric poems in the eighth century BC.[95] This traffic seems to have gone in both directions, since a section of the Ebers Papyrus mentions Cretan beans.[96] In later times, transmission of pharmacological knowledge between Egyptians and Greeks would have been relatively easy since Greeks were present in Egypt from the reign of Psammetichus I (664–610 BC).[97] This transmission would have been even more facilitated by the foundation of Naucratis under the

[90] Amigues (2003) 131; (2006) 304 (s.v. κρόκος ὁ ἀκανθώδης). On safflower, see Dalby (2003) 289 (s.v. safflower) and bibliography.
[91] On Egyptian salt, see Darby (1977) 447–451.
[92] On the image of Egyptian medicine in Greece, see Jouanna (2004) 6–21.
[93] See Isocrates, *Busiris* 22; [Galen], *Isagoge sive medicus*, especially 1–2 (14.675–676 K.); Clemens Alexandrinus, *Stromata* 1.16.75.
[94] *Od.* 4.227–232. Translation: von Staden (1989) 2.
[95] See Arnott (1996) 268; (2004) 165; Marganne (1993) 37–38; Nutton (2004) 41.
[96] Papyrus Ebers 28 (Bardinet 255).
[97] See Marganne (1993) 37–38. See Guralnick (1997) for an overview of the links between Egyptians and Greeks from the eighth century BC to the sixth century BC.

reign of Amasis (570–526 BC), or slightly earlier.[98] By the fifth century BC, healing drugs from Egypt were familiar to an Aristophanic audience.[99] Although Egyptian medicine lost some of its prestige over the centuries,[100] Egyptian drugs were still valued at the times of Dioscorides and Galen: all the Egyptian ingredients mentioned in the Hippocratic recipes are listed in their pharmacological works.[101]

Although Egyptian drugs appear in several non-gynaecological Hippocratic treatises, they occur particularly frequently in the gynaecological works. For Heinrich von Staden the constant reference to Egyptian drugs in the Hippocratic gynaecologies may be a reflection of the strong gynaecological tradition within Pharaonic medicine—a suggestion that will be discussed at the end of this chapter.[102]

It is interesting to note that, with the exception of νίτρον and κόμμι, all the Egyptian drugs used in the Hippocratic Corpus have Greek names. This is in stark contrast with the Oriental products which, for the most, have names of foreign origin. If this naming system is anything to go by, the attitude towards Egyptian products must have been rather ambivalent in classical Greece: the Greeks were ready to acknowledge the high quality of Egyptian drugs and to use them in their medical preparations, but in general, they preferred to give them Greek names—naming is taming. At the same time, however, the use of the epithet 'Egyptian' made these products more visible, more conspicuous in the written recipes, and this has influenced modern readings of the recipes. The number of occurrences of Egyptian products in the Hippocratic recipes is much smaller than the number of occurrences of Oriental products, but modern scholars have put much more emphasis on the former than on the latter. As Rosalind Thomas puts it: "Egypt beats them all".[103]

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[98] On Naucratis, see Möller (2000).

[99] Aristoph., *P.* 1253–1254. See von Staden (1989) 1–2; Thomas (2000b) 72.

[100] See Jouanna (2004) 14–21.

[101] 'Egyptian βάλανος': see for instance Galen, *Comp. Med. sec. Loc.* 5.1 (12.818.13 K.); 'Egyptian κύαμος': see for instance Galen, *De Ther. ad Pamphil.* (14.303.2 K.) where it is used as a measure; 'Egyptian στυπτηρίη': see for instance Galen, *Comp. Med. per Gen.* 4.5 (13.697.4 K.); 'Egyptian νίτρον': see for instance Aretaeus, *De curatione acutorum morborum* 1.4.10 (104.23 Hude); 'Egyptian ἄκανθα': see for instance Galen, *Comp. Med. sec. Loc.* 6.5 (12.926.6 K.); κόμμι: see for instance Galen, *Comp. Med. sec. Loc.* 4.5 (12.718.5 K.) (by that time, however, κόμμι has become a generic term, referring to any gum produced by a tree, and not only by *Acacia nilotica*). On Egyptian drugs in Dioscorides, see Marganne (1992).

[102] Von Staden (1989) 16.

[103] Thomas (2004) 182. See also Joly (1966) 51.

Reference is also made in the recipes to three ingredients coming from Ethiopia, the land to the South of Egypt: Ethiopian κύμινον; Ethiopian δαῦκος; and Ethiopian ῥίζα.

'Ethiopian κύμινον', literally 'Ethiopian cumin', is usually identified with nigella (*Nigella sativa* L.), also known as black cumin, a plant that grows in the south of modern Egypt.[104] 'Ethiopian cumin' does not seem to have been used in the cooking of the Greeks and Romans,[105] but was still a favoured medicinal drug in late antiquity.[106]

The expression 'Ethiopian δαῦκος' does not appear anywhere else in Greek literature, and Ethiopia is nowhere else in Greek literature said to have grown a variety of δαῦκος. Δαῦκος on its own refers to an umbellifferous plant, probably *Daucus carota* L.[107] Alfred C. Andrews and Johann H. Dierbach suggested identifying the 'Ethiopian δαῦκος' with the 'Ethiopian σέσελι' described by Dioscorides, a plant which they see as the equivalent of our *Bupleurum fruticosum* L.[108]

The identification of the 'Ethiopian ῥίζα', literally the 'Ethiopian root', mentioned once in a remedy for the stone in *Nature of Women* is also problematic.[109] An 'Ethiopian root' is mentioned by Theophrastus: "Thus, in Ethiopia there is a certain deadly root with which they smear their arrow-heads."[110] However, if arrows poisoned with this plant (which Hort identified with *Acokanthera schimperi* Oliv., and Amigues with *Calotropis procera* Ait. fil.)[111] could kill, one can doubt it would have been administered internally for ten days, as in the case of the Hippocratic recipe. Theophrastus and the Hippocratic recipe must be referring to a different plant. An alternative identification for the Hippocratic 'Ethiopian root' could be with the root of Dioscorides' αἰθιοπίς, a plant with a stout root, which Dierbach identifies with our *Salvia aethiopis* L.[112]

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[104] Identification: Dalby (2003) 109 (s.v. cumin) and bibliography.

[105] See Dalby (2003) 109.

[106] See for instance Galen, *Comp. Med. sec. Loc.* 9. 2 (13.255.2 K.).

[107] See Dalby (2003) 75 (s.v. carrot) and bibliography. Amigues (2006) 277 (s.v. δαῦκον) identified the Greek *daukos* with *Bupleurum fruticosum* L.

[108] Amigues (2006) 191; Andrews (1949) 186; Dierbach (1824) 194. For the 'Ethiopian σέσελι' see Dioscorides, *Mat. Med.* 3.53.2.

[109] *Nat. Mul.* 101 (122.7–8 Trapp; 7.416.7–8 L.): Ἢν παρθένος λιθιήσῃ, τοῦ φύλλου διδόναι τῆς Αἰθιοπικῆς ῥίζης σταθμῷ, ἐν οἴνῳ παλαιῷ διδοὺς ἐπὶ ἡμέρας δέκα. (If a young woman suffers from the stone: give a certain amount of leaves of the Ethiopian root in old wine for ten days.)

[110] Theophrastus, *Hist. Plant.* 9.15.2.

[111] See Amigues (2006) 187 and bibliography.

[112] Dioscorides, *Mat. Med.* 4.104. See Dierbach (1824) 165.

Ethiopia does not have a particular reputation for medicine in ancient literature. On the other hand, the sheer distance between Ethiopia and Greece, together with the colour of the *aethiopes* (the black people), seem to have exerted a certain fascination on the Greeks. There are references to the 'Ethiopians, most distant of men' in the Odyssey, indicating that there was a certain awareness of the land beyond Egypt from early times. However, contacts between Greeks and Ethiopia dramatically increased in the seventh century BC, when Greek mercenaries took part in expeditions led by the pharaohs of the Twenty-Sixth (Saite) Dynasty against the Ethiopians.[113] Greek traders may have accompanied the mercenaries. From the seventh century onwards, contacts between Ethiopia and Greece were never interrupted. By the fifth century, Ethiopian themes were 'in fashion' in Greek art, with, for instance, a series of Athenian plays entitled *Memnon, Aethiopes, Andromeda*, and *Busiris*. The presence of the 'Ethiopian' ingredients in the recipes in the Hippocratic recipes may be part of this 'fashion'. It should also be noted that Ethiopia, together with Egypt, was described in the lost section of *Airs, Waters and Places*.

From Libya came one of the imported ingredients most commonly prescribed in the Hippocratic texts: silphium (Gr. σίλφιον). Silphium is arguably the biggest mystery of ancient botany and has aroused the curiosity of classicists and botanists alike for more than two centuries.[114] The interest in the plant is largely due to its alleged extinction. Indeed, Romans authors reported it as extinct from the first century AD, making its identification more difficult to determine.[115] Thanks to representations of the plant on coins, and descriptions by ancient naturalists, we know that silphium was an umbelliferous plant, probably of the genus *Ferula*.[116] The name 'σίλφιον'—apparently of non-Indo-European origin—was probably given to the plant by the indigenous population of Cyrene.[117]

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[113] See Snowden (1997) and Thompson (1969) for an overview of the contacts between Greeks and Ethiopians.

[114] On silphium: see Dalby (2003) 303–304 (s.v. silphium) and bibliography, to which should be added Amigues (1997); Bocquet (1988); Gemmil (1966); Horden and Purcell (2000) 65–67; Fabbricotti (1993); Michelon et al. (1984); Vercoutre (1913); Walton (1919).

[115] See for instance Pliny, *H.N.* 19.15.38–39.

[116] Many different identifications of the plant have been proposed: *Ferula asafoetida* L., *Ferula tingitana* L., *Thapsia garganica* L., etc.

[117] See Chantraine (1968) 1004. Carnoy (1959) 245 disagrees and believes the plant name could be Greek.

It is possible that silphium was exported from Libya in the Bronze Age. Arthur Evans interpreted a Ψ-like Minoan hieroglyph as a sign for silphium, and argued that the plant was introduced and cultivated in Crete during the Minoan era.[118] Without going this far, we can suggest that it was the object of regular trade from Libya to Crete. The possibility of an early Bronze Age trade in silphium is reinforced by the observation that a gum qualified as 'Libyan product' or 'Libyan perfume' was used in Egyptian rituals of renewal of the king's vigour (*Heb-Sed*) in the Old Kingdom, i.e. a little earlier than the possible documented use of silphium in Crete.[119] Whatever the possible vitality of this trade in the early Bronze Age, we have no information on it in later Bronze Age and early Iron Age.

From our classical Greek sources, it seems that this trade was not resumed before the seventh century BC. In a legend, Aristaeus, son of Apollo and the nymph Cyrene, is said to have discovered the properties of the plant.[120] According to the Therans, silphium appeared seven years before the foundation of Cyrene[121] after a heavy shower;[122] this date (638 BC) incidentally corresponds to the first Theran activity in Libya. Such stories show how the Greek colonists appropriated silphium, and transformed it into a 'Greek' plant, which only started growing when Greeks arrived in Libya. Legends of this kind were particularly necessary since, as we can read in the Hippocratic treatise *Diseases* IV, numerous attempts to grow silphium in Ionia and the Peloponnesus failed:

> Nevertheless it was not possible, despite numerous attempts, to grow silphium either in Ionia or in the Peloponnesus. In Libya, on the other hand, it grows spontaneously. This is because neither in Ionia nor in the Peloponnesus is there a humour (ἰκμὰς) such as is able to nourish this plant.[123]

In any case, the Greek trade in silphium flourished and contributed largely to the prosperity of Cyrene. The plant appeared on almost all coins of Cyrenaica from the seventh to the first century BC.[124] In the

[118] Evans (1921) 284–285.
[119] See Vikentiev (1954).
[120] See Scholia in Aristoph. *Eq.*, line 894.
[121] See Theophrastus, *Hist. Plant.* 6.3.3.
[122] See Theophrastus, *Caus. Plant.* 1.5.1; *Hist. Plant.* 3.1.6; Pliny, *H.N.* 19.15.41.
[123] *Morb.* 4.34 (86.16–20 Joly; 7.546.11–14 L.). See Lonie (1981) 273 for a commentary.
[124] See Robinson (1927) ccli–cclviii.

fifth and fourth centuries BC, silphium was a fashionable plant, used as an expensive way to condiment dishes; the Attic comedians joked about its high price.[125]

In the Hippocratic treatises, we find numerous dietary prescriptions concerning silphium,[126] as well as recipes for soups and *kykeônes* including the herb.[127] It is the only exotic plant to be described in one of the Hippocratic catalogues of foods—the catalogue of the *Appendix* to *Regimen in Acute Diseases*—which usually only list Greek plants.[128] In these dietary descriptions and prescriptions, silphium is associated with garlic and other sharp products, and in a passage of *Diseases of Women* I it is described as a plant 'that causes flatulence' (φυσητικά), as a windy plant.[129]

Because of its windy quality, silphium was prescribed in gynaecology to 'create a wind in the womb' (Ποιέειν δὲ φῦσαν ἐν τῇ μήτρῃ)[130]—*contraria contrariis*—or against 'winds in the womb' (Ἢν δὲ ἄνεμος ἐγγένηται ἐν τῇ μήτρῃ)—*similia similibus*.[131] Although 'winds in the womb' referred to a genuine condition that needed treatment, 'to create a wind in the womb' may have been a euphemistic way to refer to an abortion; another important use of the herb was as an expulsive of the dead foetus or as an abortive. [132]

It therefore seems that all medical uses of silphium derived from observations first made in a culinary context. In this case, John Riddle's suggestion that the 'true value' of the plant was not as a medicine or a condiment but as an anti-conceptive is, to say the very least, exaggerated.[133]

I would suggest that silphium was primarily exported from Cyrene as a culinary herb, and that the medicinal uses of the plant stemmed

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[125] See for instance Aristoph., *Pl.* 923–925.
[126] See for instance *Mul.* 2.133 (8.298.8–12 L.).
[127] See for instance *Int. Aff.* 42 (212.10–12 Potter; 7.270.18–19 L.).
[128] *Acut. Sp.* 48 (89.23–90.6 Joly; 2.486.6–490.2 L.).
[129] *Mul.* 1.75 (8.164.20–166.2 L.).
[130] *Steril.* 239 (8.454.1–2 L.).
[131] *Mul.* 2.211 (8.406.11 and 14–15 L.). Parallel recipe at *Nat. Mul.* 64. (114.11 and 13–15 Trapp; 7.400.11 and 13–15 L.).
[132] See for instance *Mul.* 1.91 (8.218.13 and 20–21 L.).
[133] Riddle (1997) 44. See also Riddle et al. (1994) 30. Riddle's hypothesis is largely based on a Cyrenaic coin depicting a seated woman with silphium at her feet, touching the plant with one hand and her lap with the other. Fabbricotti (1993) 30 interprets this coin as a representation of the goddess Cyrene looking "after its <sc. the region's> most precious fruits". On this coin, see also Robinson (1927) 3.

from its uses in cooking, although one cannot entirely reject the suggestion, made independently by Jean-Pierre Bocquet and Jacques Jouanna, that the use of silphium in medicine may have been disseminated from Cyrene itself, which, if we may believe Herodotus, was an important medical centre in the fifth century BC.[134]

The 'Libyan φύλλον', literally the 'Libyan leaf', mentioned in a recipe of *Diseases of Women* I could be identified with the leaf of silphium;[135] the epithet 'Libyan' is here used to make a difference between leaves in general and the leaf of silphium. The word 'silphium' is never qualified with a geographical epithet in the Hippocratic recipes, and the expression 'Cyrenaic ὀπός', literally 'Cyrenaic juice', referring to the juice of silphium in the works of later medical authors, does not occur in the Corpus.[136]

The North

There is only one reference to an ingredient from the Black Sea (Pontus) in the Hippocratic Corpus: the 'Pontic κάρυον', literally 'Pontic nut', listed as an ingredient that is good for the womb.[137] 'Pontic nut' was the Greek name for the hazelnut (*Corylus avellana* L.); the mountains south of the Black Sea are rich in hazelnut trees.[138] 'Pontic nuts' are mentioned by Ctesias of Cnidus and appear in the recipes of later medical authors.[139]

From north of the Pontic Sea came two ingredients recommended exclusively in the cure of female diseases: beaver testes and the scented secretion that the ancients believed to be produced by these testes, castoreum (Gr. καστόριον). In reality, castoreum is produced by the scent glands of the beaver, which are situated between its anus and testes; as Guido Majno puts it, "it seems that some information was

[134] Bocquet (1988) 90; Jouanna (1999) 176. See Herodotus 3.131.
[135] *Mul.* 1.78 (8.182.24–184.2 L.).
[136] For the use of this expression in later authors, see for instance Galen, *Comp. Med. sec. Loc.* 1.1 (12.419.17 K.).
[137] *Mul.* 2.208 (8.402.20–21 L.).
[138] Identification: Dalby (2003) 173 (s.v. hazelnut) and 267 (s.v. Pontus) and bibliography.
[139] Ctesias, *Indica* fr. 45.36 (179.24–26 Lenfant). Use in later recipes: see for instance Galen, *Comp. Med. Sec. Loc.* 10.1 (13.323.7 K.).

lost between the beaver and the market".[140] According to Herodotus, beavers came from the land of the Budinians, to the north of Lake Maeotis (Sea of Azov):

> In this <lake>, otters and beavers are captured, and also square-faced beasts whose skin is sewn as a fringe onto garments, and whose testicles are useful for healing <diseases of> the womb.[141]

Herodotus seems to indicate that the testicles of all three categories of animals (the otters, the beavers and the square-faced animals) are useful for gynaecological diseases. In the Hippocratic recipes, on the other hand, the beaver is the only animal whose testes are recommended.[142]

The identification of Herodotus' square-faced animal is problematic. S. Casson's identification with the seal from the Caspian Sea has been rejected by scholars;[143] it is, however, supported by the fact that various products from seals, although never the testicles, are mentioned in ancient medical texts. In the Hippocratic texts, products from seals are recorded only in gynaecological contexts.[144] Theophrastus, on the other hand, reports that seal's rennet was useful in the treatment of epilepsy.[145]

Herodotus implies that the Budinians themselves (αὐτοῖσι) used the testes of these animals. Thomas suggested that "some information about possible use travelled with the drug in question".[146] However, it cannot be excluded that Herodotus attributed Greek practices to the Budinians. In any case, the concordance between the use of beaver products in the Hippocratic gynaecological recipes and Herodotus' assertion that beaver testes are good for the womb is particularly striking, especially since in later medicine these ingredients were not associated uniquely with the treatment of female diseases.[147]

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[140] Majno (1975) 210. See also Riddle (1985) 140.
[141] Herodotus 4.109.
[142] On otter's testes in the early modern period, see p. 83.
[143] Casson (1920) 31. For a criticism of this interpretation, see for instance Corcella (1993) 319.
[144] Seal's rennet and oil: see *Nat. Mul.* 34 (100.18–20 Trapp; 7.372.18–20 L.). Seal's lung: *Nat. Mul.* 34 (100.20–21 Trapp; 7.372.20–21 L.).
[145] Theophrastus, *Hist. Plant.* 9.11.3. On the use of products from seal in medicine, see Lloyd (1983) 45–46; Sharples (1995) 74; Scarborough (1978) 364–365.
[146] Thomas (2000b) 288.
[147] Thomas (2000b) 63 and 286–288.

In later sources, castoreum is sometimes referred to as 'Pontic';[148] in the recipes of the Hippocratic Corpus, on the other hand, castoreum is never accompanied by a geographical epithet.

A reference to τῇ σποδῷ τῇ Ἰλλυριώτιδι as a dry remedy at *Ulcers* 13 is particularly difficult to interpret.[149] The adjective Ἰλλυριῶτις is a *hapax legomenon*, bearing some similarity with the adjectives Ἰλλύριος or Ἰλλυρικός, 'Illyrian'. However, Illyria was not known for its mining industry in the classical period.[150] Petrequin regards Ἰλλυριώτιδι as a corruption of Λαυριώτιδι (the corruption is an easy paleographical confusion), referring to products from the Laurion district in Attica.[151] This hypothesis is reinforced by Pliny's mention of a *spodos Lauriotis*, an ash produced when silver is smelted.[152]

The West

Two products identified as originating in the western Mediterranean are mentioned in the Hippocratic treatises: 'σέσελι from Massalia' is recommended in a recipe to expulse the chorion in *Diseases of Women* I;[153] and 'salt-fish (Gr: τάριχος) from Cadiz' are mentioned twice in *Internal Affections*.[154] Massalia was a Greek colony from 600 BC, whereas Cadiz was a Phoenician—and later Carthaginian—commercial settlement in the West.

Σέσελι is generally identified with our hartwort (*Tordylium* L. spp.).[155] On the other hand, σέσελι from Massalia—a plant described at length by Dioscorides—[156] has been identified by Dierbach with *Seseli tortuosum* L., a plant growing in the south of France.[157] Σέσελι from Massalia was still used by Galen's time, when it entered, for instance, in the composition of a remedy called διακαλαμίνθη.[158]

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[148] See for instance Galen, *Anti.* 2.15 (14.192.2 K.).
[149] *Ulc.* 13 (63.3–6 Duminil; 6.416.12–15 L.).
[150] See Healy's map (1978) 54–55.
[151] Petrequin *ap.* Duminil (1998) 215. On the Laurion district, see Shepherd (1993) 73–95.
[152] Pliny, *H.N.* 34.34.132.
[153] *Mul.* 1.78 (8.182.23–24 L.).
[154] *Int. Aff.* 25 (159.2 Potter; 7.232.1 L.); 30 (176.24 Potter; 7.244.25 L.).
[155] See Amigues (2006) 331 (s.v. σέσελι); Dalby (2003) 173 (s.v. hartwort).
[156] Dioscorides, *Mat. Med.* 3.53.1.
[157] Dierbach (1824) 187.
[158] See Galen, *De sanitate tuenda* 7 (6.282.7 K.).

'Salt-fish from Cadiz' are mentioned by several poets of the Middle Comedy.[159] Galen informs us that, in his time, these pickled fish were not called 'from Cadiz' anymore, but went under the name 'σάρδα' (from Sardinia).[160] Although archaeological finds indicate that Spain played an important role in the trade of salt-fish in antiquity, it is difficult to tell whether all Cadiz salt-fish was imported from that place, or whether pickling *à la mode de Cadiz* was a standard of production.[161]

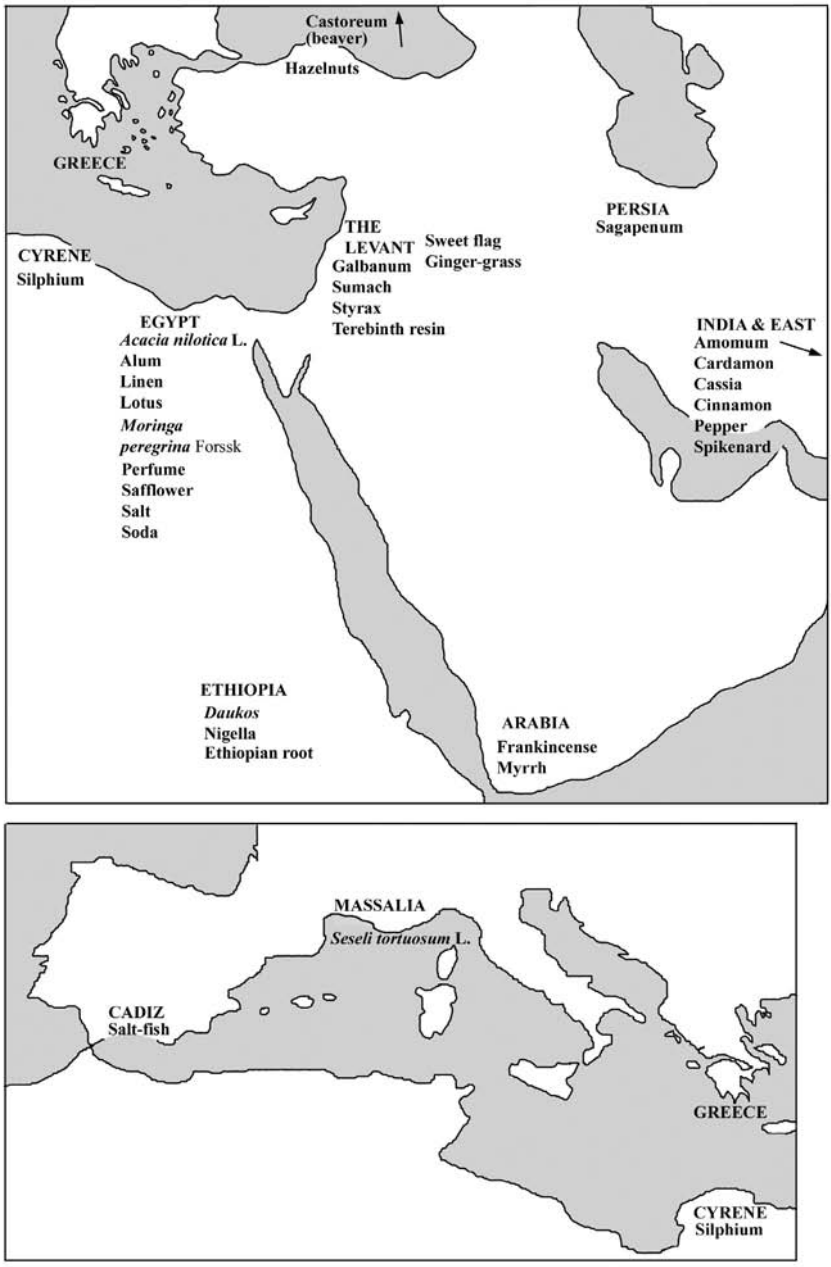
Elizabeth Craik recently noted that the possible western Greek dimension of the Hippocratic Corpus has received far less attention than its possible Coan and Cnidian dimensions.[162] Since the cities of Magna Graecia were particularly flourishing intellectually at the end of the fifth century BC, and since famous physicians are known to have come from there, we may expect to find in the Corpus at least traces—and maybe even entire works—that originated in the western Greek world.[163] In our recipes, on the other hand, the presence of the western Mediterranean appears very limited. One might argue that, since this region was largely Hellenised, its products would not have been considered 'exotic'. However, many of its products could have been given a 'luxury' status by employing a geographical epithet.

Greek ingredients accompanied by geographical epithets[164]

Having examined the exotic ingredients listed in the Hippocratic recipes, I now turn to those ingredients coming from Greece that are accompanied by a geographical epithet.

Products qualified with an epithet referring to a region of Mainland Greece or Euboea appear relatively rarely in the Hippocratic Corpus: a powder from Orchomenos (ἐπίπαστον Ὀρχομένιον) is mentioned once in *Ulcers*;[165] the wine from Mende is recommended five times in *Internal Affections*; Attic honey enters in the composition of several

[159] See for instance Antiphanes fr. 78 (Kassel and Austin).
[160] Galen, *De alimentorum facultatibus* 3.40.6 (385.69–8 Helmreich; 6.747.6–9 K.).
[161] On the role of Spain in the trade of salt-fish, see Curtis (1991) 46–64, and for the use of salted fish in ancient medicine more generally, Curtis' chapter 3.
[162] Craik (1998) 7–8.
[163] Craik (1998) 29 believes that *Places in Man* could bear the stamp of West Greek medicine.
[164] These ingredients are listed on Table Three (pp. 194–196).
[165] *Ulc.* 17 (66.15–16 Duminil; 6.422.10–11 L.).



Maps One and Two: Exotic ingredients listed in the Hippocratic Corpus.

recipes; and an Attic remedy, for which no recipe is given, is recommened for a wound in the leg in *Epidemics* IV.[166] In addition, *Diseases* III mentions once the 'earth from Eretria (a city of Euboea)' in a recipe for pleurisy.[167]

The powder from Orchomenos is otherwise unknown. Marie-Paule Duminil suggests it was made with plants growing around Lake Copais (Boeotia), which according to Theophrastus were particular to this locality.[168] On the other hand, Attic honey and wine from Mende were praised in fifth- and fourth-century Greek literature.[169] In addition, Attic honey, wine from Mende and Eretrian earth were employed in later recipes.[170]

The epithet 'Cretan' is attached to several ingredients in the gynaecological treatises: Cretan δίκταμνον, Cretan κισσός, Cretan κέδρος, and Cretan αἴγειρος.

'Cretan κισσός' is mentioned nowhere else in the Greek Corpus, and it is therefore impossible to determine whether 'Cretan κισσός' was a plant particular to Crete which bore some similarity to the ivy (*Helix* L. spp.)—the Greek word 'κισσός' is generally used to designate our ivy—or whether ivy from Crete was judged to be of especially good.

According to Theophrastus, δίκταμνον (Dittany, *Origanum dictamnus* L.) was a plant growing only in Crete;[171] the epithet 'Cretan' was therefore not strictly necessary.[172] The medicinal properties of this plant were exploited throughout antiquity.[173]

The word 'κέδρος' is used in the modern Cretan dialect to designate the Cade juniper tree (*Juniperus oxycedrus* L.), and it probably did so in antiquity; the cedar tree (*Cedrus* L. spp.)—also designated by the word κέδρος in Greek—did not grow in ancient Crete.[174] Each time the word

[166] *Epid.* 4.47 (142.12–14 Smith; 5.188.19–190.2 L.).
[167] *Morb.* 3.16 (94.25–27 Potter; 7.154.6–8 L.).
[168] Duminil (1998) 66, note 76. See Theophrastus, *Hist. Plant.* 4.10.1.
[169] For references to the wine from Mende, see Dalby (2003) 215–216 (s.v. Mendaean wine). For Attic honey, see for instance Aristoph., *Thesm.* 1192.
[170] Wine from Mende: see for instance Galen, *Comp. Med. sec. Loc.* 2.2 (12.572.14 K.). Attic honey: see for instance Galen, *Comp. Med. sec. Loc.* 3.1 (12.646.6 K.). Earth from Eretria: see for instance Galen, *Comp. Med. sec. Loc.* 5.2 (12.838.12 K.).
[171] See Theophrastus, *Hist. Plant.* 9.16.1. Identification: Amigues (2006) 278 (s.v. δίκταμνον).
[172] There are mentions of δίκταμνον without the epithet in the gynaecological writings.
[173] See for instance Galen, *Anti.* 2.9 (14.154.3 K.).
[174] See Rackham and Moody (1996) 130.

κέδρος appears on its own in the Hippocratic recipes, or in later recipes, one is left wondering whether juniper or cedar is intended.

The berries of the 'Cretan αἴγειρος' are mentioned in a expulsive gynaecological recipe.[175] Usually, the word 'αἴγειρος' refers to our black poplar (*Populus nigra* L.). However, the black poplar does not have berries and does not grow in Crete.[176] Nevertheless, Theophrastus informs us that αἴγειροι were plentiful in Crete.[177] It seems that the word 'αἴγειρος' was used in the ancient Cretan dialect to designate a plant native to Crete, possibly *Zelcova cretica* Spach.[178]

It should be noted that Theophrastus praised the quality of the Cretan vegetation in the ninth book of his *History of Plants*—the book he devoted to the medicinal properties of plants: "Indeed some say that the <plants> of Crete are superior in leaves, branches and, in general, all <parts> above the earth."[179] Even as late as the Roman Empire, the plants of Crete maintained their excellent reputation.[180]

Two ingredients qualified as coming from Cyprus appear in the Hippocratic recipes: 'Cypriot σποδός' and 'Cypriot ἅλς'.

The phrase 'Cypriot σποδός', literally 'Cypriot ash', probably refers to the ash resulting from the smelting of copper, one of the most important products of Cyprus.[181] The geographical epithet is here used to differentiate between copper ashes and ashes in general. With time, the expression 'Cypriot σποδός' seems to have become a set phrase for copper ashes, whatever their actual geographical provenance. This phrase occurs in the writings of later medical writers.[182]

The case of 'Cypriot ἅλς', literally 'Cypriot salt' is similar to the case of 'Egyptian salt': salt was produced in many regions of the Mediterranean, but was judged of particular quality when coming from Egypt or Cyprus.

With regard to Asia Minor, we find numerous references to the 'Cnidian κόκκος' in *Internal Affections* and the gynaecological treatises; 'Cilician ὕσσωπον' is mentioned in a list of drugs 'good for the womb'

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[175] *Mul.* 1.78 (8.182.3–4 L.). Parallel at *Nat. Mul.* 32 (89.1–2 Trapp; 7.350.1–2 L.).
[176] See Rackham and Moody (1996) 129.
[177] Theophrastus, *Hist. Plant.* 3.3.4.
[178] See Amigues (1989) 127; Rackham and Moody (1996) 129.
[179] Theophrastus, *Hist. Plant*. 9.16.3.
[180] See for instance Galen, *Anti.* 1.5 (14.30.14–16 K.). See also Pliny, *H.N.* 25.53.94 who copies Theophrastus *Hist. Plant.* 9.16.3.
[181] See Healy (1978) 58; Shepherd (1993) 113–115 where bibliography is given.
[182] See for instance Galen, *Comp. Med. sec. Loc.* 4.8 (12.748.17 K.).

and in a remedy of *Diseases* III;[183] 'the black earth from Samos' enters in the composition of a purgative recipe of *Nature of Women*;[184] finally 'Milesian wool' has to be used in the application of a pessary recommended in *Barren Women* and in a treatment of the eye described in *On Sight*.[185]

The 'Cnidian κόκκος', literally the 'Cnidian berry', is identified by modern scholars as the berry of the poisonous plant *Daphne gnidium* L.[186] Following a text by the medical author Rufus of Ephesus (second half of the first century AD), modern scholars have argued that the Asclepiads of Cnidus established the reputation of this ingredient:

> For not all <plants> grow beautifully everywhere, but scammony <grows> in Colophon in Ionia…and in Caria <grows> the Cnidian berry, whence it also takes its name, since the Asclepiads of Cnidus use it in particular and to a great degree.[187]

It is interesting to note that *Daphne gnidium* L. is a circum-Mediterranean species; the name 'Cnidian berry' must therefore be linked in some way to the use made of this plant on Cnidus.[188] However, although physicians on Cnidus might have used this ingredient, its presence in a text is not sufficient for classifying this text as Cnidian (as opposed to Coan).

Dioscorides informs us that the best variety of ὕσσωπον grew in Cilicia.[189] Dioscorides' description points to an identification with *Hyssopus officinalis* L., a plant native to Asia Minor. The epithet 'Cilician' is used by the Hippocratic authors to indicate that only the best quality of hyssop would be satisfactory.

The Milesian wool was mentioned regularly in classical literature for its high quality.[190] As in the case of the Egyptian perfume, it is doubtful that all Milesian wools were really imported from Miletus; rather it seems that the expression 'Milesian wool' was used to designate wool of particularly high standard.

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[183] *Nat.Mul.* 32 (93.6 Trapp; 7.358.6 L.); *Morb.* 3.10 (78.14 Potter; 7.130.10 L.).
[184] *Nat.Mul.* 32 (92.4–5 Trapp; 7.356.4–5 L.).
[185] *Steril.* 221 (8.426.7–9 L.); *De videndi acie* 4 (42.1 Craik; 9.156.11–12 L.).
[186] See Amigues (2006) 300 (s.v. κόκκος ὁ κνίδιος); Touwaide (2002) 999.
[187] Rufus, *De medicamentis purgantibus*, in Oribasius, *Collectiones medicae* 7.26.30 (1.231.8–14 Raeder).
[188] See Amigues (2006) 239; Grensemann (1975) 67–70; Jouanna (1999) 176.
[189] Dioscorides, *Mat. Med.* 3.25.
[190] See for instance Aristoph., *Lys.* 729–730.

Milesian wool is mentioned by Pliny for its high quality,[191] and all three other products from Asia Minor mentioned in the Hippocratic Corpus—the Cnidian κόκκος, the Cilician ὕσσωπον and the Samian earth—were used in the recipes of later medical authors.[192]

When we turn to the islands of the Aegean, we find one reference to the cheese of goats from Scyros as a means to promote lactation in *Diseases of Women* I;[193] Thasian nuts (that is the cultivated sweet almond, *Prunus dulcis* L.) and Thasian wine are each mentioned once in *Diseases* III, in the treatment of jaundice and fever, respectively;[194] Melian στυπτηρίη (alum) appears four times in the Corpus;[195] Coan wine is recommended once in a treatment of a disease of the spleen in *Internal Affections*;[196] and Chian wine is listed in a recipe to facilitate childbirth of *Excision of the Foetus*.[197]

Most of these products are known from classical Greek texts. Thasian nuts were used, for instance, in the preparation of a Cretan cake, the recipe of which is reported by the physician Chrysippus (*c.* 300 BC);[198] Thasian, Chian and Coan wine were famous antique *crus*;[199] and the goats from Scyros are first mentioned by Pindar (second half of the fifth century BC) for the quality of their milk.[200]

In addition, Thasian nuts, and Chian and Coan wine were still employed in the medicinal recipes of the first centuries of our era.[201]

Only one ingredient from the Ionian Islands is mentioned in the Hippocratic Corpus: the 'ἄσφαλτος from Zacynthus', literally 'the bitumen from Zacynthus', listed in a fomentation recipe of *Diseases of*

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[191] Pliny, *H.N.* 19.11.33.

[192] Cnidian κόκκος: see for instance Galen, *Comp. Med. per Gen.* 6.2 (13.875.8 K.); Cilician ὕσσωπον: see for instance Galen, *Comp. Med. sec. Loc.* 5.1 (12.818.17 K.); earth from Samos: see for instance Galen, *Comp. Med. sec. Loc.* 1.7 (12.491.15 K.). On the Samian earth, see Shepherd (1993) 111–112.

[193] *Mul.* 1.44 (8.102.12–13 L.).

[194] Thasian wine: *Morb.* 3.17 (98.26–27 Potter; 7.160.5–6 L.). Thasian nuts: *Morb.* 3.11 (78.29–80.1 Potter; 7.130.24–132.2 L.). For the identification of the Thasian nut, see Dalby (2003) 6 (s.v. almond).

[195] *Ulc.* 11 (59.21 Duminil; 6.412.1 L.); 12 (61.21 Duminil; 6.414.18 L.); 18 (66.17–18 Duminil; 6.422.16 L.); *Steril.* 225 (8.434.15–16 L.).

[196] *Int. Aff.* 30 (178.2–3 Potter; 7.246.2 L.).

[197] *Foet. Ex.* 4 (8.516.8–9 L.).

[198] Chrysippus *ap.* Athenaeus 14.57 (647f).

[199] See Dalby (2003) 82–83 (s.v. Chian wine); 89–90 (s.v. Coan wine); and 325 (s.v. Thasian wine) for further references.

[200] Pindar, *Hyporchemata* fr. 106 (Maehler) (text quoted below).

[201] Thasian nuts: see for instance Oribasius, *Collectiones medicae* 4.7.27 (1.104.25 Raeder); Chian wine: see for instance Galen, *Anti.* 2.1 (14.108.7 K.); Coan wine: see for instance Galen, *Comp. Med. sec. Loc.* 5.5 (12.867.8 K.).

Women II.[202] This ingredient later entered in the composition of recipes recorded by Galen.[203]

Although there are relatively few Greek ingredients accompanied by an epithet of origin in the Hippocratic Corpus, they yield interesting conclusions. First, with the exception of the Cretan ingredients, which appear only in the gynaecological treatises, the Greek products distinguished by geographical epithets are spread over a series of Hippocratic treatises and not concentrated in the gynaecological treatises only. In addition, the majority of these ingredients are also known outside the Corpus: in fifth- and fourth-century sources and/or in later medicinal recipes.

Second, many of the products qualified with an epithet—wine, honey, salt, wool and goats—are not rare *per se*; they are what Peregrine Horden and Nicholas Purcell have called 'artificial rarities'. These scholars have noted that the distribution of products in the ancient Mediterranean was rarely the 'ineluctable consequence' of environmental conditions. This distribution responded to "the ever-shifting social construction of commodities".[204]

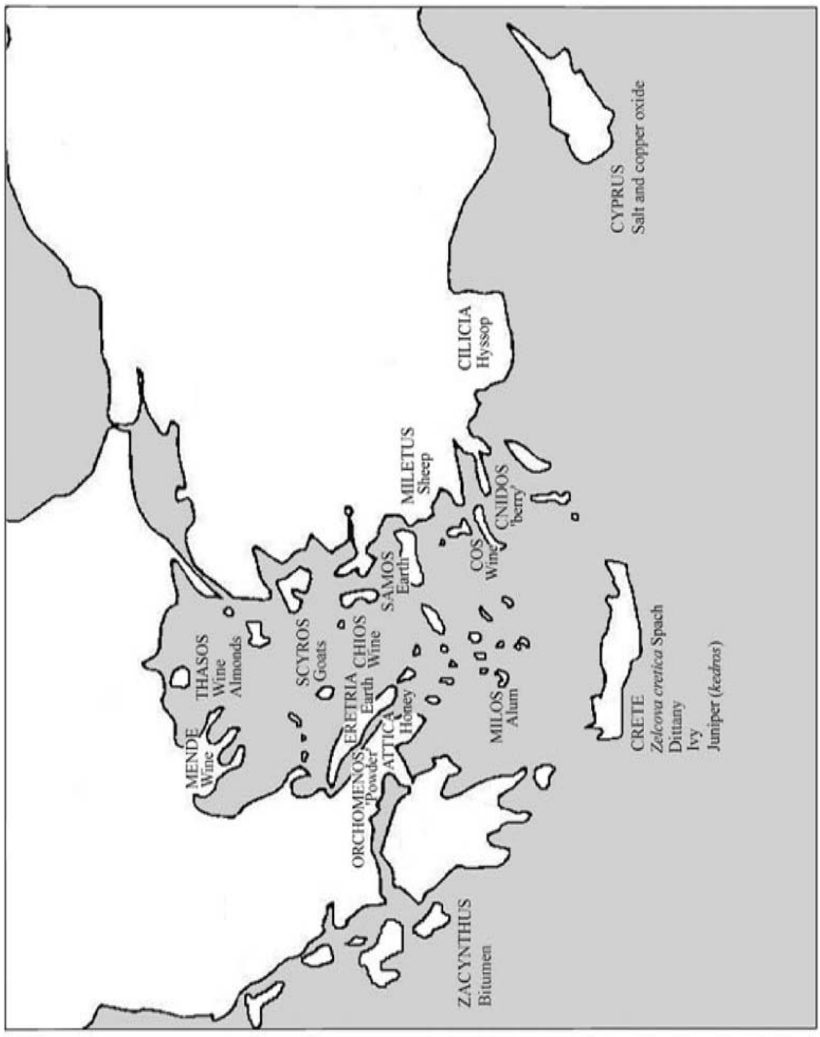
Second, many of these ingredients come from islands: Euboea, Crete, Cyprus, Samos, Miletus, Thasos, Cos, and Zacynthus. The importance of islands in ancient commerce is, according to Peregrine Horden and Nicholas Purcell, linked to their 'connectivity':

> Islands are uniquely accessible to the prime medium of communication and redistribution. It is not that island niches are usually really much more productive in themselves than similar environments on the mainland. It is rather that they have the simple advantage of being located on islands. And despite a malign tendency to see islands as isolated and remote, characterized principally by their lack of contamination and interaction, they in fact lie at the heart of the medium of interdependence: they have *all-round* connectivity.[205]

Finally, epithets of origin referring to localities in the East are numerous in the Hippocratic Corpus, whereas epithets referring to localities in the West are rare. In other words, the scheme we have discerned for the exotic ingredients is reproduced at the level of Greece; there is a negative prejudice against the West in the Hippocratic prescriptions.

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[202] *Mul.* 2.206 (8.402.1–3 L.).
[203] See for instance Galen, *Comp. Med. sec. Loc.* 4.8 (12.741.15 K.).
[204] Horden and Purcell (2000) 344 and 366.
[205] Horden and Purcell (2000) 225 and 227.



Map Three: Greek ingredients accompanied by geographical epithets in the Hippocratic Corpus.

Final discussion on exotic and luxury ingredients

In the previous pages, I have attempted to map the exotic and luxury ingredients listed in the recipes of the Hippocratic Corpus. It is now time to draw some general conclusions from these discussions.

My first set of conclusions concerns the geographical spread of those ingredients. Contrary to a common opinion, the Egyptian ingredients are not the most important *exotica* of the Hippocratic recipes; 'eastern' ingredients are employed much more frequently. However, the most important geographical conclusion is that products from the West suffered from a negative prejudice in the Corpus. Epithets of origin referring to localities in the west of Greece or in the west of the Mediterranean are extremely rare in the Corpus: if products from these parts of the world were used in the recipes, they are almost impossible to detect. This is surprising since trade in the West was particularly thriving in the archaic and classical periods. However, this apparent lack of western ingredients is probably not related to economic factors; rather it seems that the compilers of Hippocratic recipes were influenced in their choice of ingredients by the orientalizing tendencies discernible in ancient Greek culture: products from the East were seen as more 'exotic' and more attractive than products from the West. In addition, the lack of western ingredients in the Hippocratic Corpus is linked to the value-loaded connotations of the West and the East—a contrast between the East (valued positively) and the West (valued negatively) is common in the ancient world.[206] Such a contrast is strongly expressed by the author of *Airs, Waters and Places* in his description of the cities situated towards the East and the West:

> Those <cities> which are facing towards the risings of the sun are, in all likelihood, more salubrious than those which are turned towards the North and those which are turned towards the South, even if there is only one stadium between them… Those which are facing towards the settings of the sun and which are sheltered from the winds blowing from the Orient, and which the warm winds and the cold winds from the North flow past: these cities by necessity have the most unhealthy situation.[207]

There is a difference between 'facing towards' the West and 'being situated' in a western region; however, there could have been a con-

[206] See Sassi (2001) 108.
[207] *Aer.* 5.2 and 6.1 (196.5–9 and 198.1–5 Jouanna; 2.22.18–20 and 24.10–13 L.).

nection between these two notions in people's minds. The ancients might have believed that if bad influences came from the West, these influences must have been particularly prominent in the West, therefore products from the West will be bad. The choice of ingredients made by the compilers of Hippocratic collections of recipes—or rather the way in which the ingredients are presented in the recipes—is dictated, it seems, by a form of geographical determinism favouring the East against the West.

This geographical determinism was not universal, however: a verse from an unidentified play of Aeschylus depicts Tyrrhenia as rich in medicines: "For Aeschylus too in his elegies says that Tyrrhenia was rich in drugs: 'Tyrrhenian race, a nation that produces drugs'."[208]

Interestingly, Theophrastus, who reports this verse, goes on to omit the West in his list of regions producing marvellous drugs:

> It seems that all places have their share of drugs, but to different extents. For the <places> facing towards the North, the South and the East have <plants of> marvellous power.[209]

It is interesting to note that the regions producing most of the exotic and luxury ingredients listed in the Hippocratic Corpus were part of 'Asia' as defined by the author of *Airs, Waters and Places*, that is a continent including Ionia, Egypt and Ethiopia. The compilers of the Hippocratic recipes would have agreed with this author in his assertion that 'Asia' produced the most beautiful plants:

> I say that Asia differs greatly from Europe in the nature of everything, be they plants growing from the earth or men. For everything is more beautiful and bigger in Asia…The cause for this is the balance of the seasons, because <Asia> is situated in the middle of the risings of the sun, towards the Orient and furthest away from the cold.[210]

The author's idea that the perfect balance of seasons occurs only in 'Asia' is obviously ethnocentric: this author adopts an Ionian or eastern Greek point of view.[211] The Hippocratic collections of recipes did not necessarily originate in Ionia but they reflect a vision of the world that was first formulated, seemingly, in that part of the Greek world.

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[208] Aeschylus fr. 2 (West) = Theophrastus *Hist. Plant.* 9.15.1.
[209] Theophrastus, *Hist. Plant.* 9.15.2. See Amigues (2006) 186 for commentary.
[210] *Aer.* 12.2–3 (219.15–220.8 Jouanna; 2.52.14–54.1 L.).
[211] See Thomas (2000b) 97.

My second set of conclusions is chronological. We have seen that products such as sumach, terebinth and silphium may have been imported into Greece during the Bronze Age. This raises the important question of the continuity—or absence of continuity—in Greek overseas trade from the Bronze Age to classical times. Scholars are divided on this question.[212] Until the 1990s, scholars tended to stress the rupture more than the continuity, the collapse of trade in the eleventh century BC more than the fact that trade in later centuries often followed routes established in the Bronze Age. Recently, however, the reverse trend has started to manifest itself. Sarah Morris, for instance, argued that:

> <T>he period called 'Orientalizing' extends from the Bronze Age to late antiquity, and remains better understood as a dimension of Greek culture than a phase.[213]

Julie Laskaris followed Morris, arguing that contacts with North Africa and the North East were never entirely lost from the Bronze Age forward, even though there may have been fluctuations in their intensity.[214] It is, however, important to ask what the significance of these fluctuations is. Exotic and luxury products are by definition not subsistence items and their trade is time- and labour-consuming. Fluctuations in their import may therefore reflect important changes in social, economical and political circumstances.[215] Although some *exotica* were imported into Greece in the Bronze Age, it is necessary to note that these imports probably came to a halt after the collapse of the Mycenaean civilization. They were probably resumed at the end of the ninth century or at the beginning of the eighth century, at the time of the so-called 'Orientalizing Revolution'. At this time, new routes, such as the Arabian route, were created, and some products were probably imported into Greece for the first time, such as pepper or spikenard.

My final set of conclusions concerns the nature of ancient trade in *materia medica* and its relation to trade in general. I have pointed out that most *exotica* listed in the Hippocratic Corpus were not imported into Greece exclusively for medicinal purposes. Many exotic ingredients

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[212] As an introduction to trade in the first centuries of the first millennium BC, see Sherratt and Sherratt (1993).

[213] Morris (1992) 130.

[214] Laskaris (1999) 7.

[215] See Hamilakis (1999) who argues that, in Bronze Age Crete, we can observe cycles of production of wine and perfumed oil (two labour-intensive products), which are "a response to social processes".

listed in the Hippocratic recipes were also used in perfumery, religious practice and cooking. Specialised trade would not have been profitable in the ancient world; the more purposes an ingredient was used for, the more chances it had to be available.

Similarly, most Greek products distinguished by a geographical epithet in the Hippocratic Corpus were also employed outside medicine: Milesian wool, wine from Chios, nuts from Thasos, and goat milk from Scyros are all associated with other uses in Greek literature. I have pointed out that in fifth- and fourth-century literature, geographical epithets are not always a good indicator of the exact geographical origin of a product; rather they appear to be used as a 'rhetorical tool' to indicate that a product is of the highest quality. However, it is safe to assume that when, for instance, the phrase 'Milesian wool' first appeared, it referred to wool from Miletus, and not from anywhere else. Andrew Dalby has noted that phrases linking a geographical epithet with a common noun are particularly rare in Homer;[216] it seems that the idea that a good could be of better quality when produced in one particular locality developed in parallel with the growth of commerce in the first millennium BC.[217]

This link between quality and geographical origin was well established when Pindar composed his ode to the Sicilian tyrant Hieron:

> Pindar in the Pythian ode to Hieron, <says>: "From Taygetus, he brings the Laconian hound for the chase, a most strong beast at running. The goats from Scyros are the most excellent for the production of milk. Weapons <are> from Argos, the chariot from Thebes; but from Sicily, which bears beautiful fruits, seek the cunningly wrought carriage."[218]

Pindar only lists products from the Greek world, using this enumeration to compare the respective achievements of the Greek cities. By the end of the fifth century BC, catalogues had come to include goods from the entire world, as in this most impressive example by the comedian Hermippus. In this catalogue, the comedian juxtaposes physical goods with more abstract goods, thus making political jokes:

> Tell me now, Muses dwelling in Olympian mansions, all the blessings Dionysus, since the time he voyaged on the wine-dark sea, brought hither

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[216] Dalby (2000) 6.

[217] See Sherratt and Sherratt (1993) who noted that the growth in commerce in the first millennium BC was linked to a "growing ethnic differentiation".

[218] Pindar, *Hyporchemata* fr. 106 (Maehler) = Athenaeus 1.50 (28a).

> to men in his black ship. From Cyrene, <silphium> stalks and ox-skins, from the Hellespont mackerels and all sorts of pickled fish, from Thessaly, again, grain and ribs of beef, from Sitalces, an itch for the Spartans, from Perdiccas, lies in many ships. The Syracusans provide swine and cheese, and the Corcyreans—may Poseidon destroy them in their hollow ships, because their mind <sc. loyalty> is divided in two. Thence all these things; but from Egypt, rigged sails and papyrus, from Syria again frankincense. Beautiful Crete <provides> cypress for the gods, Libya provides much ivory for sale, Rhodes raisins and dried figs procuring sweet dreams. Besides, from Euboea, <he carries> pears and fat apples, from Phrygia slaves, from Arcadia mercenaries. Pagasians provide slaves and branded culprits. Paphlagonians provide the acorns of Zeus and smooth almonds, for they are the ornaments of a party. Phoenicia again <provides> the fruit of the palm-tree and the finest wheaten flour. Carthage <provides> carpets and multi-coloured cushions.[219]

Hermippus celebrates—in a mock Homeric style—the prosperity of Athens, which draws to herself goods (and ills) from the entire known world. A catalogue of this type would have been a powerful tool in defining the identity of Athens as the centre of the Athenian confederation. At the same time, it defined the identity of other places as sources of luxury goods, necessary commodities or—since this is a comic catalogue—of ills.

The catalogues of goods of Pindar and Hermippus were designed to impress audiences, and it is probable that the Hippocratic catalogues of recipes shared this desire to impress. Aristophanes exploited this impressive aspect of recipes when he included his recipes for sore eyes in his *Assembly Women* and *Plutus*. The former recipe lists Laconian spurge, whilst the latter contains Tenian garlic and Sphettian vinegar.[220]

Ancient scholiasts and lexicographers maintain that Tenos was reputed for its garlic;[221] Sphettos for its vinegar;[222] and Laconia for its spurge.[223] However, since none of these products are mentioned in later medical texts (or anywhere else), it can be argued that the conclusions of the scholiasts and lexicographers are inferences from the Aristophanic recipes.[224] It seems that Tenian garlic, vinegar from

[219] Hermippus fr. 63 (Kassel and Austin). On this catalogue, see Gilula (2000).
[220] Aristoph., *Ec.* 403–407; *Pl.* 716–721. See pp. 122–123 for more details on these recipes.
[221] See for instance Scholia in Aristoph. *Pl.*, line 718.
[222] See for instance Scholia in Aristoph. *Pl.*, line 720.
[223] See for instance *Suda*, s.v. τιθύμαλλος 582 (548.22–23 Adler).
[224] See Rogers (1907) 79.

Sphettos, and Laconian spurge are Aristophanes' inventions. There certainly are political allusions behind the Aristophanic joke,[225] but Aristophanes was probably also parodying those healers who thought that because mundane goods such as garlic or vinegar came from a particular locality, they would be more powerful.

At the end of the fifth century BC and in the first half of the fourth century BC (i.e. the time when the Hippocratic collections of recipes were most probably compiled) it was sufficient to add one or two epithet-bearing products, one or two eastern or Egyptian ingredients, to a recipe to make it look impressive and expensive. However, a 'trickle-down' effect is often recognised in the history of luxury goods: from being consumed by only few, they become widely available.[226] By the time of Alexander's campaigns, these early recipes would probably have lost most of their impressive character. To remain *Haute*, medicine would have to include ever more exotic drugs and high-standard Greek ingredients. This race would eventually lead to the development of polypharmaceutical remedies, such as Andromachus' version of the Mithridatic antidote, which included most of the imported and luxury ingredients listed in this chapter (Arabian troglodytic myrrh, cinnamon, nard, frankincense, galbanum, long pepper, white pepper, Pontic castoreum, styrax, black cassia, cardamom, and Cretan dittany) to which were added several other expensive products (ginger, balsam, and the Egyptian incense named *kyphi*), as well as more readily available ingredients (such as anise and parsley).[227]

The question of influences

> On sait d'ailleurs bien qu'influence est un vocable
> commode pour marquer un lien, en masquant une méconnaissance.
> François Hartog (1980) 344

Up to this point, I have considered the 'exotic' ingredients listed in the Hippocratic recipes individually. In addition to these ingredients, entire recipes may also have been exchanged from one region to another.

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[225] See for instance Didymus *ap.* Athenaeus 2.67 (67d): "And Didymus, in explaining the verse, says: 'Maybe because the Sphettians are sharp'."

[226] See van der Veen (2003) 409–410.

[227] Galen, *Anti.* 2.2 (14.115.17–117.9 K.).

For instance, the Greeks may have learnt recipes for preparing the 'Egyptian perfume' from Egyptian perfumers. Further, two recipes in the Hippocratic Corpus bear regional names: the 'Indian remedy' described in *Disease of Women* II:

> Τρίβειν τε ἄννησον, καὶ ἀνήθου καρπόν, καὶ σμύρνης ὁλκὴν ὀβολοὺς δύο, διιέναι οἴνῳ λευκῷ ἀκρήτῳ ἡμικοτυλίῳ, ἐν τουτέῳ διακλυζέσθω, καὶ ἐν τῷ στόματι πουλὺν κατεχέτω χρόνον… Τοῦτο τὸ φάρμακον ὀδόντας καθαίρει καὶ εὐώδεας ποιέει· καλέεται δὲ Ἰνδικὸν φάρμακον.[228]
>
> Crush anise, seed of dill and two *oboloi* of myrrh; soak with half a *kotylê* of pure white wine. Let her wash <her mouth> with this and let her keep it in her mouth for a long time… This remedy cleanses the teeth and makes them sweet smelling. It is called the 'Indian remedy'.

And the Carian remedy recommended in *Ulcers*:

> Ἢν βούλῃ ὑγρῷ χρήσθαι, καὶ τὸ Καρικὸν φάρμακον ἐπαλείφειν, ἐπιδεῖν δὲ ὥσπερ τὰ πρότερα γέγραπται κατὰ τὸν αὐτὸν τρόπον. Ἐστὶ δὲ ἐκ τῶνδε τὸ φάρμακον ποιεύμενον· ἐλλεβόρου μέλανος, σανδαράχης, λεπίδος, μολίβου κεκαυμένου σὺν πολλῷ θείῳ, ἀρρενικοῦ, κανθαρίδος· τούτῳ ὁποίῳ δοκέι συντεθέντι χρῆσθαι· ἡ δὲ δίεσις, κεδρίνῳ ἐλαίῳ·[229]
>
> If you want to use a moist <remedy>, also smear the Carian remedy and bandage in the same way as prescribed in the previous cases. This remedy is made of the following <ingredients>: black hellebore, realgar, <copper> flakes, burnt lead with much brimstone, yellow orpiment, canthatid. Make use of this preparation in whatever manner seems good. Dilute with cedar oil.

However, it is impossible to determine whether these recipes really came from India and Caria, respectively.

As pointed out by Vivian Nutton, "The exchange of substances need not have involved any deep exchange of ideas beyond the most obvious instructions for use."[230] It is therefore possible to conceive of a trade in *materia medica* without any deep influences from one culture onto another. However, the question of influences deserves attention for two main reasons. First, there are obvious cases of parallelism between Greek recipes and recipes from other cultures. Second, the question of influence raises important historiographical issues regarding the alleged 'rational' nature of Hippocratic medicine in comparison to other ancient medicines. In the following pages, I will concentrate on the possibil-

[228] *Mul.* 2.185 (8.366.14–20 L.).
[229] *Ulc.* 16 (64.19–65.3 Duminil; 6.418.20–420.2 L.).
[230] Nutton (2004) 42. See also Jouanna (2004) 3; Thomas (2004) 175.

ity of influences of Egyptian and Mesopotamian pharmacology upon Greek pharmacology.

Egyptian influences?

As pointed out earlier, Egypt was regarded as a land of wondrous drugs from an early time in Greece. Egyptian ingredients enjoyed a particular status in the gynaecological recipes: although they are listed less frequently than Arabian products (myrrh and frankincense), they are singled out and made more conspicuous by the use of the epithet 'Egyptian'.

The use of Egyptian drugs in Hippocratic gynaecology is a sign of interactions between Egypt and Greece, but is it a sign of influences? Most Egyptian drugs listed in the Hippocratic recipes also appear in the important Corpus of Egyptian recipes, but exact parallels between Egyptian and Greek recipes containing these ingredients are difficult to isolate.

In addition to the Egyptian drugs presented at the beginning of this chapter, scholars have argued that Egypt might have contributed several 'unusual' ingredients to the Greek pharmacopoeia; the example most commonly given is the 'milk of a woman who has borne a male child'.[231] According to Julie Laskaris, in Egyptian medicine, the phrase 'milk of a woman who has borne a child' refers to the milk of Isis nursing Horus. Laskaris argues that the use of kourotrophic milk in Greek medicine is the result of Egyptian influences, but that the Greek misunderstood or ignored the Egyptian ritual connotations of kourotrophic milk.

To assume that, when 'unusual' ingredients are used in the medicines of two neighbouring cultures, there was borrowing from one of these cultures to the other poses an important epistemological problem. Because we see 'milk of a woman who has borne a male child' as unusual, we are tempted to see its use in Greek medicine as a borrowing. However, this boundary between the 'usual' and the 'unusual' is fixed by us, not by the ancients. In ancient civilizations, the medicinal use of 'milk of a woman who has borne a boy' may have seemed perfectly natural. The possibility of independent developments in Egypt and Greece should not be rejected.[232]

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[231] On the use of this milk, see Laskaris (2005). See also Dawson (1929) 140; (1932); Ghalioungui (1968) 98.

[232] The 'milk of a woman who has borne a male child' appears in a Chinese remedy. See Read (1931) number 422. I wish to thank Dr Vivienne Lo for this reference.

Nevertheless, it should be noted that an Egyptian recipe of the *Berlin Medical Papyrus* (*c.* 1200 BC) involving kourotrophic milk has a very close parallel in the Hippocratic treatise *Barren Women*, as was already noticed by Peter le Page Renouf in 1873:[233]

Berlin Medical Papyrus 194 (Translation: Iversen [1939] 27)	*Barren Women* 214 (following Kühn's text)[234]
Water-melons (*bdd*), squeezed, moistened with the milk of a woman who has borne a male child, it shall be made into a remedy that can be swallowed, and the woman shall eat it. If she vomits, she will give birth, if she gets flatus, then she will not give birth.	If you want to know whether a woman will be pregnant: prepare bottle gourd (σικύη) or *boutyron* (βούτυρον) and milk of a woman who has borne a male child; give to drink. If she belches, she will be pregnant; if not, she will not.

For le Page Renouf, the Greek word 'βούτυρον' in this context does not mean 'butter' but is the transliteration of the Egyptian *bdd*, the water-melon. In other words, βούτυρον is considered to be a synonym for σικύη, bottle gourd.[235] The Greek lexicographer Hesychius mentions a plant named βούτυρος but unfortunately does not give enough information for us to identify it with a cucurbitaceous plant.[236] It should be noted that the parallel drawn by le Page Renouf is based on Kühn's edition of Hippocrates; if one follows Littré's edition, the parallel is less striking.[237]

[233] Egyptian texts in this section will appear in translation.

[234] Greek text of Kühn, as quoted by le Page Renouf (1873) 123: Γυναῖκα ἢν θέλῃς γνῶναι εἰ κύει, σικύη ποιῆσαι ἢ βούτυρον καὶ γάλα γυναικὸς κουροτρόφου διδόναι πίνειν, καὶ ἢν ἐρεύγηται, κυήσει· εἰ δὲ μή, οὔ.

[235] See also Dawson (1928) 298; (1929) 42.

[236] Hesychius, *Lexicon*, s.v. βούτυρος (1000).

[237] *Steril.* 214 (8.414.18–19 L.): Γυναῖκα ἢν θέλῃς γνῶναι εἰ κυήσει· βούτυρον καὶ γάλα γυναικὸς κουροτρόφου διδόναι πίνειν νήστει, καὶ ἢν ἐρεύγηται, κυήσει· εἰ δὲ μὴ, οὔ. (If you want to know whether a woman will be pregnant: give to drink *boutyron* and the milk of a woman who has borne a male child, whilst she is fasting. If she belches, she will be pregant; if not, she will not.)

Erik Iversen identified two further close parallels between birth prognoses found in *Papyrus Carlsberg VIII* (*c.* 1300 BC), the *Berlin Medical Papyrus* and the *Kahun Medical Papyrus* (*c.* 1820 BC), on the one hand, and in the Hippocratic treatises *Barren Women, Nature of Women* and *Aphorisms*, on the other:

Papyrus Carlsberg 8.4 = *Kahun Medical Papyrus* 28 (Translation: Nunn [1996] 192)	*Barren Women* 214 = *Nature of Women* 96[238]
<To determine> who will <bear children> and who will not <bear children>, you should then cause the bulb of an onion to spend the night in her flesh until dawn. If the odour appears in her mouth, she will bear <children>. If <it does not>, she will never <bear children>.	Another: Having washed and peeled a head of garlic, apply it to the womb, and see the next day whether she smells <of it> through the mouth; if she smells, she will be pregnant, if not, she will not.
Papyrus Carlsberg 8.5 = *Berlin Medical Papyrus* 195	*Aphorisms* 5.59[239]
Another to distinguish between a woman who shall give birth and one who shall not. You shall fumigate her with <excrement of hippopotamus through> her vulva. If she vomits with her mouth at once, she will not give birth, if she gets flatus from her posterior at once then she will give birth.	If a woman does not take <a child> in her belly, if you want to know whether she will take: wrap her in clothes, fumigate from below: if the smell seems to go through the body to the nose and to the mouth, know that she is not sterile on her own account.

[238] *Steril.* 214 (8.416.2–5 L.): Ἄλλο· μώλυζαν σκορόδου περικαθήραντα τὴν κεφαλήν, ἀποκνίσαντα, προσθεῖναι πρὸς τὴν ὑστέρην, καὶ ὁρῆν τῇ ὑστεραίῃ, ἢν ὄζῃ διὰ στόματος· καὶ ἢν ὄζῃ κυήσει· ἢν δὲ μὴ, οὔ. For other tests by means of garlic see pp. 72 and 108–109.

[239] *Aph.* 5.59 (4.554.3–6 L.): Γυνὴ ἢν μὴ λαμβάνῃ ἐν γαστρί, βούλῃ δὲ εἰδέναι εἰ λήψεται, περικαλύψας ἱματίοισι, θυμία κάτω· κῆν μὲν πορεύεσθαι δοκέῃ ἡ ὀδμὴ διὰ τοῦ σώματος ἐς τὰς ῥῖνας καὶ ἐς τὸ στόμα, γίνωσκε ὅτι αὐτὴ οὐ δι’ ἑωυτὴν ἄγονός ἐστίν. On this aphorism, see Hanson (2004a) 296–298.

In the case of the first recipe, Iversen acknowledges that the text of *P. Carlsberg* 8.4 and *P. Kahun* 28 is so extremely damaged that "it is not until we compare our prescription with a similar one from Hippocrates that the meaning and the whole proceeding becomes perfectly clear."[240] As we will see, the translations of the Egyptian recipes were also based on the comparison with Greek texts, and have recently been challenged. In the case of the second test (the fumigation test), although there are similarities between the recipes, the interpretation of the signs in the Egyptian recipe (vomit: sign of sterility) appears to be exactly the opposite as in the Greek recipe (smelling through the mouth: sign that the woman is not sterile).

Iversen believed that these pregnancy/fertility tests had been transmitted from Egyptian to Greek medicine through writing. He argued that the prognoses were part of an important Egyptian gynaecological treatise, now lost. He found the proof for the existence of such a treatise in Clement of Alexandria (second century AD), who informs us that six books of medicinal lore were included in the forty-two books of human knowledge that circulated in ancient Egypt.[241] Iversen concluded his study of the Egyptian birth prognoses as follows:

> Thus there seems to be good evidences of the existence of this volume in ancient Egyptian medicine; and that the birth-prognoses are direct remains and the only existing excerpts of any extent, would seem to be the only natural and probable conclusion.[242]

Egyptologists embraced Iversen's conclusions and extended them, sometimes with very little caution, to other areas of Egyptian and Greek gynaecology. For instance, J. B. de Crusance Morant Saunders suggested that:

> The aphoristic style so common in the 'Hippocratic Collection' is characteristically Egyptian and there is very strong suspicion, if not actual proof, that apart from the various pregnancy tests and methods of gynecological treatment by fumigation, sections from several other of the Hippocratic works are derived from the physicians of the Nile.[243]

From a series of clear parallels, Saunders jumped to the conclusion that most aphorisms contained in the Hippocratic Corpus were derived from

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[240] Iversen (1939) 21.

[241] Clemens Alexandrinus, *Stromata* 6.4.37. At the current state of knowledge, it is impossible to verify Clement's claim.

[242] Iversen (1939) 30. See also Capart (1939).

[243] Saunders (1963) 18.

Egyptian medicine. A series of Egyptologists suggested that the way in which recipes are presented in the Hippocratic gynaecological treatises—long lists of alternative remedies separated by the phrase 'another'—is an indication of direct borrowing from Egyptian medical texts;[244] a conclusion also embraced by the Hippocratic scholar Jouanna.[245]

However, it should be noted that long lists of alternative medications separated by the phrase 'another' or by visual markers also occur in Akkadian and Chinese medical texts, to mention only two examples. We need not assume that Hippocratic physicians imported this model from the Egyptians. It rather seems that the very act of writing leads to the constitution of catalogues.

Moreover, if we take into consideration the repugnance the Greeks had towards learning foreign languages, the suggestion of a transmission through writing becomes very implausible.[246] If gynaecological remedies were ever transmitted from Egyptian to Greek medicine, the transmission most probably occurred orally.

The Egyptologists' claim that Greek medicine, and particularly Greek gynaecology, was largely indebted to Egyptian gynaecology met a variety of reactions among classicists. Some, like Laskaris and Jouanna accept the possibility of an influence of Egyptian medicine upon Greek pharmacology, especially upon the pharmacology of the so-called Cnidian School.[247] However, Jouanna was eager to point out that the Greeks only borrowed the therapies themselves from the Egyptians, not the aetiological theories guiding the choice of therapies.[248] Other classicists, like Ann Hanson, Geoffrey Lloyd, Robert Palter and Heinrich von Staden, are much more sceptical towards claims of Egyptian influence, even in the case of the birth prognoses.[249]

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[244] See Ghalioungui (1968) 105; (1983) 215; Saunders (1963) 15.

[245] Jouanna (1974) 509, note 1.

[246] On the repugnance of the Greeks towards learning foreign languages: see Lanza (1979) 27 sqq.

[247] See also Bourgey (1953) 176, note 4; Fraser (1972) 344; Grensemann (1975) 49–50; Jouanna (1983) 248–249; Jouanna (2004) 3; Littman (1996) 2689–2690; Longrigg (1993) 10–11; Lonie (1965) 17; Marganne (1993) 41; Riddle (1992) 82; Thomas (2004) 182–183.

[248] Jouanna (1974) 509, note 2. For the hypothesis that Cnidian aetiology was influenced by Egyptian medicine, see Steuer and Sauders (1959); Saunders (1963) 20–30.

[249] See Hanson (1985) 27; (1991a) 78 and note 32; Lloyd (1983) 65, note 21 and 201–202; Palter (1993) 264–274 (especially pp. 272–273 for the birth prognoses); von Staden (1989). Bernal wrote a response to Palter: Bernal (1994) 457–459.

Von Staden notes that three factors make the question of influence particularly difficult to resolve.[250] The first factor is a chronological gap; the extant Egyptian medical papyri are dated from the second millennium BC, whereas the Greek parallels are from the fifth and fourth centuries BC. The second factor is the uncertainty about the exact meaning of numerous Egyptian and Greek disease and plant names. The third factor is that many medical theories and practices are shared by several cultures around the Mediterranean and beyond.

Von Staden is not entirely correct in identifying his first chronological problem: although most of the Egyptian medicinal texts date from the second millennium BC, later texts have also survived.[251]

With regards to the second objection, in 1993, it was estimated that only 20 per cent of some 160 plants mentioned in the Egyptian medical texts are identified with certainty.[252] However, this objection is not sufficient in itself to reject the possibility of influences. The final objection is more important: similarities are not necessarily a sign of borrowing. The possibility of independent developments can never be excluded, even in striking cases such as the birth prognoses.[253] As von Staden put it:

> <M>erely identifying foreign borrowings…can be misleading, since the original semantic, structural, theoretical, or functional context of the borrowed often is usurped and transformed by new cultural contexts, in science as in art and myth.[254]

Recently, the Egyptologist Thierry Bardinet has located a possible transformation in the functional context of the Egyptian prognoses examined above. The Egyptian tests have always been interpreted, with the help of the Hippocratic text, as fertility or pregnancy tests. However, Bardinet believes this was not the function of the Egyptian tests; rather, they were used to determine whether pregnancy and childbirth would be problematic or not.[255] If the Greeks adopted these tests, they also adapted them.

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[250] Von Staden (1989) 3–5.
[251] See Ritner (1989) 39. See also Jouanna (2004) 2.
[252] See Germer (1993).
[253] See von Staden (1989) 21–22.
[254] Von Staden (1992c) 588.
[255] Bardinet (1995) 228–229. See also Jouanna (2004) 4.

Mesopotamian influences and the historiographical question of rationality

Similarities between Greek and Mesopotamian recipes have also been identified. Erica Reiner found some examples of tests to determine whether a woman is pregnant—and possibly whether she can conceive—in Mesopotamian medical texts.[256] These tests consist either in giving the woman a particular drink and seeing whether she vomits or not, or using a pessary:

> Juniper, *haṣû, nuhurtu*, and *abukatu* resin you give her to drink one, two, or three times, if she vomits, she is pregnant…
> If ditto, you wrap *dīšu* plant (or: a fresh plant) in a wad, place in her vagina, she will wear it for three days.
> If the dīšu plant has turned multicoloured like…, the woman is pregnant.[257]

Although these tests bear some similarities with the Greek and Egyptian tests, they are not exact parallels. Again, the possibility of independent developments must not be excluded.

Dietlinde Goltz listed fifteen similarities between Greek and Babylonian recipes, ranging from similarities in language to specific practices.[258] One such practice involves placing pharmacological preparations outside during the night. It is shared by Babylonian, Egyptian and Greek cultures.[259] In the context of Babylonian culture, it was interpreted by Reiner as an indication to expose a remedy to astral irradiation,[260] but this astral dimension does not seem to be present in Greece. Thus, if there was borrowing from Greece to Babylonia, there was also reinterpretation of the practice. Moreover, as in the case of the birth prognoses, the possibility of independent developments cannot be rejected.

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[256] Reiner (1982): these texts are UET 7.123 and STT 98. See also Reiner (1995) 41; Stol (2000) 37. Birth prognoses and sex prognoses are also found in the Akkadian Diagnostic Handbook, a medical treatise dating to the middle of the eleventh century BC and copied throughout the first millennium BC. The pregnancy prognoses and prognoses related to gynaecological ailments are found on tablets 35 and 36 (201–217 Labat). See also Lefebvre (1956) 104–105; Scurlock and Andersen (2005) chapter 12; Stol (2000) 193–203.

[257] UET 7.123 I.7 and II.8–9. Translation Reiner (1982) 135.

[258] Goltz (1974) 240–242.

[259] For Egypt, see Daumas (1956) 174 who was not aware of the existence of this practice in Babylonia: "This prescription, amongst others, shows a closer dependence between Greek and Egyptian medicine than between Egyptian and Babylonian medicine, for instance."

[260] Reiner (1995) 48–60. See also Goltz (1974) 240.

Goltz herself expressed doubts about many of the similarities she had identified between Greek and Babylonian medical recipes. In addition, she pointed out differences between Babylonian and Greek medicine, in particular that the stress put on diet in Greek medicine is not present in Babylonian medicine.[261]

In his review of Goltz' work, the classicist Georg Harig maintained that there is "qualitative difference between Greek scientific medicine and Oriental pre-scientific medicine; a difference which excludes almost any possibility for a direct borrowing."[262] This comment points to the heart of the problem that has, until very recently, hindered the studies of relationships between Greek, Egyptian, and Mesopotamian medicine, namely that since antiquity, a Greek 'rational' medicine has been contrasted to 'irrational' oriental systems of medicine. In the second century AD, Pseudo-Galen wrote in his *Introduction or Physician* that the Greek created the *technê* of medicine, whilst the Egyptians' practice was 'irrational and not yet rational' (ἄλογος ἡ πεῖρα καὶ οὔπω λογική).[263] It is important to stress that Pseudo-Galen mentions Egyptian medicine, but passes in silence other Near Eastern systems of medicine. The ancient Greeks praised Egyptian medicine, but not Babylonian medicine; Herodotus' account of how medicine was practiced in Babylonia is surprising and difficult to interpret.[264] It should also be noted that, if ingredients from the Levant and from the Far East are used in the Hippocratic Corpus, no ingredient seems to come from the lands in between these two extremities of the Asian continent. Thomas argues that:

> If trade routes for ingredients might correspond at all to routes of information, recipes, medical techniques, then they would suggest that the doctors of the *Corpus Hippocraticum*, in all their variety, had their eyes turned elsewhere than the Mesopotamian heartland of the Near East.[265]

This, however, is too strong a statement since trading routes from Persia and the Far East certainly passed though Mesopotamia. Mesopotamia

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[261] Goltz (1974) 109–110; 115 and 243–247. See also Geller (2001) 73; Stol (2004) 64–66.

[262] Harig (1975) 656. See also Harig (1977). On the other hand, the Assyriologist Stol (2004) 63 argues that almost none of Goltz's similarities "can stand criticism".

[263] [Galen], *Introductio sive medicus* 1 (14.674–675 K.). On this text, see Jouanna (2004) 16.

[264] Herodotus 1.197. Pseudo-Galen attributes to the Egyptians the custom of placing the sick in the streets, which Herodotus had said to be Babylonian: *Introductio sive medicus* 1 (14.675.16–676.4 K.). See Hanson (1985) 26.

[265] Thomas (2004) 183.

might not have contributed any ingredients of its own, but it had a role to play in the transmission of eastern ingredients to Greece.

Pseudo-Galen's narrative of the development of medicine, with its emphasis on Greek rational medical *technê*, its depiction of Egyptian medicine as praiseworthy practice, and its silence on any other system of medicine has shaped modern accounts of ancient medicine: Greek medicine is considered the pinnacle of 'rationality', followed by Egyptian medicine—and lowest of all—Mesopotamian medicine, which is seen as suspiciously magical.[266] Within this historiographical scheme, 'Hippocratic medicine' is part and parcel of the 'Greek miracle'. For instance, James Longrigg opens his *Greek Rational Medicine* with the following words:

> One of the most impressive contributions of the ancient Greeks to Western culture was their invention of rational medicine. It was the Greeks who first evolved rational systems of medicine for the most part free from magical and religious elements and based upon natural causes.[267]

In this situation, it is understandable that Egyptologists and Assyriologists have been keen to show that Egyptian and Babylonian medicine had rational elements long before the emergence of Greek medicine,[268] and that these rational elements had an influence on Greek medicine—conflating two claims that should be kept separate.

However, there is a problem of definition regarding the notion of 'rationality'. As noted by Helen King, the term 'rationality' can be used in two ways:

> It may denote a type of medicine which searches for the cause in order to decide on treatment, or it may carry value-judgements about whether or not an argument makes sense in modern scientific terms.[269]

If one follows the first definition of rationality, all ancient systems of medicine are rational or at least rationalised: they give diseases a narrative, even if they attribute their causes to the gods. As the passage

[266] See for instance Lloyd (1982) 16 (reprinted in Lloyd [1991] 295): "Babylonian medicine was, to judge from the extant remains, much more straightforwardly magical than Egyptian."

[267] Longrigg (1993) 1.

[268] See Heeßel (2004) 98: "It must be clear that addressing such a question <sc. how many rational elements there are in Babylonian medicine> is solely conducive to satisfying out interest, but does not do justice to Babylonian medicine as it concentrates on a very small aspect of great interest to us, but of little to the Babylonians."

[269] King (1998) 6.

of Longrigg's *Greek Rational Medicine* shows, however, scholars tend to combine the two definitions of rationality, making a value judgement on ancient systems of medicine. Longrigg's definition of 'rational medicine' could be applied to only a few treatises of the Hippocratic Corpus such as *On Ancient Medicine* and *The Sacred Disease*, not to the entirety of the Hippocratic Corpus.[270] Many Hippocratic texts—and particularly the Hippocratic collections of gynaecological recipes on which the debate on Egyptian influence has concentrated—include what could be qualified as 'magical and religious aspects'. Greek medicine need not be 'irrational' for having been influenced by Egyptian/Mesopotamian medicine; and Egyptian/Mesopotamian medicine need not be 'rational' for influencing Greek medicine. The debate on influence should stir away from these considerations on 'rationality' which can only blind us to interesting aspects of medical texts.

The Assyriologist Mark Geller recently offered a new and original solution to the problem of influences. For him the striking similarities between Babylonian and Greek medicine can be explained because Babylonia and Greece shared the same system of medicine for centuries:

> <T>here was only one major system of medicine in the oikumene of the Near East before Hippocrates, which later diverged into two quite different systems. Babylonian medicine represented an older classical tradition going back to the second millennium, which continued through until the Parthian period without much innovation. In Greek circles, however, the fifth century BC introduced some important changes which highlighted many new developments in Greek medical thinking and writing.[271]

The main development introduced in Greek medicine, according to Geller, was dietetic treatment, no trace of which can be found in Babylonia. Geller's theory might be a bit too simplistic; there must have been regional differences in medical practice, and the connotations attached to ingredients and practices may have been interpreted differently from one place to another or from one period to another. Nevertheless, Geller is certainly correct in not drawing strict boundaries between Greece and Mesopotamia in the domain of medicine, and I believe no clear boundary existed between Greece and Egypt either. The boundaries that have been drawn between cultures in the field of

[270] See p. 121 for more detail.
[271] Geller (2001) 73.

medicine often reflect the boundaries between modern scholarly disciplines (Egyptology, Assyriology, and Classical Studies) and the lack of communication between scholars.

I would argue that, like goods, and like physicians and patients, pharmacological knowledge circulated in the ancient world from at least the second millennium BC. The notion of 'influence' is not helpful in understanding the links between Mesopotamia, Egypt, and Greece in the field of pharmacology, because it often presupposes that one of these cultures is superior to the others. The notion of 'influence' implies a flux of knowledge in one direction only, with one contributor and one recipient. However, in practice, the flux of pharmacological knowledge must have gone in all possible directions, following commercial routes.

Exact parallel recipes are difficult to locate in our texts, because of problems of ingredient identification, because regional (and maybe also local) variations in medical practices occurred, but above all because only one portion of medical knowledge was transmitted through writing in the ancient world. The most common way of communicating medical theories and therapies across civilizations was orally; not all pharmacological knowledge transmitted in this manner was written down in the form of recipes. The Egyptian medical papyri, the Mesopotamian tablets, and the Hippocratic texts only represent a minuscule proportion of the transmission of medical knowledge in the ancient Mediterranean and its extended hinterland.

Table One The exotic ingredients of the Hippocratic Corpus that are not accompanied by geographical epithets

Greek name	Identification	Origin of the name	Number of occurences	Hippocratic treatises in which the ingredient appears[272]
ἄμωμον, τό	Amomum, *Amomum subulatum*	Oriental language	1	Gynaecological
κάλαμος, ὁ	Sweet flag, *Acorus calamus*	Greek	20 (but not all exotic)	Mixed
καρδάμωμον, τό	Cardamom, *Elettaria cardomomum*	Oriental language	5	Gynaecological
κασ(σ)ία, ἡ	? Cassia, bark of *Cinnamomum cassia*	Semitic	6	Gynaecological
καστόριον, τό	Product of the scent glands of the beaver	Greek	25	Gynaecological
κινάμωμον, τό	? Cinnamon, bark of *Cinnamomum zeilanicum*	Semitic	7	Gynaecological

[272] The treatises are referred to as 'gynaecological'; 'non-gynaecological'; and mixed (i.e. a mixture of both gynaecological and non-gynaecological treatises).

Table One (*cont.*)

Greek name	Identification	Origin of the name	Number of occurences	Hippocratic treatises in which the ingredient appears
κνῆκος, ἡ	Safflower, *Carthamus tinctorius*	Greek	4	Mixed
κόμμι, τό	Gum produced by *Acacia nilotica*	Egyptian	4	Mixed
λιβανωτός, ὁ, ἡ	Frankincense, *Boswellia* spp.	Semitic	69	Mixed
νάρδος, ἡ	Spikenard, *Nardostachys jatamansi*	Sanskrit via Semitic	2	Gynaecological
πέπερι, τό	Pepper, *Piper* spp.	Sanskrit	17	Mixed
ῥοῦς, ἡ	Sumach, *Rhus coriaria*	Greek	28	Mixed
σαγάπηνον, τό	Sagapenum, the gum of *Ferula persica*	?	1	Gynaecological
σίλφιον, τό	A plant of the *Ferula* genus	?	46	Mixed
σμύρνα, ἡ	Myrrh, *Commiphora myrrha*	Semitic	150	Mixed
στύραξ, ὁ	Styrax, the gum of *Storax officinalis*	Semitic	7	Gynaecological
σχοῖνος, ὁ	Ginger-grass, *Cymbopogon schoenanthus*	Greek	12 (but not all exotic)	Gynaecological

Table One (*cont.*)

Greek name	Identification	Origin of the name	Number of occurences	Hippocratic treatises in which the ingredient appears
τέρμινθος and τερμίνθινος ῥητίνη, ἡ	Terebinth and terebinth resin, *Pistacia terebinthus*	Greek	7	Mixed
χαλβάνη, ἡ	Galbanum, resin of *Ferula galbaniflua*	Semitic	17	Gynaecological except for two recipes: *Acut. Sp.* 30 and 34

Table Two The exotic ingredients of the Hippocratic Corpus that are accompanied by geographical epithets

Greek name	Literal translation	Identification	Number of occurences	Hippocratic treatises in which the ingredient appears
Αἰγύπτια ἄκανθα, ἡ	Egyptian thorny plant	*Acacia nilotica*	3	Gynaecological
Αἰγύπτια βάλανος, ἡ	Egyptian acorn	*Moringa peregrina*	1	Gynaecological
Αἰγύπτια στυπτηρίη, ἡ	Egyptian alum	Sulphate of aluminium and potassium	13	Mixed
Αἰγύπτιον, τό	The Egyptian	A type of perfume	1	Gynaecological
Αἰγύπτιον ἄλειφα, τό	Egyptian oil	A type of scented oil	3	Gynaecological

Table Two (*cont.*)

Greek name	Literal translation	Identification	Number of occurences	Hippocratic treatises in which the ingredient appears
Αἰγύπτιον λευκὸν ἄλειφα, τό	Egyptian white oil	A type of scented oil	4	Gynaecological
Αἰγύπτιον ἔλαιον, τό	Egyptian oil	A type of scented oil	4	Gynaecological
Αἰγύπτιον λευκὸν ἔλαιον, τό	Egyptian white oil	A type of scented oil	7	Gynaecological
Αἰγύπτιον λίνον, τό	Egyptian linen	Linen, *Linum* spp.	1	Non-gynaecological
Αἰγύπτιον λευκὸν μύρον, τό	Egyptian white perfume	A type of perfume	1	Gynaecological
Αἰγύπτιον μύρον, τό	Egyptian perfume	A type of perfume	7	Gynaecological
Αἰγύπτιον νίτρον, τό	Egyptian soda	Native sodium carbonate, Na_2CO_3	8	Mixed
Αἰγύπτιος ἅλς, ὁ	Egyptian salt	Salt, NaCl	2	Gynaecological
Αἰγύπτιος κρόκος, ὁ	Egyptian saffron	Safflower, *Carthamus tinctorius*	1	Gynaecological
Αἰγύπτιος κύαμος, ὁ	Egyptian bean	Pink lotus, *Nelumbo nucifera*	1	Gynaecological
Αἰθιοπική ῥίζα, ἡ	Ethiopian root	? *Salvia Aethiopis*	1	Gynaecological
Αἰθιοπικὸν κύμινον, τό	Ethiopian cumin	Nigella, *Nigella sativa*	35	Mixed
Αἰθιοπικὸς δαῦκος, ὁ	Ethiopian daukos	? *Bupleurum fruticosum*	2	Gynaecological

Table Two (*cont.*)

Greek name	Literal translation	Identification	Number of occurences	Hippocratic treatises in which the ingredient appears
Γαδειρικὸν/ς τάρικος, ὁ et τό	Salt-fish from Cadiz	A type of salt-fish	2	Non-gynaeological
Θηβαϊκὸς ἅλς, ὁ	Theban salt	NaCl	2 (parallel recipes)	Gynaecological
Ἰνδικὸν πέπερι, τό	Indian pepper	Pepper, *Piper* spp.	2	Gynaecological
Λιβυκὸν φύλλον, τό	Libyan leaf	The leaf of silphium	1	Gynaecological
Μασσαλιωτικὸν σέσελι, τό	Hartwort from Massalia	*Seseli tortuosum*	1	Gynaecological
Ποντικὸν κάρυον, τό	Pontic nut	Hazelnut, *Corylus avellana*	1	Gynaecological

Table Three Greek products accompanied by geographical epithets in the Hippocratic Corpus

Greek name	Literal translation	Identification	Number of occurences	Hippocratic treatises in which the ingredient appears
Ἀττικὸν μέλι, τό	Attic honey	A type of honey	3	Gynaecological
Ἐρετριάς γῆ, ἡ	Earth from Eretria	A type of earth	2 (in the same recipe)	Non-gynaecological
Ζακύνθιη ἄσφαλτος, ἡ	Bitumen from Zacynthus	A type of bitumen	1	Gynaecological
Θάσιον κάρυον, τό	Thasian nut	Almond, *Prunis dulcis*	1	Non-gynaecological
Θάσιος οἶνος, ὁ	Thasian wine	A type of wine	1	Non-gynaecological

Table Three (*cont.*)

Greek name	Literal translation	Identification	Number of occurences	Hippocratic treatises in which the ingredient appears
Κιλίκιον ὕσσωπον, τό	Cilician hyssop	Hyssop, *Hyssopus officinalis*	2	Mixed
Κνίδιος κόκκος, ὁ	Cnidian berry	*Daphne gnidium*	26	Mixed
Κρητικὴ αἴγειρος, ἡ	Cretan poplar	? *Zelcova cretica*	2 (parallel recipes)	Gynaecological
Κρητικὴ κέδρος, ἡ	Cretan *kedros*	Juniper, *Juniperus oxycedrus*	2 (parallel recipes)	Gynaecological
Κρητικὸς κισσός, ὁ	Cretan ivy	? A species of ivy (*Helix* spp.)	1	Gynaecological
Κύπριη σποδός, ἡ	Cypriot ash	Ashes resulting from the smelting of copper	7	Mixed
Κύπριος ἅλς, ὁ	Cypriot salt	A type of salt	2	Gynaecological
Κῷος οἶνος, ὁ	Coan wine	A type of wine	1	Non-gynaecological
Μενδαῖος οἶνος, ὁ Μενδήσιος οἶνος, ὁ	Wine from Mende	A type of wine	4	Non-gynaecological
Μήλιη στυπτηρίη, ἡ	Alum from Melos	A type of alum	4	Mixed
Μιλήσιον εἴριον, τό	Milesian wool	A type of wool	1	Gynaecological
Ὀρχομένιον ἐπίπαστον, τό	Powder from Orchomenos	The powder made from the plants growing around Lake Copais	1	Non-gynaecological

Table Three (*cont.*)

Greek name	Literal translation	Identification	Number of occurences	Hippocratic treatises in which the ingredient appears
Σάμιη μέλαινα γῆ, ἡ	Black earth from Samos	A type of earth	1	Gynaecological
Σκύριη αἴξ, ἡ	Goat from Scyros	A type of goat	1	Gynaecological
Χῖος οἶνος, ὁ	Wine from Chios	A type of wine	1	Gynaecological

CHAPTER FIVE

FERTILITY AND SEX: THE SYMBOLISM ATTACHED TO SOME INGREDIENTS OF THE HIPPOCRATIC GYNAECOLOGICAL RECIPES

Introduction

In the previous chapter, I examined the exotic and luxury ingredients included in the Hippocratic collections of recipes. In this chapter, I turn to the more readily available ingredients of the remedies, concentrating almost exclusively on the Hippocratic gynaecological recipes, which constitute, as pointed out in Chapter Three, more than 80% of the recipes recorded in the Corpus. I will examine the connotations attached to these ingredients in order to understand how the Hippocratic gynaecological treatments were meant to restore women to health.

The first chapter of *Diseases of Women* I highlights some of the most important principles of Hippocratic gynaecology:

> I say that woman is *spongier* in flesh and *softer* than man. And being such, the body of a woman draws *fluid* from the belly faster and in *greater quantity* than that of a man… Thus, because a woman is *looser* <than man>, she attracts fluid in greater quantity and faster from her belly to her body than a man does. And for woman who has *softer flesh* <than man>, when her body is full of blood, if it <sc. the blood> does not go away on its own accord, because the flesh is full and heated, pain results. For woman has *warmer* blood and, because of it, she is *warmer* than man.[1]

The Hippocratic gynaecological compilers believed that women absorbed more fluid from their diet than men because of their spongy flesh.[2] As a result, women were wetter and hotter than men. Diseases of women were due to an incapacity to process fluids resulting from their diet (phlegm, bile, but above all blood). Like other Hippocratic writers, the compilers of gynaecological texts conceived of diseases as

[1] *Mul.* 1.1 (8.12.6–22 L.).
[2] On women's blood and diet, see King (1995c).

imbalances of the qualities of the body (wet and dry; hot and cold; soft and hard; etc.), which have to be treated by means of opposites. Contrary to other Hippocratic writers, however, the gynaecologists did not state this principle of cures by means of opposites explicitly.[3] This principle has to be deduced from the way in which the recipes are formulated. For instance, the following treatment, recommended in *Superfetation*, is clearly softening and moistening:

> Κυήσιος δὲ καὶ παιδοποιήσιος ἥτις δεῖται καὶ ἄτεκνος ἐοῦσα καὶ ἤδη κυήσασα, ἐοῦσα δὲ τεκνοῦσα, ὅταν ὁ στόμαχος σκληρὸς ᾖ… Τὸν δὲ χρόνον τοῦτον πινέτω, καθεψοῦσα ἐν οἴνῳ λευκῷ εὐώδει ὅτι ἡδίστῳ γλυκεῖ δαΐδα ὡς πιοτάτην κατασχίσασα λεπτὰ καὶ σελίνου καρπὸν κόψασα καὶ κυμίνου Αἰθιοπικοῦ καρπὸν καὶ λιβανωτὸν ὡς κάλλιστον· τούτου πινέτω νῆστις ὁκόσον ἂν δοκέῃ μέτριον εἶναι πλῆθος, ἡμέρας ὁκόσας ἂν δοκέῃ ἄλις ἔχειν· καὶ ἐσθιέτω σκυλάκια ἐφθὰ καὶ πουλύποδα ἐν οἴνῳ ἐφθὸν γλυκεῖ.[4]
>
> <For> a woman who desires to become pregnant and to bear children and who is able to have children, whether she is without children or whether she has conceived in the past, when the mouth <of the womb> is hard… During that time, let her drink this: let her cut into small pieces pine twigs, as oily as possible, and boil them in sweet, sweet-smelling white wine, as pleasant as possible, together with chopped seed of celery, seed of Ethiopian cumin and frankincense, as good as possible. Let her drink this whilst fasting, in a quantity that seems sufficient, and for a number of days that seems sufficient. And let her eat boiled puppies and octopuses in sweet boiled wine.

The Hippocratic writer here recommends to the woman a full regimen, including both foods and drinks. The ingredients of her pine-branch drink, like her foods, have to be boiled (καθεψοῦσα, ἐφθά, ἐφθόν) in order to become softer, and thus better counteract the hardness of the mouth of the womb. Similarly, the wine she must drink must be sweet and pleasant, adding to the softening properties of the regimen. Finally, the foods she eats must be those known for their softening or loosening faculties: in the catalogue of foods in *Regimen* II, one learns that the meat of puppies is moistening, laxative, and diuretic, that juice of octopuses is laxative, and that celery is diuretic.[5] It is interesting to

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[3] This principle is expressed clearly at *VM* 13 (133.8–13 Jouanna; 1.598.4–7 L.). On this text, see Lloyd (1966) 21.

[4] *Superf.* 29 (86.1–2 and 88.1–6 Lienau; 8.494.4–5 and 496.12–17 L.). This treatment has a parallel at *Steril.* 217 (8.418.1–2 and 420.6–12 L.), on which see p. 128. On the use of softening treatments in the Hippocratic Corpus, see Skoda (2003) 79–86.

[5] Dogs: *Vict.* 2.46 (46.13–15 Joly; 6.546.14–16 L.). On the moistening properties of

note that, in the following chapter of *Superfetation*, the man who wants to conceive is advised to follow exactly the opposite regimen: to drink red wine (which was believed to have strengthening, drying qualities), eat strengthening foods and avoid warm baths.[6]

Thus, Hippocratics recommended to treat women and men in the same way, following the mechanical principle that opposites are cures for opposites.[7] Or at least this is what they would like their readers to believe. In this chapter, I wish to argue that the Hippocratic recipes can be read at several other levels. I start with the simple observation that fertility was an important concern for the Hippocratic gynaecological writers. In addition to using sexual intercourse to cure female diseases, the compilers of Hippocratic recipes used a series of vegetable ingredients that were sexually connoted in antiquity. We are able to understand these sexual connotations because they are also exploited in other ancient literary genres (for example iambic poetry and Attic comedy). I will also note how these sexually connoted products were employed in fertility rituals; these products had the power to restore to fertility the woman who was barren. Similarly, products of the *Dreckapotheke* (that is, faeces and other filthy ingredients) had a fertilizing power. Then I discuss the apparent paradox whereby the same ingredients are used in the Hippocratic recipes both as fertility means and as abortives. I argue that fertility and abortion are two sides of the same coin.

I conclude this chapter with a few remarks on the question of the efficacy of ancient remedies. Although efficacy in antiquity was often determined by the cultural connotations attached to a drug, it is important to note that these connotations probably have their origin in the physical characteristics of that product.

Ingredients bearing sexual and fertility connotations in the gynaecological recipes

One of the main concerns of the Hippocratic gynaecological treatises is fertility, the production of heirs for the family and the city. All

puppy's meat, see King (1998) 25. Octopuses: *Vict.* 2.48 (48.3–5 Joly; 6.550.2–4 L.). Celery: *Vict.* 2.54 (52.18–19 Joly; 6.558.13–14 L.). On treatments involving octopuses in the Hippocratic gynaecological treatises, see Bourbon (forthcoming a).

[6] *Superf.* 30 (90.8–10 Lienau; 8.498.23–500.2 L.). This text has a parallel at *Steril.* 218 (8.422.18–20 L.).

[7] See p. 124 for references.

gynaecological treatises in the Hippocratic Corpus are centered on the reproductive life of women—they show relatively little interest in diseases that would have mainly affected older women, such as breast diseases. Sterility in young women was a problem to be tackled by all means possible, as is made clear from the treatise *Barren Women*, which lists extremely long treatments against barrenness. In addition, the Hippocratic writers believed that sexual intercourse had therapeutic properties, especially if it was followed by conception. The short text *Diseases of Young Girls* states that pregnancy is the best way to cure the terrible illness which affects young girls and which is characterised by, among other symptoms, a desire to hang oneself.[8] Sexual intercourse is also often recommended in the longer gynaecological texts.[9] Finally, it should be noted that there are no recipes to treat ailments related to pregnancy prescribed in *Diseases of Women* I—pregnancy was seen as beneficial for a woman, a time when her excess blood was used up for the nourishment of her child.

This concern with fertility is also visible in the choice of ingredients for the Hippocratic gynaecological recipes. Ingredients that unmistakably evoked fertility are recommended in some remedies promoting conception or fighting sterility: for instance a woman's chorion is listed in a recipe for conception,[10] and genitals of animals (powder from a stag's penis and beaver testes) are included in treatments against barrenness.[11] Ingredients are also compared to genital organs, as in this

[8] *Virg.* (Flemming and Hanson 250.41–43; 8.468.21–23 L.).

[9] The expressions used to express this are: 'Let her go to her husband': πρὸς τὸν ἄνδρα ἴτω, see for instance *Nat. Mul.* 18 (83.22 Trapp; 7.338.22 L.); παρὰ τὸν ἄνδρα ἴτω, see for instance *Mul.* 2.128 (8.276.8 L.); παρὰ τὸν ἄνδρα ἡκέτω, see for instance *Mul.* 2.157 (8.334.16 L.); 'Let her lie/sleep with her husband': τῷ ἀνδρὶ συγκοιμάσθω, see for instance *Nat. Mul.* 2 (71.7 Trapp; 7.314.7 L.); συνευδέτω τῷ ἀνδρὶ, see for instance *Nat. Mul.* 43 (108.3 Trapp; 7.388.3 L.); 'Let her meet with her husband': τῷ ἀνδρὶ ξυνίτω, see for instance *Mul.* 1.19 (8.58.14 L.); <τῷ ἀνδρὶ> συνέστω, see for instance *Steril.* 223 (8.432.12 L.); 'Let her mix with her husband': μιγνύσθω τῷ ἀνδρί, see for instance *Steril.* 238 (8.452.27 L.). For the use of sexual therapy by the Hippocratic gynaecological writers, see Dean-Jones (1992) 60–61; Foucault (1984) 136 (see also pp. 124–132); Joly (1966) 60–64; King (1994) 34–35; King (1998) 221; McLaren (1990) 23.

[10] *Mul.* 1.75 (8.166.15–18 L.): Ἕτερον κυητήριον· χορίον γυναικὸς καὶ τῶν εὐλέων τὰς κεφαλὰς τρίψας, διεὶς στυπτηρίην Αἰγυπτίην ἐν χηνὸς στέατι, ἐν εἰρίῳ προσθέσθω πρὸς τὸ στόμα τῆς μήτρης. (Another <remedy> aiding conception: crush a woman's chorion and the heads of worms, dilute Egyptian alum in goose suet; let her apply this in wool to the mouth of the womb.)

[11] Powder of stag's penis: *Steril.* 224 (8.434.10–14 L.): Μετὰ δὲ ταύτην τὴν πυρίησιν καὶ ἐλάφου αἰδοίου ὑποθυμιῆσαι, καὶ ὅταν ἴδῃς ἔχειν αὖον, τούτου ἐπ' οἶνον λευκὸν κεκρημένον ἐπιξύων, ἐπὶ τρεῖς ἡμέρας διδόναι πίνειν, καὶ ὅταν ὠδίνῃ, διδόναι πίνειν,

recipe from *Barren Women* 222, where the compiler recommends that a gourd used for a fumigation be slightly less thick than the male organ, and talks about the glans (βάλανον) of the gourd:

> Ὅταν δὲ ἡ γυνὴ μὴ κυΐσκηται εἰωθυῖα πρότερον κυΐσκεσθαι…Ἐπὴν ἀναψυχθῇ ὀλίγον χρόνον, σικυώνης ξηρῆς πεφυκυίας τὸν πυθμένα ἀποτρήσας…Πάχος δὲ λεπτότερον ὀλίγον ὡς ἀνδρὸς αἰδοῖόν ἐστιν…ἔπειτα περιθεῖναι σικυώνην ποιήσας χαλκοῦ λευκοῦ, καὶ ἡ γυνὴ ἀμφικαθεζέσθω περὶ τὴν βάλανον τῆς σικύης, τὸ αἰδοῖον ποιήσασα ὀκοῖον δεῖ.[12]
>
> When a woman does not conceive, having conceived in the past…After <the patient> has recovered for a little while, perforate the bottom of a dried gourd…Its thickness is slightly thinner than the male organ…Then make a gourd with white copper and put it above <the other gourd>; let the woman sit on the glans of the gourd, making the organ as it should.

The function of this treatment is to restore a woman to fertility—it is a preparation to real and fruitful intercourse with her husband. The sexual symbolism of the gourd is as easily understandable to the modern reader as it would have been to the ancient.

The use of sexually connoted ingredients such as the gourd is extremely extended in the Hippocratic gynaecological recipes. However, these sexual connotations are not always as easily decipherable as in the case of the gourd. Since the Hippocratic writers rarely explain why they utilise a particular ingredient in their recipes, one must turn to other ancient texts to decode the meaning of that product. Iambic poetry, Attic comedies and poems of the anthology are useful in decoding the Hippocratic gynaecological recipes because they commonly use metaphors for the sexual organs, particularly vegetable and animal metaphors. The Attic comedies, especially those of Aristophanes, offer the added bonus of being almost contemporary with the 'writing down' of the Hippocratic recipes. A few examples will show how Attic comedians

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καὶ γὰρ ὠκυτόκιόν ἐστι τοῦτο. (After this fomentation, fumigate the penis of a stag; and when you see it is dry, scrape some of it in mixed white wine; give to drink for three days. Also give to drink when she is in labour because it speeds up the birth.) On this recipe see Barras (2004) 101 and Gourevitch (1999) 210. Gourevitch is surprised that such a 'witch's ingredient' could have found its way into the Hippocratic Corpus.

Beaver testes: see *Steril.* 221 (8.428.6–11 L.); recipe quoted pp. 130–131. On this recipe, see Joly (1966) 62.

[12] *Steril.* 222 (8.428.15–16 and 430.17–432.2 L.). On this recipe, see Joly (1966) 63. A fumigation with a gourd is also recommended at *Nat. Mul.* 61 (113.19–114.1 Trapp; 7.398.19–400.1 L.).

and Hippocratic compilers exploited the cultural connotations attached to natural products in similar ways.

There are no examples where a gourd (σικύη) serves as a phallic symbol in the comedies, but the cucumber (σίκυος) is sexually connoted: for instance, a fragment of Cratinus puns on the fact that a man is seen buying a huge seeded cucumber.[13] In this fragment, it is the fact that the cucumber has numerous seeds that constitutes the joke rather than the shape of the cucumber.

In our gourd recipe, the word βάλανος (acorn) is used to refer to the extremity of the sexual organ. This word was a standard designation for the glans of the penis in technical literature, and comedians often exploited the sexual connotations of the acorn.[14]

Let us leave the example of the gourd recipe aside, and go through a list of products listed in the Hippocratic recipes to which sexual connotations were attached.[15] The word κέρας (horn) is often used as double entendre in comedies.[16] Horn regularly appears in Hippocratic fertility treatments, as in this example from *Diseases of Women* I:

> Ὅσῃσι δὲ, ὅταν ξυγγένωνται, αὐτίκα διαρρέει τὰ ἀπὸ τοῦ ἀνδρός, ταύτῃσι τὸ στόμα τῶν ὑστερέων πρόφασις… Ἢ ἐλάφου κέρας καῦσαι καὶ μίξαι ὠμήλυσιν διπλασίην, ἐν οἴνῳ ἐπὶ ἡμέρας τέσσαρας πινέτω.[17]
>
> For those <women> in whom, after having had sexual intercourse, the <seed> from their husband flows out immediately, the cause is the mouth of the womb…Or burn deer horn and add double amount of bruised meal; let her drink this in wine for four days.

The choice of stag's horn is not a coincidence: the stag was reputed in antiquity for its vigorous sexual activity, as described by Aristotle in his *History of Animals*.[18]

In gynaecological treatments, horn is often used in conjunction with flour or with cereals, particularly with barley, as in this treatment for a displaced womb: Ἢν δέ γε προσίσχωσιν αἱ ὑστέραι, κριθὰς τρίψας λεῖα ξὺν τοῖσιν ἀχύροισι καὶ κέρας ἐλάφου, ἐλαίῳ δεύσας, ὑποθυμιήσθω. (If

[13] Cratinus fr. 147 (Kassel and Austin). See Henderson (1991) 125, note 94 for further references. On the sexual connotations attached to cucurbits in general, see Norrman and Haarberg (1980) especially 101–102.

[14] See Henderson (1991) 119; Skoda (1998) 161–3. For use in technical literature, see for instance Arist., *HA* 1.13 (493a27).

[15] For a similar list, see Totelin (2007).

[16] See Henderson (1991) 127 for references.

[17] *Mul.* 1.13 (8.50.13–14 and 52.13–14 L.).

[18] Arist., *HA* 6.29 (578b6–8).

the womb attaches itself somewhere, grind barley finely with its chaff, as well as deer horn, soak in oil; let her be fumigated.)[19]

In the comedies, the word κριθή (barley) sometimes designates the phallus or pubic hair.[20] It should be noted that in our recipe, barley is used with its chaff, the part of the plant that would have most evoked pubic hair.

Another slang word for the phallus, κέρκος (tail), often appears in comedy.[21] Like κέρας, this word may have been a common slang expression; if that were the case, the sexual overtones of the following Hippocratic recipe would not have escaped ancient users:

> Ἕτερον κυητήριον· εὐλὴν ἥτις ἔχει τὴν κέρκον, λαβὼν αὐτῶν τρεῖς ἢ τέσσαρας μοίρας καὶ ὀρίγανον λεπτήν, τρίψας ἐν ῥοδίνῳ μύρῳ, προσθέτω πρὸς τὸ στόμα τῆς μήτρης.[22]
>
> Another <remedy> aiding conception: take three or four parts of a worm which has its tail, as well as chopped oregano; crush in rose perfume and let her apply it to the mouth of the womb.

Robert Joly writes that this recipe with worm deserves a 'Freudian psychoanalysis',[23] but there are no examples in the comedies of sexual puns involving the word εὐλή (the worm). On the other hand, the word ὄφις (the snake) does designate the limp penis.[24] Not surprisingly, one can find an anti-sterility recipe involving snake in *Barren Women*:

> Ὅταν μὴ δύνηται ἡ γυνὴ γονὴν δέχεσθαι, πᾶσα ἀνάγκη μήνιγγα ἐπιπεφυκέναι ἐν τῷ στόματι τῶν μητρέων· δεῖ δὲ ἰὸν χαλκοῦ καὶ χολὴν ταύρου καὶ ὄφιος στέαρ, ταῦτα ξυμμῖξαι ὁμοῦ, εἶτα εἴριον λαβὼν ἀναδεῦσαι τῷ φαρμάκῳ, καὶ ἐνελίξαι ἐς ὀθόνιον βύσσινον, μέλιτι ὑποχρίσας τὸ ὀθόνιον, καὶ ποιῆσαι πρόσθετον ὅσον ἐλαίην τὴν μεγίστην· εἶτα προστιθέναι πρὸς τὸ αἰδοῖον νύκτα ὅλην· ὑπτίη δὲ κείσθω· τὴν δὲ ἡμέρην ἀφαιρείσθω, καὶ λουέσθω θερμῷ ὕδατι ἀπὸ μυρσίνης ὡς πλείστῳ· ἔπειτα δ' ἡμέρης προστιθέσθω ἐνεστυίης νυκτός· μετὰ δὲ συνέστω.[25]
>
> When a woman cannot receive the seed, of all necessity a membrane must have grown on the mouth of the womb. It is necessary to mix together verdigris, bull bile, and snake suet. Then take some wool, soak it in the remedy and wrap it in a fine linen cloth; smear the cloth with honey and

[19] *Mul.* 2.200 (8.382.18–19 L.).
[20] See Henderson (1991) 119–20; Skoda (1988) 163 for references.
[21] See Henderson (1991) 128 for references.
[22] *Mul.* 1.75 (8.168.1–4 L.).
[23] Joly (1966) 62.
[24] See Henderson (1991) 127 for references.
[25] *Steril.* 223 (8.432.4–12 L.).

> make a pessary of the size of a very big olive. Then apply into the vagina for the entire night. Let <the patient> sleep lying on her back. During the day let her remove it <sc. the pessary> and cleanse herself with warm myrtle water, as much as possible. Then during the day let her apply <the pessary> when getting close to the night. After that, let her meet <with her husband>.

After having applied the pessary with the bile of a bull (another animal that was sexually connoted in antiquity)[26] and snake suet, the woman must cleanse her genitalia with myrtle water and sleep with her husband. The function of the myrtle water is most probably to soothe the woman's genitals between two applications of the pessary and sexual intercourse. Myrtle water is recommended in many other Hippocratic gynaecological recipes as a cleansing and soothing douche.[27]

Again, μύρτον (myrtle berry) was a common slang word for the clitoris in antiquity.[28] In comedies, prostitutes bore the names Myrrhine and Myrtia. Myrrhine is also the name of one of the characters in Aristophanes' *Lysistrata*, who in a famous passage delays sex with her husband Cinesias by offering to anoint him with Rhodian scent.[29] Perfumes played an important role in sexual preliminaries in ancient Greece, and in *Assembly Women*, Blepyrus plaintively asks his wife οὐχὶ βινεῖται γυνὴ κἄνευ μύρου; (Can't a woman fuck without perfume?)[30] As pointed out earlier, perfumes appear frequently in the Hippocratic gynaecological recipes; in the remedy with worms examined above, the pessary, like many other pessaries in the Hippocratic collections of recipes, has to be dipped in perfume before being applied. This act of dipping a pessary in scented oil may be the equivalent of anointing the genitalia and other parts of the body before sexual intercourse; it serves as a preliminary to penetration.

The perfume that is most commonly used in the Hippocratic recipes to facilitate the insertion of a pessary is rose oil. This again might not be a coincidence; ῥόδον (rose) was a slang term for the female genitalia throughout antiquity.[31]

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[26] See Henderson (1991) 127 and 133; Skoda (1988): 159–160 and 170–171 for references.

[27] See for instance *Mul.* 1.34 (8.82.9–12 L.).

[28] See Andò (1999) 268; Detienne (1972) 122; Henderson (1991) 134–135; Kilmer (1982) 107; Lambin (1979) 548; Maxwell-Stuart (1972) 146–147; Skoda (1988) 175–176.

[29] Aristoph., *Lys.* 938–944.

[30] Aristoph., *Ec.* 525. See Kilmer (1993) 85.

[31] See Henderson (1991) 135 for references.

Another ingredient that may have evoked the sexual organs in the Hippocratic recipes is the pomegranate (σίδη or ῥόα/ῥοιά) which appears in some fertility treatments:

> Ἔγχυτον κυητήριον, εἰ μὴ κυΐσκεται· γάλα γυναικὸς κουροτρόφου, σίδης νεαρῆς τοὺς κόκκους τρίψας, καὶ ἐκπιέσας τὸν χυλόν, καὶ χελώνης θαλασσίης τὸν περίνεον κατακαύσας, τρίψας, ἐγχέαι ἐς τὸ αἰδοῖον. Ἔγχυτον κυητήριον μὴ κυούσῃ· γάλα καὶ ῥητίνην καὶ σίδης γλυκείης χυλόν, ταῦτα ξὺν μέλιτι μίξας, ἐγχεῖν πάντα.[32]
>
> Infusion aiding conception, if she does not bear children: milk of a woman who has borne a male child, kernels of fresh pomegranate; crush, filter off the juice, and burn the perineum of a turtle, crush; infuse into the vagina. Infusion aiding conception for a woman who does not bear children: milk, resin and juice of sweet pomegranate; mix with honey and inject it all.

Hesychius tells us that word κόκκος (kernel, referring to the kernels of pomegranate) was used as slang for the female genitalia.[33] Unfortunately, there is no example of such use in the extant ancient literature. On the other hand, the verb κοκκίζω seems to refer to sexual activity in Aristophanes, for instance in fragment 623: ὀξυγλύκαιάν τἄρα κοκκιεῖς ῥόαν (you will pick the kernels out of the sour-sweet pomegranate).[34]

Whether the pomegranate kernels and juice are connoted sexually or not in the recipes under examination, it should be noted that they are used in conjunction with ingredients that evoked fertility or sexuality: milk is produced only by women who have borne children (in the case of the first recipe, a male child), and the perineum is the space between the anus and the genitals. It should also be noted that the tortoise was an attribute of Aphrodite: Phidias represented the Goddess stepping on the animal. According to Plutarch, this was meant to symbolise the fact that a woman should stay at home and keep silent.[35]

Pennyroyal, a plant of the mint family, is yet another ingredient used in the Hippocratic gynaecological recipes that bears female sexual connotations. It is regularly included in fertility treatments, as in the following example:

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[32] *Mul.* 1.75 (8.166.2–7 L.).

[33] Hesychius, *Lexicon* s.v. κόκκος (504.88–89 Schmidt): κόκκος…καὶ τὸ γυναικεῖον μύριον.

[34] Aristoph. fr. 623 (Kassel and Austin). See Henderson (1991) 134.

[35] Plut., *Coniugalia praecepta* 32 (142D). On this text see Llewellyn-Jones (2003) 189–190; Pomeroy (1999) 53.

> Ἢν δὲ γυνὴ μὴ δύνηται τίκτειν πρόσθεν τίκτουσα… Ἢ γλήχωνα ξηρὴν ἐν ὀθονίῳ προστιθέσθω· πίνειν δὲ τὴν γλήχωνα, ἐπὴν εὕδειν μέλλῃ… εἶτα κοιμάσθω μετὰ ἀνδρός· προρροφεέτω δὲ γλήχωνα ἐπ᾽ ἀλεύροισιν ἐφθήν, καὶ πινέτω γλήχωνα ἐν οἴνῳ λεπτήν.[36]
>
> If a woman cannot give birth, having given birth in the past…Or let her apply dried pennyroyal in a linen cloth. Let her drink the pennyroyal when she is about to sleep…Then let her sleep with her husband. Beforehand, let her eat boiled pennyroyal with wheat flour, and let her drink a little bit of pennyroyal in wine.

In *Lysistrata*, the word βλήχων (pennyroyal) refers to pubic hair:

> ΛΑ. Πρέσβειρά τοι ναὶ τὼ σιὼ Βοιωτία
> ἵκει ποθ᾽ ὑμέ.
> ΛΥ. Νὴ μὰ Δία Βοιωτία
> καλόν γ᾽ ἔχουσα τὸ πεδίον.
> ΚΛ. Καὶ νὴ Δία
> κομψότατα τὴν βληχώ γε παρατετιλμένη.[37]
>
> Lampito: Don't you know she has come to you, by the Two Gods, as a representative of Boeotia.
> Lysistrata: By Zeus, Boeotia which has a beautiful plain.
> Kalonike: Yes by Zeus, very pleasant and from which pennyroyal has been plucked.

When they refer to figs too, the Hippocratics reflect the cultural connotations attached to this fruit in Greek society. In two places, the mouth of the womb hardened by a disease is compared to a hard wild fig (ἐρινέον).[38] The comparison between vagina and a dried fig (ἰσχάς) appears as early as Hipponax (sixth century BC);[39] in later comedy, there is a prostitute called Ischas in Menander's *Colax* and another named Apotympanischas in Axionicus' *Etruscan*.[40] The word for fresh fig (σῦκον) is used in iambic poems, comedies, and later epigrams as a metaphor for both the penis and the vagina.[41]

A Hippocratic cure for a hardened mouth of the womb involves dried figs made soft through boiling: Πρόσθετον καθαρτικὸν μαλθακόν·

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[36] *Mul.* 1.75 (8.164.17–20 and 166.11–12 L.).
[37] Aristoph., *Lys.* 86–89. See Henderson (1991) 135.
[38] *Mul.* 2.163 (8.342.12–13 L.): Ἢν δὲ τὸ στόμα τῶν μητρέων ξυμμύσῃ, γίνεται ἰσχυρὸν ὡς ἐρινέον. (If the mouth of the womb is closed, it becomes hard like a wild fig.) This paragraph has a parallel redaction at *Nat. Mul.* 39 (105.15 Trapp; 7.382.15 L.).
[39] Hipponax fr. 124 (West).
[40] Menander, *Colax* fr. 4.1 (Sandbach); Axionicus fr. 1.4 (Kassel and Austin). See Henderson (1991) 134.
[41] See Buchheit (1960); Henderson (1991) 117–118 and 134–135.

ἰσχάδα λαβὼν δίεφθον ποιέειν, καὶ ἀποπιέσας τρίβειν ὡς λειοτάτην, εἶτα πρόσθες ἐν εἰρίῳ καὶ ῥοδίνῳ μύρῳ. (Softening purgative pessary: take a dried fig and boil it well. Squeeze the juice out and crush as well as possible. Then apply in wool and rose perfume.)[42]

As the examples just examined have made it clear, the Hippocratic compilers of recipes made use of a vast array of ingredients that were sexually connoted in ancient literature. They employed ingredients that bore sexual connotations to treat infertility or to promote fertility. Now it is important to point out that Hippocratic gynaecological writers never explain the efficacy of their remedies in this way. Rather, as pointed out above, they see female diseases—like all other diseases—as imbalances which have to be treated by means of opposites. Some of the recipes we have examined earlier (for instance the recipe with figs) are said to be 'softening'; they treat hardened vaginas with 'soft' ingredients; others can be understood as drying (for instance the recipe with burnt horn); they cure an excess of moisture with dry substances. The Hippocratic compilers of recipes might have preferred to couch their public dicourse in such a mechanical way, but they could not free themselves from the cultural/sexual connotations attached to the products listed in their recipes. Thus, the softening and moistening treatment examined in the introduction to this chapter can also be understood as a sexual treatment against barrenness. The shape of the twigs may have evoked the phallus;[43] the word σέλινον (celery) was used as a metaphor for the female sexual organs in the comedies;[44] cumin, with its numerous seeds, evoked fertility; dogs were believed to have insatiable sexual appetite in antiquity,[45] and the word κύων (dog) referred to both the phallus and the female genital organs in the comedies;[46] finally, octopuses have eight 'feet', that is, eight metaphorical penises—the word ποὺς also indicated the phallus in comedies.[47]

The sexual meaning of many gynaecological recipes would not have escaped the clients of the Hippocratic physicians, even if these physicians, in their writings at least, preferred the mechanical imagery of dry

[42] *Mul.* 1.74 (8.156.5–7 L). See also *Mul.* 2.155 (8.330.15 L.). The use of figs to cure hardened vaginas was noted by Craik (1998) 226.

[43] It should be noted that the word καυλός, literally the stem of a plant, is used to refer to the penis in ancient technical texts. See Skoda (1988) 157–158 for references.

[44] See Henderson (1991) 136 for references.

[45] See Arist., *HA* 5.2 (540a24). See King (1998) 25.

[46] See Henderson (1991) 133 for references.

[47] See Henderson (1991) 129–130 for references.

against wet, hot against cold, and soft against dry. Recipes can be read at several different levels, which are not mutually exclusive.

Many of the animal and vegetable sexual metaphors examined above are still extant today in English: cucurbits, acorns, horn, worm/snake, and rose still evoke the sexual organs. Other metaphors are not used in English, but have survived in other European languages: for instance the words *queue* (French) or *Schwanz* (German), meaning the tail, designate the penis. Vegetable and animal symbolism can be extremely stable and long-lived indeed.[48]

On the other hand, some plants connoted sexually in the Greek world are no longer obvious sexual symbols: this is especially the case of barley, celery and pennyroyal; but it also applies to a lesser extent to myrtle, pomegranate, and fig. One should thus always interpret sexual symbols within the context of their own culture.

Neither the comedians (or before them the iambic poets) nor the Hippocratic compilers are responsible for creating these sexual metaphors; rather, they are all exploiting the cultural material at their disposal. The sexual connotations attached to vegetable and animal products in these two genres—the comedies and the medical texts—must have deeper cultural roots. In this respect, it is important to note that most—if not all—the products examined above played a role in cults, especially in fertility cults and fertility rituals accomplished at various moments of weddings ceremonies in ancient Greece.[49] Let us examine some examples.

In all cultures that cultivate the pomegranate, from China to Greece, the fruit is associated with fecundity—its many small kernels make it a suitable symbol of fertility.[50] In Greece, pomegranates are associated with Demeter, Persephone, and Hera. In the myth of Persephone, the pomegranate is connected both with fertility and with death.[51] Persephone was abducted by Hades, who brought her to the Underworld. There, she ate some pomegranate kernels, with the consequence that she had to stay with Hades for six months of the year, spending the other six months on earth with her mother, Demeter, the goddess of fertility.

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[48] See Norrman and Haarberg (1980) 6–7.

[49] Vérilhac and Vial (1998) 332ff. Unfortunately we know relatively little about these fertility rituals practiced during the wedding ceremony, but this does not necessarily mean that they were not considered important.

[50] See Vérhillac and Vial (1998) 340.

[51] See Sourvinou-Inwood (1991) 163.

Pomegranates were also associated with Hera, goddess of marriage: a famous statue by Polycrates represented her holding a pomegranate, and terracotta votives and ivory models of the fruit have been found in her temples.[52]

Pomegranates, together with apples and quinces were offered to newlyweds in ancient Greece, both in myth and in actual wedding ceremonies.[53] A Greek proverb ῥοιαὶ νυμφικαί (nuptial pomegranates) meant that the most beautiful presents were given to the most beautiful people.[54] The significance of this fruit offering in weddings is contested: some scholars believe that the fruit's many small kernels make it most likely a symbol of fertility;[55] others argue it is an erotic symbol, used primarily as an aphrodisiac.[56] However, this distinction between fecundity and lust seems rather blurred to me.

Pennyroyal and barley are both linked to Demeter: as pointed out in Chapter Two, these two ingredients enter in the composition of the *kykeôn* prepared by Metaneira for the Goddess. There is much debate on the reasons why pennyroyal was included in the *kykeôn*. Helen Foley, Lucia Nixon and John Scarborough have argued that Demeter chose to include pennyroyal in the *kykeôn* because of its connections with female health and sexuality.[57] For Armand Delatte, the herb was simply chosen for its aromatic properties.[58] Finally, Walter Burkert and Carl Kerényi suggested that pennyroyal was chosen for its mild hallucinogenic powers.[59]

Similarly to pennyroyal, pine twigs were associated to Demeter. They were used in some versions of the Thesmophoria (the women's festival in honour of that goddess), where they were placed under beds of chaste-tree twigs on which women lay.[60]

Myrtle was linked primarily to Aphrodite. In his *Life of Marcellus*,

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[52] See Pausanias 2.17.4. See Larson (2007) 33 and 37.

[53] For myths: see Atalanta and Persephone; for actual wedding ceremonies: see Plut., *Solon* 20.4 (quinces).

[54] *Corpus Paroemiographorum Graecorum, Mantissae proverborium centuria* II 79 (2.770 Leutsch). See Pirenne-Delforge (1994) 412.

[55] See McCartney (1925) 78–79.

[56] See Detienne (1977) 102–105; Faraone (1990); Pirenne-Delforge (1994) 412 and bibliography there given.

[57] Foley (1994) 47; Nixon (1995) 85; Scarborough (1991) 144–145.

[58] Delatte (1955) 38–39.

[59] Burkert (1987) 108; Kerényi (1967) 179. Against this view, see Richardson (1974) 344; Foley (1994) 47.

[60] See Nixon (1995) 86; von Staden (1992d) 40 for references.

Plutarch calls myrtle 'the plant of Aphrodite'.[61] The plant, woven into wreaths, was a choice offering to the goddess of love.[62] Myrtle also played a role in wedding ceremonies: vase paintings testify to the fact that at Athens, the bridegroom wore a wreath of myrtle leaves.[63] In Aristophanes' *Birds*, the hoopoe Tereus is compared to a newlywed, when he proclaims that he feeds on sesame, myrtle berries, poppy seed and bergamot.[64] Finally, myrtle was also associated with the cult of Demeter and Persephone. The participants in Demeter's mysteries entered her sanctuary carrying bunches of myrtle twigs and adorned with wreaths of myrtle.[65]

The rose plays an important role in Aphrodite's myth; it was born at the same time as her.[66] As we saw earlier, roses were often an ingredient of ancient perfumes, which were also associated with the goddess.[67] In addition, perfumes played an important role in wedding ceremonies. Both bride and bridegroom were anointed with precious ointments.[68]

Figs were also associated with fertility and procreation cults.[69] For instance, young women wore necklaces made of dried figs at the processions of the Plynteria (the Athenian festival in which the clothes of Athena's statues were washed).

Finally, the deer, which as pointed out earlier was known for its sexual vigour, was associated with Artemis: it was her favourite animal. One of Artemis' epithet is 'Elaphebolia', i.e. shooter of stags.[70]

To sum up, many of the products used in the Hippocratic recipes also played an important role in wedding ceremonies, and in the cults of Demeter and Persephone, Hera, and Aphrodite. Aphrodite was the goddess of sexuality before and during marriage, she could influence women's fertility, and protected prostitutes;[71] Demeter presided over both agriculture and marriage; Hera was the goddess of marriage *par excellence*. In other words, all these goddesses had strong links with women's fertility and fecundity. The links between the plants listed in

[61] Plut., *Marcellus* 22.6.
[62] See Larson (2007) 114; Pirenne-Delforge (1994): 412–413.
[63] See Vérilhac and Vial (1998) 299.
[64] Aristoph., *Av.* 159–161.
[65] See Larson (2007) 75; Maxwell-Stuart (1972).
[66] See Andò (1999) 264.
[67] See for instance *Od.* 8.266sqq.
[68] See Detienne (1972) 120.
[69] See Deubner (1932) 19sqq.
[70] See Larson (2007) 103 and 106.
[71] Aphrodite and sexuality: see Pirenne-Delforge (1994) 419–433.

the Hippocratic gynaecological recipes and the goddesses of fertility would not have escaped the users of the remedies.

It should be noted, however, that not all plants associated with sexuality and fertility rituals were listed in the Hippocratic recipes—two fruits in particular are conspicuously missing from the gynaecological treatments: apples (μῆλα) and quinces (Κυδώνια μῆλα).[72] The word μῆλα was a standard designation for the breasts in Greek erotic literature and comedies.[73] Apples and quinces, as pointed out earlier, were offered alongside pomegranates during wedding ceremonies, where they served either as fertility or erotic symbols. Whether they served an erotic or fertilizing purpose, on pictorial representations of nuptial offerings, the difference between apples, pomegranates, and quinces is difficult to discern; the fruits are interchangeable. In addition, the word μῆλον could designate all three fruits, or any other round fruit.[74]

Although these fruits were more or less interchangeable in wedding rituals, this is not the case in Hippocratic medicine, where distinctions are made between the three plants. Even though it is dangerous to argue from silence, the absence of quinces and apples from the gynaecological recipes may indicate that cultural connotations were not the only criterion dictating the choice of an ingredient. It may not be a coincidence that parts of the pomegranate (the peel) have been found to have an effect on female fertility.[75] The Hippocratic compilers could never completely free themselves from the cultural connotations attached to some ingredients, but neither were they slaves to their culture.

Whatever the reasons for the absence of certain ingredients from the recipes, one can conclude that the Hippocratic gynaecological treatises, the Attic comedies, wedding rituals, and the cults of Demeter, Persephone, Hera and Aphrodite share one important concern: a concern with fertility—fertility of the Earth and fertility of the female body. To the users of the Hippocratic recipes, the fertility connotations attached to certain ingredients must have been immediately obvious. These users must have recognised products such as rose, myrtle, barley, and others as those with the potential to fertilise the woman's body.

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[72] The quince appears once in *Mul.* I, but in a non-gynaecological recipe in the spurious section; it is recommended in a cure for *tenesmos*: *Mul.* 1.109 (8.232.15–16 L.).

[73] See Henderson (1991) 149; Littlewood (1968) 157.

[74] See Detienne (1977) 102–103; Faraone (1990) 219; Pirenne-Delforge (1994) 411, note 10.

[75] See p. 222.

The same fertilizing function was probably played by another category of ingredients used in the Hippocratic recipes: the ingredients of the *Dreckapotheke*, that is, faeces and other filthy ingredients. These products have attracted the attention of scholars since antiquity. In the seventh century AD, a commentator of Hippocratic texts, Stephanus of Alexandria, gave two reasons why *Diseases of Women* should be the last treatise of the Hippocratic Corpus read by his students. First, *Diseases of Women* dealt only with women's diseases, and concentrated heavily on one organ, the uterus.[76] Second, the style of the treatise was far from perfect, because there Hippocrates "discusses urines, excrements and similar things".[77]

Rather similarly, in the nineteenth century, Johann H. Dierbach, in his book on Hippocratic pharmacology, refused to discuss the use of excrement, dismissing the passages in which they occur as mere interpolations.[78] A more nuanced approach to *Dreckapotheke* ingredients was adopted by Heinrich von Staden in his article 'Women and dirt' (1991/1992b). Von Staden noted that dung therapy is limited to female patients in the Hippocratic Corpus, whereas in later medical treatises excrement therapies are recommended for both men and women. This scholar also pointed out how women are conceived as being particularly susceptible to impurity and pollution in Greek literary traditions as well as in religious practice. Adopting an anthropological approach, he suggested that these ingredients were used by the Hippocratics as purifying means, as a way to cleanse dirt by means of dirt.[79]

Although von Staden's conclusions are fascinating, it is important not to overemphasize the use of *Dreckapotheke* in Hippocratic gynaecology, or in any other system of medicine, as best expressed by Mary Douglas in her study of pollution:

> The observer's bias also exaggerates the extent to which primitive cultures make positive magical use of bodily relicts. For various reasons best known to psychologists, any reference to excremental magic seems to leap to the reader's eye and absorb attention.[80]

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[76] Stephanus, *Scholia in Hippocratis Prognosticon* 139–142.

[77] Stephanus, *Scholia in Hippocratis Prognosticon* 159–161. On this text, see Hanson (1990) 311.

[78] See Dierbach (1824) 80.

[79] On the use of dirt as a means to purify dirt, see also Parker (1983) 233.

[80] Douglas (1966) 119.

When analyzing the Hippocratic recipes, the use of faeces does indeed tend to absorb attention, but it is necessary to go past this first impression and look at the other ingredients used in conjunction with them, as in the following examples of recipes from *Diseases of Women* I:

> Ἢν δὲ τὸ στόμα μεμύκῃ, προστιθέσθω καὶ ὀπὸν συκῆς, μέχρι ἂν ἀναστομωθῇ· καὶ ὕδατι αὐτίκα ἀπονίζεσθαι· ἴρηκος δὲ ἄφοδον τρίβειν ἐν οἴνῳ γλυκεῖ καὶ πίνειν νῆστιν, καὶ τηνικαῦτα ξυνευναζέσθω τῷ ἀνδρί. Ἢ ὁκόταν τὰ καταμήνια παύηται, χηναλώπεκος ἄφοδον ἐν ῥοδίνῳ μύρῳ τρίβειν, καὶ τὸ αἰδοῖον χρίεσθαι, καὶ ξυνευνάζεσθαι.[81]
>
> If the mouth <of the womb> is closed, let her apply fig juice until it opens; and let her wash herself immediately with water. And crush hawk's excrement in sweet wine and give to drink whilst she is fasting, and let her immediately sleep with her husband. Or, whenever the menses are stopping, crush excrement of the Egyptian goose in rose perfume, and anoint the vagina and let her sleep <with her husband>.

The three recipes presented here are destined to open the mouth of the womb, thus allowing fecundation. The first recipe involves the juice of fig, an ingredient which, as we have noted earlier, refers to sexuality and fertility. The second and third recipes involve excrement and order the woman to have sexual intercourse with her husband. In the third recipe, excrement is used in conjunction with rose perfume, an ingredient that can hardly be interpreted as filthy. One could argue that the perfume is employed to make the remedy less unpleasant. Alternatively, one could suggest that both the excrement and the rose perfume play the same role: a fertilizing role to prepare the woman for the sexual encounter recommended at the end of the recipe.

Such an interpretation of *Dreckapotheke* ingredients has been suggested by Ann Hanson, who argued that when Hippocratics prescribed ingredients from the *Dreckapotheke* they were not necessarily "consciously responding to the dynamics of magic and religion in order to combat female filth of the womb with animal and avian filth."[82] In her opinion, instead of recommending filthy products as way to cure similars (filth against filth), they recommended them as a way to cure opposites—as a way to cure infertility by means of fertility. Hanson notes that in later medical literature, dung is often listed in remedies to

[81] *Mul.* 1.89 (8.214.8–13 L.).
[82] Hanson (1998a) 89. The ideas that the ancients may have viewed medicinal dung as fertilizer was also suggested by Jones (1957) 462.

cure baldness, as a way to fertilise the bald scalp.[83] Hanson thus draws a parallel between the medical use of dung to stimulate hair growth and the use of excrement as fertilizer for farmers' fields.[84] This conclusion is further reinforced by the fact that the assimilation between earth and woman was a trope of ancient literature. Women were seen as fields to be cultivated, as a wedding formula appearing several times in Menander makes it clear: "I pledge this woman to you for the purpose of the cultivation of legitimate children."[85] In ancient Greek imagery, wedding was ploughing, the man was the plough, the woman was the field, and their offspring was the bread. Both agriculture and marriage fell under the tutelage of Demeter.

One should note that even if we accept that dung was used for its fertilizing properties in ancient recipes, one does not have to completely reject von Staden's explanation whereby dung served to cleanse dirt by means of dirt. As I have sought to show earlier, recipes can be read at several different levels, which are not necessarily mutually exclusive.

Ingredients used both to promote and to curb fertility

Fertility was an important concern for the Hippocratic writers. When actual sexual encounter did not result in conception, luscious plants and other ingredients could restore to health the barren woman. However, the ingredients that I have identified as fertilizers could also be used in the composition of abortive or expulsive drugs. In the following paragraphs, I shall attempt to explain this apparent paradox.

We have encountered gourds (σικύη) in Hippocratic fertility treatments. However, the Hippocratic compilers also recommended it as a means to expel the dead foetus, as in the following example:

> Διεκβόλιον, ἢν ἀποθάνῃ τὸ ἔμβρυον…Κάλαμον τὸν εὐώδεα καὶ σικύης ἐντεριώνην τρῖψαι ἐν χηνείῳ στέατι· ἐπίδησον δὲ τὸν ὀμφαλὸν καὶ τὸ

[83] See for instance the recipes attributed to Cleopatra in Galen. One could also note the use of pigeon dung in a recipe against baldness recommended in the 'cosmetic' part of *Diseases of Women* II: *Mul.* 2.189 (8.370.3–5 L.). See p. 262 for more details on this recipe.

[84] See for instance *Geoponica* 12.11 (356.3 Beckh) and 14.1 (405.8–12 Beckh).

[85] Menander, *Dyskolos* 842–844; *Perikeiromene* 1013–1014; *Samia* 897–898. On the comparison between agriculture and marriage, see duBois (1988) chapter 3; Hanson (1989) 50; (1992b) 37–41; (1998) 90; King (1994); Vérilhac and Vial (1998) 232sqq.

> ἦτρον· καὶ σμικρὸν ἀπ' αὐτέου ἐνστάξασα, ἐς εἴριον προστιθέσθω πρὸς τὸ στόμα τῆς μήτρης· ἐκ τούτου κατ' ὀλίγον ἔρχεται.[86]
>
> Expulsive remedy if the embryo dies…Crush sweet flag and the inside of a bottle gourd in goose suet; attach to the navel and to the abdomen. And let her drop a little bit of this <preparation> onto wool and apply it to the mouth of the womb. By this means it <sc. the foetus> comes out little by little.

It must be noted that in the fertility treatment examined at the beginning of this chapter the gourd was used as a means to administer a fumigation, whereas in the recipe above, the inside of the gourd is one of the main ingredients entering in the composition of the expulsive pessary. However, in ancient medicine, no difference is drawn between 'neutral vehicle' and 'active ingredient'—the means by which something is administered is as significant as the ingredients that are administered.

In another recipe, the inside of a 'big gourd' is recommended as a purge for 'everything', that is for everything that can be purged: phlegm, bile, blood (including menstrual blood), and—sometimes—a foetus (which was considered to be made of blood):

> Ἄγει πάντα· σικύης ἐντεριώνης τῆς μακρῆς ἐξελὼν τὸ σπέρμα ξὺν γάλακτι, καὶ σμύρναν, ξὺν αὐτοῖσιν ἄκρητον μέλι, ποσὸν ἔλαιον Αἰγύπτιον, ἐν εἰρίῳ μαλθακῷ ἀναφορύξαι.[87]
>
> Brings down everything: take the seed from the inside of a big bottle gourd, together with milk and myrrh, and with those add unmixed honey, and a certain amount of Egyptian oil; <apply> in soft wool.

Here, it is explicitly recommended that the seeds be used, that is, the part of the plant that most evoked fertility. This ingredient is to be mixed with milk, an ingredient that was linked to female fertility.

The fact that the same plant is used both as a purge (which could be an abortifacient) and as fertility treatment seems contradictory, but this dual use of plants is common, as noted by Ralf Norrman and Jon Haarberg in their study of cucurbits:

> We classify 'sterility drugs' into two groups: those that cure it and those that induce it. It is different if the effect of medicines is mainly psychological.

[86] *Mul.* 1.91 (8.218.13 and 15–18 L.).
[87] *Mul.* 2.205 (8.396.16–18 L.). A similar recipe appears at *Mul.* 2.162 (8.340.5–9 L.).

> Then thought moves at a level of lesser specificity. If the matter concerns sex, a fruit with sex connotations is appropriate whatever the complaint. It is a common experience for folklorists to find the same cultural element interpreted in diametrically opposite ways in different localities.[88]

Norrman and Haarberg's explanation does lead us in the right direction, but it needs qualification. As I will stress later, I disagree with sweeping claims such as "the effect of medicines is mainly psychological". Norrman and Haasberg are right to stress that the abortive and fertilizing properties of the gourd are only two manifestations of this plant's sexual connotations. But, it should also be added that the two processes for which the plant is recommended—helping conception and purging—were conceived as very similar by the Hippocratic writers: both involved the processing of blood by the female body. In order to regulate the amount of blood in their body, women needed either to menstruate on a regular basis or to become pregnant. In menstruation, superfluous blood was evacuated, whilst in pregnancy, blood served as nourishment for the foetus. Thus pregnancy was conceived as, to use the words of Helen King, "a thorough purge with health benefits for a woman".[89] In this case, the use of the same ingredients for conception and purges becomes less surprising.

Some purges in the Hippocratic collections of recipes are meant to expel a dead foetus, as in the case of the gourd recipe examined above, or as in the following recipe, which involves colocynth, another member of the cucurbit family:

> Ἔπειτα κάθισον ἡμέρας τέσσαρας, καὶ ἐξέρχεται τὸ ἀποσαπὲν παιδίον· ἢν δὲ μὴ, λαβὼν ἅλας Αἰγυπτίους καὶ κολοκύντην ἀγρίην χλωρήν, μέλιτι μίξας, τρίψας, δοῦναι καταφαγεῖν, καὶ ἐπὴν φάγῃ, κινεέσθω τῇδε καὶ τῇδε.[90]
>
> Then let her sit for four days, and the putrefied child will come out. If it does not, take Egyptian salt and fresh wild colocynth; mix with honey, crush, give to eat, and when she has eaten, let her move here and there.

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[88] Norrman and Haarberg (1980) 131. Nixon (1995) 88 also noted that antifertility plants were used in the fertility cults of Demeter and Kore. She explains this apparent paradox by suggestiong that "The connection of the plants with the cults of Demeter and Kore suggests that control of human fertility—both promotion and suppression—might well have been in the hands of women." I have rejected this type of explanation in Chapter Three.

[89] King (1998) 144.

[90] *Mul.* 1.78 (8.188.5–8 L.). The following recipe, another expelling pessary, also includes wild colocynth and Egyptian salt (8.188.8–13 L.), it is quoted p. 58.

However, purges are often conceived as the first step towards conception, as in the following example, which uses the same combination of wild colocynth and Egyptian salt as in the previous recipe:

> Κυητήριον πρόσθετον σφόδρα ἀναστομῶσαι μήτρην δυνάμενον, ὅταν μεμύκῃ καὶ μὴ δύνηται κυῆσαι, καὶ ὕδωρ ἐκκαθῆραι· λαβὼν σχεδιάδα τὴν μικρήν, καὶ σχῖνον, καὶ κύμινον, καὶ κύπειρον, καὶ ἀγρίην κολοκύντην, καὶ νίτρον ἐρυθρόν, καὶ ἅλας Αἰγύπτιον, καὶ σχεδιάδα τὴν μεγάλην, ταῦτα πάντα λεῖα ποιήσας, δι' ὀθονίου διηθῆσαι·…εἴριον ἐγκυλίωτον ἐνελίξας προστίθει τῇ μήτρῃ, μέχρις ἂν καθαρθῇ.[91]
>
> Pessary aiding conception, very good for opening the mouth of the womb, when it is closed and she cannot conceive, and to purge water: take a small *schedias*, mastic, cumin, cyperus, wild colocynth, red soda, Egyptian salt, and a big *schedias*; crush all these well and sieve through a cloth…Wrap in a roll of wool and apply to the womb until she is purged.

Here, the purge is meant to open the mouth of the womb, and thus encourage conception. In this situation, it is important not to interpret all Hippocratic gynaecological purges as abortions, as King has pointed out.[92]

Another plant that is used both in fertility treatments and in purges is pennyroyal. In the Hippocratic Corpus, pennyroyal is never explicitly recommended as an abortive, only as a means to purge the womb from blood and other fluids.[93] However, around the time when the Hippocratic recipes were written down, the audience of Aristophanes' *Peace* might have been aware of the abortifacient properties of the herb. In this comedy, Hermes recommends to Trygaeus to take a *kykeôn* with pennyroyal if he indulges in too much sexual activity with his wife Opôra (whose name refers to the ripeness of autumnal vintage):

> ΕΡ. Ἴθι νυν, ἐπὶ τούτοις τὴν Ὀπώραν λάμβανε
> γυναῖκα σαυτῷ τήνδε· κᾆτ' ἐν τοῖς ἀγροῖς
> ταύτῃ ξυνοικῶν ἐκποιοῦ σαυτῷ βότρυς.
> ΤΡ. Ὦ φιλτάτη, δεῦρ' ἐλθὲ καὶ δός μοι κύσαι.
> Ἆρ' ἂν βλαβῆναι διὰ χρόνου τί σοι δοκῶ,

[91] *Mul.* 1.75 (8.168.15–170.1 L.).

[92] King (1998) 145.

[93] See for instance *Nat. Mul.* 32 (96.8–9 and 15–16 Trapp; 7.364.9–10 and 15–16 L.): Ἕτερα μαλθακά, ὑφ' ὧν καθαίρεται ὕδωρ καὶ αἷμα, καὶ ἐπιμήνια ἄξει, εἰ μὴ πουλυχρόνια ᾖ, καὶ τὸ στόμα μαλθάσσει·… Ἕτερον· γλήχωνα, σμύρναν, λιβανωτόν, ὑὸς χολήν, μέλιτι φυρήσας, καὶ ποιήσας βάλανον, προστιθέναι. (Other softening <pessaries> by means of which water and blood are purged, which bring down the menses, if it <sc. their disappearance> is not ancient, and which soften the mouth <of the womb>…. Another: pennyroyal, myrrh, frankincense, pig's bile; knead with honey and make a pessary; apply.)

ὦ δέσποθ' Ἑρμῆ, τῆς Ὀπώρας κατελάσας;
ΕΡ. Οὔκ, εἴ γε κυκεῶν' ἐπιπίοις βληχωνίαν.[94]

Hermes: Well then, on that understanding you can take Opôra here to be your wife; live with her in the countryside and produce… grapes for yourself.
Trygaeus <To Opôra>: Come here, darling, and give us a kiss. Do you think, Lord Hermes, that it would harm me at all if I were to drive down into <sc. fuck> Opôra after such a long interval?
Hermes: No, not if you drank a *kykeôn* with pennyroyal in addition.

Hermes could be alluding here either to some digestive properties of pennyroyal, or to its abortive faculties, or to both at the same time. If the god is referring to the abortive properties of the plant, the joke arises from the fact that the abortive would be useless to a man, as it should be the woman who takes it.[95]

Not all ingredients recommended as purges could serve as fertility treatment, however. The wild or squirting cucumber (ἐλατήριον or ἄγριος σίκυος) is always recommended as a purgative or expelling remedy in the Hippocratic Corpus, and it is never listed in the composition of fertility treatments. For instance, it is recommended in cases of difficult births because of its ability to provoke uterine contractions:

Καὶ ὁκόταν τὸ μὲν ἐν τῇσι μήτρῃσι τοῦ σώματος ᾖ, τὸ δὲ ἐν τοῖσιν αἰδοίοισι, τὸ δὲ ἔξω τῶν αἰδοίων οἰδέῃ καὶ μένῃ… εἰ δὲ μή, περιαλείψας τὸ στόμα τῆς μήτρης ἐλατηρίῳ παχεῖ, διεὶς ὕδατι, ὅκως ὠδῖνα ἐμποιήσῃ.[96]

And when a <part> of the body <of the baby> is in the womb, and another part is in the genitals, the part outside the genitals becomes swollen and remains there… and if <the baby> does not <come out>, anoint the mouth of the womb with thick <juice> of squirting cucumber soaked in water, so that it provokes labour.

In a recipe recorded at *Diseases of Women* 1.78, the compiler asserts that nothing works better than the squirting cucumber as an expulsive remedy: οὐκ ἂν εὕροις τούτου ἄμεινον (you will not find anything better).[97] This type of formula praising a remedy is very rare in the Hippocratic collections of recipes;[98] it must therefore indicate that the Hippocratic

[94] Aristoph., *P.* 706–712. Translation: Sommerstein, slightly modified.
[95] On this text, see Riddle (1992) 59; (1997): 46–47; Scarborough (1991) 144–145.
[96] *Superf.* 4 (8.478.10–14 L; 74.12–16 Lienau).
[97] *Mul.* 1.78 (8.178.12–14 L.). The text of this recipe is quoted on p. 72. On this recipe, see Riddle (1992) 77; (1997) 53.
[98] In later collections of recipes, on the other hand, this type of formula is very common.

compiler really considered the expelling properties of squirting cucumber to be exceptional. It should be noted that the name of this cucumber itself (ἐλατήριον) meant 'purgative'. The adjective ἐλατήριος is used to qualify numerous remedies in the Hippocratic Corpus.[99]

The amount of squirting cucumber to be used in a particular composition is often given in the Hippocratic recipes, which often leave quantities unspecified.[100] This insistence on the amount of squirting cucumber to be used may indicate an awareness of its toxicity if prescribed in too large a proportion.

To sum up, many plants listed in the Hippocratic gynaecological recipes were used in purges both to prepare a woman for a fertility treatment and to get rid of a foetus (dead or alive). In his *Contraception and Abortion from the Ancient World to the Renaissance* (1992), Riddle asserted that the contraceptive and abortive recipes recorded in the Hippocratic Corpus were the product of a female tradition, which had been tested by generations of women. On the other hand, Riddle considered the fertility treatments of the Corpus to be men's creation, and to be inefficacious. As noted by Helen King, this "identification of contraception as women's concern, fertility as men's interest, has the whiff of anachronism."[101] In reality, promoting fertility and curbing it were both sides of the same coin in the ancient Greek world.

Conclusions Reflections on the notion of efficacy

I would like to conclude with some remarks on the efficacy of ancient recipes. In recent years, several ethnopharmacological studies have taken ancient texts as a starting point for drug prospecting.[102] Although some students of ancient pharmacology, among others, have expressed enthusiasm for this method, most classicists have expressed serious reservations.

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[99] See for instance, *Mul.* 2.129 (8.276.15–16 L.).

[100] See for instance *Mul.* 1.84 (8.208.1–2 L.): καὶ ἐλατηρίου τρεῖς πόσιας ἐν στεατὶ τρίβειν, καὶ βάλανον ποιέειν. (And crush three portions of squirting cucumber in suet and make a pessary.) On quantities, or absence of quantities, in the Hippocratic recipes, see pp. 54–55 and 238–242.

[101] King (1998) 141.

[102] See for instance Holland (1996).

It must be noted from the outset that there are major (and at times insurmountable) difficulties in interpreting the efficacy of ancient drugs from a modern biochemical point of view. First, there are problems in identifying many ingredients listed in ancient recipes, and even when the identification is more or less secure, we cannot be sure that the chemical makeup of the plant has not changed over the last two millennia. In addition, quantities are rarely given in Hippocratic recipes, and the part of the plant to be used is not always specified. In addition, we do not know under which conditions the plant was harvested, preserved, and prepared. There are also problems linked to the ways in which recipes were collected and transmitted in antiquity. As we saw in Chapter Three, the compilers of the Hippocratic treatises collected recipes from a variety of sources; in some cases, they did not test these remedies themselves, but recorded whatever was said to have worked. Any drug that would have been successful in treating a condition would be recorded, and thus 'sanctified by the weight of tradition'. However, some patients did at times recover from diseases without drugs; it is therefore difficult to dissociate the efficacy of a drug from the workings of the placebo effect.[103] Finally, the very notion of efficacy is difficult to define, in the words of medical anthropologist Nina Etkin:

> <E>fficacy might mean a number of things, ranging from full symptom remission to some physical sign (e.g., fever, salivation, emesis, etc.) which is interpreted as a requisite *proximate* effect that indicates that the curing/healing *process* is under way…[104]

Most scholars do not go past these difficulties, and conclude that most ancient remedies were inefficacious. A common view of ancient pharmacological remedies is best expressed by Heinrich von Staden:

> Many therapeutic measures employed by the Greeks seem to have been not only inefficacious but also harmful, and much seems to have been outrageous and amusing quackery.[105]

Von Staden argued that matter is a "matrix of meanings" which has to be interpreted in its cultural context—a view shared by Geoffrey Lloyd, Helen King, and Nancy Demand.[106]

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[103] These issues are listed by King (1998) 118–119; Nutton (1986) 42–43; Riddle (1985) xxiv and 40sqq.

[104] Etkin (1988) 302. See also Demand (1999) 139–141.

[105] Von Staden (1989) 397. On the other hand von Staden (1992d) 52 concedes the "possibility of therapeutic benefits, physical and other, of much ancient pharmacology".

[106] Von Staden (1992b) 7. See also von Staden (1991) 42; (1992d) 24 " 'Natural

According to these scholars, the symbolic associations of the ingredients are more important than their biochemical efficacy. This is a view which I share to a great extent, but one should not forget that the symbolic connotations attached to an ingredient are grounded very likely in the physical characteristics of a drug. In this chapter I have shown that sometimes there are several different ways of interpreting ancient remedies from a cultural point of view: the same remedy could be interpreted as a moistening remedy against a 'dry' disease, and as a sexual remedy to cure barrenness. The Hippocratic writers collected remedies from a variety of sources, and superimposed onto them their mechanical system of explanation, very often without any need to change the recipes. Remedies collected by the Hippocratic writers may have been proven efficacious well before these compilers superimposed systems of explanations onto them. Interestingly, the first-century encyclopaedist Celsus also believed that remedies were first discovered, and then their efficacy was explained theoretically:

> It was afterwards . . . when the remedies had already been discovered, that men began to discuss the reasons for them: the Art of Medicine was not a discovery following upon reasoning, but after the discovery of the remedy, the reason for it was sought out.[107]

In these circumstances, it may not be a coincidence that when Riddle studied the efficacy of the drugs listed in the Hippocratic Corpus in 1987 ('Folk Tradition and Folk Medicine: Recognition of Drugs in Classical Antiquity'), he noted that of the 287 substances he had counted, only twenty-seven were not listed in at least one of the modern pharmacological guides he had consulted.[108] Riddle concluded:

> The correlation between the Hippocratic drugs and modern ones available in Europe then is quite close; this phenomenon could not be due to random selection of drugs by classical peoples employing only placebos with their magic and superstition. Something more, something much more, is happening here, as evident from this historical data.[109]

Of the 27 ingredients listed by Riddle that do not figure in modern manuals, some were shown to play important symbolic role in this

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matter' thus becomes a rich repository of cultural meanings." Demand (1999) 139; King (1995) 139; Lloyd (1983) 82.

[107] Celsus, *De medicina*, proemium 36. Translation: Spencer.

[108] The manuals used were Lewis and Elvin-Lewis (1977); Osol and Farrar (1955); Tyler, Brady and Robbers (1976).

[109] Riddle (1987) 38.

chapter: for instance cucumber, eggs, castoreum, and horn. However, it should be noted that Riddle based his research on 'mainstream' (biochemical) manuals of pharmacology, and did not consult herbal manuals. For instance, the *Encyclopaedia of Herbal Medicine* recommends cucumber for cooling, astringent, diuretic, anodyne, sedative, and alterative (mild) purposes.[110]

Riddle went on to publish two studies on contraception and abortion from antiquity to the Renaissance (1992 and 1997), in which he asserted that many of the abortive measures prescribed in the Hippocratic Corpus were effective. Three of the plants he studied in detail were the squirting cucumber, the pomegranate, and the pennyroyal, which according to modern biological research can be used as antifertility devices. Modern research on mice shows that the squirting cucumber (the whole plant or the flower alone) has contraceptive properties, but no abortifacient properties.[111] The peel (and only the peel) of pomegranate has abortive properties when tested on rats and guinea pigs.[112] Finally, pennyroyal was employed as an abortifacient in Europe until the nineteenth century, and modern studies show that it contains pulegone, which can end a pregnancy when taken in small amounts (if taken in too large a quantity, it is toxic to the liver).[113]

King has pointed out several important flaws in Riddle's research. First, the laboratory experiments on which Riddle bases his assertions are carried out on animals. Is it legitimate to generalise from animals to humans when species can have very different reproductive cycles? Second, in laboratory experiments, concentrated essences are used whereas plants in antiquity are often taken in infusion, that is, in very small amounts (and by mouth). Third, the part of the plant that contains the active substance from the point of view of modern pharmacology is not necessarily the part recommended in ancient remedies. For instance, the peel of pomegranate has been shown to have some abortive properties, but Hippocratic purges may use the seeds, the juice, the roots, and the leaves—not merely the peel.[114]

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[110] Bartram (1995) 136.
[111] See Riddle (1992) 54; (1997) 53–54 for references.
[112] See Riddle (1992) 25; (1997) 40–44 for references. See also Nixon (1995) 86.
[113] See Riddle (1992) 53–54; (1997) 46–47 for references. See also Nixon (1995) 85.
[114] See King (1998) 147–148. Several of these issues are acknowledged by Riddle himself (1997) 43.

More significantly, Riddle tends to consider everything that is expulsive as an abortifacient; "By reducing all of Hippocratic gynaecology to abortion advice, Riddle fails to appreciate the importance of menstruation in its model of the female body."[115] As I have myself pointed out, fertility treatments and purges are two faces of the same coin, and the same plants were often used for both purposes.

King goes on to argue that it is easy to find examples of plants which are given powerful effects in folklore but are shown to be ineffective in laboratory tests—"Myth and folklore may be poor guides to efficacy."[116] These plants are what modern physicians would call 'placebos'; they are apparently biologically inert but can relieve symptoms and can even have toxic side-effects.

Riddle's studies may have flaws, but it seems unsatisfactory to attribute the efficacy of all—or most—ancient remedies to the placebo effect; it is insufficient (and maybe even condescending) to claim that the efficacy of all ancient remedies stems entirely from the symbolic associations attached to them.[117] One has to wonder where these connotations have their origins. Sometimes the sexual connotations of a plant simply have their origin in its shape or in the fact that it has many seeds (as in the case of the cucurbits). But other cases are much more complicated.

Take the example of pennyroyal, which as pointed out above, was related to Demeter since at least the sixth century BC, and was connoted sexually from at least the fifth century BC: in *Lysistrata* the word βλήχων (= γλήχων) is used as a metaphor for pubic hair. For the modern reader, the association between the mint-like plant and pubic hair seems very far-fetched—beyond the fact that pennyroyal's leaves are entangled, the similarity with pubic hair is far from obvious. In this particular case, the sexual connotations might have their origin in the properties of the plant, and not the opposite. In other words, the ancients might have discovered the emmenagogic properties of pennyroyal before associating it with Demeter and with pubic hair.

This leads to the difficult question of how plants with medicinal properties are discerned from other species which are inert or even

[115] King (1998) 145.
[116] King (1998) 151.
[117] Riddle (1985) xxi acknowledges the workings of the placebo effect, but refuses to see it as the 'only link' between ancient and modern medicine.

harmful. Erwin Ackernecht argued that ill animals know by instinct which plant will heal them. Other scholars believe that the efficacy of plants is discovered by analogy: a plant with one taste may have similar medicinal effects as a plant with a similar taste.[118]

More collaboration between ethnobiologists and historians is needed in the future in order to get more definitive answers about the question of efficacy. Even as a classicist with no formal training in chemistry, I believe it is unsatisfactory to condemn all ancient remedies as inefficacious, or to attribute their efficacy to the placebo effect. Conversely, it is as unsatisfactory to believe that a biochemical explanation for the efficacy of all ancient remedies will be found in the future. The question of efficacy is difficult to resolve, because efficacy is "a cultural construction with both biological and social dimensions".[119] It is important to acknowledge that these biological/biochemical and cultural dimensions cannot be separated easily: metaphorical interpretations may be superimposed on remedies that were discovered by instinct or by chance; and conversely, a belief in the efficacy of an ingredient may stem entirely from the connotations that are attached to this plant.

[118] See Riddle (1987) 39–40.
[119] Van der Geest (1996) 167.

CHAPTER SIX

READING, STUDYING AND USING THE HIPPOCRATIC CATALOGUES OF RECIPES

Introduction

This chapter attempts to determine how and by whom the Hippocratic collections of recipes were read, studied and used. It is important to note from the outset that literacy is not a 'monolithic' skill: writing and reading—the two constitutive skills of literacy—are distinct. To be able to read does not necessarily imply an ability to write.[1] The papyrus evidence from Hellenistic Egypt shows that there were many more readers of Greek than there were writers.[2]

Studies on ancient reading have often concentrated on whether the ancients were able or not to read silently.[3] They have maintained that the fact that ancient texts were written in *scriptio continua*, that is, without word division, led to the practice of reading aloud. William A. Johnson (2000) has however argued that the important question is not whether ancient readers were able to read silently, but in which sociocultural context ancient readers chose to read silently or aloud. In his study, Johnson gave a new definition of reading that I have borrowed:

> I prefer to look at reading as not an act, nor even a process, but as a highly complex sociocultural system that involves a great many considerations beyond the decoding by the reader of the words of a text. Critical is the observation that reading is not simply the cognitive process by the individual of the 'technology' of writing, but rather *the negotiated construction of meaning within a particular sociocultural context.*[4]

Following this definition, I will ask how ancient readers made sense of the endless lists of recipes found in the Hippocratic treatises and in which context they read them.

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[1] Thomas (1992) 9. See also Cribiore (1996) 9–10; Hanson (1991b).

[2] Hanson (1991b) 179–183.

[3] See for instance, Balog (1927); Burnyeat (1997); Gavrilov (1997); Knox (1968); Svenbro (1988); (1999). For the Middle Ages, see Saenger (1997).

[4] Johnson (2000) 603.

Johnson is correct in pointing out that reading is not simply the decoding of the 'technology of writing'; the format in which a text is written does not determine inexorably the way in which it will be read—for instance a text in *scriptio continua* does not necessarily lead to reading aloud. However, it is important to understand this technology, since it is also the product of a particular sociocultural context and may therefore interact with the creation of meaning that reading is. Consequently, I first consider the format of the catalogues of recipes; how they were presented materially in antiquity and how this may give us information on the context in which the written recipes were read and used. I pay particular attention to the relative absence of retrieval tools for the recipes. Next, I attempt to portray the reader of the recipes. By examining which type of information is included—or not—in the recipes, I assess the therapeutic knowledge expected from these readers before approaching the recipes. I suggest that one did not necessarily need to be literate to benefit from 'reading' the recipes: these were sometimes read out loud to audiences. I also argue that, although knowledge of *materia medica* and how to accommodate ingredients was necessary to understand the recipes, the reader did not need to be skilled in all aspects of drug preparation: s/he could delegate some tasks to an assistant or to the patient himself/herself, or to a domestic slave.

In the final part of this chapter, I examine the possible tasks which the reader might have delegated to his assistants or patients by studying the feminine participles used in the gynaecological treatises.

The material presentation of recipe collections in antiquity and the Middle Ages

The first complete copies of the Hippocratic treatises including recipes are preserved in medieval manuscripts, the most ancient of which are dated from the late tenth or eleventh centuries AD.[5] These manuscripts are written on parchment and presented in the form of a codex—a format similar to our modern books. In addition to these medieval manuscripts, we also have important fragments of the gynaecological treatises *Superfetation* and *Diseases of Women* I and II preserved from a

[5] See p. 6 for an introduction to these manuscripts.

papyrus codex (P. Antinoopolis 184, MP^3 545.1; sixth century AD).[6] The codex format became increasingly more common from the first century of our era; before that time literary texts were usually copied on rolls of papyrus. However, other material supports for writing were available: such as sheets of leather (διφθέραι) and wooden tablets (δέλτοι), which could be bound together into a notebook.[7] Volker Langholf suggested that these other supports were used by early medical writers:

> The construct is that at an early stage of their genesis c. 400 BC a number of Hippocratic treatises were written down, partly or entirely, on leather pieces or papyrus sheets (little scrolls?) or rather wooden tablets in disconnected instalments, the instalments being equivalent in length to about 100 (or 200) epic verses or Normal Lines… The uniform format of the pieces made it easy to store them in archives. For 'publication', the instalments were filed one after the other.[8]

Galen describes a process similar to Langholf's construct when relating how the *Epidemics* were 'published':

> They say that Thessalus, the son of Hippocrates, gathering what his father had written on leather sheets, or rolls of papyrus or tablets, composed two books: the second book <of the *Epidemics*> and the sixth; others say the fourth too.[9]

Unfortunately, Galen does not identify his sources here, and it is impossible to determine how far back the history of the 'publication' of the *Epidemics* reaches. Elsewhere, Galen tells us that, in his time, recipes could be inscribed on leather sheets: "Our fellow Claudianus found this remedy written in such a way on a sheet of leather (πυκτίδι διφθέρᾳ)."[10]

There are no preserved examples of leather sheets or wooden tablets bearing medical texts. On the other hand, small scrolls of papyrus and ostraca bearing recipes from Hellenistic and imperial Egypt have survived. One of these papyri, Papyrus Rylands 3.531 (MP^3, 2418; end of

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[6] On this papyrus, see Hanson (1970).

[7] On tablets in Graeco-Roman antiquity, see Cauderlier (1992).

[8] Langholf (2004) 271.

[9] Galen, *Comm. Epid. VI*, 2.15 (76.1–4 Wenkebach and Pfaff; 17a.922.5–9 K.). See also Galen, *Comm. Epid. VI*, 5.5 (272.7–9 Wenkebach and Pfaff; 17b.249.8–11 K.). A similar story is narrated by Diogenes Laertius concerning the 'publication' of Plato's *Laws*. See Diogenes Laertius, *Vitae Philosopharum* 3.37. See Cavallo (1992) 98. It ought to be noted that Diogenes Laertius might be reflecting practices of his day upon the past.

[10] Galen, *Comp. Med. sec. Loc.* 1.1 (12.423.13–14 K.). See Hanson (1996a): xv; Marganne (2004) 90.

the third century BC or beginning of the second century BC)—a collection of recipes similar to some recipes recorded in the Hippocratic gynaecological treatises—is of especial importance for reconstructing the experience of reading recipes in antiquity.[11]

The experiences of reading in these different formats—the roll, the ostracon and the codex—share common characteristics: in all cases, the text is written in *scriptio continua*, and there are no retrieval tools (such as indices) to help the reader finding the recipes. On the other hand, these different formats may have led to slightly different experiences, inasmuch as they lead to different ways of handling a document.

In antiquity, signs marking the end of one sentence and the beginning of another were not used systematically. In the case of collections of recipes, however, it was crucial to indicate clearly where one recipe ended and another started. For this purpose, the ancients combined two different systems: verbal separators and visual separators.[12]

In Chapter One, we have seen that the 'application/administration verb', grammatically the main verb of the recipe, is usually situated either at the end or at the beginning of a recipe (and sometimes both), providing a convenient way to find the limits of a recipe. In a series of recipes, the first recipe is often introduced by a conditional formula of the type "if this disease arises, do the following", and the second and following recipes are separated by verbal indicators (ἢ, ἄλλο, ἕτερον, etc.).[13]

In addition to these verbal separators, visual separators could be used to signal the beginning of a new recipe. These separators include the *paragraphos* (a horizontal line inserted between two lines of writing), the *ekthesis* (extension into the left-hand margin), the *eisthesis* (indentation), and blank spaces.[14] The use of these visual separators can be observed on the early P. Rylands 3.531. On this papyrus the recipes are separated by *paragraphoi* and a small blank space is sometimes left to signal the beginning of a new sentence. Moreover, the first word of each recipe extends into the margin (*ekthesis*).[15] On P. Antinoopolis 3.184, a space at the end of the first line of fragment 1 (a), declared "difficult

[11] On this collection of recipes, see also pp. 81–84.
[12] See Hanson (1997) 302; Hanson and Gagos (1997) 126–128.
[13] Bourbon (forthcoming b) 'Les catalogues' notes that ἕτερον is used more frequently in *Nat. Mul.* than in *Mul.*, which prefers ἢ or ἄλλος.
[14] See Turner (1987) 8 for a definition of these terms.
[15] See Roberts (1983) 165–166.

to account for" by the editors,[16] is used to mark the transition between the first and second recipes of our chapter 33 of *Superfetation*. It is difficult, however, to know whether these visual separators were present on collections of recipes antedating the Hellenistic period.

With regard to the earliest medieval manuscripts containing the gynaecological treatises, Manuscript V (twelfth century) has very few visual aids for the readers. It is a very large manuscript, in an excellent state of preservation, which was most probably not designed for daily use by medical practitioners.[17] On the other hand, Manuscript M (end of tenth century) occasionally makes use of *ekthesis* of one or two letters in order to mark a change of subject, and has numbered chapters for some of the gynaecological treatises.[18] The gynaecological sections of Manuscript Θ (eleventh century) contain numerous marginal notes, which usually signal a change of topic or the beginning of a new therapy or recipe.[19] Although M and Θ both employ visual markers, they do so in different ways, suggesting that they organised their material independently, as pointed out by Ann E. Hanson:

> The common ancestor of ThetaMV probably did not carry extensive section divisions; rather, it was probably more like V (especially Va, the first hand in V), and both the Theta-branch and the M-branch would independently and separately have received the kind of editing which produced the division into subject units signalled in the margins.[20]

Despite the presence of these verbal and visual separators, quickly finding a particular recipe in these medieval manuscripts must have been a difficult task: none of the treatises they contain features retrieval tools, such as tables of contents or indices, which would have allowed the reader to quickly find a section or series of recipes.[21]

Indices were not invented before the end of the twelfth century and their absence should therefore not surprise us.[22] On the other hand, the

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[16] Barns and Zilliacus (1967) 138.
[17] See Irigoin (1999) 270.
[18] See Hanson (1971) 66.
[19] Visual markers are only used in the gynaecological sections of MS Θ.
[20] Hanson (1971) 67.
[21] Both MS V and MS M are introduced by a general table of contents listing Hippocratic treatises (see edition by Heiberg (1927) 1–3). In the case of MS V, the table of contents only partially reflects the content of the manuscript: not all treatises listed in the table are found in the manuscript, and inversely, not all treatises copied in the manuscript are listed in the table.
[22] See Blair (2000); Rouse and Rouse (1982); Wellisch (1978).

table of contents was invented in antiquity, although it was rarely used: Pliny's *Natural History* and Aulus Gellius' *Attic Nights* are introduced by tables of contents, or to be more correct, by *summarii*;[23] and the table of contents to Scribonius Largus' *Composite Drugs*, found in manuscript Toledo, Biblioteca del Cabildo, 98.12 (sixteenth century), seems to go back to antiquity.[24] The famous manuscript Vienna, Österreichische Nationalbibliothek, med. gr. 1 (also known as 'Vienna Dioscorides'; sixth century AD) also contains a list of almost all the *materia medica* covered in the main text, arranged alphabetically by first letter.[25]

The table of contents became a common feature of medieval *receptaria*, whilst early modern recipe books often include tables of information and indices, as noted by Andrew Wear:

> The prominence given to indexes and tables of information in some early modern medical books makes it clear that they were deliberately designed as tools for the extraction of data from what could be a confusing mass of material, and were considered important parts of a book.[26]

Indices and tables could guide the reader through the recipe book, helping him/her selecting the passage he/she needed to read. By contrast, with their relative lack of retrieval tools, the Hippocratic treatises in general, and their collections of recipes in particular, do not seem to be 'user-friendly'.[27] The structure of a treatise could, however, facilitate the task of finding particular passages. Recipes and medical descriptions within a treatise could be organised *a capite ad calcem*, as is the case in *Diseases* II. When this order could not be followed, as in the case of gynaecological treatises, a chronological organisation (from conception to birth) could be chosen, as in the case of *Diseases of Women* I. Recipe collections at the end of a treatise could be organised by efficacy or type of medications. However, these structures are rarely followed systematically, and in the case of a treatise such as *Nature of Women* it is almost impossible to discern any structure at all. Overall, a reader

[23] Pliny's 'table of contents' or *summarium* occupies all of Book One of the *Natural History*; Aulus Gellius' table of contents fills 13 pages of the Loeb edition. See Doody (2001); Small (1997) 16–18.

[24] See Langslow (2000) 49.

[25] The main text is organised according to the same alphabetical principle, even though Dioscorides had chosen to arrange *materia medica* according to their properties, not in alphabetical order (*Mat. Med.*, proemium 5).

[26] Wear (2000) 82.

[27] To use the expression of Small (1997) 61 who is the first scholar to have devoted an extended study to data retrieval in antiquity.

had to be familiar with a treatise in its entirety before being able to find a particular description of disease or recipe. In other words, it was necessary to read the whole treatise, or the whole recipe book, before being able to use it.

Finding a particular passage or recipe must have been particularly difficult when medical treatises took the format of a scroll, a format which makes the action of browsing almost impossible. Indeed, it is impossible with a roll to 'flick through the pages'.[28] One of the main advantages of the codex, by contrast, is that it allows non-linear access to the material.[29] It may not be an accident that the earliest examples of preserved codices, if we exclude Christian works, are grammar, law and medicine handbooks.[30]

Considering all these difficulties, it is safe to assume that ancient catalogues of recipes could not be consulted rapidly for reference when difficult clinical situations arose.[31] The reading of a recipe book in antiquity must have been closer to what we would call 'studying' than it was to what we call 'reading'.[32] Readers went slowly through the text, attempting to memorize as much as they could.

Before examining what format this learning took, it is necessary to draw a profile of the readers of the Hippocratic collections of recipes. In order to do so, I will turn away from the material presentation of medical treatises in antiquity, and examine in more detail the information contained in the recipes.

The audience of the Hippocratic recipes

In recent years, scholars have paid increasing attention to the audience of the Hippocratic treatises. This approach, as pointed out by Philip van der Eijk, does not go without problems because in most cases we know very little about these audiences.[33] The compilers of the Hippocratic texts usually do not specify for which public they write, and if they do so, like the author of *Affections*, their claims are difficult to interpret:

[28] See Marganne (2004) 25.
[29] See O'Donnell (1998) 54.
[30] On these codices, see Easterling (1985) 18; Gamble (1995) 65; McNamee (2007) 114.
[31] See Dean-Jones (2003) 113.
[32] See Langholf (2004) 231.
[33] See van der Eijk (1997) 86.

> Any man who is wise must, whilst considering that health is most important for human beings, gain from his personal judgement the knowledge necessary to help himself in diseases, and understand and judge what physicians say and what they prescribe for his body, and understand each of these things to a degree reasonable for a layman (ἰδιώτην)… The layman must understand as much about these things as is reasonable for a layman; and what is fitting for the experts (χειροτέχνας) to understand, administer and manage, about these things, both what is said and what is done, the layman <must> be able to make a contribution with some judgement. Thus now, from the point whence the layman must understand each of these things, I shall tell them.[34]

From this passage alone, it is difficult to determine whom the author of *Affections* classifies as ἰδιῶται, what their social position is, their level of education, etc.[35]

An indirect way to approach the problem of the intended audiences of the Hippocratic treatises would be to examine what kind of information their compilers needed to make explicit and which information they never spelled out. In the case of the recipes, this examination may give us an indication as to what kind of therapeutic knowledge their readers were expected to possess.

One striking aspect of the Hippocratic recipes is the endless repetition of simple rules of procedure.[36] This is in sharp contrast with many Galenic and medieval recipes where these rules of procedure (the *skeuasia*) are missing.[37] This contrast may lead to the conclusion that the Hippocratic recipes could be approached by 'anyone', whereas later recipes were intended for specialists. However, this conclusion would be hasty, as an examination of the instruments, quantities and other information mentioned—or omitted—in the Hippocratic recipes will make clear.

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[34] *Aff.* 1 (6.1–7 and 7.1–8 Potter; 6.208.1–6 and 16–21 L.).

[35] The author of *Affections* also mentions the ἰδιῶται at chapter 33, where he concludes his section on diseases (56.3 Potter; 6.244.10 L.); at chapter 45, in relation to drugs (68.18 Potter; 6.254.12 L.; see p. 119 for more details on this text) and at chapter 52, where the word seems to mean simply 'person in good health' (80.10 Potter; 6.262.17 L.). On medical texts written for the layman in antiquity, see Nutton (1992) 17.

[36] See p. 55.

[37] See Fabricius (1972) 29.

Utensils used in the preparation and application of drugs

Although actions such as pounding, roasting, boiling are endlessly repeated in the recipes, the utensils needed for these actions are rarely mentioned. For instance, the mortar and pestle,[38] the sieve,[39] the strainer[40] and the pan[41] are cited only on rare occasions.[42] These instruments were common kitchen utensils with which most people in antiquity would have been familiar, and it was therefore not necessary to specify their use in the recipes.[43]

The cooking pan is most often mentioned in the context of gynaecological fumigations and fomentations, two procedures which are described in details on several occasions in the Hippocratic Corpus. These descriptions include a wealth of information on the instruments used, as in the following example:

> Πυριῆν πρῶτον τὰς ὑστέρας ὧδε· χύτρινον λαβόντα ὅσον δύο ἑκτέας χωρέοντα, κάνειον ἐπιθεῖναι καὶ ξυναρτῆσαι, ὅκως παραπνεύσεται μηδέν· ἔπειτα δ' ἐκκόψαι τοῦ κανείου τὸν πυθμένα, καὶ ποιῆσαι ὀπήν· ἐς δὲ τὴν ὀπὴν ἐνθεῖναι κάλαμον, μῆκος ὅσον πηχυαῖον· ἐνηρμόσθαι δὲ χρὴ τὸν

[38] Three different words are used for the mortar in the Hippocratic Corpus: ὄλμος: *Int. Aff.* 51 (244.21 Potter; 7.294.14 L.); *Nat. Mul.* 109 (126.14,16 Trapp; 7.424.14,16 L.); *Mul.* 1.53 (8.112.9 L.); 1.107 (8.230.8 L.). Ἴγδη: *Mul.* 1.103 (8.224.22 L.); Littré reads τῇ ἴγδῃ at *Nat. Mul.* 88 (7.408.11 L), but Bourbon (2006) 20–23 reads τὴν ἴγνυν (male <fleabane>), following Manuscripts Θ and M. θυείη: *Int. Aff.* 48 (234.19 Potter; 7.286.20 L.); 51 (246.8 Potter; 7.296.2 L.); *Mul.* 1.44 (8.104.1 L.); 1.107 (8.230.8 L.). Θυείη λιθίνη: *Mul.* 2.185 (8.366.9 L.); 2.188 (8.368.19 L.). The pestle is never mentioned in the Hippocratic Corpus. On mortars and pestles in antiquity, see Amouretti (1986) 135–137; Moritz (1958) 22–28; Sparkes (1962) 125–126.

[39] Κρησέρη: *Mul.* 2.118 (8.256.13 L.); *Steril.* 222 (8.430.1 L.).

[40] Ἠθμός: *Ulc.* 12 (59.23 Duminil; 6.412.3 L.).

[41] Χυτρίδιον or χυθρίδιον: *Ulc.* 17 (65.20,24 Duminil; 6.420.17,20 L.); 21 (67.19 Duminil; 6.424.16 L.); *Int. Aff.* 26 (164.4 Potter; 7.236.7 L.); 27 (168.5 Potter; 7.238.16 L.); *Nat. Mul.* 53 (111.20 Trapp; 7.394.20 L.); *Mul.* 1.51 (8.110.8 L.). Χυτρίς: *Morb.* 2.26 (160.7 Jouanna; 7.42.1 L.); *Int. Aff.* 6 (90.20 Potter; 7.180.21 L.); 51 (246.1 Potter; 7.294.21 L.); 52 (250.17 Potter; 7.298.20 L.). Χύτρινος: *Mul.* 2.133 (eight mentions: 8.284.9,15,16; 286.1,9; 288.3,4; 294.13 L.). Χύτρη: *Ulc.* 12 (60.5 Duminil; 6.412.8 L.); *Morb.* 2.56 (195.19 Jouanna; 7.88.9 L.); *Morb.* 3.17 (3 mentions: 96.23; 98.21 [twice] Potter; 7.156.12; 158.21; 160.1 L.); *Nat. Mul.* 47 (110.6 Trapp; 7.392.6 L.); 64 (114.13 Trapp; 7.400.13 L.); 109 (126.15 Trapp; 7.424.15 L.); *Mul.* 1.98 (8.224.9 L.); 1.107 (8.230.9 L.); 2.140 (8.314.6 L.). Χαλκός: *Haem.* 3 (148.2 Joly; 6.438.22,24 L.); *Ulc.* 17 (65.15 Duminil; 6.420.12 L.); *Mul.* 1.92 (8.222.10 L.); 1.104 (8.226.10,22 L.). Χαλκεῖον: *Ulc.* 12 (59.23; 60.3 Duminil; 6.412.3,6 L.); *Mul.* 1.102 (8.224.11,20 L.); 1.105 (8.228.14 L.). On vessels in the Hippocratic Corpus, see Villard and Blondé (1991); (1992); Villard (1992).

[42] See Villard (1992) 77–78.

[43] On kitchen utensils in antiquity, see Dalby (2003) 100–102 (s.v. cooking utensils); Sparkes (1962); (1965).

κάλαμον τῷ κανείῳ καλῶς, ὅκως μὴ παραπνεύσεται μηδαμῶς· ὁκόταν δὲ ταῦτα σκευάσῃς, ἐπίθες τὸ κάνειον ἐπὶ τὸν χύτρινον, περιπλάσας πηλῷ· ὅταν δὲ ταῦτα ποιήσῃς, βόθρον ὄρυξον, ὅσον δύο ποδῶν βάθος, μῆκος δὲ ὅσον χωρέειν τὸν χύτρινον· ἔπειτα χρὴ ἐγκαίειν ξύλοις, ἕως τὸν βόθρον διάπυρον ποιήσῃς· ὅταν δὲ διάπυρος γένηται, ἐξελεῖν χρὴ τὰ ξύλα καὶ τῶν ἀνθράκων οἳ δὴ ἀδρότατοι ἔσονται καὶ διάπυροι, τὴν δὲ σποδιὴν καὶ τὴν μαρίλην ἐν τῷ βόθρῳ καταλιπεῖν· ὁκόταν δὲ ὁ χύτρινος ζέσῃ καὶ ἡ ἀτμὶς ἐπανῇ, ἢν μὲν ᾖ λίην θερμὴ ἡ πνοιή, ἐπισχεῖν, εἰ δὲ μή, καθίζεσθαι ἐπὶ τὸ ἄκρον τοῦ καλάμου, καὶ ἐνθέσθαι ἐς τὸν στόμαχον, ἔπειτα πυριῆσαι· ἢν δὲ ψύχηται, ἄνθρακας διαπύρους παραβάλλειν, φυλασσόμενος, ἵνα μὴ ὀξέην ποιήσῃς τὴν πυρίην· ἢν δὲ παραβαλλομένων τῶν ἀνθράκων ὀξείη γένηται ἡ πυρίη μᾶλλον τοῦ δέοντος, ἀφαιρέειν τῶν ἀνθράκων· τὴν δὲ πυρίην χρὴ κατασκευάζειν ἐν εὐδίῃ τε καὶ νηνεμίῃ, ὡς μὴ ψύχειν, ἀμφικεκαλύφθαι δὲ χρὴ ἀμφιέσμασιν, ἐς δὲ τὸν χύτρινον χρὴ βάλλειν σκόροδα τῶν αὖων, καὶ ὕδωρ ἐπιχέαι, ὥστε δύο δακτύλους ὑπερίσχειν, καὶ καταβρέξαι ὡς ἄριστα, ἐπιχέαι δὲ καὶ φώκης ἔλαιον· καὶ οὕτω θερμαίνειν, πυριῆν δὲ χρὴ πουλὺν χρόνον.[44]

First, foment the womb in this way: take an earthen pot of a capacity of two sixths <sc. of a *kotylê*> and place a lid on it, so that no vapour can escape round it. Then, cut through the depth of the lid, and make a hole. Through this hole, place a reed, a cubit long; you must install the reed well into the lid, so that no vapour at all can escape round it. When you have prepared these, place the lid on the pot, plastering over it with clay. When you have done this, dig a hole <in the ground>, two feet deep and large enough to accommodate the pot. Then it is necessary to heat <the hole> with wood, until you have made the hole very hot. When it has become very hot, it is necessary to remove the wood and those of the charcoals which are the biggest and hottest, but leave the ashes and embers in the hole. When the pot is boiling and the vapour comes out, if the steam is too hot, wait; if not, sit <the woman> on the extremity of the reed, and introduce it into the mouth <of the womb>; then foment. If it becomes cold, add hot coals, taking care that the fomentation does not become too sharp. If, after having added the coals, the fomentation becomes sharper than it should, remove the coals. It is necessary to prepare the fomentation in good weather, without wind, lest she gets cold; it is necessary to cover her with clothes. In the pot it is necessary to put dry garlic, and to pour water so that it raises two fingers above <the garlic>; soak very well and also pour seal oil. Heat in this manner; it is necessary for the fomentation to last a long time.

Although this description is very detailed, it is by no means—as vividly expressed by Helen King—"a 'painting by number' format in which the *iatros* has his book beside him as he works";[45] the order in which

[44] *Mul.* 2.133 (8.284.9–286.12 L.).
[45] King (1998) 219.

instructions are given in the text does not correspond to the order in which the activities should be carried out. In addition, there are no indications of where the fumigation should be administered, although the mention of the hole in the ground suggests the woman's own garden or courtyard.[46] Furthermore, no mention is made of who should dig the hole: the medical practitioner, one of his assistants, one of the woman's slaves, etc.

Although advice is given in order to make the experience as comfortable as possible for the patient, this particular fumigation would have been very unpleasant and tiring for the woman squatting for a long time over a steaming pot. Other descriptions of fumigations depict a slightly more sophisticated—and slightly more comfortable—apparatus involving a seat, as in the following example:

> Μετὰ δὲ πυριῆσαι πυριητήριον κατασκευάσας τὸ ἐκ τῆς σικύης· ὅταν δὲ πεποιημένον ᾖ, ἐγχέας ἐς ἐχῖνον θάλασσαν, καὶ πράσα ἐμβαλών, ἐπιθεῖναι τὸν αὐλὸν τῆς σικύης, καὶ περιαλεῖψαι πηλῷ ὡς βελτίστῳ, ὅκως μὴ διαπνέῃ· εἶτα διὰ σχοινοτόνου δίφρου τῶν τετραγώνων διάγειν τὸν αὐλόν, ὅκως ὑπερέξει δύο δακτύλους τοῦ τόνου· εἶτα ὑποκαίειν ἄνθραξι, καὶ τὰς καθέδρας φυλάσσειν, ὅταν τε καθίζηται καὶ ὁκόταν ἀνίστηται, ὅκως μὴ κατακαυθῇ, ἀλλὰ καθίζειν ἔτι ψυχροῦ ἐόντος τοῦ πυριητηρίου καὶ ἀνίστασθαι ἕως ἂν καταψυχθῆναι τὸν αὐλόν· ἐπὶ δὲ τῇ πυρίῃ τὴν διατριβὴν ὅτι πλεῖστον τῆς ἡμέρης μέρος ποιέεσθαι.[47]
>
> After this, foment, having prepared the fomentation apparatus which involves the bottle gourd. When this has been done, pour sea water into a jar, add leeks, insert the pipe of the bottle gourd and smear it all over with clay as well as possible, so that it does not let vapour out. Then pass the pipe through a square chair made of rushes, so that it raises two fingers above the cords. Then heat with coals, keeping a close eye on the chair, so that <the woman> is not burnt when she sits down nor when she gets up, but let her sit down when the apparatus is still cold and let her not get up until the pipe has cooled down. Let her spend most of the day on the fomentation.

The fumigation chair probably needed to be described in detail to distinguish it from another type of chair, the birthing chair.[48]

An inhalation prescribed at *Diseases* 2.26 makes use of the same material as the gynaecological fumigations and fomentations and is

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[46] See Gourevitch (1999) 212; Rousselle (1980) 1097.

[47] *Steril.* 230 (8.438.17–440.1 L.). See p. 33 n. 36 for more detail on the evolution of the fumigation technique.

[48] See Hanson (1994) 160–170; (1996b) 176–177 on birthing equipment.

described in similar terms, down to the recommendations not to hurt the patient:

> Ἔπειτα πυριᾶν αὐτὸν ὄξει καὶ λίτρῳ καὶ ὀριγάνω καὶ καρδάμου σπέρματι τρίψας λεῖα, κεράσας τὸ ὄξος ἰσόχοον ὕδατι, καὶ ἄλειφα ὀλίγον ἐπιστάξας, διεῖναι τούτῳ· ἔπειτα ἐς χυτρίδα ἐγχέας, ἐπιθεὶς ἐπίθημα καὶ κατασκεπάσας, τρυπήσας τὸ ἐπίθημα, κάλαμον ἐνθεῖναι κοῖλον· ἔπειτα ἐπιθεὶς ἐπ' ἄνθρακας, ἀναζέσαι, καὶ ἐπὴν διὰ τοῦ καλάμου ἡ ἀτμὶς ἴῃ, περιχάσκων ἑλκέτω ἔσω τὴν ἀτμίδα, φυλασσόμενος μὴ κατακαύσῃ τὴν φάρυγγα.[49]
>
> Then foment him <sc. the patient> with vinegar, soda, oregano, seed of cress; crush these well, mix the vinegar with an equal amount of water, add a few drops of perfume and soak <the dry ingredients> with this. Then pour in a pot, place on a lid and cover entirely, pierce through the lid and place a hollow reed through it. Then place it on coals, bring it to the boil; when the vapour goes through the reed, let him open his mouth and inhale the vapour, taking care not to burn his throat.

These long descriptions may indicate, as suggested by Laurence Villard, a lack of familiarity on the part of the readers with the techniques of fumigation and fomentation;[50] the material involved in the preparation and application of other forms of medication is described in much less detail. Drinking vessels are mentioned only on rare occasions.[51] Recipes for pessaries or vaginal applications often specify whether to apply the medication in a cloth, in wool or hare's fur, on a feather, on meat, and the use of a thread is sometimes mentioned,[52] but these descriptions usually do not exceed two lines. For instance, *Diseases of Women* 1.84—a long list of pessaries—gives this general advice on how to make pessaries: Ὅσαι δὲ βάλανον προστίθενται, ἐμπήξαντα χρὴ τὸ πτερὸν

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[49] *Morb*. 2.26 (160.4–12 Jouanna; 7.40.19–42.5 L.).

[50] Villard (1992) 78.

[51] Βομβύλιον (βομβυλίου οὐκ εὐρυστόμου): *Morb*. 3.16 (90.30 Potter; 7.148.11 L.). Ἄγγος: *Mul.* 2.211 (8.406.14 L.). Κύλιξ: *Int. Aff.* 12 (108.26; 110.22; 112.14 Potter; 7.194.19; 196.10,22 L.); 20 (136.20,23 Potter; 7.216.8,10 L.); 32 (182.21 Potter; 7.250.3 L.); 41 (208.11 Potter [twice]; 7.268.6 L. [twice]); *Nat. Mul.* 63 (114.9 Trapp; 7.400.9 L.); *Mul.* 1.78 (8.196.15 L.); κύλιξ δικότυλος: *Int. Aff.* 12 (114.15 Potter; 7.198.20 L.); 27 (168.12 Potter; 7.238.21 L.); κύλιξ τρικότυλος: *Int. Aff.* 3 (84.23 Potter; 7.176.19 L.); κύλιξ τετρακότυλος: *Int. Aff.* 24 (152.21 Potter; 7.228.9 L.); 28 (172.10 Potter; 7.242.6 L.).

[52] Εἴριον, wool: see for instance *Nat. Mul.* 109 (128.7 Trapp; 7.428.7 L.); λίνον, linen thread: see for instance *Mul.* 1.75 (8.168.10 L.); ἐν λαγῳῆσι θριξί, in hare's fur: see for instance *Nat. Mul.* 97 (121.7 Trapp; 7.414.7 L.); ῥάμμα, thread: see for instance *Mul.* 1.20 (8.60.1 L.); ὀθόνιον, linen cloth: see for instance *Mul.* 1.75 (8.164.19 L.); πτερόν, feather: see for instance *Mul.* 1.37 (8.90.13 L.); ῥάκος, cloth: see for instance *Steril.* 221 (8.428.3 L.).

ἐς τὴν βάλανον, ἔπειτα ῥάκος περιθεῖναι λεπτὸν ἐν εἰρίῳ, βάψασα ἐς ἄλειφα Αἰγύπτιον προστίθεσθαι. (Every time one applies a pessary, it is necessary to stick a feather in the pessary, then to wrap it with a fine cloth and wool; dipping it in Egyptian unguent, let it be applied.)[53]

Descriptions of vaginal applications are longer only when they depart from this general advice, as in the following example:

> Καὶ ἢν ἑλκωθῇ καὶ φλύκταιναι ὦσιν ἐν τῇ καθάρσει, ἢν μὲν ἄκρα τὰ χείλεα ἑλκωθῇ, ἄννησον καὶ χήνειον ἔλαιον ἐν ῥοδίνῳ ἐλαίῳ τρίψας, ἐς εἴριον ἐνελίξας, σάρκα βοὸς λαβὼν παχυτέρην τοῦ μεγάλου δακτύλου τοῦ ποδός, μῆκος δὲ ἓξ δακτύλων, χρίσας τῷ φαρμάκῳ, περιελίξας τῷ εἰρίῳ, τὸ φάρμακον ἀνασπογγίσας. Τὸ ἔσχατον τῆς σαρκὸς ὃ μέλλει ἔξω εἶναι, λίνῳ δήσας, ἔνθες τὸ ψιλὸν τῆς σαρκὸς ἐς μήτρας, οὗ ἂν ἕλκος ᾖ. [54]
>
> If <the vagina> is ulcerated and blistered during a purgation, or if the outer lips are blistered: anise, and goose oil; crush in rose oil and wrap in wool. Take a piece of beef, larger than the big toe and six fingers in length; smear it with the drug, wrap it with wool, soaking up the drug. Tie with a linen thread the extremity of the meat which is going to be outside and insert the part of the meat that does not have the linen thread round it into the womb, where the ulceration is situated.

The instrument used to infuse liquids into the womb—the enema—is rarely mentioned in the gynaecological treatises;[55] and the long description of an enema at *Barren Women* 222 is unique:

> Τούτῳ κλύζειν, κλυστῆρα ἐπιτήδειον ποιησάμενος· τὸ μὲν ἄκρον τοῦ κλυστῆρος λεῖον ἔστω, οἷόν περ μήλης, ἀργύρεον· καὶ παρ' αὐτὸ τετρυπήσθω τοῦ κλυστῆρος ἀπολεῖπον ὀλίγον τὸ τρῆμα· εἶναι δὲ καὶ ἄλλας ἐκτρήσιας, διαλειπέτω δὲ ἴσον ἑκάστη ἔνθεν καὶ ἔνθεν ἐκ τοῦ πλαγίου τοῦ κλυστῆρος, καὶ μὴ μεγάλας, ἀλλὰ στενάς· τοῦ δὲ κλυστῆρος ἡ μὲν κορυφὴ στερεὴ ἔστω, τὸ δὲ ἄλλο πᾶν κοῖλον ἔστω ὡς αὐλίσκος· δῆσαι δὲ χρὴ κύστιν συὸς θηλείης, ταύτην δὲ ψήσας εὖ μάλα· ἐπὴν δὲ προσδήσῃς, ἐγχέας τὸ γάλα ἐς τὴν κύστιν, ἐς τὰς τρήσιας ἐνθεὶς ῥάκος λεπτῆς ὀθόνης, ὅκως μὴ τὸ γάλα ῥέῃ· ἐπειδὰν δὲ πλήσῃς τὴν κύστιν, ἀποδῆσαι, καὶ δοῦναι τῇ γυναικὶ αὐτῇ, ἣν μέλλεις κλύζειν· κείνη δὲ ἐξελοῦσα τὸ βύσμα, ἐς τὴν μήτρην ἐνθέσθαι· αὐτὴ δὲ εἰδήσει ὅκου δεῖ.[56]
>
> Inject this <preparation>, having prepared a fitting enema. Let the extremity of the enema be smooth, as it is for a probe, and made of silver. Let

[53] *Mul.* 1.84 (8.208.4–6 L.).
[54] *Nat. Mul.* 108 (125.16–22 Trapp; 7.422.16–22 L.).
[55] Κλυστήρ: *Mul.* 1.66 (8.138.11 L.); 2.179 (8.362.10 L.); 2.197 (8.380.21 and 382.2 L.); *Steril.* 222 (8.430.2,3,4,6,7,20 L.).
[56] *Steril.* 222 (8.430.2–16 L.).

> the enema be pierced on its side, leaving the aperture small. Let there also be other holes, each at equal distance on each side of the enema; these holes must not be large, but narrow. Let the top of the enema be solid, and all the rest be hollow like a pipe. It is necessary to attach <to this> the bladder of a female pig, having scraped it properly. When you have attached <the pipe>, pour milk into the bladder, placing rags of fine linen in the holes so that the milk does not flow out. When you have filled the bladder, bind it and give it to the woman herself who needs the injection. This woman, having removed the linen, must introduce it into her womb; she will know where it must <be placed>.

The fact that this enema has an extremity made of silver probably indicates that it was an expensive instrument, available only to few. On the other hand, silver (or other metals) could be used many times, unlike more perishable materials used to administer medications in antiquity.[57]

To sum up, Hippocratic writers rarely mention the instruments and material necessary for the preparation and/or application of drugs. The forms of treatment for which instruments are most frequently described are the fumigation, fomentation and inhalation. These forms of treatment may have been less familiar to the readers of the Hippocratic collections of recipes than drinks, ointments, pessaries or suppositories, and infusions. For these other forms of medications, the Hippocratic authors only described material when it was unusual.

Quantities: posology and metrology

Having examined the significance of references to utensils, I now turn to the way in which quantities and posology are expressed in the recipes. This may provide an additional insight into the therapeutic knowledge expected from the readers of the Hippocratic recipes.[58]

As pointed out earlier, many different weights and measures are used in collections of Hippocratic recipes, without any attempt at standardization.[59] To be able to use the Hippocratic catalogues of recipes, readers needed to be familiar with these different systems.

In the case of countable ingredients, (grains, seeds, eggs, etc.) quantities are sometimes given in exact numbers, which are usually multiples

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[57] One should note that at *Steril.* 222 (8.430.17–432.2 L.) both a vegetable (perishable) gourd and a 'gourd' made of copper are used. See p. 201 for more details.

[58] On the problem of quantities in the Hippocratic Corpus, see Bratescu (1983); Gourevitch (1996); Grimaudo (1998) 71; Lloyd (1987) 247–257; Pellegrin (1992).

[59] See pp. 54–55.

of three, four, five, and more rarely multiples of seven.[60] All these numbers were symbolically significant in antiquity:

> Interest in the number seven seems to derive from the belief that there were seven planets, in five from the number of fingers on a hand (and, possibly, ten for similar reasons), in three, possibly from the tripartite division of the cosmos into air, land, and sea, and from the numbers of signs in the zodiac. Multiples of these numbers may also be regarded as significant (e.g. nine), as could numbers that exceeded a significant number by one (e.g. 13).[61]

In most cases, however, quantities are not given at all. This can happen even in the case of recipes involving toxic (such as hellebore or strychnos)[62] or extremely expensive ingredients. One may wonder why some recipes indicate quantities whilst others do not. Valeria Andò suggested that Hippocratic writers specified the quantities in chapters where

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[60] Two or three twigs of myrtle: *Mul.* 1.34 (8.82.6–7 L.). Three cantharides: *Acut. Sp.* 58 (94.14 Joly; 2.512.7 L.); three mice: *Mul.* 2.185 (8.366.7 L.). Three or four seeds of peony: *Nat. Mul.* 109 (127.12 Trapp; 7.426.12 L.); three or four seeds of cypress: *Mul.* 2.192 (8.372.7–8 L.); three or four almonds: *Mul.* 2.200 (8.382.17 L.). Four seeds of peony: *Mul.* 2.136 (8.308.8 L.); *Steril.* 234 (8.448.10 L.); four cantharides: *Int. Aff.* 36 (194.21–22 Potter; 7.258.11–12 L.); *Nat. Mul.* 8 (76.1 Trapp; 7.324.1 L.); *Mul.* 2.135 (8.306.17–18 L.). Five roots of asphodel: *Morb.* 2.38 (170.5–6 Jouanna; 7.54.7–8 L.); five grains of pepper: *Morb.* 3.16 (92.10 Potter; 7.150.2 L.); five leaves of squirting cucumber: *Int. Aff.* 46 (226.3 Potter; 7.280.9 L.); five seeds of peony: *Nat. Mul.* 6 (74.9–10 Trapp; 7.320.9–10 L.); 32 (90.7,10 Trapp; 7.352.7,10 L.); *Mul.* 1.59 (8.118.14–15 L.); 2.134 (8.304.18–19 L.); 2.135 (8.306.18–19 L.); five cantharides: *Nat. Mul.* 32 (87.14–15 and 94.2 Trapp; 7.346.14–15 and 7.360.2 L.); 109 (128.3 Trapp; 7.428.3 L.); *Mul.* 1.74 (8.158.16 L.); 1.78 (8.178.3; 182.14 L.); 1.84 (8.208.17 L.); *Steril.* 221 (8.426.15 L.); five pellets of goat's dung: *Nat. Mul.* 32 (89.9–10 Trapp; 7.350.9–10 L.); five grains of pepper: *Mul.* 1.84 (8.206.12 L.); five river crabs: *Mul.* 1.91 (8.220.3–4 L.); five juniper berries: *Mul.* 2.199 (8.382.10–11 L.). Seven seeds of ivy: *Mul.* 1.23 (8.62.12 L.); seven eggs: *Mul.* 1.75 (8.164.10 L.). Nine seeds of Cretan 'poplar': *Mul.* 1.78 (8.182.3 L.). Ten seeds of peony: *Int. Aff.* 40 (206.6 Potter; 7.266.9 L.); ten blister beetles: *Nat. Mul.* 32 (94.10 Trapp; 7.360.10 L.); ten bay berries: *Mul.* 1.75 (8.170.3 L.). Ten or twelve eggs of cuttlefish: *Mul.* 2.133 (8.298.18–19 L.). Two times seven seeds of peony: *Superf.* 40 (96.12–13 Lienau; 8.508.1–2 L.). Fifteen eggs of cuttlefish: *Nat. Mul.* 32 (87.18 Trapp; 7.346.18 L.); *Mul.* 1.78 (8.178.6; 182.18 L.); 1.84 (8.208.20–21 L.); fifteen <Cnidian?> berries: *Mul.* 2.158 (8.336.7 L.). Thirty grains of pepper: *Nat. Mul.* 32 (96.1–3 Trapp; 7.364.1–3 L.); *Mul.* 2.205 (8.394.8–9 L.); thirty seeds of sumach: *Nat. Mul.* 109 (128.13–14 Trapp; 7.428.13–14 L.). Forty grains of raisin: *Mul.* 1.109 (8.230.15–16 L.). Sixty Cnidian berries: *Fist.* 7 (141.27 Joly; 6.454.11 L.); *Nat. Mul.* 33 (99.2 Trapp; 7.370.2 L.); *Mul.* 1.78 (8.192.9; 196.1 L.); 1.80 (8.200.6 L.).

[61] Potter, D.S. (1996).

[62] As pointed out by Nutton (2004) 100, poisonous plants are not recommended very frequently in the Hippocratic Corpus. On poisonous plants, see also Girard (1990); Preus (1988); Lloyd (1983) 128. Quantities of toxic ingredients are sometimes given: see for example the cantharid recipes (pp. 30–32) and the recipes involving squirting cucumber (p. 219).

there is no symptomatology or in long catalogues of recipes, whereas they did not give them in chapters where symptoms are described in detail.[63] However, Andò's hypothesis cannot be verified: many recipes in long catalogues of recipes do not include quantities, and inversely, recipes in chapters including detailed symptomatology sometimes specify quantities. These discrepancies can be explained by the fact that the compilers of the Hippocratic treatises gathered their recipes from a variety of sources, without attempting to harmonize them. Possible reasons for not mentioning quantities could range from concealing the 'secrets of the trade' to leaving dosage to the reader's judgement. The readers would determine the quantities of each ingredient, taking into consideration the condition of the patient, as recommended in the following recipe:

> Ἢ κυπαρίσσου καρπὸν ὅσον τρία ἢ τέσσαρα, καὶ μύρτα μέλανα καὶ ὁμοῦ καὶ αὐτὰ καθ'ἑωυτά, πρὸς ἰσχὺν τοῦ σώματος ὀρέων τῆς γυναικός, ξὺν οἴνῳ δὲ ἡ πόσις γενέσθω.[64]
>
> Three or four seeds of cypress, and black myrtle berries, together or separately, taking into consideration the strength of the woman's body; let it be drunk with wine.

The reader also had to determine the posology, i.e. the total amount to administer, taking into account the condition of the patient and the strength of his/her disease:

> Ἄλλο ὁμοίως· δικτάμνου δεσμίδα καὶ δαύκου καρποῦ δραχμὰς δύο, καὶ μελάνθιον ἴσον, ἐν οἴνῳ λευκῷ, τρίψας λεῖον, δὸς πιεῖν, καὶ λοῦσον θερμῷ πολλῷ· διδόναι δὲ πρὸς τὴν ἰσχὺν τοῦ νοσήματος.[65]
>
> Another, similarly: a handful of dittany, two *drachmai* of seed of *daukos*, and the same amount of love-in-a-mist; crush well in white wine; give to drink and cleanse <the patient> with lots of warm water. Give according to the strength of the disease.

When both quantities and posology are specified, it usually appears that the quantities are sufficient for more than one administration of the drug, as in the following case:

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[63] See Andò (2000) 56.

[64] *Mul.* 2.192 (8.372.7–9 L.). On the importance of taking into account the patient's condition see also: *Steril.* 230 (8.442.27–444.4 L.). See Dean-Jones (2003) 111.

[65] *Mul.* 1.78 (8.184.14–17 L.).

> Ἕτερον· καστορίου ἢ σαγαπήνου ὀβολόν, ἀσφάλτου δραχμὴν μίαν, νίτρου δύο, πάντα τρίψας ἐν γλυκεῖ οἴνῳ καὶ ἐλαίῳ ὅσον ἡμικοτύλιον, δὸς πιεῖν νήστει ὀβολοὺς δύο.[66]
>
> Another: one *obolos* of castoreum or sagapenum, one *drachma* of bitumen, two of soda; crush all these in sweet wine and oil, in the amount of half a *kotylê*. Give two *oboloi* to drink whilst fasting.

Nineteen *oboloi* of ingredients are used for this recipe, but only two *oboloi* are administered at a time. One can either suppose that this preparation (an expulsive remedy) had to be administered on several consecutive days to be effective, or that the medication could be used on several different women. One of the late texts of the Hippocratic Corpus—*Decorum* (first or second century AD)—makes it clear that drugs should be prepared in advance:

> Προκατασκεύασθω δέ σοι καὶ μαλαγμάτων γένεα πρὸς τὰς ἑκάστων χρήσιας, ποτήματα τέμνειν δυνάμενα ἐξ ἀναγραφῆς ἐσκευασμένα πρὸς τὰ γένεα. Προητοιμάσθω δὲ καὶ τὰ πρὸς φαρμακίην ἐς τὰς καθάρσιας, εἰλημμένα ἀπὸ τόπων τῶν καθηκόντων, ἐσκευασμένα ἐς ὃν δεῖ τρόπον, πρὸς τὰ γένεα καὶ τὰ μεγέθεα ἐς παλαίωσιν μεμελετημένα, τὰ δὲ πρόσφατα ὑπὸ τὸν καιρόν, καὶ τἄλλα κατὰ λόγον.[67]
>
> You must have prepared in advance <different> types of emollients according to each of their uses, and prepare cutting draughts, made from a formula, according to their types. You must also make ready before hand purgative drugs, gathered from the appropriate places, and prepared in the appropriate way, according to their types and sizes, some treated so as to keep for a long time, others fresh for immediate use, and similarly for the other <drugs>.

Although some of the drugs recommended in the Hippocratic Corpus must have been prepared in advance, the way and place in which a preparation should be kept is rarely specified.[68] We will see that the physician did not always prepare drugs in advance, but asked his patients to prepare their own medicines.

The recipes for one form of medication almost always specify the posology: the injection, which should not exceed two *kotylai*, i.e. more or less a pint of liquid:

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[66] *Mul.* 1.78 (8.184.5–7 L.).

[67] *Decorum* 10 (292.9–17 Jones; 9.238.7–13 L.). For other ancient texts testifying to the practice of preparing drugs in advance, see Brain (1982).

[68] The place where the remedy should be kept (a little box) is specified at *Steril.* 235 (8.450.15–19 L.). See also *Mul.* 2.104 (8.228.8 L.): text quoted p. 243.

> Κλύσμοὶ καθαρτικοὶ μητρέων, ἢν ἐκ τόκου ἑλκωθέωσιν ἢ φλεγμασίης· ὀλύνθους χειμερινούς, ὕδωρ ἐπιχέας καὶ ζέσας, ἀφεῖναι, καταστῆναι, εἶτα ἔλαιον ἐπιχέαι χλιαρὸν καὶ μῖξαι, κλύσαι δὲ δύο κοτύλῃσι τὸ πλεῖστον· πάντα δὲ τὰ κλύσματα μὴ πλέονι κλύζειν.[69]
>
> Purgative enemas for the womb if it is ulcerated after birth or if there is inflammation: winter caprifigs; cover with water, boil, sieve and leave to rest, then add lukewarm oil and mix; inject two *kotylai* at the most. No enema should exceed this amount.

Lesley Dean-Jones noted that infusing such a large amount of liquid into the womb would have been particularly uncomfortable, although it is not clear whether the liquid should be injected at once, or little by little until the total amount has been administered.[70] She also pointed out that an amount of two *kotylai* corresponds with what the Hippocratic believed to be a normal menstrual blood loss. Since these authors thought that the womb filled up entirely with blood each month, it is safe to assume that they believed the normal capacity of the non-gravid womb to be of two *kotylai*.[71]

Conclusions

Information about the instruments used for the preparation of the Hippocratic recipes, quantities and posology were often left to the appreciation of the readers. When quantities and posology are specified they are symbolically significant. Many other elements were often 'left out' of the Hippocratic recipes: how long it takes to prepare the drug, how long it has to stand, how many times it has to be stirred, etc. Recipes specifying these particulars are exceptionally rare:

> Ἕτερον· ὀμφακὸς χυλός, καὶ σποδὸς Κυπρίη· τὴν ὄμφακα ἀκμάζουσαν χρὴ ἐκπιέσαι τὸν χυλὸν δι' ὀθονίου ἐς χαλκὸν ἐρυθρόν, καὶ μῖξαι ὄξεος τρίτον μέρος λευκοῦ ὡς ὀξυτάτου, καὶ οὕτω καθεψεῖν ἐν τῷ ἡλίῳ, καὶ ἀναταράσσειν πεντάκις τῆς ἡμέρης· ὅταν δὲ παχὺς γένηται ὁ

[69] *Mul.* 1.78 (8.188.24–190.4 L.). See also *Mul.* 2.209 (8.404.21–406.1 L.): "An enema of more than two *kotylai* should be used on no-one, so to say." There are rare exceptions of enemas of more than two *kotylai*: see for instance *Nat. Mul.* 33 (99.11–12 Trapp; 7.370.11–12 L.): "If necessary make an injection of more than two *kotylai*."

[70] See Dean-Jones (1989) 182; (1994) 91. See also King (2002) 565.

[71] Dean-Jones (1994) 86–94. See *Mul.* 1.6 (8.30.8–9 L.): Μέτρια δ' ἐστὶ πάσῃ γυναικὶ χωρέειν, ἢν ὑγιαίνῃ, τὰ ἐπιμήνια ἐλθόντα ὅσον κοτύλαι δύο Ἀττικαὶ ἢ ὀλίγῳ πλέονα ἢ ἐλάσσονα. (For any healthy woman, an average amount of menstrual blood is two Attic *kotylai*, or a little more or a little less.) This is very heavy blood loss: See Hanson (1975) 575, note 12; King (1995b) 210–211; King (2002).

> χυλός, σποδὸν τῆς Κυπρίης τῆς χαλκίτιδος λείην ἐμβαλεῖν καὶ ἀναμῖξαι, ἐμβάλλειν δὲ τὴν σποδόν, ὅταν ἑκταῖος ἢ ἑβδομαῖος ὁ χυλὸς ἐν τῷ ἡλίῳ κείμενος ᾖ, ἐς κοτύλην Ἀττικὴν τοῦ χυλοῦ τῆς σποδοῦ δραχμὰς ὀκτώ· ἐὰν δὲ βούλῃ δριμύτερον εἶναι, ἐλάσσω τὴν σποδόν· ἐὰν δὲ μαλθακώτερον, πλέω· μετὰ δὲ ταῦτα ξηραίνειν, ἄχρις οὗ δυνατὸν διαπλάσαι φθόεις· εἶτα ἐγξηραίνειν, κρεμάσας ἄνω ὑπὲρ καπνοῦ, καὶ οὕτω ξηραίνειν μέχρις οὗ ὀστρακῶδες γένηται, ὥστε τριβόμενον μὴ ξυστρέφεσθαι, εἶθ' οὕτως, χρῶ· κείσθω δὲ ὅκου ἰκμάδα μὴ ἕξει.[72]
>
> Another: juice of unripe grape and ash of copper. It is necessary to squeeze the juice of the flourishing unripe grape through a cloth into a red copper vessel, and add a third part of white vinegar, as sharp as possible; in this way dry up in the sun, stirring five times a day. When the juice has become thick, add the fine ash of copper from Cyprus and mix together; add the ash when the juice has remained six or seven days in the sun: eight *drachmai* of ash for one Attic *kotylê* of juice. If you want <this preparation> to be sharper, <use> less ash; if you want it to be milder, more. After this, dry until it becomes possible to mould pastilles. Then dry out, hanging <the pastilles> above a smoking fire; dry them in this way until they take the consistency of an earthen pot, so that when you crush them they do not gather together; use in this way. Keep <the preparation> in a place where there is no humidity.

One may wonder whether recipes of this kind are the rule or the exception, whether composing drugs was always such a long process, or whether most Hippocratic recipes were quickly prepared.

In addition, it should be noted that botanical information is almost never given in the recipes. When several varieties of plants existed, the recipes rarely specify which particular variety is to be used. For instance, when hellebore is listed in recipes, it is rarely mentioned whether one need to use the black or the white variety, even though the difference between these two varieties were significant.[73] However, not one of the extant treatises of the Hippocratic Corpus is devoted to the description of the medicinal properties of plants and other ingredients. To approach the recipes, the reader needed an extensive knowledge of *materia medica*. In particular, he needed to know that the art of pharmacology required taking into account many variables, as expressed by the author of *Epidemics* II:

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[72] *Mul.* 1.104 (8.226.21–228.8 L.).

[73] White hellebore: see for instance *Morb.* 3.15 (86.9 Potter; 7.140.22 L.); black hellebore: see for instance: *Steril.* 230 (8.442.21 L.); variety not specified: see for instance: *Ulc.* 16 (65.7 Duminil; 6.420.6 L.). See Lloyd (1983) 126–127. On the hellebore in antiquity, see Girard (1988).

> We know the characteristics of drugs, from which are produced such effects. For they are not all similarly good; but different <characteristics> are good in different conditions. In different places, <plants> are gathered either earlier or later. And manipulations <also differ>, such as drying, chopping or boiling—I omit most things of the sort—and how much for each patient, for which diseases, at what point of the disease, the age, appearance, diet, which season of the year, of which kind it is and in which way it is developing, and so on and so forth.[74]

If recipes took into account all these variables, their format would become incredibly cumbersome. The compilers of the Hippocratic recipes opted for a 'lighter' format, which required from their readers a certain amount of expertise in the arts of pharmacology and medicine.

The Hippocratic recipes leave out more elements than they expose;[75] it seems that we are faced with the bare bones of the recipes, short *aide-mémoire*, or in Jack Goody's formulation, *recettes de base*—the missing elements had to be supplied by the reader. One could suggest that all these elements have been omitted in order to conceal secrets of the trade, but as noted by Pamela Long, "concrete evidence for craft secrecy in antiquity is exceedingly sparse".[76] On the other hand, Long stresses the fact that technical knowledge such as pharmacology can only be taught through practice:

> Written or spoken instructions can introduce the subject but cannot actually transmit it. Only through learning the technique itself through practice can one truly know it. The 'secrets' of these crafts are synonymous with the 'techniques'.[77]

In order to master fully these techniques, a long apprenticeship was certainly involved, coupled with an extensive use of memory. The author of *Decorum* stresses the importance of memory in the art of pharmacology:

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[74] *Epid.* 2.3.2 (50.1–8 Smith 5.104.6–12 L.). On this text, see King (1998) 119. On these variables, see Dean-Jones (2003) 111; Lloyd (1987) 253; Nutton (2004) 99. For a similar list of variables, see Dioscorides, *Mat. Med.*, proemium 6–9.

[75] See Langholf (2004) 252.

[76] Long (1991) 860. Craik (1998) 180 and Langholf (2004) 256 suggested that secrecy might be one of the reasons for the omission of so much information in the Hippocratic recipes. Hanson and Nassau (1985) found examples of withheld instructions in the case of an alchemical recipe to make a pearl more lustrous.

[77] Long (1991) 860. See also Barras (2004) 98.

> Keep well in your memory drugs and their properties, both simple and compound, seeing that after all it is in the mind that are also the cures of diseases; remember their modes, and their number and variety in the several cases. This in medicine is beginning, middle and end.[78]

It seems that the medical novice would have gained nothing from reading the preserved Hippocratic recipes.[79] An obvious audience for the Hippocratic collections of recipes would have been the *iatroi*, people who made a living from the practice of medicine.[80] *Iatroi* sometimes possessed their own books. A tombstone from the second century AD (?) may be interpreted as representing a physician in his surgery, his *iatreion*: it shows a young man with a series of medical instruments and at least three bookrolls.[81] However, a physician did not need to possess books to benefit from the Hippocratic collections of recipes; he did not even necessarily need to be literate. The Hippocratic treatises could be read aloud by a master to a group of students in medicine: reading aloud was, as noted in the introduction to this chapter, far from unusual in antiquity. Now, one could imagine that the person performing the reading could stop at times to supplement information, for instance to fill in the gaps left in the recipes or to give some information on the ingredients of the recipes. Listeners could store medical information and recipes in their memory.[82] In addition, if one of the students was literate, but not able to afford a medical book, he could write down a selection of recipes on a roll of papyrus, an ostracon or a wooden tablet.

However, if we may believe the author of *Affections*, not all medical books were geared towards 'experts', and even the fact that the collections of gynaecological recipes were very specialised does not necessarily imply that these collections were read by the *iatros* only. Several comments made by ancient philosophers indicate that people who could not claim for themselves the label '*iatros*', were interested in reading medical

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[78] *Decorum* 8–9 (292.3–8 Jones; 9.238.3–6L.). Translation: Jones. On the importance of memory in antiquity, see Small (1997).

[79] See Althoff (1993) 220; Kudlien (1970) 5. On the fact that medieval collections of recipes could not have trained novices, see Eamon (1994) 33.

[80] See Lloyd (1983) 72.

[81] Archäologische Sammlung der Universität Freiburg, Inv. S 535. For other tombstones with representations of doctors and bookrolls, see Birt (1907) 262–263; Hillert (1990) number 9 (pp. 94–97, illustration 14; late first century BC) and number 29 (pp. 155–159, illustration 32; c. 300 AD).

[82] See Dean-Jones (2003) 113.

texts. Plato, for instance, writes the following in his *Phaedrus*: "They would say, I think, this man is mad because he has heard somewhere from a book or happened to fall upon some remedies, and he thinks he has become a physician, understanding nothing of the art."[83]

A generation later, Aristotle proffered the same opinion—one cannot learn the art of medicine from books; this can only be learnt through practice:

> Indeed one does not appear to become skilled in the art of medicine through books (συγγραμάτων). And yet they attempt to describe not only the cures, but also how they might cure and how it is necessary to treat each individual, distinguishing his condition. But while these things seem useful to men of experience, they are useless to the inexperienced.[84]

One of Socrates' ironic comments reported by Xenophon implies, however, that some people attempted the impossible—to become a physician through reading the numerous medical books in circulation:

> <Socrates:> 'Tell me, Euthydemus, what kind of benefit do you want to get by collecting these books (γράμματα)?' And as Euthydemus remained silent, considering what to answer, Socrates again said: 'Maybe <you want to become> a doctor? Indeed there are many medical treatises (συγγράματα).'[85]

Although a literate layman could probably not become an *iatros* by reading medical books, he could, as suggested by the preface of *Affections*, learn to help himself in diseases and to choose the best physician for his family members and slaves.[86] Some literate laymen might have possessed enough of the prerequisite knowledge to 'fill in the gaps' in the recipes included in their *Pharmakitides*, i.e. the recipe books that the author of *Affections* repeatedly mentions. Whether these laymen took the time necessary to read the more 'specialised' gynaecological treatises is more doubtful, although not entirely impossible: once a book was in circulation, its 'author' could not control its readership.[87]

Here again, literacy was not a *sine qua non* condition for 'reading' medical treatises. Plato, in the *Phaedrus* passage quoted above uses the expression 'hearing from a book' (ἐκ βιβλίου ποθὲν ἀκόυσας), indicat-

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[83] Plato, *Phdr.* 268c. On this text, see p. 1 and Boudon (2004) 199. A similar thought is attributed to Diocles: see Diocles fr. 6 (van der Eijk). For commentary, see van der Eijk (2001) 11–12.

[84] Arist., *EN* 10.9 (1181b2–6).

[85] Xenophon, *Mem.* 4.2.10.

[86] See Hanson (1992a) 235.

[87] See Kenney (1982) 11.

ing that medical texts—or texts containing medical information—were read aloud to groups of people including non-*iatroi*.

Several questions, however, remain unanswered: who organised and 'advertised' such reading reunions, where did they take place, were there readings for 'students of medicine' only, and others to which 'anyone' could attend? In particular, one may wonder whether midwives benefited from readings of the gynaecological treatises. Several scholars, indeed, have argued that midwives either read for themselves or were taught the content of these treatises.[88] Nancy Demand even interpreted a sentence of *Diseases of Women* 1.34 (Οὐ χρὴ στύφειν, οἷα οἱ ἰητροὶ ποιέουσιν. Do not use astringents as doctors do.) as direct advice from the author to the midwives not to act as male doctors.[89] Helen King, however, pointed out that passages where doctors are criticised for their actions are not rare in the Hippocratic treatises in general, and in the gynaecological treatises in particular. The passage at *Diseases of Women* 1.34 should be read as a sign of the competitive nature of Hippocratic medicine rather than as unquestionable evidence for an audience of midwives.[90] We have also seen in Chapter Three that midwifery did not appear as a well-defined medical profession in the fifth century BC. It is therefore doubtful that the Hippocratic gynaecological treatises and their catalogues of recipes were originally designed as instruction manuals for midwives, when they were first written down in the fifth century BC. On the other hand, there is no strong argument against the suggestion that women were sometimes present at the reading of medical works, or that they sometimes read these works for themselves. The female doctor Phanostrate (fourth century BC) must have been a wealthy woman to afford the beautiful tombstone that has come down to us; to suggest that she could have been literate is by no means extravagant.[91]

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[88] See Drabkin (1944) 349; Demand (1994) 66–68; (1995) 287; Kudlien (1970) 8; Stannard (1961) 518. Harris (1989) 106–107 concluded that midwives were illiterate. Demand (1994) 67, on the other hand, argued that midwives were crafts women, and since it is among crafts people that the highest rates of literacy was to be found in antiquity, there is no a priori reason to assume that midwives were illiterate.

[89] *Mul.* 1.34 (8.80.20–21 L). See Demand (1994) 66; (1995) 287.

[90] King (1998) 178. On criticism of doctors in the gynaecological treatises, see also Lloyd (1983) 80. Criticism of physicians is found at *Mul.* 1.2 (8.20.14–16 L); *Mul.* 1.62 (8.126.14–16 L); *Mul.* 1.65 (8.134.12 L.).

[91] The stele of Phanostrate (IG 2^2.6873), dated to the second half of the fourth century BC (Athens), reads as follows: "Phanostrate, midwife (Μαῖα) and physician (ἰατρὸς), lies here at rest. She caused pain to none, and her death was lamented by all."

The authors of the gynaecological and nosological treatises might have made the deliberate decision not to specify the audience for whom they were writing. They probably composed their treatises with an audience of *iatroi* in mind, but they knew that medical and pharmacological knowledge was not the possession of the *iatroi* only, and that other people might have shown interest in their treatises. In particular, these authors did not wish to exclude from their possible audience literate laymen, such as the people who frequented Socrates or other sophists.

Although the reader of the Hippocratic recipes—whether he was a medical practitioner or a layman—had to be familiar with the ingredients and techniques described in the recipes, he needed not necessarily be skilled in the gathering of herbs and in the preparation of drugs. He could buy the required ingredients from the herb gatherer or drug seller, and could delegate the task of preparing the medication to assistants or even to his patients, as we will examine now.

The involvement of the female patient in her cure: An analysis of the feminine participles in gynaecological treatises

I have suggested that the Hippocratic authors might have deliberately chosen not to identify their audience, in order not to limit it to one particular group of people. It is probably for the same reason that, when these authors give orders to their readers (generally using the imperative second person singular, or the imperatival infinitive), they do not use definite subjects, such as 'the doctor' or 'the midwife', etc. These authors knew that an array of people were able to perform the medical tasks they were describing, and chose not to specify who should execute them.

Similarly, when a third party was involved in a medical task, his/her identity was generally not specified by the Hippocratic authors. In the surgical treatises, the surgeons' helpers are designated by the words τις, ἄλλος τις, and ἑτερός τις.[92] In gynaecological texts, female helpers are sometimes referred to with the vague expressions ἑτέρη γυνὴ (another woman) or ἕτεραι γυναῖκες (other women)—whether these women were midwives or simply family members who happened to be at hand

[92] See Hanson (1996b) 171, note 50 for references.

is not specified.[93] In many cases, however, the subject 'a woman' is not even mentioned, and it is only feminine participles that indicate that the action is undertaken by a woman.

As noted by Lloyd, Hanson and Dean-Jones, feminine participles are frequently used in descriptions of internal examinations.[94] These scholars have pointed out that the interpretation of these feminine participles is problematic in three ways. First, it is sometimes difficult to know whether feminine participles refer to the female patient herself or a female assistant. Feminine participles referring to the action of examining the womb are usually in the middle voice, indicating that the patient should perform this examination herself; but active participles are sometimes used, leaving us wondering whether the patient herself or another woman should perform the action. Hanson argued that "the Hippocratic narration may have intended some of this ambiguity in order for their narratives to correspond to variations in circumstances."[95] Second, abrupt changes from a feminine participle form to a masculine participle within a sentence are not rare, making it very difficult to tell who was to execute which medical action.[96] And third, the gender of the person performing the examination can only be determined in a limited number of cases: in most cases instructions are given under the form of an imperatival infinitive and are therefore genderless.

I will here conduct a grammatical enquiry on the feminine participles included in the gynaecological recipes, a much larger body of sources than the descriptions of internal examinations, but which has never received systematic treatment.[97] I first examine whether there is a pattern in the use of these feminine participles, and whether or not this pattern, if any, can lead us to determine a typology of therapeutic actions performed by women—and men—in the Hippocratic gynaecologies, or in other words a 'division of labour'. Can we say, for instance, as Lloyd did, that the doctor relied on the patient herself, or another woman

[93] See *Epid.* 5.25 (15.24 Jouanna; 5.224.12 L.); *Mul.* 1.21 (8.60.16 L.); *Steril.* 213 (8.408.17 L.); *Foet. Ex.* 4 (8.514.17; 516.1,4,5 L.). See Hanson (1996b) 171; King (1998) 167.

[94] Dean-Jones (1994) 35–36; Hanson (1996b) 170–171; Lloyd (1983) 70–75. On feminine participles in descriptions of childbirths, see Hanson (1994) 175–176.

[95] Hanson (1996b) 170.

[96] Lloyd (1983) 75, note 65 considers these switches of subject inconclusive: "The frequency of abrupt changes in subject suggests that these authors themselves were often unconcerned to mark them with care."

[97] The use of feminine participles in therapies was noted by Andò (2000) 46; Bourbon (forthcoming b) 'Pharmacopée'; Dean-Jones (1995) 54–55; Goltz (1974) 177–179; Lloyd (1983) 74 and note 63.

"where simple and straightforward procedures, such as, for example, the application or removal of a pessary, are concerned";[98] or were women also involved in more complicated procedures? Finally, after having stressed some possible pitfalls in the use of grammar for gender history, I try to understand what it exactly means to see women involved in gynaecological procedures in the Hippocratic treatises.

Feminine participles appear most frequently in relation with one form of medication: the pessary or the vaginal application. The act of applying a pessary is sometimes expressed by a feminine participle: Ἔκβολιον· κορίαννον ξὺν τῇ ῥίζῃ καὶ νίτρον καὶ νέτωπον προσθεμένη περιπατείτω. (Expulsive: coriander with its root, soda, and oil of bitter almond; having applied it, let her walk around.)[99] The use of the middle voice in this example indicates that the patient herself has to apply the pessary.

Feminine participles in the middle voice are also used to signify that the patient should remove the pessary, as in this example: Ὁκόταν δὲ δάκνῃ, ἀφαιρευμένη, ἐς ῥόδινον μύρον ἐμβάπτουσα, προστιθέσθω. (When it bites, let her remove it <sc. the pessary>, let her dip it in rose perfume, and apply it again.)[100] Feminine participles in the active voice for verbs meaning 'to apply' or 'to remove' are rarely used in the gynaecological recipes.[101] The second feminine participle in this injunction (ἐμβάπτουσα), on the other hand, is in the active voice, as are other feminine participles relating to the preparation of a medicament (as opposed to its application).[102]

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[98] Lloyd (1983) 74.

[99] *Mul.* 1.78 (8.188.17–18 L.). The feminine participles are underlined in this example and those following. Προσθεμένη is also used at *Epid.* 1.3.13.4 (2.692.7 L.); 4.1.30 (126.10 Smith; 5.174.7 L.); *Nat. Mul.* 8 (75.21 Trapp; 7.322.21 L.); *Steril.* 219 (8.424.4 L.); *Steril.* 221 (8.428.10–11 L.); *Superf.* 25 (82.4 Lienau; 8.488.17 L.). Προσθεμένην: *Steril.* 221 (8.428.13 L.).

[100] *Nat. Mul.* 32 (88.20–89.1 Trapp; 7.348.20–350.1 L.). See also: Middle voice: ἀνελομένη: *Steril.* 221 (8.428.8–9 L.); ἀφαιρευμένη: *Nat. Mul.* 109 (129.4,13 Trapp; 7.430.4,13 L.); *Mul.* 1.84 (8.204.22 L.); ἀφαιρεομένην: *Mul.* 1.84 (8.206.6 L.); ἀφελομένην τὴν γυναῖκα: *Mul.* 1.66 (8.138.14 L.); ἀφελομένη: *Mul.* 1.84 (8.206.4 L.).

[101] 'To apply': προσθεῖσα (application of sponges to the vaginal area): *Mul.* 2.144 (8.318.1 L.); προστιθεῖσα: *Mul.* 1.37 (8.92.7 L.). 'To remove': ἀφαιρέουσα: *Mul.* 1.88 (8.212.11–12 L.); 2.133 (8.290.3 L.).

[102] See also: ἀποβάπτουσα: *Mul.* 1.78 (8.178.1 L.); 2.158 (8.334.21 L.); ἀποβάψασα: *Mul.* 1.84 (8.206.13 L.); βάψασα: *Mul.* 1.84 (8.206.17–18 and 208.6 L.); *Superf.* 33 (92.12 Lienau; 8.502.8 L.); ἐμβάπτουσα: *Nat. Mul.* 32 (88.20 Trapp; 7.348.20 L.); ἐμβάψασα: *Mul.* 1.91 (8.218.14 L.); *Steril.* 235 (8.450.6 L.); ἀναδεύσασα: *Mul.* 2.158 (8.336.16 L.); ἀνασπογγίζουσα: *Nat. Mul.* 74 (116.14 Trapp; 7.404.14 L.); ἐνστάξασα: *Mul.* 1.91 (8.218.17 L.).

Thus, the wrapping of a pessary in wool is often expressed by feminine participles in the active voice: Προσθετόν· Αἰγυπτίην στυπτηρίην μαλθακὴν εἰρίῳ περιειλήσασα προστιθέσθω. (Pessary: soft Egyptian alum; let her apply it, having wrapped it with wool.)[103]

Most of the time, the actual recipe of the pessary would use either imperatival infinitives or masculine participles, as in this remedy to cleanse the womb:

> Σμύρνης ὡς ἀρίστης ἥμισυ, καὶ ἁλὸς χόνδρον ὁμοίως, πίσσαν ἡδυντὴν φλάσας, μίξας τε λεῖα, ἔστω δὲ τὸ τῆς σμύρνης τὸ ἥμισυ τοῦ ἁλὸς καὶ τῆς πίσσης, ἐμβαλεῖν δ' ἐς ῥάκος, τῆς πεφλασμένης μέγεθος ὅσον κικίδα μεγάλην· δύο δὲ ἔστω, ὡς τὸ μὲν ἡμέρης ἔχειν, τὸ δὲ ἐυφρόνης, ἔστ' ἂν κατατακῇ· λουέσθω δὲ θερμῷ, εἶτα ἀφαιρέουσα διανιζέσθω ὕδατι εὐώδει.[104]
>
> Half a portion of myrrh, as good as possible, and grains of salt similarly, seasoned pitch, let him crush <these ingredients>, mix them well; let the amount of myrrh be half the amount of salt and pitch. Put in a cloth this mixture, in the quantity of a big oak gall. Let there be two <pessaries>: one for the day and one for the night; let it stay until it melts. Let her bathe in warm water; then having removed <the pessary>, let her wash herself with perfumed water.

Here the use of masculine participles in the first part of the recipe seems to imply that a man was expected to prepare the drug.

However, in a limited number of cases, all the actions of the pessary recipe are expressed with feminine participles, implying that a woman has to prepare the remedy, as in the following example: Ἄλλο πρόσθετον· τοῦ κισσοῦ τοῦ λευκοῦ τὸν καρπὸν καὶ κέδρου πρίσμα τρίψασα καὶ βαλάνια ποιήσασα προστιθέσθω. (Another pessary: let her crush the seed of poet's ivy and sawdust of cedar, make pessaries and apply them.)[105] As pointed out in Chapter Three, these feminine

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[103] *Superf.* 35 (94.24–25 Lienau; 8.506.8–9 L.). See also ἀμφιελίξασα: *Mul.* 2.162 (8.340.13 L.); ἀναδήσασα: *Mul.* 2.203 (8.388.4 L.); ἀναφορύξασα: *Mul.* 2.205 (8.394.4 L.); ἀποδήσασα: *Mul.* 2.175 (8.358.3 L.); *Superf.* 33 (92.12 Lienau; 8.502.9 L.); 42 (8.508.8 L. but not in Lienau); ἐλίξασα: *Mul.* 1.75 (8.166.8 and 10 L.); περιελίξασα: *Mul.* 1.91 (8.220.14–15 L.).

[104] *Mul.* 1.88 (8.212.7–12 L.). Masculine participles are underlined twice in this example.

[105] *Mul.* 1.78 (8.186.13–15 L.). For τρίψασα see also: *Mul.* 1.75 (8.166.8,10,21 L.); 1.78 (8.176.12 and 186.7,12 L.); *Steril.* 228 (8.436.24 L.); *Superf.* 33 (92.5 Lienau; 8.502.1 L.); 42 (8.508.8 L. but not in Lienau). See also τρίβουσα: *Mul.* 1.13 (8.52.15 L.); 1.37 (8.92.3 L.); 2.175 (8.358.4 L.); *Steril.* 242 (8.456.12 L.); ξυντρίψασα: *Mul.* 1.78 (8.188.11 L.); ἀποκολούσασα: *Nat. Mul.* 8 (76.1–2 Trapp; 7.324.1–2 L.); ἐμπλάσασα: *Mul.* 1.78 (8.178.13 L.); ἐπιχέασα: *Mul.* 1.37 (8.92.4 L.); ἐψήσασα: *Superf.* 25 (82.4 Lienau; 8.488.18 L.); θερμήνασα: *Steril.* 219 (8.424.5 L.); μαλθάξασα: *Steril.* 219 (8.424.6 L.);

participles appear in pessary recipes involving both commonly available ingredients and expensive, exotic products.[106]

Feminine participles are also used in recipes for remedies to be taken by mouth: drinks or simple meals that often constitute the second part of the Hippocratic gynaecological treatments, as in the following examples:

> Καὶ τῶν πράσων καὶ τῶν κραμβῶν ἐσθιέτω, συνεψοῦσα τοῦ κυτίσου τὰ φύλλα, καὶ τὸν χυλὸν ῥοφείτω.
> Ἢν γάλα ἀποσβεσθῇ· τὸν ἐλελίσφακον ἑψοῦσα, καὶ τῶν κεδρίνδων ἢ τῶν ἀρκευθίδων παρεμβάλλουσα, ἀποχέασα τὸν χυμὸν καὶ οἶνον ἐπιχέασα, πινέτω· ἐς τὰ λοιπὰ ἄλευρον ἐμβαλοῦσα καὶ βολβόν, καὶ ἐλαίου μικρὸν ἐπιχέασα, ἐσθιέτω.[107]
>
> Let her eat some leeks and cabbages, boiling them together with the leaves of tree-medick; let her drink the juice.
> If the milk disappears: let her boil sage, add cedar berries and juniper berries, pour off the juice and add wine; let her drink it. For the rest, let her add wheat flour and purse tassels, pour a little oil over it; let her eat it.

It is safe to assume that any Greek woman would have had the necessary skills for preparing such simple remedies. In addition, these recipes only list simple ingredients that were available on every market of Greece, or indeed in every household's garden, and therefore within reach of most women.

Superf. 25 (82.5 Lienau; 8.488.19 L.); μίξασα: *Mul.* 1.78 (8.186.13 L.); *Superf.* 33 (92.11 Lienau; 8.502.7 L.); μίσγουσα: *Steril.* 227 (8.436.14 L.); ξυμμίξασα: *Mul.* 1.81 (8.202.12 L.); ξυμμίσγουσα: *Mul.* 1.74 (8.156.4 L.); ποιήσασα βάλανους: *Mul.* 1.78 (8.188.12 L.); συμμίσγουσα: *Nat. Mul.* 74 (116.14 Trapp; 7.404.14 L.); τήξασα: *Mul.* 2.157 (8.334.8 L.); χρίσασα: *Mul.* 2.173 (8.354.5 L.).

[106] See p. 128.

[107] *Nat. Mul.* 93 (119.15–21 Trapp; 7.410 L.). These recipes have a parallel at *Mul.* 1.44 (8.102.11–15 L.), which includes the feminine participles ἀποχέουσα and ἐπιχέουσα (twice). Other feminine participles used in recipes for drinks or dietary prescriptions: διεῖσα: *Mul.* 1.77 (8.172.13 L.); 2.147 (8.324.3 L.); ἐγκρύψασα: *Nat. Mul.* 15 (81.3 Trapp; 7.334.4 L.); ἐμβάπτουσα: *Mul.* 1.75 (8.164.1–2 L.); ἐνθρύψασα: *Mul.* 1.75 (8.164.5 L.); ἐνώσασα: *Mul.* 1.91 (8.220.5 L.); ἐξαιθριάσασα: *Nat. Mul.* 15 (81.8 Trapp; 7.334.8 L.); ἐπιπάσσουσα: *Mul.* 2.192 (8.370.16–17 L.); *Steril.* 242 (8.456.13 L.); ἐψήσασα: *Superf.* 38 (96.8 Lienau; 8.506.19 L.); ἑψοῦσα: *Nat. Mul.* 9 (76.18 Trapp; 7.324.18 L.); *Mul.* 2.162 (8.342.5 L.); 2.169 (8.350.2 L.); *Steril.* 217 (8.420.6 L.); ὑπαίθριον θεῖσα: *Mul.* 1.91 (8.220.5 L.); καθεψοῦσα: *Superf.* 29 (88.2 Lienau; 8.496.12 L.); κατασχίσασα: *Steril.* 217 (8.420.7 L.); *Superf.* 29 (88.3 Lienau; 8.496.13 L.); κόψασα: *Steril.* 217 (8.420.8 L.); μαλθάξασα: *Steril.* 219 (8.424.6 L.); *Superf.* 25 (82.4 Lienau; 8.488.18 L.); μίσγουσα: *Nat. Mul.* 15 (81.8 Trapp; 7.334.8 L.); *Steril.* 224 (8.432.17–18 L.); ξυμμίξασα: *Mul.* 1.85 (8.210.11 L.); 2.146 (8.322.9 L.); ξυμμίσγουσα: *Mul.* 1.90 (8.216.11 L.); *Steril.* 247 (8.460.9 L.); τρίψασα: *Nat. Mul.* 23 (85.5 Trapp; 7.342.5 L.); *Mul.* 1.91 (8.220.5 L.); φλάσασα: *Superf.* 33 (92.13 Lienau; 8.502.10 L.).

Recipes for fumigations or fomentations sometimes include feminine participles: these are limited to the final actions of the procedure and actions that only the patient can perform (such as sitting on the fumigation apparatus), as in the following examples:

> Ἕτερα θυμιητά· ὀρύξαι χρὴ βόθρον, καὶ φῶξαι ὅσον δύο χοίνικας Ἀττικὰς γιγάρτων, τῆς σποδιῆς ἐπιβαλὼν ἐπὶ τὸν βόθρον, οἴνῳ τε ἐπιψεκάσαι εὐώδει, καὶ ἀμφικαθεζομένη καὶ διαπλίξασα θυμιήσθω.
> Ἢ τὸ λεγόμενον οἰσύπη αἰγὸς ξηρὰ κόψαι καὶ φῶξαι ξὺν κριθέων ἐρίγματι, ἐλαίῳ φυρήσασα, θυμιῆν.[108]
>
> Another fumigation: it is necessary to dig a hole and to roast grape stones, in the amount of two Attic *choinikes*; let him throw some of this ash in the hole, continuously dropping sweet-smelling wine. Seating herself around <the hole> and taking her legs apart, let her be fumigated. Or <it is necessary to> chop and roast what is called the dry *oisypê* of the goat <sc. the grease extracted from goat's wool> together with bruised barley; let her knead <these ingredients> with oil, fumigate.

In the first recipe, the only actions expressed by means of feminine participles are actions that the female patient must perform herself (sitting and taking her legs apart), whereas the other actions are expressed by means of a masculine participle (ἐπιβαλών) and neutral infinitives (ὀρύξαι, φῶξαι, ἐπιψεκάσαι). In the second recipe, the actions of chopping and roasting the ingredients are expressed by means of infinitives (κόψαι, φῶξαι), whereas the very final action before the administration of the fumigation (θυμιῆν, again an infinitive) is expressed by means of a feminine participle (φυρήσασα). This feminine participle thus breaks the grammatical structure of the recipe. Maybe its use indicates that only women were expected to be present when the fomentation was administered.

Feminine participles are not used to indicate that the woman should prepare the ingredients—chop them, crush them, or roast them—prior to the administration of a fumigation or fomentation. Here Lloyd's argument of simplicity and straightforwardness does not hold. It is not more difficult or less straightforward, for instance, to chop ingredients

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[108] *Mul.* 2.195 (8.378.4–8 L.). See also ἐγχέασα: *Mul.* 2.146 (8.322.10 L.); ἐνελιξαμένη: *Mul.* 2.193 (8.376.8 L.); ἐπιπάσσουσα: *Mul.* 1.11 (8.46.8 L.); θυμιησαμένη: *Nat. Mul.* 7 (75.9 Trapp; 7.322.9 L.); *Mul.* 2.146 (8.322.20 L.); καθεζόμενην: *Mul.* 1.11 (8.46.10 L.); καλυψαμένη: *Mul.* 2.146 (8.322.11 L.); περιβάσα: *Nat. Mul.* 34 (100.12 Trapp; 7.372.12 L.); ποιήσασα: *Mul.* 2.193 (8.376.8 L.); ὑποθυμιησαμένη: *Mul.* 2.128 (8.276.7 L.); ὑποθυμιήσασα: *Nat. Mul.* 18 (83.21 Trapp; 7.338.21 L.).

for a fumigation than it is for a pessary; there seems to be a special link between the pessary and women—the pessary is the female form of medication *par excellence*. Feminine participles in recipes for other forms of medication—enemas, ointments, cataplasms, baths, etc.—can be counted on one's fingers.[109]

This preliminary study of the grammatical evidence in the Hippocratic gynaecological recipes seems to lead us to the idea of a division of labour within the gynaecological therapies. Women seem to be involved mostly in the preparation of pessaries and drinks, whether these contain 'kitchen' ingredients or exotic, expensive ingredients. However, it is necessary to stress several issues that preclude the determination of a neat and tidy division of labour.

First, recipes using feminine participles amount to some 6.3 per cent of the gynaecological recipes;[110] any pattern observable on such a small sample should be considered with due care. Most recipes, even recipes for pessaries and drinks, use either genderless infinitives or masculine participles.

Second, switches from feminine to masculine within a recipe are not rare, making it extremely difficult to determine who was to do what, as in the following example: Ἢν δὲ θέλῃς, σίδην ἐς σποδὸν ἐγκρύψασα ἐν οἴνῳ πινέτω, ἄλφιτον ἴσον καὶ ἄλητον ἐπιβάλλων, καὶ ὡς ἥκιστα λουέσθω. (If you want, let her hide a pomegranate under ashes; let her drink it in wine. Let him add barley meal and <wheat?> meal upon it and let her bathe as little as possible.)[111] This switch of subject is difficult to explain in terms of a division of labour; both actions of this recipe are equally simple and straightforward and could have been performed by a woman, or indeed a man. Rather, this switch is due to the fact that, as pointed in Chapter One, compilers of recipe collections were not always attentive to the grammar of recipes.

Third, when two versions of the same recipe exist, it is common to see a change of subject from one version to another. For instance, the action

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[109] Cataplasm: ἐξελομένη: *Nat. Mul.* 66 (115.4–5 Trapp; 7.402.4–5 L.).

Injection/infusion: ἀφεψοῦσα: *Nat. Mul.* 66 (115.5 Trapp; 7.402.4–5 L.); διακλυζομένη: *Epid.* 5.67 (30.14 Jouanna; 5.244.8 L.); 7.64 (89.14–15 Jouanna; 5.428.15 L.); ἐξελοῦσα: *Steril.* 222 (8.430.13 L.); κατέχουσα: *Epid.* 7.64 (89.15 Jouanna; 5.428.15 L.).

Application to the head: περιθεῖσα, ἐπιθεῖσα, ἀποδυσαμένη: all *Superf.* 25 (82.1,3,5 Lienau; 8.488.15,16,19 L.); the parallel of this recipe at *Steril.* 219 (8.424.2,4,6 L.) has περιθεῖσα, ὑποθεῖσα, ἀπολύσασα.

Toothpaste: βάπτουσα: *Mul.* 2.185 (8.366.12 L.).

[110] I have counted that eighty of the 1266 gynaecological recipes (that is 6.3%) include feminine participles.

[111] *Nat. Mul.* 15 (81.2–4 Trapp; 7.334.3–4 L.).

of removing the legs, wings and head of four cantharides is expressed by a feminine participle in *Nature of Women* 8 (ἀποκολούσασα), whilst epithets agreeing with κανθαρίδας are used in the parallel recipe at *Diseases of Women* 2.135 (ἀπτέρους καὶ ἄποδας καὶ ἄτερ κεφαλῆς).[112] Similarly, one version of a recipe can have feminine participles, whilst the other has masculine participles or imperatival infinitives. It is impossible to tell whether the model of these two recipes had feminine participles or masculine participles, or whether it had participles in abbreviated form (and therefore genderless); the ancient compilers of recipes did not hesitate to modify the grammar of recipes.

Moreover, there are variations in the gender of participles in our manuscripts and papyri. For instance, the text of P. Antinoopolis 3.184 differs from the medieval manuscripts:

P. Antinoopolis 3.184, fr. 10 (a), l. 3–4	*Diseases of Women* 2.205 (8.394.3–5 L.)
Ἢ ἐλ[άφου μυελὸν καὶ] [στέαρ τή]ξασα ἐν [ῥοδίνω ἐλαίω ἀ] [ναφορί]σσων εἴ[ριον μαλθακὸν] [προστί]θεσθω[113]	Ἢ ἐλάφου μυελὸν καὶ στέαρ τῆξαι, ἐν ῥοδίνῳ ἐλαίῳ, ἀναφορύξασα*, εἴριον μαλθακὸν προστιθέσθω. *ἀναφορύξασα ΘΜ: ἀναφορύσσειν V
Or let her melt deer marrow and suet; let him mix well in rose oil. Let it be applied <in> soft wool.	Or melt deer marrow and suet; let her mix well in rose oil. Let it be applied <in> soft wool.

Instead of the feminine participle τήξασα, present in P. Antinoopolis, the text of the main medieval manuscripts has an infinitive (τῆξαι).[114] In addition, the masculine participle ἀναφορίσσων of P. Antinoopolis is not attested in the medieval manuscripts, where one can find either a feminine participle (ἀναφορύξασα) or an infinitive (ἀναφορύσσειν).

[112] *Nat. Mul.* 8 (76.1–4 Trapp; 7.324.1–4 L.): text quoted p. 38; *Mul.* 2.135 (8.306.17–20 L.): text quoted p. 290.

[113] I wish to thanks David Leigh for his help with accentuating this papyrus.

[114] See Hanson (1970) 219.

But despite all these issues, one cannot stress enough the presence of feminine participles in the gynaecological Hippocratic treatises. Feminine participles are extremely rare in later medical literature, although there are several exceptions. For instance, Paulus of Aegina reports the following recipe designed by an anonymous woman:

> Γυνὴ δέ τις ἐπὶ τῶν ἡμικρανικῶν καὶ τούτῳ χρωμένη θαυμασίως ηὐδοκίμει· τὴν ῥίζαν τοῦ ἀγρίου σικύου χλωρὰν εἰς λεπτὰ κατακόπτουσα καὶ ἀψινθίαν ἥψει ἐν ὑδρελαίῳ ἕως τακηρώσεως καὶ τῷ μὲν ὑδρελαίῳ θερμῷ μετρίως κατηόνει τὸ πεπονθὸς μόριον, τὴν δὲ ῥίζαν καὶ τὴν ἀψινθίαν τρίβουσα λεῖα κατέπλαττεν αὐτό, καὶ τούτῳ μόνῳ τούς τε σὺν πυρετῷ καὶ ἄνευ πυρετοῦ ἡμικρανικοὺς ἐθεράπευσεν.[115]
>
> A certain woman, having used this wonderfully on people suffering from migraine, became highly esteemed; having cut into small pieces the fresh root of the wild cucumber, she boiled it with wormwood in a mixture of water and oil until it became soft, and with the warm mixture of water and oil she moderately fomented the affected part, while crushing the root and the wormwood till smooth she applied it as a poultice. With this only, she cured people suffering from migraine, either accompanied by fever or without fever.

Another later recipe including feminine participles is for an ointment allegedly invented by Cleopatra Berenice, Queen of Egypt. It is found in a heterogeneous collection of recipes preserved in a single manuscript, Florence, Biblioteca Laurentiana, 75.3, under the heading 'From the <writings> of Metrodora, concerning women's afflictions of the womb':

> Πρόσωπον λαμπρὸν ποιῆσαι. Τοῦτο ἐχρήσατο Βερονίκη ἡ βασίλισσα τῆς Αἰγύπτου ἡ μετακληθεῖσα Κλεοπάτρα. Ἐλάφειον κέρας, βαλοῦσα εἰς χύτραν καινήν, ὤπτησεν εἰς καμίνιον καὶ ἐξελοῦσα εὗρε κατάλευκον· τοῦτο λειώσα<σα> μετὰ γάλακτος ἐχρίετο.[116]
>
> To make the face bright: Berenice the queen of Egypt, nicknamed Cleopatra, used this. Having thrown the horn of a deer in a new vase, she roasted it in the oven and, having removed it, she found it whitened; having crushed it with milk, she anointed herself.

The recipes recorded by Paulus and 'Metrodora' have a point in common: they are allegedly the invention of a woman; to use masculine participles after emphatically claiming that these recipes had been cre-

[115] Paulus 3.5.4 (1.142.6–12 Heiberg).
[116] Metrodora 56 (57.14–16 Kousis). See pp. 274–278 for more details on this collection and its date.

ated by women would have made very little sense grammatically. On the other hand, when Galen quotes 'the exact words' of Cleopatra's *Cosmetics*, he uses masculine participles:

> Καὶ τὰ τῇ Κλεοπάτρᾳ πρὸς ἀχῶρας γεγραμμένα ἐφεξῆς εἰρήσεται κατὰ τὴν ἐκείνης αὐτῆς λέξιν·…Ἄλλο καὶ πρὸς πίτυρα ποιοῦν. νίτρου, χαλκάνθου ἀνὰ δραχμήν α΄. λειώσας ἔλαιον κατάχριε καὶ ἔγχριε. Ἄλλο πρὸς ἀχῶρας. σμύρναν καὶ μυρσίνης λευκῆς χλωρὰ φύλλα λεῖα, ἐν οἴνῳ λειώσας κατάχριε.[117]
>
> Cleopatra's prescriptions against dandruff are reported in order in her exact own words… Another, working also against scurf: soda, flower of copper, of each one *drachma*; having reduced to oil, smear and anoint. Another against dandruff: myrrh and fresh smooth leaves of white myrtle; crush well in wine and anoint.

In the Imperial period, women wrote medical books on subjects relevant to women—or male authors used female names as pseudonyms when writing these books—but they did not use feminine participles, preferring masculine participles and second person singular imperatives. These authors may have considered masculine as a 'common' gender, referring to either women or men, but their choice is nonetheless significant. Language is not a neutral entity; by using masculine forms only, medical authors conferred to gynaecology or the art of cosmetics the aspect of a 'male science', in the hands of men. On the other hand, by 'letting slip' a few feminine participles, the Hippocratic writers give us an insight into what was more probably the reality in the ancient world: a fluidity of knowledge and a collaboration between men and women.

Conclusions

The experience of reading recipe books in antiquity must have differed deeply from our modern experience: it was a time-consuming, linear reading, close to what we would call 'studying'. Those most likely to have had the time and skill necessary to read ancient recipe books were *iatroi*, people who practiced medicine for a living; but once a text was

[117] Galen, *Comp. Med. sec. Loc.* 1.8 (12.492.7–8 and 15–18 K.). On the involvement of Queen Cleopatra in science and medicine, see Flemming (2000) 40–41; Marasco (1995); (1998).

'published' there was no way of controlling its audience, and laymen—non-medical practitioners—may at times have read and attempted to learn from the recipe books.

One of the most salient characteristics of the Hippocratic recipes is that they leave out many elements of information; information such as quantities, utensils to be used, and times of application are left to the appreciation of the reader. The Hippocratic recipes are conceived as short *aide-mémoire*, which needed to be supplemented through oral explanations; these recipes could not, and did not intend to, replace the oral word.

Although a theoretical knowledge of pharmacology was necessary to read the Hippocratic collections of recipes, their reader could delegate some pharmacological tasks involved in the preparations of remedies. This reader could buy herbs from the drug seller, and could entrust the preparation of some remedies to his patients. The presence of feminine participles in the gynaecological recipes implies that women, most likely women patients, or their female domestic servants, were involved in the preparation of drugs. These women indirectly benefited from the reading of the Hippocratic gynaecological collections of recipes.

CHAPTER SEVEN

THE AFTERLIFE OF HIPPOCRATIC RECIPES

Introduction

The Hippocratic collections of gynaecological recipes and the *Pharmakitides* mentioned in *Affections* were among the first extended recipe compilations written in Greek, inaugurating a vigorous tradition of medical recipe writing. Most medical writers active in the centuries following Hippocrates' death are known to have composed pharmacological treatises: Diocles, Dieuches, Praxagoras, Herophilus, to name only a few. Unfortunately, none of their treatises survives in full; we know them only through quotations in medical authors such as Celsus, Pliny, Galen and Soranus. The first recipe book preserved in full, after a gap of at least four centuries, is Scribonius Largus' *Composite Drugs* (time of the Emperor Claudius).[1]

The recipes recorded by Scribonius, and by many of his successors, differ from the Hippocratic remedies in several ways. First, whereas Hippocratic recipes rarely included more than six ingredients, the recipes recorded by Scribonius rarely have less than seven. Some of Scribonius' recipes have well in excess of twenty ingredients; this is particularly the case for recipes for antidotes, i.e. panaceas designed to cure all ailments.[2] For instance, the antidote of the physician Marcianus has forty ingredients, many of which are exotic and/or rare:

> Antidote of the physician Marcianus, which is called *telea* (that is perfect) in Greek, because it lacks nothing. This single <antidote> works against all <ills> against which all the best antidotes <work>. This <antidote> used to be compounded for Augustus Caesar: 8 *denarii* of cinnamon, 6 *denarii* of amomum, 25 *denarii* of black cassia, 16 *denarii* of saffron, 5 *denarii* of rush, 5 *denarii* of frankincense, 2 *denarii* of white pepper, 10 *denarii* of myrrh, 10 *denarii* of long pepper, 10 and a half *denarii* of Indian spikenard, 16 *denarii* of Celtic nard, 6 *denarii* of dried rose, 2 *denarii* of white

[1] Recipes are also preserved in books V and XI of Celsus' *De medicina* (time of the Emperor Tiberius).

[2] See Totelin (2004).

> costus, 4 *denarii* of opobalsamum, half a *denarius* of Cyrenaic silphium, or one *denarius* of Syrian <silphium>, 6 *denarii* of cassidony, 5 *denarii* of gentian, 4 *denarii* of the root of sharp clover, or 3 *denarii* of the seed of this plant, 12 *denarii* of scordium, 5 *denarii* of germander, 2 *denarii* of hazelwort, 3 *denarii* of sweet flag, 32 *denarii* of valerian, 2 *denarii* of copper ore, 12 *denarii* of dittany, 3 *denarii* of drops of *ammoniacum*, two times a *semis* of *agaricum* <sc. a fungus>, 20 drops of balsam, 6 *denarii* and a half of parsley, three times a *semis* of wild rue, three times a *semis* of fennel seeds, 4 *denarii* of Cretan *daucus*, 2 *denarii* of anise, 2 *denarii* of Ethiopian cumin, 5 and a half *denarii* of turnip seeds, 3 *denarii* of wild mustard seeds, 2 *denarii* of fresh blood of female duck, 3 *denarii* of dried blood of male duck, 3 *denarii* of dried blood of male kid, 6 *denarii* and a half of dried blood of turtle, 3 *denarii* of dried blood of male goose, and a sufficient amount of Attic honey. It works against everything.[3]

I have argued that the Hippocratic recipes were the reflection of a *Haute Médecine*, based on luxury and exotic ingredients; however, compared to this type of antidotes, they seem terribly cheap. The spread of the Hellenistic and Roman Empires, and the impact this spread had on the price and availability of ingredients, certainly contributed to the multiplication of ingredients in pharmaceutical recipes. Internal pressures were also at work. A 'trickle-down' effect is often observable in the history of luxury goods: social emulation leads to a higher demand for a good, which then slowly loses its prestige.

In the recipe for Marcianus' antidote, exact quantities are given for each ingredient. Most recipes listed by Scribonius and his successors specify amounts. This is in stark contrast with the Hippocratic recipes which often left quantities to the readers' discretion.[4]

The antidote in our example is attributed to the physician Marcianus. Other recipes collected by Scribonius are attributed to Mithridates (*Comp.* 170), Ambrosius the physician of Puteoli (*Comp.* 152), or the surgeon Aristus (*Comp.* 209), to name only a few. In addition, Scribonius gives the recipe for a toothpaste regularly used by the princess Messalina (*Comp.* 60). Attributions of recipes to people, famous or not, are an important characteristic of recipe books produced from the first century AD—and this may already have been the case for recipe books composed in the Hellenistic period. With the multiplication of written recipe collections, it became increasingly important for compilers to prove that the remedies they compiled were efficacious: attaching a name

[3] Scribonius, *Comp.* 177.

[4] On the importance given by Galen to accurate quantities in recipes, see von Staden (1997) 68–71.

(either of its inventor or of a user) to a recipe could show readers that the remedy had been 'tested and approved', that it was not produced by an 'armchair physician'. Recipes attributed to Hippocrates can be found in the works of, for instance, Pliny the Elder, Soranus, Galen, and Aetius. Each of these authors uses Hippocratic material for different reasons, be they emulation or criticism. These various motives are examined in the two first sections of this chapter.

Anonymous recipes that bear striking similarities to the recipes of the Hippocratic Corpus are found in the works of medical authors active in the first centuries of the Common Era. In the third part of this chapter, I address the difficult question of determining the boundary between unacknowledged borrowing of Hippocratic material and coincidental similarity between written recipes. I stress the fact that a thriving oral pharmacological tradition existed alongside the written tradition.

In the final sections of this chapter, I examine the Latin translations or adaptations of the Hippocratic treatises *Diseases of Women* I and II. Whilst the translation of *Diseases of Women* I was introduced by a prologue stressing the extraordinary role of Hippocrates in the history of medicine; the adaptation of *Diseases of Women* II (*De Diversis Causis Mulierum*) does not include a single mention of Hippocrates.

Hippocrates as an authority in the field of pharmacology

Scribonius Largus' *Composite Drugs* is the first recipe book preserved in full after a gap of at least four centuries following the production of the Hippocratic gynaecological and nosological treatises. In the prologue to the *Composite Drugs*, Hippocrates appears as an authority in the field of pharmacology: he is called "the founder of our profession", and is praised for his *Oath*, in which he forbade physicians to prescribe abortifacients.[5] Scribonius, however, does not attribute any of his recipes to Hippocrates, contrary to many of his successors. In the following section, I will illustrate the ways in which three authors (Pliny the Elder, Galen and Aetius), differed in their use and presentation of Hippocratic pharmacological material.

Pliny the Elder (AD 23–79) has a rather ambivalent attitude towards Hippocrates the pharmacologist, and towards Greek pharmacology in general. On the one hand, he reports Varro's story that Hippocrates

[5] Scribonius, *Comp.*, epistula 5.

had 'stolen' remedies from the temple of Asclepius.[6] On the other hand, he considers Hippocrates, the founder of the discipline of medicine, as an important authority in the field of pharmacology: "Indeed, we find the books of Hippocrates, who first established the precepts of medicine most brilliantly, filled with information on plants."[7] In the table of contents to his *Natural History*, Pliny lists Hippocrates as one of his sources for books 20–28 and 31,[8] and pharmacological material clearly identified as Hippocratic appears in books 20 and 22. In these books, Pliny does not quote full Hippocratic recipes, but adapts the Hippocratic material so that it fits his own organising principle, namely an organisation by plant such as can be found in ancient herbals. For instance, in the chapter on radish (*raphanus*), Pliny says the following about Hippocrates: "Hippocrates <advises> to rub the head of women with radishes when the hair falls off; and to place them on the navel against pains of the womb."[9] Such advice is indeed found in two different chapters of *Diseases of Women* II:

> Καὶ ἢν μαδήσῃ, κύμινον ἔμπλασσε, ἢ πελιάδων κόπρον, ἢ ῥάφανον τριπτήν, ἢ κρομμύῳ τριπτῷ ἢ τεύτλῳ, ἢ κνίδῃ.[10]
>
> And if she loses hair, apply as a cataplasm: cumin or excrement of pigeons, or crushed radish, or <rub?> with crushed onion, or beet, or nettle.
>
> Ὅταν ὑστέρη πνίγῃ…τὴν κεφαλὴν ξυρῆν ὅτι τάχιστα, καὶ ταινίῃ ἀποδιωθέειν, ὑπὲρ ὀμφαλὸν δὲ εἰλέειν· διδόναι δὲ καστόριον καὶ κόνυζαν καὶ πηγάνου ὕδωρ, κύμινον Αἰθιοπικόν, ῥαφάνου σπέρμα, θεῖον, σμύρνην.[11]
>
> When the womb causes suffocation…shave the head as fast as possible, and push back <the womb> with a bandage that you roll over the navel. Give also castoreum, fleabane, water of rue, Ethiopian cumin, seed of radish, brimstone and myrrh.

Sometimes, however, the Hippocratic passages mentioned by Pliny are less easy to localise. For instance, in his chapter on the nettle (*urtica*), Pliny attributes the following to Hippocrates:

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[6] Pliny, *H.N.* 29.2.4. See pp. 5 and 123 for more details on this anecdote.

[7] Pliny, *H.N.* 26.6.10. On the ambivalent attitude of Pliny towards Hippocrates, see Byl (1994). On the ambivalent attitude of Pliny towards Greek pharmacology in general, see Beagon (1992) Chapter 6, especially 228–229; Nutton (1986).

[8] Pliny, *H.N.* 1. See p. 230 for more details on this table of contents.

[9] Pliny, *H.N.* 20.7.27.

[10] *Mul.* 2.189 (8.370.3–5 L.).

[11] *Mul.* 2.201 (8.384.1 and 3–6 L.).

> *Hippocrates uuluam purgari poto eo pronuntiat* (1), *dolore leuari tosto acetabuli mensura, dulci poto* (2) *et imposito cum suco maluae* (3), *intestinorum animalia pelli cum hydromelite et sale* (4), *defluuia capitis semine inlito cohonestari* (5).[12]
>
> Hippocrates states that, taken as a drink, it purges the womb; that, roasted and taken in a sweet drink in the amount of one *acetabulum*, or applied with juice of mallow, it alleviates the pain; that it expels intestinal worms <when taken> with hydromel and salt; and that when its seed is smeared onto the head, it repairs hair loss.

Parallels for uses (1), (2), (3) and (5) can be found in the Hippocratic Corpus: nettle is mentioned as a purgative for flux in several chapters of *Diseases of Women* II (use 1);[13] roasted nettle is recommended against pains of the womb in *Diseases of Women* 1.63 (use 2), where no quantities are mentioned;[14] nettle and mallow enter in the composition of a pessary against ulcerations of the womb, listed in *Diseases of Women* 1.74 (use 3);[15] and a recipe against hair loss including nettle is listed at *Diseases of Women* 2.189 (use 5).[16] On the other hand, nowhere in our preserved Hippocratic texts is nettle prescribed against worms (use 4). Pliny is either mistaken in his attribution of the material to Hippocrates, or he had at his disposal 'Hippocratic' material that is lost today. Another example in which Pliny might be quoting lost 'Hippocratic' material is his description of the marshmallow (*althaea*):

> *Hippocrates uulneratis sitientibusque defectu sanguinis radicis decoctae sucum bibendum dedit et ipsam uulneribus cum melle et resina, item contusis, luxatis, tumentibus; et musculis, neruis, articulis imposuit ut supra; spasticis, dysintericis in uino bibendam dedit.*[17]
>
> Hippocrates gave to drink a decoction of its root-juice to wounded people thirsty because of blood loss, and <applied> the mallow itself onto wounds

[12] Pliny, *H.N.* 22.15.34.

[13] See for instance *Mul.* 2.117 (8.252.18 and 21–22 L.). Ῥόου λευκοῦ θεραπείη…Ταύτην μήκωνα πιπίσκειν λευκήν, καὶ κνίδης καρπόν. (Cure for white flux…Give her to drink white poppy and the seed of nettle.)

[14] *Mul.* 1.63 (8.126.20 and 130.18–20 L.): Ἢν δὲ αἱ μῆτραι ἑλκωθέωσιν…Πίνειν δὲ μετὰ τὰ φάρμακα λίνου σπέρμα ἀποπεφωσμένον, καὶ σήσαμον, καὶ κνίδης καρπόν, καὶ γλυκυσίδης ῥίζαν τὴν πικρὴν τρίβων ἐν οἴνῳ εὐώδει μέλανι κεκρημένῳ. (If the womb is ulcerated…After the remedies, give to drink roasted linseed, sesame, seed of nettle, bitter root of peony; crush in sweet-smelling, mixed red wine.)

[15] *Mul.* 1.74 (8.156.15 and 17–18 L.): recipe quoted p. 81.

[16] See p. 262.

[17] Pliny, *H.N.* 20.84.230. See Byl (1994) 167 for other examples of 'Hippocratic' material mentioned by Pliny which cannot be located in any of our Hippocratic treatises.

> with honey and resin; similarly onto contusions, luxations and swellings; and he applied it as above onto muscles, sinews and joints; he gave it to drink in wine to people suffering from spasms or dysentery.

It is interesting to note that Dioscorides (first century AD) describes the uses of the marshmallow in very similar terms to Pliny, without acknowledging his source:

> Ἀλθαία· οἱ δὲ ἀλθίσκον, οἱ δὲ μαλάχη ἀγρία, Ῥωμαῖοι ἐβίσκουμ… Ἑψηθεῖσα γὰρ ἐν μελικράτῳ ἢ οἴνῳ ἢ καθ' ἑαυτὴν κοπεῖσα ποιεῖ πρὸς τραύματα, παρωτίδας, χοιράδας, ἀποστήματα, μαστοὺς φλεγμαίνοντας, <φλεγμονὰς> δακτυλίου, θλάσματα, ἐμφυσήματα, συντάσεις νεύρων… Ποιεῖ δὲ καὶ πρὸς δυσεντερίαν, αἵματος ἀναγωγήν, διάρροιαν.[18]
>
> Marshmallow (*althaia*): others <call it> *althiskon*, others wild *malachê*, the Romans <call it> *ebiscum*. For, boiled in *melikraton* or wine or chopped on its own, it works against wounds, tumours of the parotid gland, swellings in the glands of the neck, abscesses, inflamed breasts, inflammations of the anus, bruises, swellings, tensions of the sinews… It works also against dysentery, blood loss and diarrhoea.

Undoubtedly, the concordance between the descriptions of the uses of marshmallow by Pliny and Dioscorides is due to their exploiting the same source. Now, the word ἀλθαία used by Pliny and Dioscorides does not appear in any of our Hippocratic treatises. Erotian, however, explained this plant name in his Hippocratic glossary.[19] This suggests that a treatise attributed to Hippocrates included pharmacological information on this plant (and maybe recipes) at one stage.

To sum up, Pliny presents Hippocrates as an authority in the field of botany, even though no treatise specifically devoted to botany, it seems, was ever transmitted under Hippocrates' name in antiquity.

Hippocrates the pharmacologist is also an important figure in the pharmacological writings of Galen of Pergamum (AD 129–216).[20] In the prologue to the sixth book of his *Simple Medicines*, Galen praises Hippocrates for not having mixed magic (γοητεία) and imposture (ἀλαζονεία) into the art of pharmacology:

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[18] Dioscorides, *Mat. Med.* 3.146.

[19] Erotianus, *Glossarium* s.v. ῥίζη ἀλθαίης (76.1–2 Nachmanson).

[20] On the role of Hippocrates in the pharmacological writings of Galen, see Jouanna and Boudon (1997).

> The major part of the use of drugs is treated in the therapeutic treatises of the ancients and, in addition, in those of almost all the moderns. Indeed many things have been said by Hippocrates, and also by Euryphon, Dieuches, Diocles, Pleistonicus, Praxagoras, and Herophilus; and there is no ancient <physician> who has not contributed, more or less, with his art to the science of drugs without magic and imposture, which later Andreas exhibited.[21]

Galen sees the history of pharmacology as a regression from a rational science (ἐπιστήμη), incarnated by authors such as Hippocrates and Herophilus, to an art spoiled by magical practice, incarnated by Andreas (third century BC, personal physician of Ptolemy Philopator). Galen lists his authorities in the field of pharmacology chronologically, starting with Hippocrates.

In other places, Galen emulates the Hippocratic pharmacological method. For instance in the prologue to his *Composition of Medicines according to Types*, he praises Hippocrates for his art of mixing drugs, mentioning a recipe taken from *Regimen in Acute Diseases* as an example:

> For other conditions, on the contrary, there is need for only one drug among the natural things, but we mix something with it, sometimes because we want to dull its excessive power, sometimes to soften its unpleasantness, like Hippocrates said in *Regimen in Acute Diseases*, in these words: "If the pain occurs below the diaphragm, and does not point to the collarbone, it is necessary to relax the belly with black hellebore or wild purslane, adding to the black <hellebore> *daukos* or hartwort or cumin or anise or any other sweet-smelling drug, and adding to the wild purslane the juice of silphium." In these words, Hippocrates has shown clearly that there was a need for a purgative remedy, but that its unpleasantness needed a seasoning for the drinking and for its retention in the belly.[22]

Galen praises Hippocrates for having mixed sweet-smelling ingredients to purgative remedies, ignoring the numerous instances in which purgative plants are prescribed on their own in Hippocratic texts. This recipe, which Galen repeats in his *Composition of Medicines according to Places*, is the only Hippocratic recipe quoted in full by the physician from Pergamum.[23] Interestingly, this Hippocratic quote is extracted

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[21] Galen, *Simpl.* 6.1 (11.795.8–796.2 K.). On this text, see Jouanna and Boudon (1997) 217; van der Eijk (2001) 279–281.

[22] Galen, *Comp. Med. per Gen.* 1.3 (13.372.16–373.10 K.). The Hippocratic recipe can be found at *Acut.* 23 (Joly 46.3–7; 2.274.1–6 L.). See Anastassiou and Irmer (2001). For other examples of passages in which Galen emulates the Hippocratic pharmacological method, see Fabricius (1972) 203–205.

[23] Galen, *Comp. Med. sec. Loc.* 8.3 (13.149.6–11 K.).

from a treatise which does not include many recipes: *Regimen in Acute Diseases*. In his pharmacological treatises, Galen does not list any of the numerous recipes of the Hippocratic gynaecological and nosological treatises.

The absence of Hippocratic gynaecological recipes in the works of Galen is linked to his general lack of interest in women's matters. Galen wrote only one gynaecological work (*Anatomy of the Uterus*) and his section devoted to afflictions of the uterus in the ninth book of *Composition of Medicines according to Places* is extremely short.[24]

Whilst Galen was not interested in quoting Hippocratic recipes in his pharmacological works, he did find them interesting from a philological point of view. In his *Glossary*, Galen explicates numerous words used in these Hippocratic recipes, as in the following example, where both *Diseases of Women* I and *Diseases* II are mentioned:

> Meal (*alphita*): it is not only the <meal> from barley which is so called. Indeed in the first book of *Diseases of Women* wheat meal (*alphita pyrina*) is mentioned. In the second larger book *On Diseases*, <mention is made of *alphita* made of> lentils and roasted bitter vetches.[25]

These glosses indicate that, for Galen, the Hippocratic recipes were still worth reading. However, in his pharmacological writings, Galen preferred to list the recipes of more recent authorities in the field of pharmacology, such as Apollonius, Heras, Andromachus, Criton, Asclepiades, etc. Hippocrates' character plays the role of a model in Galen's pharmacological writings: the Coan deserves to be praised as the founder of the discipline, and his method is to be imitated. On the other hand, Hippocrates' recipes are not considered worth listing by the author of Pergamum.

More than three centuries after the death of Galen, on the other hand, Aetius of Amida (*fl. c.* AD 530–560) listed Hippocratic recipes in his *Medical Collection*, not to illustrate a methodological point, but because he found them useful and efficacious. For instance, Aetius tells us that he has used, and modified, the following recipe against haemorrhoids, which we find in the Hippocratic treatise *Haemorrhoids*:[26]

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[24] Galen, *Comp. Med. sec. Loc.* 10.10 (13.319–320 K).

[25] Galen, *Glossarium* s.v. ἄλφιτα (19.76.1–4 K.). See Anastassiou and Irmer (1997).

[26] On the role of Hippocrates in Aetius' work, see De Lucia (1999); Ieraci Bio (1999). On the circulation of *Haemorrhoids* in the Byzantine period, see Guardasole (2005).

Aetius, *Medical Collection* 14.6 (Ieraci Bio [1999] 458)	*Haemorrhoids* 7 (149.25–150.4 Joly; 6.442.15–20 L.)
Ἱπποκράτους πρὸς αἱμορροΐδας. Κηκίδων οὐγγ. β′ σμύρνης οὐγγ. β′ στυπτηρίας σχιστῆς οὐγγ. γ′ μελαντηρίας οὐγγ. γ′. κόψας σήσας λειώσας χρῶ ξηρῷ. Ἐγὼ δὲ ἀπορήσας μελαντηρίας σῶρι ἐνέβαλον καὶ ἐποίησε θαυμασίως. Ἐν γὰρ ἡμέραις ὀλίγαις ἀδήκτως χωρὶς ἑλκώσεως ἀφανεῖς ποιεῖ τὰς αἱμορροιΐδας.	Σμύρναν τρίψας λείην καὶ κηκῖδα, καὶ στυπηρίην Αἰγυπτίην κατακάυσας, ἓν καὶ ἥμισυ πρὸς τἄλλα, καὶ μελαντηρίης ἄλλο τοσοῦτον, τούτοισι ξηροῖσι χρῆσθαι· ἡ δὲ αἱμορροῒς τούτοισι τοῖσι φαρμάκοισιν ἀποστήσεται, ὥσπερ σκύτος κατακεκαυμένον· ταῦτα ποιεῖν μέχρις ἂν πάσας ἀφανίσῃς.
From Hippocrates, against haemorrhoids. Two ounces of oak gall, two ounces of myrrh, three ounces of cloven alum, three ounces of black pigment; chop, sift, crush, and use dry. Because I did not have black pigment, I added *sôri* <sc. an ore> and it worked wonders. Indeed, in a few days, it makes the haemorrhoids invisible, without biting and without causing ulceration.	Crush well myrrh, oak gall, burnt Egyptian alum, one and a half times the amount of the others, and the same amount of black pigment; use these dry. With such remedies, the haemorrhoid will detach itself like burnt hide. Do this until they have all disappeared.

The main difference between the versions of the recipe is in the quantities: Aetius gives exact amounts for each ingredient, whereas the Hippocratic recipe does not. Aetius also recommends this remedy, without giving its recipe, in the sixteenth book of the *Medical Collection*, i.e. the book devoted to gynaecology.[27] Hippocrates is mentioned several times in this gynaecological book, but no Hippocratic gynaecological recipe is recommended. One may wonder whether Aetius knew the collections of recipes appended to the Hippocratic gynaecological treatises. The only recipe of the Hippocratic gynaecological treatises quoted by Aetius is

[27] Aetius 16.109 (Zervos).

a remedy against children's cough, which he lists in book four of the *Medical Collection*. However, this is not conclusive for the Hippocratic recipe occurs at *Diseases of Women* 1.92, one of the chapters (1.92–109) deemed spurious (νόθα) in some medieval manuscripts:

Aetius, *Medical Collection* 4.18 (366.25 and 28–30 Olivieri)	*Diseases of Women* 1.92 (8.222.1–3 L.)
Πρὸς βῆχα παιδίων… Ἄλλο. Ἱπποκράτειον· λέκιθον ὠοῦ ὀπτὴν καὶ σησάμου διπλασίονα ὄγκον καὶ ἁλὸς χόνδρον ἕνα σύμμετρον λεάνας ἱκανῶς μετὰ μέλιτος δίδου ἐκλείχειν.	Βηχὸς παιδίου… Ἕτερον· ὠὸν ὀπτήσαντα, τὴν λέκιθον ἐξελόντα, τρῖψαι· καὶ σήσαμον λευκὸν πεφρυγμένον καὶ ἅλες, ἐν μέλιτι ἐλλείχειν.
Against children's cough… Another, of Hippocrates: roasted egg yolk, twice as much of sesame, an equal amount of salt grains; crush well with honey; give as an electuary.	Child's cough… Another: roast an egg, having taken the yolk; crush. <Add> roasted white sesame and salt grains; give as an electuary in honey.

Aetius may have read this recipe in another context, either in a 'Hippocratic' treatise now lost, or in a compendium including Hippocratic recipes.[28]

Pliny, Galen and Aetius consider Hippocrates as an important authority in the field of pharmacology: he is the human founder of the discipline. But these three authors use Hippocratic pharmacological material in different ways: Pliny adapts the material to his own organising principle; Galen uses a Hippocratic recipe as an example of method; and Aetius recommends Hippocrates' remedies for their efficacy and usefulness. They sometimes, seemingly, consulted Hippocratic treatises in a format different to the one we are familiar with, and they had access to 'Hippocratic' material lost today.

[28] De Lucia (1999) 450 believes the use of the word Ἱπποκράτειον (Hippocratic) and not Ἱπποκράτους (of Hippocrates) is not gratuitous.

Hippocrates as a negative influence in the field of pharmacology

The authors mentioned in the previous section considered Hippocrates as a highly respectable authority in the field of pharmacology; other ancient medical authors, however, had a more reserved judgement towards him. Celsus (time of the Emperor Tiberius), for instance, considered Hippocrates to be an important authority in the field of surgery, but mentioned him only once in the pharmacological books of his *On Medicine*, in rather critical terms:

> According to Hippocrates, the oldest authority, the eyes are treated by bloodletting, medicaments, bathing and wine; but he gave little explanation of the times <of application> and reasons for these remedies, things which are of the utmost importance in medicine.[29]

The medical author most critical towards Hippocrates was the Methodist Soranus, whose negative judgement towards Hippocratic pharmacology (and towards the pharmacology of most of his predecessors) can be observed in his only work preserved in Greek: his *Gynaecology*.[30] For instance, Soranus criticises Hippocrates for using sternutatories (a type of remedy recommended in several Hippocratic treatises) to expel the afterbirth:

> Now Hippocrates uses sternutatories and draws together the wings of the nostrils, so that the afterbirth may fall down because of the pressure of the descending breath … All the things mentioned above are bad. For the increased spasm provoked by sternutatories causes danger, immediately of haemorrhage, and later of sympathetic affection of the nerves.[31]

The sternutatories are condemned for their violent effect, both immediately after administration and later on. Soranus also criticises the drugs promoting a quick birth recommended by οἱ περὶ τὸν Ἱπποκράτην for being too violent. The formula οἱ περὶ τὸν Ἱπποκράτην, literally 'those around Hippocrates', is difficult to translate and could mean 'Hippocrates' followers', 'Hippocrates and his followers', or simply 'Hippocrates'; in any case, the formula does not distinguish the followers

[29] Celsus, *De medicina* 6.6.1e.

[30] On Soranus' attitude towards Hippocrates, see Gourevitch (1992); Hanson (1971) 180–200; Mazzini (1999).

[31] Soranus 4.14–15 (144.21–23 and 145.14–16 Ilberg). In the Hippocratic Corpus, sternutatories are recommended at *Aph.* 5.49 (170.13–15 Jones; 4.550.3–4 L.) and *Epid.* 2.5.25 (80.5–7 Smith; 5.132.10–12 L.).

as a separate group from Hippocrates.[32] The recipes promoting a quick birth attributed to the followers of Hippocrates by Soranus have close parallels at *Diseases of Women* 1.77:[33]

S = Soranus, *Gynaecology* 4.13 [65] (144.2–7 Ilberg)	DW = *Diseases of Women* 1.77 (8.170.9–172.4 L.)
Τὸ δὲ ὠκυτόκια προσαναγράφειν, ὡς ἄλλοι καὶ οἱ περὶ τὸν Ἱπποκράτην ἐποίησαν, σχεδίαζοντός ἐστιν.	
But to prescribe in addition drugs promoting a quick birth, as did the followers of Hippocrates among others, lacks consideration.	
1. Οὔτε γὰρ δάφνης φύλλα ξηρὰ μετὰ θερμοῦ ὕδατος·	1. Ὠκυτόκια δυστοκεύσῃ· δάφνης ῥίζην ξύσας ἢ τοὺς κόρους ὅσον ἥμισυ ὀξυβάφου, ἐφ᾽ ὕδατι δὸς πιεῖν θερμήνας.
For neither dried leaves of sweet bay in warm water;	Promoting a quick birth when <labour> is difficult: scrape root or sprouts of sweet bay, in the amount of half an *oxybaphon*; give to drink in warm water.
2. Οὔτε δίκταμνον ἢ ἀβρότονον καὶ κεδρία καὶ ἄνισον μετὰ γλυκέος καὶ παλαιοῦ ἐλαίου·	2. Ὠκυτόκιον· δικτάμνου ὅσον δύο ὀβολοὺς τρίψας ἐν ὕδατι θερμῷ πινέτω.
Nor dittany, nor wormwood and cedar resin, and anise with sweet <wine> and old oil;	Promoting a quick birth: dittany, in the amount of two *oboloi*; pound, drink in warm water.

[32] See Hanson (1971) 186. See also van der Eijk (2001) ix–x for the expression οἱ περὶ Διοκλέα.

[33] For ease of reference I shall refer to these series as Series S and Series DW respectively.

Table (*cont.*)

S = Soranus, *Gynaecology* 4.13 [65] (144.2–7 Ilberg)	DW = *Diseases of Women* 1.77 (8.170.9–172.4 L.)
	3. Ἢ ἀβροτόνου δραχμὴν καὶ κεδρίδας καὶ ἄννησον ἐντρίψας ἐν γλυκέος οἴνου κυάθῳ, παραχέας ὕδατος παλαιοῦ κύαθον, δὸς πιεῖν· τοῦτο καλὸν δίδοται, ἢν πρὸ τῶν ὠδίνων δοθῇ. Or one *drachma* of wormwood, cedar berries, anise; crush in a *kyathos* of sweet wine, add a *kyathos* of old water; give to drink. It is good to give this before the pains <of labour>.
	4. Ἢ δικτάμνου ὀβολόν, σμύρνης ὀβολόν, ἀννήσου δύο ὀβολούς, νίτρου ὀβολόν· ταῦτα τρίψας λεῖα, γλυκέος οἴνου ἐπιχέας κύαθον καὶ ὕδατος θερμοῦ κύαθους δύο, δὸς πιεῖν, εἶτα λοῦσον θερμῷ. Or an *obolos* of dittany, an *obolos* of myrrh, two *oboloi* of anise, an *obolos* of soda; crush these well, pour a *kyathos* of sweet wine and two *kyathoi* of warm water; give to drink, then give a bath with hot <water>.
	5. Ὠκυτόκιον· ῥητίνην τερμινθίνην, μέλι, ἔλαιον διπλάσιον τούτων, οἶνον εὐώδεα ὡς ἥδιστον, ταῦτα ξυμμίξας, χλιήνας, διδόναι ἐκπιεῖν πλεονάκις· καταστήσει δὲ καὶ τὰς μήτρας, ἢν φλεγμήνωσιν.

Table (*cont.*)

S = Soranus, *Gynaecology* 4.13 [65] (144.2–7 Ilberg)	DW = *Diseases of Women* 1.77 (8.170.9–172.4 L.)
	Promoting a quick birth: turpentine resin, honey, oil in a double amount, sweet-smelling wine, as pleasant as possible; mix these together, let it cool down, give to drink often. This will calm down the womb if it is inflamed.
3. Οὔτε καρπὸς ἀγρίου σικύου κηρωτῇ προσπλασσόμενος φοινικίνῃ καὶ ὀσφύι περιαπτόμενος ὠκυτοκίαν παρασκευάζει.	6. Ἕτερον ὠκυτόκιον· τοῦ σικύου τοῦ ἀγρίου, ὅστις ἂν ἤδη λευκὸς ᾖ, τὸν καρπὸν ἐμπλάσας κηρῷ, εἶτα εἰρίῳ ἐνελίξας φοινικέῳ, περίαψον περὶ τὴν ὀσφύν.
Nor the seed of the wild cucumber added to a date salve and fastened upon the loins affect quick birth.	Another promoting a quick birth: plaster with wax the fruit of wild cucumber which is already white, then roll in purple wool; fasten around the loins.

There are several differences between the recipes presented by Soranus and the recipes we read in *Diseases of Women* I. Soranus simply lists ingredients, and never gives the quantities mentioned in the Hippocratic recipes. In addition, S1 mentions dried leaves of sweet bays (δάφνης φύλλα ξηρά), whereas DW1 mentions root or sprouts of sweet bay (δάφνης ῥίζην ξύσας ἢ τοὺς κόρους). S2 is a combination of DW2 and DW3. S3 specifies that wild cucumber should be mixed with date salve (φοινικίνῃ), whereas DW6 indicates that the medication should be rolled in purple wool (φοινικέῳ). Soranus' mistake is easily explained paleographically, but it seriously affects the meaning of the recipe; it was important for this amulet to be purple in colour.[34] Finally, the

[34] See Hanson (2004b) 276–277. See also Hanson (1998a) 83–84.

Hippocratic series has more recipes than the series given by Soranus, who may simply have chosen not to list these two recipes. Soranus may have read the gynaecological treatises in 'pre-digested', shortened format. Alternatively, he may have quoted from memory, in a not very accurate manner.[35]

Soranus' criticism of Hippocratic pharmacology was not limited to gynaecological remedies. Caelius Aurelianus' (*fl. c.* 420 AD) translation/adaptation of *Chronic and Acute Diseases* preserves some of Soranus' comments on non-gynaecological Hippocratic recipes, as in the following example:

> Among the ancients, Erasistratus and Herophilus did not say anything about this affliction <sc. peripneumonia>. Hippocrates, on the other hand, in his book *Rules for Guidance*, which he called *Dieteticum*, says that one must prepare a remedy against peripneumonia, made of <Cnidian?> berry, galbanum, and Attic honey or wormwood, in vinegar mixed with honey, to which are added pepper and black hellebore. 'It is excellent,' he says, 'to boil all-heal in mixed wine made with vinegar and give it to drink liquefied.' But Soranus judged these to be harmful, and therefore to be condemned, adding that mixed wine made with vinegar is binding, and therefore unsuitable for the swelling.[36]

Soranus/Caelius Aurelianus is here quoting, rather accurately, a series of remedies found in the *Appendix* to *Regimen in Acute Diseases*, a treatise deemed spurious in some of the medieval manuscripts.[37] These remedies are condemned for being too binding, and therefore unsuitable for the treatment of peripneumonia.

There is an interesting contrast between the Methodist attitude towards Hippocratic remedies, on the one hand, and Galen's attitude, on the other.

As a pioneer in the field of pharmacology, Hippocrates plays an important role in Galen's writings; but Hippocratic recipes are passed over in silence, most probably because Galen found more recent recipes to be more useful. Soranus, on the other hand, criticised the Hippocratic remedies as if they had been written by one of his contemporaries, and as if they were still commonly used in the first century AD—and this may well have been the case, as I will show in the following paragraphs.

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[35] See Hanson (2004b) 277. See also Gourevitch (1992) 605.
[36] Caelius Aurelianus, *Acut.* 2.154 (236.5–13 Bendz).
[37] *Acut. Sp.* 34 (85.4–9 Joly; 2.464.12–466.4 L.).

Unacknowledged borrowing or coincidental similarity?

Cases of unacknowledged borrowings of Hippocratic material are common in the medical literature. Some authors consciously quoted Hippocratic material without acknowledging it. For instance, in the twenty-first book of the *Natural History*, Pliny recommends cyperus in a drink to open the womb, without acknowledging his source: "Cyperus…as a drink it opens the womb".[38] Now, cyperus is prescribed as a pessary to open the womb at *Barren Women* 235:

> Πρόσθετον ὑστερέων, ἢν ξυμμεμύκῃ ἢ σκληρὸν ᾖ τὸ στόμα…Θεραπεία ἐπὶ τὸ αὐτὸ νόσημα· ἶριν εὐώδεα κόψας καὶ διασήσας χωρίς, κυπείρου ἴσον, καὶ ἔκμαγμα ὅσον μαγίδα, οἴνῳ ἀνθοσμίῃ διεῖναι.[39]
>
> Pessary for the womb, if the mouth <of the womb> is closed and hard… Therapy for the same disease: chop sweet-smelling iris and sift separately, the same amount of cyperus and saffron paste, in the amount of one cake; soak with sweet-smelling wine.

The Hippocratic text may well be Pliny's source for this gynaecological use of cyperus; in Book 1 of his *Natural History*, Pliny lists Hippocrates as a source for his twenty-first book, but the name of the Coan physician does not appear anywhere in that book.

Other medical authors may have been unaware of the Hippocratic nature of the material they were quoting. For instance, in a late-antique collection of recipes, included in the twelfth-century manuscript Florence, Biblioteca Laurentiana, 75.3,[40] one can read a non-attributed recipe, which is parallel almost word-for-word to a recipe listed in *Diseases of Women* 1.31:[41]

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[38] Pliny, *H.N.* 21.70.118.

[39] *Steril.* 235 (8.450.3 and 15–17 L.).

[40] This heterogeneous collection of recipes (57.34–67 Kousis) follows immediately, without break, the gynaecological treatise of Metrodora (48–57.11 Kousis). Since this collection includes two recipes attributed to Alexander of Tralles, this compilation must be dated to at least the sixth century AD. It is not necessary, however, to assume that Metrodora's treatise was written at such a late date (see p. 276).

[41] On this recipe, see Ieraci Bio (1999) 464.

Diseases of Women 1.31 (8.74.18–21 L.)	*Recipe Collection* 28 (61.31–32 Kousis)
Ἢν κύουσαν χολὴ λυπέῃ, πτισάνης χυλὸν δίδου, ῥόον ἐπιπάσσων τὸν ἐρυθρὸν ἢ τὸν ἐκ τῆς συκαμίνου, ψυχρὸν δὲ ῥοφεέτω, καὶ καταστήσεται.	Ἔγκυον γυναῖκα ὑπὸ χολῆς ἀσθενοῦσαν θεραπεύειν. Πτίσανης χυλὸν ἐπίπασσον, ῥοῦν Συριακὸν ἢ τὸν ἐκ τῆς συκαμίνου καὶ ψυχρὸν ῥοφάτω καὶ καταστήσει.
If bile distresses a pregnant woman, give juice of barley gruel, sprinkle it with red sumach or with the <berry> of the mulberry tree; let her drink it cold as a soup and she will recover.	To cure a pregnant woman weakened by bile. Sprinkle the juice of barley gruel with Syrian sumach, or with the <berry> of the mulberry tree; let her drink it cold as a soup and she will recover.

This recipe remains anonymous, whereas other recipes in this compilation are attributed to Alexander <of Tralles>, Galen, Archigenes, Andromachus, and Damocrates.[42] Calling upon the authority of past medical actors was important for the compiler of this collection of recipes: had he known this recipe was 'Hippocratic', he would certainly have mentioned it.

Similarities between versions of recipes cannot always be ascribed to unacknowledged borrowing, however. For instance, Anna Maria Ieraci Bio may be too hasty when she argues that Oribasius and Paulus were borrowing from the Hippocratic *Epidemics* when they wrote down the following recipe for whitlow:[43]

[42] Alexander: 27 (61.25–30 Kousis); 72 (63.11–14 Kousis); Galen: 30 (61.37–41 Kousis); Archigenes: 1 (58.36–39 Kousis); Andromachus: 1 (58.8–26 Kousis); Damocrates: 2 (59.11–13 Kousis). I could not find any exact parallel to Alexander's recipes. However, we may well have here a reference to Alexander of Tralles because the recipe in chapter 104 contains lemon, an ingredient that Alexander of Tralles includes in several of his prescriptions.

[43] Ieraci Bio (1999) 464. See also Oribasius, *Ad Eunapium* 2.33.1 (415.21–22 Raeder).

Epidemics 2.6.27 (88.6 Smith; 5.138.4 L.)	Oribasius, *Synopsis for Eustathius* 7.18 (222.11–12 Raeder)	Paulus 3.81 (1.312.18–19 Heiberg)
Παρωνυχίης· κηκὶς μέλαινα ἐν μέλιτι.	Τὴν παρωνυχίαν μικρὰν οὖσαν ἔτι ἀρχομένην κηκὶς μετὰ μέλιτος καταστέλλει καὶ κωλύει συστῆναι·	Μικρὰν μὲν οὖν οὖσαν ἔτι τὴν παρωνυχίαν καὶ ἀρχομένην κηκὶς μετὰ μέλιτος καταστέλλει καὶ συστῆναι κωλύει.
Against whitlow: black oak gall in honey.	Oak gall with honey reduces the whitlow when it is small and still incipient, and it hinders its growth.	Oak gall with honey reduces the whitlow when it is still small and incipient, and hinders its growth.

Paulus of Aegina (*fl. c.* 640 AD) has clearly borrowed the recipe and its formulation from Oribasius. However, it is not certain whether Oribasius borrowed from the Hippocratic Corpus, or even from a compendium including Hippocratic recipes. The use of an unguent composed of oak gall and honey—two readily available and cheap ingredients—may have been widespread for the cure of whitlow. The combination oak gall and honey appears in recipes for emollient unguents transmitted in the Galenic Corpus, as in the following example: Πρὸς νεμομένας ἄφθας. Κηκίδων ἀφέψημα εἰς ἴσον μέλιτι μίξας καὶ ἀναζέσας χρῶ. (Against spreading thrush: mix a decoction of oak galls to the same amount of honey; boil, use.)[44]

By implying that Oribasius had quoted Hippocrates, Ieraci Bio forgets that behind each written recipe there is some actual therapeutic knowledge that can be transmitted either by writing or orally. This recipe against whitlow may have been transmitted orally and written down at different times in history in similar ways—there is not an infinity of ways in which a two-ingredient recipe can be formulated.

The similarities, both in theoretical exposition and in practical recommendations, between Metrodora's treatise (first century AD?)[45] and

[44] Galen, *De Remediis Parabilibus* 1.8 (14.363.3–4 K.).

[45] For this date, see Deichgräber (1932); Nutton (1995) 49. For a date in the Byzantine period, see Congourdeau (1993); Kousis (1945); Rubio Gómez (1996); Touwaide (2000).

the Hippocratic gynaecological treatises pose a more complex problem. There are examples of recipes prescribed by 'Metrodora' that bear some similarity to Hippocratic recipes, although they are never formulated in exactly the same words, and often present small variations in ingredients.

For instance, Metrodora recommends two pessaries against inflammation of the mouth of the womb: one made with milk of a woman who has borne a male child and rose perfume, another composed of the yolk of an egg and rose perfume:

> Λαβὼν γυναικὸς ἀρρενοτόκου γάλα καὶ μύρον ῥόδινον, ἴσα ἅμα ἀνακόψας καὶ θερμάνας, ἐν πεσσῷ ἀναλαβὼν πρόσθε<ς> ἐν τῷ στόματι τῆς ὑστέρας ἢ ᾠοῦ τὸ πυρρὸν λειώσας μετὰ ῥοδίνου ἐν πεσσῷ ἀναλαβὼν ἐπίθες.[46]
>
> Take the milk of a woman who has borne a male child and rose perfume; chop together the same amount of each, heat, take up into a pessary and apply to the mouth of the womb. Or crush the yolk of an egg with rose <oil>, take up into a pessary and apply.

Similar emollient recipes for the hardened mouth of the womb are found at *Diseases of Women* 2.158:

> Ἢν δὲ μὴ ἐσδέχηται τὸ στόμα τῶν ὑστερέων τὴν γονήν, ἀλλὰ στειρῶδες ᾖ καὶ ξυμμεμύκῃ… Ἢ ἐκλέψας κόκκους πεντεκαίδεκα, ἔστω δὲ καὶ Ἰνδικοῦ ποσόν, ἢν δοκέῃ δεῖν, ἐν γαλάκτι δὲ γυναικὸς κουροτρόφου τρίβειν, καὶ παραμίσγειν ἐλάφου μυελὸν καὶ τἆλλα ὁκόσα εἴρηται, καὶ μέλιτι ὀλίγῳ μίσγειν· τὸ δὲ εἴριον μαλθακὸν καθαρὸν ἔστω, καὶ προστίθεσθαι τὴν ἡμέρην· ἢν δὲ βούλῃ ἰσχυρότερον ποιέειν, σμύρνης σμικρόν τι παραμίσγειν· ἄριστον δὲ ᾠοῦ τὸ πυρρὸν καὶ αἰγὸς στέαρ καὶ μέλι καὶ ἔλαιον ῥόδινον, τουτέοισιν ἀναφυρῆν, παραχλιαίνειν δὲ παρὰ τὸ πῦρ καὶ τὸ ἀποστάζον εἰρίῳ ξυλλέγειν καὶ προστιθέναι.[47]
>
> If the mouth of the womb does not take up semen, but is hard and closed… Or peel fifteen <Cnidian?> berries, let there also be, if it seems necessary, a portion of Indian <grains>; crush in the milk of a woman who has borne a male child, and mix with deer marrow and all the other <ingredients> that have been listed, add a little honey. Let the wool be soft and clean, and apply for the day. If you want to make it stronger, add a little myrrh. What is best: yolk of an egg, goat suet, honey, rose oil; mix these, warm slightly over a fire, and collect the drops onto wool; apply.

The recipes listed by Metrodora appear to be simplified versions of our Hippocratic recipes: they contain fewer ingredients and do not give

[46] Metrodora 4 (51.12–16 Kousis).
[47] *Mul.* 2.158 (8.334.17–18 and 336.7–15 L.).

detailed rules of procedures. In addition, there is a difference of vocabulary: the first Hippocratic recipe uses the words γαλάκτι γυναικὸς κουροτρόφου, whereas the equivalent recipe in Metrodora's collection talks about γυναικὸς ἀρρενοτόκου γάλα. Maybe 'Metrodora' was here replacing a rare expression by a more familiar one.

Examples of similarities between Metrodora's treatise and the Hippocratic gynaecological writings could be multiplied. However, since Metrodora does not mention the name of Hippocrates, or any other name, it is unclear whether s/he consulted written collections of recipes that were explicitly attributed to Hippocrates; read catalogues of recipes that had been influenced by Hippocratic material, but that were circulated anonymously; or wrote down gynaecological pharmacological knowledge that was transmitted orally, without being aware of the fact that this oral tradition had once been influenced by the Hippocratic writings. In any case, Metrodora's treatise testifies to the continuing success of the gynaecological recipes: several centuries after being included in *Diseases of Women*, these prescriptions could still form part of a gynaecological treatise. We are faced with a tradition, the strength of which was not exclusively linked to the authority of Hippocrates, the founder of medicine. My argument can be strengthened by a study of the late-antique Latin translations or adaptations of *Diseases of Women* I and II: whereas the translation of *Diseases of Women* I was strongly linked to the authority of Hippocrates, some copies of the Latin adaptation of *Diseases of Women* II circulated without any reference to the founder of medicine.

Latin translations of the Hippocratic gynaecological recipes

Diseases of Women I and II were among the eight Hippocratic treatises translated into Latin in late antiquity, the six others being *Airs, Waters and Places; Sevens; Prognostic; Regimen* I and II; and *Aphorisms*.[48] Innocenzo Mazzini pointed out a series of similarities shared by these translations: 1) morphological similarities: oscillation in the gender and in the declension of nouns and in the conjugation of verbs; 2) syntactical similarities: variation in the use of prepositions and conjunctions, and extended use of the accusative; 3) lexical similarities: use of Greek

[48] See Kibre (1985) for a repertory of Hippocratic texts in Latin.

and Latin lexical forms typical of late antiquity, and particularly of the fifth and sixth centuries AD; and 4) similarities in the techniques of translation: the translators generally translate the Greek literally, but at times they take liberties with their Greek model, adding, removing, or modifying the material.[49]

Mazzini suggested that these eight translations were produced in Ravenna in the sixth century AD. He advanced two arguments in favour of this hypothesis. First, Manuscript Milan, Biblioteca Ambrosiana, G 108 inf. (end of ninth century AD), which includes translations of the Hippocratic treatises *Prognostics, Airs Waters and Places*, and *Weeks*, also contains Latin commentaries on four Galenic texts (*Sects for Beginners; Medical Art; Pulses for Beginners; Method of Healing for Glaucon*) that can be attributed to Ravenna.[50] Indeed, the explicits to three of these commentaries specify that the physician Simplicius wrote them down, following the lectures of the iatrosophist Agnellus, active in Ravenna.[51] Second, Mazzini argues that there are linguistic correspondences between the Latin translations of the Hippocratic treatises and the Latin translations of Oribasius, which were produced in Ravenna in late antiquity—the translator of Oribasius reveals that he worked at Ravenna.[52] Mazzini concluded that the eight late-antique Latin translations of Hippocratic treatises were made in Ravenna by bilingual translators, experts in medicine, working for the medical school located in that city.[53]

Mazzini may have exaggerated the characteristics shared by these Latin late-antique translations, however. Manuel Enrique Vázquez Buján showed that the Latin translations of two Hippocratic texts—*Diseases of Women* I and the gynaecological sections of the *Aphorisms*—used different vocabulary to translate technical terms.[54] These variations in vocabulary, he argued, could be interpreted either as personal differences

[49] Mazzini (1985) 66–68.

[50] See Beccaria (1956) 288–291 for a description of this manuscript.

[51] Milan, Biblioteca Ambrosiana, G 108 inf., fol. 48r, 91r, 114r. See Ihm (2002) 55–59 for details and bibliography on Agnellus.

[52] See Mazzini in Mazzini and Palmieri (1991) 292. For examples showing that the translator of Oribasius worked in Ravenna, see Mørland (1932) 191–192.

[53] Mazzini (1985) 68–70. See also Mazzini and Flammini (1983) 45–46. On the medical school of Ravenna, see Mazzini and Palmieri (1991); Palmieri (1994).

[54] Vázquez Buján (1984). It should be noted that Vázquez Buján is aware of differences in technical vocabulary in the original Greek (for instance both τὰ ἐπιμηνία and τὰ καταμηνία, the menses, appear in the *Mul.* whereas only τὰ ἐπιμηνία appears in *Aph.*).

between translators belonging to the same 'team' (based in the same place), or as differences in the geographical and/or chronological origin of the translations. Vázquez Buján further suggested that some of the late-antique translations of Hippocratic treatises could have been produced in North Africa, a region where a series of Latin authors exploiting and/or translating Greek medical treatises were active at the end of the fourth, beginning of the fifth century AD: Vindicianus (second half of the fourth century), Theodorus Priscianus (fourth or fifth century), Caelius Aurelianus (*fl. c.* 420), and Cassius Felix (*fl.* 447).[55] Mustio is also generally assumed to be an African, writing in the sixth century AD, although there is no evidence to support this assumption.[56] Since four of these authors (Vindicianus, Theodorus Priscianus, Caelius Aurelianus, and Mustio) composed gynaecological or embryological writings, North Africa seems a likely candidate for the location of the production of Latin translations of Hippocratic gynaecological texts.[57] However, the African medical treatises tend to contain fewer Graecisms than the translations of the Hippocratic treatises. I will not attempt to solve the question of the geographical origin of the Latin translations of the Hippocratic gynaecological texts, but it is worth stressing that these two translations may have originated in different places.[58]

In the following pages, I examine the recipes within the Latin translations of *Diseases of Women* I and II. Each of these translations will be studied separately in order to stress their differences.

The Latin translation of Diseases of Women *I*

A partial translation of *Diseases of Women* I is known through two early manuscripts: Paris, Bibliothèque Nationale, lat. 11219 (*P*) and Petersburg, Public Library, F.v.VI 3 (*L*).[59]

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[55] Vázquez Buján (1986) 60. See also Opsomer (1989) xxxv.

[56] See Hanson and Green (1994) 1046.

[57] The third book of Theodorus Priscianus' *Euporista* is devoted to gynaecology; Caelius Aurelianus composed a *Gynaecia* based on Soranus' gynaecological writings; Mustio's *Gynaecia* is also based on Soranus' *Gynaecology*; Vindicianus' *Genecia* is not dealing with women's diseases but with theories of generation and embryology. On gynaecological works produced in North Africa, see Green (1985) 134–140; Hanson and Green (1994) 1041–1061.

[58] Monica Green (2001) 15 also mentions both Italy and North Africa as possible centres of translation. However, Green (1985) 142–149 follows Mazzini in attributing the Latin translations of the Hippocratic gynaecological treatises to Ravenna, while Green (2000) 15 suggests North Africa as a place of translation for *Diseases of Women* I.

[59] This translation has known two recent editions: Mazzini and Flammini (1983)

L was produced at the end of the eighth century or the beginning of the ninth century in France, probably at the monastery of Corbie.[60] It contains ten medical texts, including six anonymous gynaecological works.[61] The first gynaecological text is a fragment of the Latin translation of *Diseases of Women* I, corresponding to the end of chapter 10, chapter 11, and the first sentence of chapter 12 of our Greek text (fols. 8ra–8vb). This text is followed by another gynaecological treatise entitled *De Diversis Causis Mulierum*, which contains Hippocratic material (fols. 9ra–25vb).[62] Finally, *L* includes a text entitled *De Muliebria* (fols. 32ra–37vb), also present in *P*, where it is attributed to Actius Iustus.

Paris, Bibliothèque Nationale, lat. 11219 was produced in the ninth century in western France, probably at St. Denis. It contains forty-one different medical texts.[63] The gynaecological section of this manuscript contains a fragment attributed to a certain Actius Iustus (fols. 210ra–211vb) and a Latin translation of *Diseases of Women* I, corresponding to chapters 1 and 7–38 of our Greek text (fols. 212ra–221rb). This translation is preceded by a letter 'from Hippocrates to Maecenas' listing three branches of medicine (the study of conception; the study of the internal organs; the study of the human 'substance');[64] and is introduced by a prologue stressing the role of Hippocrates in the field of gynaecology:

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and Vázquez Buján (1986). Grensemann (1982) 48–55 gives a transcription of the text of MS *P*; Walter (1935) and Egert (1936) reproduce the text of MS *L*.

[60] See Beccaria (1956) 399–402 for a description of the manuscript. The manuscript was in St.-Germain-des-Prés before being brought to Russia in 1791. At St.-Germain, the manuscript was bound together with a collection of hagiographies (now MS Petersburg, Public Library, F.v.I.12) that was transferred to St.-Germain from Corbie in 1638. Although our manuscript is not listed in the inventory of the Corbie library, it may well have been produced in that abbey. MS *L* is not listed in Ganz (1990); on MS Petersburg, Public Library, F.v.I.12, see Ganz (1990) 135 and 155.

[61] On the medical texts of this manuscript, see Brütsch (1922); Diepgen (1933); Egert (1936). Brütsch edits the text of *De Diversis Causis Mulierum*; Egert edits the text of *Liber de Causas* (*sic*) *Feminarum; Liber de Muliebria Causa; Liber de Muliebria*.

[62] See below for more detail on this text.

[63] See Beccaria (1956) 166–173; Vázquez Buján (1986) 63–82; Wickersheimer (1966) 112–123 for a description of the manuscript. Glosses in Old German indicate that the manuscript was in German territory in the eleventh and thirteenth centuries.

[64] This text is transcribed by Beccaria (1959) 38. Beccaria (1959) 39 believes the translation of *Diseases of Women* I is the first part of the programme set out in the letter to Maecenas. Following Beccaria, Mazzini and Flammini (1983) 9 have given the title *De Conceptu* to this translation. Vázquez Buján (1982), however, believes the transmission of this letter is independent of the transmission of the translation. I have therefore chosen not to give a Latin title to the translation of *Diseases of Women* I.

> Prologue. Herald of truth and master who does not lie, as if made out of the seed of the gods, unique in the world, Ippogrates <sc. Hippocrates> illuminated the art of medicine and provided good health to the human race. Not only did he surpass Asclipeus <sc. Asclepius>, Sustratus <sc. Sostratus>, his grandfather Ysocrates <sc. Hippocrates>, his father Araclides <sc. Heracleides>, and many others, but he also provided human good health to the female race, and talked about their cures because of women's weakness.[65]

In this prologue, Hippocrates appears as a legendary character, not only founder of the discipline, but also almost divine.

Manuscripts *P* and *L* are independent; neither seems to be a copy of the other.[66] In addition, Mazzini and Hanson concluded that the Greek manuscript used by the translator could not be identified with any of the three known branches of the Greek manuscript tradition for *Diseases of Women* I.[67] According to Hanson, this translation testifies to a state of the text preceding the division of the *stemma* into its branches Θ, M, and V.

The early date of these two Latin manuscripts serves as a *terminus ante quem* for the production of the Latin translation of *Diseases of Women* I. It may be suggested that a complete Latin translation of *Diseases of Women* I once existed, from which the translation we know was excerpted, and perhaps reworked.[68]

The order of the chapters in the Latin translation of *Diseases of Women* I is the same as in our Greek text.[69] The chapters of the translation that are preserved, like the original Greek, contain relatively few recipes. The Latin recipes against tumours of the womb, corresponding to the end of our Greek *Diseases of Women* 1.34, will serve as an example to illustrate the translation technique employed:[70]

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[65] Mazzini and Flammini (1983) 53.1–7.

[66] Mazzini and Flammini (1983) 47; Vázquez Buján (1986) 91–99.

[67] Hanson (1971) 152 considers the three main manuscripts; Mazzini in Mazzini and Flammini (1983) 42 considers only Θ and M.

[68] See Vázquez Buján (1986) 51.

[69] For a table of correspondence, see Mazzini and Flammini (1983) 49.

[70] For ease of reference, I shall refer to these series as Series G and Series L respectively.

G = *Diseases of Women* 1.34 (8.80.20–82.12 L.)	L = *De mulierum affectibus* (Mazzini and Flammini [1983] 73.566–583 with small modifications)
Ἄσσα δὲ οἰδήματα γίνεται ὑστερικὰ ἐν τόκῳ ἢ ἐκ τόκου, οὐ χρὴ στύφειν, οἷα οἱ ἰητροὶ ποιέουσιν·	*Si tumores fiant in matrices tempore partus, in gemitu aut post gemitum, non debemus stipti<ri>as uti, quibus et alteri medici utuntur.*
When swellings of the womb occur, during birth or after birth, do not use astringents as doctors do.	If swellings occur in the womb at the time of childbirth, in labour or after labour, we must not use astringents, which other doctors use.
1. Φάρμακα δὲ τάδε ἄριστα προσφέρειν, κύμινον Αἰθιοπικόν, ὅσον τοῖσι τρισὶ δακτύλοισι, καὶ τοῦ ἀννήσου, καί τοῦ σεσέλιος πέντε ἢ ἕξ, γλυκυσίδης χηραμύδος ἥμισυ τῆς ῥίζης, ἢ καὶ τοῦ σπέρματος, ταῦτα ἐν οἴνῳ λευκῷ ἡδυόδμῳ μάλιστα νήστει διδόναι.	1. *Farmaca autem utilia sunt haec, ciminum Etyopicum, quantum potest tribus complectere digitis, et anisum et apium et siseleos quinque aut sex, gligesidis parte media, herba est quam alii pionia dicunt, et in uinum album qui praeterea bene olidus est ieiune potui dabis.*
But you must administer these excellent remedies: Ethiopian cumin, as much as a pinch, anise and five or six <pinches> of hartwort, half a *cheramys* of the root of peony (or of the seed); give these in sweet-smelling white wine, above all whilst fasting.	On the other hand, these remedies are useful: Ethiopian cumin, as much as a pinch, anise, parsley, and five or six <pinches> of hartwort, half of this amount of peony (*gligesidis*)—the herb which others call *pionia*—you will give this to drink in white wine, which is above all sweet-smelling, whilst she is fasting.

Table (*cont.*)

G = *Diseases of Women* 1.34 (8.80.20–82.12 L.)	L = *De mulierum affectibus* (Mazzini and Flammini [1983] 73.566–583 with small modifications)
2. Ἢ δαύκου ῥίζην Αἰθιοπικοῦ, σέσελι, γλυκυσίδης ῥίζην τὸν αὐτὸν τρόπον·	2. *Uel radices dauci uel anetum et siseleos et radicem gligesides <ad> similitudinem, sicut superius dictum est, facis et dabis in poto.*
Or the seed of Ethiopian *daukos*, hartwort, root of peony the same way.	Or the roots of *daucus* or dill, <the root> of hartwort, and the root of peony; you will prepare <these> in the same way, as indicated above, and give <them> in a drink.
3. Ἢ ἱπποσελίνου καὶ δαύκου Αἰθιοπικοῦ καρπὸν ὡσαύτως·	3. *Aliud †et petroselino† <semen> dauci, id est sementia pastenaci, et ciminum Etyopicum dabis in uino potui, quantum oboli quattuor Attici.*
Or the seed of alexanders and Ethiopian *daukos* in the same way;	Another you will give †rock-parsley†, <seed> of *daucus* (that is the seed of parsnip), Ethiopian cumin in a drink of wine, in the amount of four Attic *oboli*.
	<semen>: addit Totelin
4. Ἢ κρήθμου ῥίζαν, ἢ κυμίνου Αἰθιοποκοῦ Ἀττικὸν τετρώβολον, ἢ πέπερι, ἄννησον, δαῦκος, ἀκτέα, γλυκυσίδης ῥίζα· ταῦτα ἐν οἴνῳ τρίβειν καὶ διδόναι πίνειν.	4. *Uel piper, anisum, daucum, gligesidis radices, haec omnia in uino potui dabis.*
Or the root of samphire, or four Attic *oboloi* of Ethiopian cumin, or pepper, anise, *daukos*, elderberry, root of peony; crush these in wine and give to drink.	Or pepper, anise, *daucus*, roots of peony; you will give all these in a drink of wine.
	anisum Totelin: anisu Mazzini et Flammini

Table (*cont.*)

G = *Diseases of Women* 1.34 (8.80.20–82.12 L.)	L = *De mulierum affectibus* (Mazzini and Flammini [1983] 73.566–583 with small modifications)
5. Ἢ μυρτιδάνου κλωνία δύο ἢ τρία, καὶ κύμινον Αἰθιοπικόν, γλυκυσίδης ῥίζην, ἢ λίνου σπέρμα ὁμοίως, ὃ καὶ τὰ παιδία βήσσοντα ψωμίζουσι ξὺν ᾠῷ ὀπτῷ λεκίθῳ, ξὺν σησάμῳ πεφρυγμένῳ.	5. *Aliud: myrtae ramusculus duo uel tria, ciminum Etyopicum, gligesidis radices, semen de lino dabis similiter in uino bibere.*
Or two or three twigs of myrtle, Ethiopian cumin, root of peony, or linseed similarly, which coughing children take by mouth with the yolk of a cooked egg and with roasted sesame.	Another: two or three twigs of myrtle, Ethiopian cumin, roots of peony, linseed; you will give <these> to drink similarly in wine.
6. Ἢν παιδοῦσα ἀφθᾷ τὰ αἰδοῖα, ἀμύγδαλα τρίψας καὶ βοὸς μυελὸν ἐν ὕδατι ἑψεῖν, καὶ ἅλητον ἐμβαλὼν σμικρόν, διαχρίειν τὰ αἰδοῖα, καὶ διακλὺζειν τῷ ὕδατι τῷ ἀπὸ τῶν μύρτων.	6. *Nam si infans tussit, sisamum frixtum dabis et cum amigdolas tritas et medulla et bubula cocta dabis cum modicum salis et perungues palatum eius et de labiis eius terge murt<e>a.*
If a woman giving birth develops thrush in her vagina, crush almonds and bull marrow, boil in water, add a little flour; smear over the genitals and inject with water of myrtles.	If a child coughs, you will give roasted sesame with crushed almonds, marrow and boiled ox tongue; you will give these with a little salt and you will anoint his palate and cleanse his lips with myrtle decoction.

Two glosses are given to explain Greek botanical terminology: L1 explains that *gligesidis* (peony) is sometimes called *pionia*; L3 specifies that <*semen*> *dauci* is the equivalent of *sementia pastenaci* (seed of parsnip). These two glosses seem to indicate that the translation was made for use by practitioners. They also show that the translator (or a commentator) had knowledge of plant names in both Greek and

Latin. Such glosses were common in late antiquity, as is testified by the Vienna Dioscorides (AD 512), which gives the names of plants in various languages, not only Latin and Greek.[71]

However, this knowledge has its limits: it should be noted that the plant recommended in Greek is not *daukos* (probably *Daucus carota* L.), but Ethiopian *daukos*, which is likely to have been a different plant (*Bupleurum fruticosum* L.).

Other Greek words are neither translated nor glossed. The phrase 'Attic obol' (L3) is not explained; and one may wonder whether late-antique readers were familiar with this weight. The translator also uses the Greek genitive *siseleos*, instead of the Latin form *seselis*. The use of Graecisms is one of the most prominent characteristics of this translation of *Diseases of Women* I.[72] Again, this knowledge of Greek is not perfect: it seems that the translator did not know the meaning of the rare word χηραμύς (G1: a scallop shell used as a measure), which is not translated into Latin.

In three cases, the Latin recipes have more ingredients than the Greek recipes: L1 adds parsley (*apium*); L2 adds dill (*anetum*); and L6 adds ox tongue (*bubula*). It is impossible to determine whether these ingredients were listed in the Greek recipes at any point of their textual transmission. In any case, these ingredients would have been readily available in most parts of medieval Europe.

On the other hand, L5 does not have the egg yolk which is present in G5. Finally, L6 replaces 'flour' (ἄλητον) with 'a little salt' (*modicum salis*); again, both these ingredients would have been common enough in late antiquity or the early Middle Ages. It should be noted that the word for 'salt' in Greek (ὁ ἅλς) could be confused by a copyist with an abbreviated form of ἄλητον.

In two cases, the boundaries between recipes are different in the Greek and in the Latin text. The boundary between G3 and G4 has shifted in the Latin translation, which, in addition, does not include two ingredients listed in G4 (κρήθμου ῥίζαν and ἀκτέα). In the case of the first ingredient (κρήθμου ῥίζαν), the Latin text seems to be corrupted, and no firm conclusion can therefore be drawn. On the other hand, the second ingredient (ἀκτέα) seems to not to have been present in the translator's Greek text, or forgotten by this translator, or lost at some point of the transmission of the Latin text.

[71] See p. 230 for more detail on this famous manuscript.
[72] See Mazzini and Flammini (1983) 21–22 for other examples.

The boundary between G5 and G6 has also shifted in the Latin translation, which diverges entirely from our Greek text. G5 is a recipe against tumours forming in the womb during childbirth, but it also includes an 'excursus': a recipe against children's cough, including linseed, egg and roasted sesame. G6 is a remedy against thrush occurring during labour. The Latin has a recipe against tumours in the womb (L5) and a recipe against children's cough (L6), but no recipe against thrush. The last sentence of the Greek text, which reads "smear over the genitals and inject with water of myrtles", is translated in Latin as "you will anoint his palate <sc. the child's> and cleanse his lips with myrtle decoction".[73] This appears to be an attempt at creative composition in order to make sense of a corrupted text. It is however impossible to tell whether this transformation of the original text was already in the Greek text used for the translation or whether it was added in the Latin.

Such shifts in boundaries should not surprise too much: as pointed out in Chapter Six, in a world of hand-copied texts, indicating where one recipe or one gnomic sentence ended and another started could be difficult. A papyrus from a private collection in Vienna, dated to the first century BC, articulates Hippocratic aphorisms in a different manner from our modern editions.[74] Interestingly, the text is articulated as Galen recommends in his commentary to *Epidemics* II, but this was not the text Galen used for his *lemmata*. The text Galen relied upon for his *lemmata* is likely to have been the Hadrianic edition of Artemidorus Capito, an edition which the physician of Pergamum often criticises, but which is, seemingly, often followed by our medieval manuscripts.[75] Similarly, the articulations between recipes found in the Latin translation of *Diseases of Women* I could testify to a different textual tradition from that known to us.

As noted earlier, the two manuscripts preserving the Latin translation of *Diseaes of Women* I are very early. This may be due to the fact that gynaecological texts, such as that of Mustio, were preferred in the Latin West to Hippocratic texts.[76] However, I would also suggest that the use of Graecisms in the Latin translation of *Diseases of Women* I

[73] Vázquez Buján (1986) 120, l. 540–541 has *perunges palatum eius et delauabis succis de murta* (you will anoint his palate, and cleanse him with myrtle decoction).

[74] See Hanson and Gagos (1997). The papyrus is referred to as *P. Fackelmann* 4 (= MP³ 537.1). It contains what corresponds to our *Epid*. 2.6.7–22 (82–86 Smith; 5.134–136 L.).

[75] See Hanson and Gagos (1997) 132–133. For Galen's criticism of Artemidorus Capito, see Hanson (1998b) 44–46.

[76] See Green (2001) 14.

limited the audience for this text, hence its distribution. With the regression of Greek knowledge in western Europe, such translation would have lost its appeal: it might not be a coincidence that the two known manuscripts for this text were copied so early in the Middle Ages. In comparison, the adapation of the adapation of *Diseases of Women* II, which contains far fewer Graecisms, fared better.

The Latin adaptation of Diseases of Women *II (De Diversis Causis Mulierum)*

A Latin text, entitled *De Diversis Causis Mulierum*, including Hippocratic gynaecological material from *Diseases of Women* II, is found in two medieval manuscripts: Petersburg, Public Library, F.v.VI 3 (*L*) and London, British Library, Sloane 475 (*S*). In addition, portions of this text are also found in manuscripts Vicenza, Bibliotheca Civica Bertoliana, 287 and London, British Library, Harley 4977.

In 1922, Walter Brütsch published a transcription of the text found in manuscript *L* (fols. 9ra–25vb), failing to notice that it included material of a Hippocratic nature. This was discovered independently by Paul Diepgen (1933) and G. Walter (1935). Diepgen noted the correspondence between chapters 31–35 of the Latin text and chapters 127–131 of *Diseases of Women* II, and Mazzini enlarged this list of correspondences.[77] I believe Mazzini's list can be increased further, and that from chapter 21 of *De Diversis Causis Mulierum*, the material is Hippocratic, although I have not been able to determine a correspondence for each Latin chapter. This is mainly because the Latin does not follow the order of our Greek *Diseases of Women* II, and at times merges chapters separated in our Greek text. Identification of parallels between *Diseases of Women* II and *De Diversis Causis Mulierum* is made possible (and relatively easy) with the help of computers. However, the ancient reader was most probably completely unaware that this text contained Hippocratic material. In my opinion, it would be more correct to see *De Diversis Causis Mulierum* as an adaptation of the Hippocratic *Diseases of Women* II, rather than a translation *stricto sensu*.[78] It should be noted

[77] Diepgen (1933) 228–229; Mazzini in Mazzini and Flammini (1983) 10–11.

[78] See King (1998) 237. It should be noted that three other texts preserved in MS *L* (*Liber de causis feminarum; Liber de muliebria causa; Liber de muliebria*) might also be derived from *Mul.* II. The links between these texts and the Hippocratic tradition require more study. I would be reluctant to argue, as Monica Green did, (2000) 15,

that this adaptation includes, at chapter 54, a reference to Oribasius (Uribasius). This additional material may have been transmitted together with a Greek version of *Diseases of Women* II, added by the translator himself, or later added to the Latin translation.

The text of *De Diversis Causis Mulierum* is also found in the medical manuscript London, British Library, Sloane 475 (fols. 166r–209r). This manuscript is constituted of two parts: the first (fols. 1–124) dates from the twelfth century AD; the second (fols. 125–231, which includes our text) is from the eleventh century, and is written in several hands. The two parts were probably produced in the British Isles; the recipes in French added in the fourteenth century are not sufficient to contest this attribution (fols. 209–210v).[79] The second part of Manuscript *S* is one of the earliest medical British manuscripts in Latin. The diffusion of Latin medical texts in the British Isles during the eleventh century could be linked to an influx of people who knew Latin.[80] Contrary to their predecessors, these people referred to ancient authorities (mostly to Galen) in their manuscripts; *S* includes a recipe attributed to Hippocrates (fols. 131v–132r): *hec est purgatio Ypocratis*.[81]

The differences between manuscripts *L* and *S* are generally insignificant orthographical variations. *L* may either have served as a model for the gynaecological section of *S*, or the former manuscript could be the ancestor of the latter, the intermediary copy or copies being lost. In both manuscripts, the text is introduced by a table of contents listing 94 items.

In addition, a text entitled *Ad Offocationem uel Stranguriam Mulieris*, found in manuscript Vicenza, Bibliotheca Civica Bertoliana, 287 (fols. 146r–150v), has passages in common with *De Diversis Causis Mulierum*.[82] This manuscript dates from the first half of the thirteenth century, may be Italian in origin, and contains several other gynaecological texts,

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that *Diseases of Women* II was translated at least twice. See also Green (2000) 18; King (1998) 241.

[79] For a description of the manuscript, see Beccaria (1956) 255–259; Hunt (1990) 82; Liuzza (2001) 225–227. Beccaria (1956) 258; Beccaria (1959) 43; Hanson (1975) 569; and Kibre (1985) 188 have noted the fact that Manuscripts *S* and *L*. contain the same text, although the text ends earlier in MS *S*. Green (2000) 11 believes the manuscript comes from Brittany.

[80] See Banham (2006).

[81] This attribution to Hippocrates is most probably a fantasy: no parallel could be found for this recipe in our Hippocratic treatises.

[82] See Green (2000) 3.

including the *Epistula Hippocratis de Virginibus* (fols. 141v–142v).[83] Finally, London, British Library, Harley 4977, a French manuscript of the twelfth century, contains on its last folio (fol. 120v) a fragment of the table of contents of *De Diversis Causis Mulierum*.[84] This table of contents is directly preceded by a version of the *Epistula de Virginibus*, transmitted under the title *Epistula Emogratis* (*sic*).[85]

De Diversis Causis Mulierum is a collection of recipes in which very little space is devoted to descriptions of diseases. Some of the recipes of *De Diversis Causis Mulierum* are word-to-word translations of Hippocratic material, as in the following example:[86]

Diseases of Women 2.135 (8.306.17–20 L.)	*De Diversis Causis Mulierum* 36 (my own edition)
Κανθαρίδας τέσσαρας, ἀπτέρους καὶ ἄποδας καὶ ἄτερ κεφαλῆς, καὶ γλυκυσίδης κόκκους πέντε τοὺς μέλανας καὶ σηπίης ᾠά, καὶ σελίνου σπέρμα ὀλίγον ἐν οἴνῳ διδόναι πίνειν.	*Postea cantarides IIII sine pedibus, pinnis et caput et glicisidis grana V et oua sepie, appie modice, haec omnia dabis in uino bibere.* Pedibus *S*: pedes *L* ¦¦ caput *S*: capud *L* ¦¦ sepie *S*: sebie *L*
Four cantharides, without wings, legs and head, and five black seeds of peony, eggs of cuttlefish and a little seed of celery; give to drink in wine.	Afterwards, four cantharides without legs, wings and head, and five grains of peony, eggs of cuttlefish, a little celery; you will give all these to drink in wine.

There is only one slight difference between these two versions: the Greek text specifies that the seeds of peony should be black, whereas the Latin is silent on the colour of the grains.

[83] The *Epistula* is edited by Fischer (2004). I wish to thank Professor Fischer for discussing the transmission of *De Diversis Causis Mulierum* with me.

[84] For a description of this manuscript, see http://www.bl.uk/catalogues/manuscripts/HITS0001.ASP?VPath=html/74825.htm&Search=Harley.+4977&Highlight=F.

[85] See Fischer (2004) 219–220.

[86] For more details on this recipe and its parallel at *Nat. Mul.* 8, see pp. 38 and 255.

At times, our Latin text differs more strongly from our Greek, as in the following example: [87]

DW = *Diseases of Women* 2.187 and 188 (8.368.6–16 L.)	DCM = *De Diversis Causis Mulierum* 51
1. (2.187) Ἐπὴν γυναικὶ ἐν τῷ αἰδοίῳ ἢ ἐν τῷ ἀρχῷ ἀσκαρίδες γένωνται, λύγου καρπὸς μίσγεται ἢ φύλλα, καὶ βοὸς χολὴ παραμίσγεται ὅσον ὀβολός· κεδρίνῳ δὲ ἐλαίῳ φυρῆν, καὶ εἰρίῳ πινόεντι εὐειροτάτῳ ἀναλαβεῖν· ἐντιθέσθω δὲ διὰ τρίτης νύκτα καὶ ἡμέρην, τῇ δὲ ὑστεραίῃ ἀφελομένη λουέσθω θερμῷ, καὶ σκόροδα ἐφθὰ καὶ ὠμὰ ἐσθιέτω, καὶ αἱ ἀσκαρίδες ἐξίασι καὶ θνήσκουσιν· ἅλμῃ δὲ κλύζειν χρή.	1. *Ad mulierem, que intra uulua aut intestinis maioris lumbrici late nascuntur, quas greci ascaredas dicunt, et sunt formate, quasi semen cocurbitis. Utile est illis fructus tamaricis et fel taurinum ouolo 1 cummixto oleo cum lana supponere, et tertia die retolle. Postea lauacris utatur; alia cocta et cruda accipiant et mel calidum bibat; statim lumbrici procedunt mortui.*
When ascarides occur on the genitals or the anus of a woman, mix the seed or leaves of agnus castus, add bull bile, in the amount of an *obolos*; knead with cedar oil and take up in very fleecy greasy wool. Let it be introduced every three days, for a night and a day; the next day let her remove it and bathe in warm water, and let her eat cooked and raw garlic, and the ascarides come out and die. It is necessary to inject with brine.	For a woman, if worms appear extensively inside her womb or large intestines (these are called *ascerades* by the Greeks and have the shape almost of the seed of cucumber). The fruit of the tamarisk, and bull bile (one *obolus*), mixed with oil; apply with wool, and take away again on the third day. Then let her use baths. Let her take cooked and raw garlic and drink hot honey. Immediately the worms come out, dead.

[87] For ease of reference, I shall refer to these series as Series DW and Series DCM respectively.

Table (*cont.*)

DW = *Diseases of Women* 2.187 and 188 (8.368.6–16 L.)	DCM = *De Diversis Causis Mulierum* 51
2. (2.188) Πρόσωπον ἀγλαΐζει· ἦπαρ ταύρου, τρίβειν ξὺν ἐλαίῳ, ἀλείφειν δὲ ἐν ἀκρήτῳ οἴνῳ· χολὴ δὲ χλωροῦ φθείρει.	2. *Item epar piscis, qui dicitur saurus, teres cum oleo et unges; et fel ipsius faciem splendidam ostendit*.
Makes the face splendid: crush bull liver with oil; anoint in pure wine. Bile of fresh <liver> spoils <the face>.	Similarly, fish liver, which is called *saurus*; crush with oil and anoint. Its <sc. the fish> bile makes the face splendid.
3. Ἀλλὰ καὶ ὁ χυλὸς τῆς πτισάνης ὁμοίως λαμπρύνει, καὶ ὠῶν τὸ λευκόν, καὶ ἄλητον θέρμων καὶ ὀρόβων, καὶ σῦκον καταπλάσσειν.	3. *Item tesana, albumen ouorum, herbam et alfeta cum poma cataplasmabis, ut resanabitur*.
But the juice of barley gruel similarly makes <the face> bright; and apply egg whites, flour of lupines and bitter vetches, and fig.	Similarly, you will plaster barley gruel, egg whites, herb, and barley meal with fruit, so that it is healed again.
	1. Que *L*: cui *S* ¦¦ lumbrici *L*: lubrici *S* ¦¦ asceredas *L*: escaridas *S* ¦¦ cummixto *L*: cummisces *S* ¦¦ supponere *S*: subponere *L* ¦¦ lauacris *L*: lauacras *S* ¦¦ alia cocta et cruda *S*: alius coctus et crudus *L* ¦¦ 2. piscis *S*: ex pisce *L* ¦¦ faciem Totelin: facies *L*, facium *S* ¦¦ teres *S*: teris *L* ¦¦ 3. ouorum *S*: ouarum *L* ¦¦ herbam *S*: erbum *L* ¦¦

The Greek text has a recipe against ascarides (DW1), followed by two cosmetic recipes (DW2 and DW3); the Latin text has three recipes against ascarides—the Latin recipes are separated by the word *item* (similarly), which is generally used to separate recipes for the same purpose. DCM2 has substituted fish liver (*epar piscis*)—an ingredient

which does not appear anywhere in our Greek *Diseases of Women*—for bull liver. DCM2 tells us that fish liver is called *saurus*, a word which is not attested in Latin, but which seems to be a simple transliteration of the Greek word σαῦρος (lizard). However, lizard does not appear in the Hippocratic Corpus; the recipe examined recommends the liver of a bull (ἦπαρ ταύρου). Confusion occurred between the words ταῦρος and σαῦρος either in the Greek text used for the translation or at the moment of the translation. Finally, DCM2 indicates that fish bile can make the face beautiful, contradicting the Greek, which discourages the use of fresh bile on the face.

The text of *De Diversis Causis Mulierum* sometimes assembles recipes found at different places in the Greek manuscripts. For instance, in the chapter on the displacement of the womb to the liver, *De Diversis Causis Mulierum* lists four recipes:

> *Si matrix ad epar ascendit… Tunc dabis in uino castoreum et nucleum usque dies uiginta: caput uero non oportet ungere, neque per naris boni odoris aliquid detur. Item lilisfagum, lini semen, alfeta da eis ieiunis in potione cotillas IIII (1). Postea sambuci folia coquis in aqua et calida fomentabis (2). Item ordigo coquis in aqua et fomentabis (3), similiter oui uitello et oleo roseo a foris perungues (4).*[88]
>
> Castoreum *S*: castorio *L* ¦¦ nucleum *S*: nuclium *L* ¦¦ oportet *S*: oportit *L* ¦¦ boni *S*: bene *L* ¦¦ lilisfagum *S*: lilisfago *L* ¦¦ alfeta *L*: alfecta *S* ¦¦ coquis *S*: quoquis *L* ¦¦ uitello *S*: uitella *L*
>
> If the womb goes up to the liver… Then you will give her, in wine, castoreum and nut (?) until the twentieth day: it is important not to anoint the head, and that nothing sweet-smelling be given for her to smell. Similarly, sage, linseed, barley meal; give in a drink of four *cotillae*, whilst she is fasting. Then you will boil leaves of elder tree in water and make a warm fomentation. Likewise, you will boil barley in water and foment. Similarly, anoint the outside with bird egg and rose oil.

The Greek equivalent to the first Latin recipe is found at *Diseases of Women* 2.127, a chapter on the displacement of the womb to the liver;[89]

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[88] *DCM* 31.

[89] *Mul.* 2.127 (8.272.9 and 274.5–9 L.). Ἢν αἱ μῆτραι πρὸς τὸ ἦπαρ τραπῶσιν… Τὴν δὲ παρθένον πείθειν ξυνοικέειν ἀνδρί· πρὸς δὲ τὰς ῥίνας ἀείρειν <μηδὲν>, μηδὲ τὸ φάρμακον πίνειν, νῆστιν δὲ τὸν κάστορα καὶ κόνυζαν ἐν οἴνῳ ὡς εὐωδεστάτῳ πίνειν ἐς εἴκοσιν ἡμέρας, καὶ τὴν κεφαλὴν μὴ ἀλείφεσθαι εὐώδει, μηδ' ὀσφραίνεσθαι εὐωδέων. (If the womb turns itself towards the liver… You will advise the young girl to get married to a man. <Advise her> not to bring anything to the nostrils, not to drink any remedy, but to drink, whilst fasting, castoreum and fleabane in wine as sweet-smelling as possible, for twenty days, not to anoint her head with sweet-smelling perfume, and

the Greek equivalent to the second and third recipes are found at *Diseases of Women* 2.203, a list of recipes against displacement of the womb;[90] the final Latin recipe has no exact equivalent in our Greek text, although the combination of egg and rose oil appears in several Hippocratic recipes.

The compiler of *De Diversis Causis Mulierum* is not the same person as the Latin translator of *Diseases of Women* I. The former never gives botanical explanations or uses geographical epithets (e.g. Ethiopian or Egyptian) to qualify ingredients.[91] On the other hand, he explains technical terms such as ascarides (see above). The compiler of *DCM* also often indicates that he has tried a remedy, by means of formulae that are not used in the original Greek gynaecological recipes.[92]

But even though *De Diversis Causis Mulierum* and the translation of *Diseases of Women* I were not produced by the same person, they might have been produced in the same place, and could circulate together, as testified by Manuscript *L*. However, from at least the ninth century, these texts were also circulated separately: Manuscript *P* only includes the translation of *Diseases of Women* I, and Manuscript *S* only contains *De Diversis Causis Mulierum*. When these texts were separated, *De Diversis Causis Mulierum* lost all connection with Hippocrates and became an anonymous gynaecological text. Manuscript *S* testifies to the fact that the gynaecological recipes did not need the authority of Hippocrates to be successful.

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not to smell anything sweet-smelling.) The Latin replaces κόνυζαν with *nucleum*, which usually refers to nuts or fruit pips, not to fleabane (see André (1956) 220–221). *Nucleum* is also used as a translation of the Greek κόνυζα at *DCM* 54. See Diepgen (1933) 21.

[90] *Mul.* 2.203 (8.386.21 and 390.23–392.5 L.). Ὅταν δὲ μετακινηθεῖσαι θλίβωσιν αἱ ὑστέραι… καὶ τὸ λοιπὸν ἐλελίσφακον, καὶ λίνου σπέρμα, καὶ ἄλφιτον διδόναι δὶς τῆς ἡμέρης ἐν οἴνῳ κεκρημένῳ, κοτύλας τέσσαρας. Ἐλαίου ἡμικοτυλίου, ἀκτῆς φύλλα χεῖρα πλέην, ταῦτα ἑψεῖν, καὶ πυρίην θερμῷ ἢ ὀστράκοισι θερμοῖσιν, ἐπὶ δίφρου καθέζεσθαι, ἀμφικαλύπτειν δὲ εἵμασιν. Ἢ τῆς ἀκτῆς φύλλα ξὺν μυρσίνῃ ἑψεῖν, καὶ κριθέων ἄχυρα ἑψεῖν. (When, having moved, the womb causes pressure… And for the rest sage, linseed, and barley meal; give twice a day in mixed wine, in the amount of four *kotylai*. Half a *kotylê* of oil, the leaves of elder tree, a handful; boil these and use as a hot fomentation or with hot potsherds; let her seat herself on a seat and wrap herself with clothes. Or boil leaves of elder tree with myrtle, and boil barley chaff.)

[91] For instance, see *DCM* 26 where the word Αἰθιοπικόν (found in the original *Mul.* 2.192 [8.372.13 L.]) is not translated.

[92] See for instance *DCM* 34 (*expertum remedium est*); 65 (*probatum est*).

Conclusions

The 'Hippocratic' treatises that contain recipes were probably transmitted anonymously before being attributed to 'Hippocrates'. Nevertheless, once these recipes had been ascribed to the Master of Cos, they contributed to building the reputation of Hippocrates in the field of pharmacology; and in turn, the name of Hippocrates conferred authority on these recipes, thus contributing to their preservation. By the first century of the Common Era, Hippocrates was celebrated as the founder of the pharmacological discipline; the recipes bearing his name were considered worthy of being quoted, glossed, and re-used in medical practice. This authority of Hippocrates was not uncontested however: Celsus and Soranus both voiced their disagreement towards Hippocrates' remedies.

Even though the recipes were considered to be Hippocrates' invention, later medical authors felt free to modify these remedies to suit their needs. Ancient authors were perfectly able to quote recipes *verbatim*, and they did so on some occasions; for instance, Galen quoted *verbatim* a recipe he found in the Hippocratic *Regimen in Acute Diseases*. However, medical authors usually chose not to quote 'Hippocratic' recipes in this way; instead, they adapted them. They shortened the recipes, changed the quantities (or added quantities where they were not specified), and modified the grammar of the recipes. There always was a certain degree of fluidity in the transmission of the Hippocratic recipes: writing did not immediately fix them in an inexorable way. Latin translations of recipes, too, are rarely word-to-word translations: there always is a degree of adaptation, such as the addition of explicative glosses. In addition to these deliberate changes, the text of recipes could also become corrupted: a copyist could forget some of the ingredients, or substitute one word for another like-sounding word, thus altering the meaning of the recipe.

In the early Middle Ages, the authority of Hippocrates in the field of pharmacology had grown to such an extent, that it became common to attribute new pharmacological material to the Coan. For instance, we have seen that manuscript London, British Library, Sloane 475 contains a recipe entitled 'Hippocrates' purgation'; this recipe does not have an equivalent in any of our Hippocratic treatises and it was most probably invented well after the classical period. There are numerous examples of such recipes attributed to Hippocrates in medieval manuscripts that have no equivalent in our Greek texts. For instance, two of the earliest

medical manuscripts now extant (London, British Library, Harley 5792 [fols. 273r–277v], dated to the seventh or eight century; and Paris, Bibliothèque Nationale, lat. 11218 [fols. 42r–48v and 65r–98v], dated to the ninth century) contain a collection of recipes entitled 'The teachings of Hippocrates, Galen and Soranus'.[93] Finally, one of the illustrations to the thirteenth-century herbal manuscript, Cambridge, Trinity College, O.2.48 shows a crowned Hippocrates accompanied by his disciples (fol. 65). Hippocrates' name had the power to confer authority onto new and old pharmacological material alike.

However, the success of pharmacological recipes was not always linked to the name of Hippocrates or another important medical figure. 'Metrodora' had access to material that was very similar to our Hippocratic recipes, but does not ascribe it to anyone. In addition, texts that had once been attributed to Hippocrates could revert to their anonymous state; *De Diversis Causis Mulierum* does not once mention the name of Hippocrates.

[93] See Hanson and Green (1994) 1044.

CONCLUSIONS
THE FLUIDITY OF PHARMACOLOGICAL KNOWLEDGE

> He <sc. Hippocrates> left his fatherland, as Andreas says spitefully in *The Medical Genealogy*, because of his burning the archive on Cos.
> *Life of Hippocraates according to Soranus* 4 (175.16–18 Ilberg).

There circulated in antiquity a story whereby Hippocrates left his native Cos after having burnt the repositories of medical knowledge on the island. Beyond presenting Hippocrates as an ill-intentioned usurper, this story also accounts for a puzzling fact: there were no medical writings pre-dating the time of Hippocrates—the Coan must in some way be responsible for this absence. This tale may well be quite ancient: Andreas may be identified with the personal physician of Ptolemy Philopator, active at the end of the third century BC. If this identification is accepted, it implies that, by the third century, medical writers could not conceive of a past without writing, and that they were already wondering how Hippocrates had managed to write so many medical texts.

The relative lack of medical writings before the fifth century BC and the importance of Hippocrates' name in the transmission of medical treatises are as puzzling now as they were in the Hellenistic period. Were there medical texts written before the fifth century BC? Why did physicians start to use the written medium? What was the relation between the oral and the written word in the transmission of medical knowledge? Had the texts included in the 'Hippocratic Corpus' circulated under another authorial name before being attributed to Hippocrates? In this study, I have attempted to tackle these questions, taking the recipes found in the Hippocratic Corpus as a case in point.

The Hippocratic collections of recipes—more than 1500 recipes in total—are the most extensive written source for the study of pharmacology in the fifth and fourth centuries BC. However, these collections only represent a portion of the written recipes produced in the classical period. In addition, much of the ancient pharmacological knowledge may have been transmitted only orally, and may never have been written down in the form of recipes. Finally, some aspects of the transmission of ancient pharmacological knowledge, such as gestures, cannot be translated into texts. Since so many elements of the transmission of

ancient pharmacological knowledge are irrecoverable, it is essential to assess the full role of writing in this transmission, as well as its impact on the pharmacological body of knowledge.

Recipes are texts; they are a written genre and must be studied as such. Writing transforms pharmacological knowledge in the sense that it formalises it. Before Greek physicians started to use the written medium, pharmacological knowledge was most likely transmitted through apprenticeship, in a face-to-face situation, and this transmission was accompanied by the actual preparation of the drug. In this context, the master and his apprentices discussed which ingredients to include in their compositions and in what amount, as well as the utensils to use for this preparation. They could adapt their *recettes de base* to environmental circumstances and to the state of the patient. Writing, on the other hand, condenses all these aspects into written recipes, short formulae, which start with an enumeration of ingredients, and end with a verb referring to the action of administering the drug. However, although writing fixes pharmacological knowledge, it does not do so in the same way as it fixes literary texts. There are numerous examples of parallel redactions of recipes in the Hippocratic Corpus, but no example of *verbatim* repetitions of recipes. Compilers of collections of recipes did not attempt to copy their written sources *verbatim*; they freely modified the grammar of the recipes. The text of a recipe was fluid, save for one particular aspect that remained stable, namely the order in which the ingredients were listed.

Writing also allowed structuring the pharmacological body of knowledge into the form of catalogues. However, here again, writing permitted a certain degree of fluidity; the catalogue format is extremely flexible: recipes can be added to or removed from a catalogue, small catalogues can be gathered together in order to form larger collections of recipes, and ultimately they can be integrated into the structure of medical treatises.

Although writing allows pharmacological knowledge to be fixed, it does not necessarily prevent written texts from being lost. The compiler of the Hippocratic treatise *Affections* may have referred to many *Pharmakitides* and not to one particular *Pharmakitis*. None of these recipe books has survived, however, and they may well have been already lost in the Hellenistic period. We know, through citations in the works of later medical authors, that many recipe books were composed in the Hellenistic period, which are also irremediably lost. Individual recipes from this period, however, are preserved in the works of later

medical authors, such as Galen and Soranus. In other words, recipe books are ephemeral, but their constitutive elements—the recipes—can be extremely long-lived. Recipes often survive changes in medical theory; they are reinterpreted in accordance with new theoretical schemes. Recipe books, on the other hand, are constantly rewritten and restructured.

Perhaps the best chance of survival for recipe collections was to be integrated into the structure of a medical treatise, as was the case for the catalogues of recipes found within and at the end of the Hippocratic gynaecological treatises. Arguably, the best way of dealing with these gynaecological recipes is as a papyrologist would deal with medical papyri: to consider them as small fragments that have come down to us by chance, preserved thanks to exceptional 'environmental' conditions. It may be that it is better to deal with the gynaecological recipes as though they were the exception rather than the rule with regard to their preservation.

Writing may fix knowledge, but it does not reduce the importance of the oral word in the transmission of pharmacological knowledge. The recipes of the Hippocratic Corpus leave out many elements of information (about quantities, utensils, and ingredient particulars); elements which had to be supplied through oral communication. The Hippocratic recipes are short formulised *aide-mémoire*; they do not—and cannot—replace 'the real thing', i.e. the oral word.

Modern scholars generally assume that ancient healers started to use writing for practical reasons: because they needed teaching devices for their pupils. However, these healers may have chosen to write for symbolic reasons. For instance, they may have seen writing as a way to display the extent of their pharmacological knowledge: once written down in the form of recipes, the extent of this knowledge becomes more tangible, less abstract. Healers might have used the written medium in this way as early as the sixth century BC, only realising later the teaching potential of written medical treatises.

In addition to being a way of displaying knowledge, writing was also a means to appropriate knowledge. In archaic and classical Greece, there were many pharmacological practitioners: root-cutters, religious healers, and midwives, as well as laymen and women practicing medicine in their households. It is very likely that the boundaries between the methods of these various pharmacological practitioners were overlapping and diffuse; knowledge must have flown freely between these different groups of healers. However, by using writing, some healers could differentiate

themselves from the others; they could select recipes and therapies in order to create their own brand of medicine. This medicine was a *Haute Médecine*, a dietetic medicine which regimented every aspect of the patients' lives. Pharmacology—recipes relying heavily upon exotic and expensive drugs—was only one aspect of this new type of *Médecine*. In the classical period there was no strict boundary between dietetics and pharmacology; the line of demarcation was rather between medications administered internally and those applied externally. Gynaecology was situated at the boundary between internal and external medicine, as the organ it dealt with—the uterus—could be treated by medications either administered by mouth or applied to the mouth of the womb.

The written Hippocratic recipes offer us an insight into the world-vision of their compilers. These compilers were biased in their choices, and this bias was in line with the orientalizing tendencies discernible in ancient Greek culture. They selected recipes that included eastern ingredients, from places such as the Levant, Arabia, and Egypt, rather than ingredients from the western Mediterranean.

Commerce, colonization and physicians' travel increased the amount of pharmacological knowledge available to medical writers. Parallels between Greek recipes, on the one hand, and Mesopotamian and Egyptian recipes, on the other, are difficult to locate. However much we can expect neighbouring civilisations to use the same pharmacological methods and the same ingredients, attempts to find parallel recipes in the written material have not been convincing. One should not forget that only a very small portion of the ancient medical texts has survived, and that only a small portion of the ancient pharmacological knowledge was transmitted through writing. The most important medium for the circulation of knowledge across civilizations was the oral word, with each civilisation consigning its own selection of recipes to writing.

Not all ingredients in the Hippocratic recipes were imported, however. Many products listed in the remedies were readily available in most parts of Greece (and of the Mediterranean in general). When using these ingredients, the Hippocratic compilers could not free themselves from the cultural connotations attached to them. These compilers may have explained the efficacy of their remedies in mechanical terms, following the principle that 'opposites are cures for opposites'; but their clients may have interpreted these treatments in a slightly different way. Recipes were and are read at many different levels.

The earliest preserved collections of Greek recipes have been transmitted to us in works under the name of Hippocrates. However, before

being attributed to the Master of Cos, some of these recipes might have circulated under another authorial name, for instance under the name of Euryphon. Modern scholars have attempted to attribute the recipes preserved in the Hippocratic Corpus to known medical authorities; but this is a gratuitous exercise. Recipes are rarely the 'invention' of an 'author'; they are only the written manifestations of shared practices and knowledge. Several different authors could include the same recipe in their writings; they could appropriate these recipes for themselves. In addition, recipe collections could circulate anonymously, although during the Roman period, it became increasingly common to attach name tags to recipe books and recipes.

Modern scholars are not alone, however, in finding it difficult to deal with anonymity, or with the fact that the same text could be attributed to several different authorities. Scholars in the Hellenistic period dealt with this difficulty by attributing a series of medical texts to Hippocrates. The Coan probably invented none of the 'Hippocratic recipes', but he was certainly responsible for their continuing success. From the Hellenistic period, medical texts, including the recipes, attributed to Hippocrates were commented upon and glossed. If the gynaecological treatises, including their recipes, had not been ascribed to the Coan, they would probably never have survived; the name of Hippocrates has served as an anchor for the preservation of this pharmacological material.

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INDEX OF INGREDIENTS

Each index entry includes the Greek name of the ingredient, a scientific name (when relevant), and an English common name, followed by the reference to the page(s) on which that particular ingredient is listed or discussed. Subheadings include information on parts of the plant (e.g. root, leaves) or animal (e.g. liver, suet) used in the recipes, as well as reference to local varieties of ingredients (e.g. Egyptian salt). Two keys for the index are provided: the first is a list of scientific names and the second is a list of common English names.[1]

A note on identifications

As pointed out by the recently published Gray lectures of John Raven (*Plants and Plant Lore in Ancient Greece*),[2] identifications of ancient *materia medica* (and particularly of plants) are difficult to establish. There was nothing such as an international code of botanical nomenclature in the ancient world. There could be in Greek more than one word for a plant; or, on the contrary, a single word in Greek could designate many different modern species. According to Raven, it is advisable to take *cum grano salis* the identifications of plants proposed by William Turner Thiselton-Dyer for the Liddell-Scott-Jones dictionary. However, many studies complementing the LSJ are available: Giovanni Aliotta et al. (2003), *Le piante medicinali del* Corpus Hippocraticum; Hellmut Baumann (1993), *Greek Wild Flowers and Plant Lore in Ancient Greece*; Andrew Dalby (2003), *Food in the Ancient World from A to Z*; Johann H. Dierbach (1824), *Die Arzneimittel des Hippokrates*; Rudolf von Grot (1899), 'Über die in der hippokratischen Schriftensammlung enthaltenen pharmakologischen Kentnisse'; Monique Moisan et al. (1990), *Lexique du vocabulaire botanique d'Hippocrate*; as well as the edition and French translation of Theophrastus' *History of Plants* by Suzanne Amigues (1989–2006). I have therefore decided to translate Greek plant names listed in the Hippocratic recipes into English. The identifications offered here are based mostly on those presented by Suzanne Amigues and Andrew Dalby, and the English common names used are those listed in David J. Mabberley (1997, 2nd edition), *The Plant-Book: A Portable Dictionary of the Vascular Plants*.

The identifications of insects mentioned in the Hippocratic recipes are based on Ian Beavis (1988), *Insects and other Invertebrates in Classical Antiquity*; and Malcolm Davies and Jeyaraney Kathirithamby (1986), *Greek Insects*. Finally, the identifications of birds and fishes are based, respectively on D'Arcy Wenthworth Thompson (1895), *A Glossary of Greek Birds* and *Idem* (1947), *A Glossary of Greek Fishes*.

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[1] For such keys for the index, see Hort (1916) and Amigues (2006).

[2] These lectures were originally delivered in 1976, but have only been published in 2000.

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Acacia nilotica: ἄκανθα, ἡ Αἰγύπτια; κόμμι
Acorus calamus: κάλαμος, ὁ εὐώδης
Alhagi maurorum: ἀσπάλαθος
Allium cepa: κρόμμυον
Allium porrum: πράσον
Allium sativum: σκόροδον
Amomum subulatum: ἄμωμον
Amygdalus communis: ἀμύγδαλον; κάρυον, τὸ Θάσιον
Anethum graveolens: ἄνηθον
Anser anser: χήν
Anthemis spp.: ἄνθεμον; βοάνθεμον; εὐάνθεμον
Apium graveolens: σέλινον
Artemisia spp.: ἀβρότονον; ἀρτεμισία
Artemisia absinthium: ἀψίνθιον
Arundo spp.: κάλαμος

Beta vulgaris: τεῦτλον
Bos taurus: βοῦς; ταῦρος
Boswellia spp.: λιβανωτός
Brassica oleracea: κράμβη
Bupleurum fruticosum: δαῦκος, ὁ Αἰθιοπικός

Capra hircus: αἴξ
Carthamus tinctorius: κνῆκος; κρόκος, ὁ Αἰγύπτιος
Castor fiber: κάστωρ; *see also* καστόριον
Cedrus spp.: κέδρος; *see also* κεδρία; κέδριον; κεδρίς
Cervus elaphus: ἔλαφος
Chenalopex aegyptiaca: χηναλώπηξ
Cicer arietinum: ἐρέβινθος
Cinnamomum cassia: κασ(σ)ία
Cinnamomum zeilanicum: κινάμωμον
Citrullus colocynthis: κολοκύντη
Commiphora myrrha: σμύρνα
Commiphora opobalsamum: βάλσαμον
Coriandrum sativum: κορίαννον
Corylus avellana: κάρυον, τὸ Ποντικόν
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Daucus carota: δαῦκος
Dittrichia spp.: κόνυζα

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Echinophora spinosa: τρίβολος, ὁ παραθαλάσσιος
Elettaria cardomomum: καρδάμωμον
Euphorbia peplius: τιθύμαλλος

Ferula: σίλφιον
Ferula galbaniflua: χαλβάνη
Ferula persica: σαγάπηνον
Ficus carica: ἰσχάς; συκῆ; σῦκον
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Foeniculum vulgare: μάραθον

Gallus gallinaceus: ἀλεκτορίς

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Hedera spp.: κισσός, ὁ Κρητικός
Helleborus cyclophyllus: ἐλλέβορος, ὁ μέλας
Hordeum spp.: κριθή
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Hypericum perforatum: ὑπερικόν
Hyssopus officinalis: ὕσσωπον

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Juniperus oxycedrus: κέδρος, ἡ Κρητική; κεδρίς

Laburnum anagyroides: κύτισος
Lagenaria siceraria: σικύη
Laurus spp.: δάφνη; δαφνίς
Lens culinaris: *see* φάκιον
Lepidum sativum: κάρδαμον
Lepus capensis: λαγωός
Linum usitatissimum: λίνον
Lupinus albus: θέρμος
Lutra vulgaris: ἔνυδρις
Lytta vesicatoria: κανθαρίς

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Malva spp.: μαλάχη
Mandragora autumnalis: μανδραγόρας
Melilotus Miller: λωτός
Meloe variegatus: βούπρηστις
Mentha pulegium: βλήχων; γλήχων
Mercurialis spp.: λινόζωστις
Minta spp.: μίνθη
Moringa peregrina: βάλανος, ἡ Αἰγύπτια
Morus nigra: συκάμινος
Muscari comosum: βολβός
Myrtus communis: μυρσίνη; μυρτιδάνον 1; μύρτον

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Nardostachys jatamansi: νάρδος
Nelumbo nucifera: κύαμος, ὁ Αἰγύπτιος
Nigella damascena: μελάνθιον
Nigella sativa: κύμινον, τὸ Αἰθιοπικόν

Octopus vulgaris: πουλύπους
Olea europaea: ἐλαίη
Origanum dictamnus: δίκταμνον
Origanum majorana: ἀμάρακον
Origanum sipylaeum: μᾶρον
Origanum spp.: ὀρίγανον
Ovis aries: ὄϊς

Paeonia spp.: γλυκυσίδη
Panicum miliaceum: κέγχρος
Papaver spp.: μήκων
Phoca monacus: φώκη
Pimpinella anisum: ἄννησον
Pinus halepensis: πίτυς
Piper longum: πέπερι
Pistacia lentiscus: σχῖνος
Pistacia terebinthus: ῥητίνη, ἡ τερμίνθινος; τέρμινθος
Potentilla reptans: πεντάφυλλον
Punica granatum: ῥόα; σίδη; *see also* σίδιον

Rafanus sativus: ῥάφανος
Rhus coriaria: ῥοῦς
Rosa spp.: ῥόδον
Rumex spp.: λαπάθον
Ruta graveolens: πήγανον

Salvia spp.: ἐλελίσφακος
Salvia aethiopis: ῥίζα, ἡ Αἰθιοπική
Sambucus nigra: ἀκτῆ
Saponaria officinalis: στρουθίον
Saussurea lappa: κόστος
Scorpaena spp.: σκορπίος, ὁ θαλάσσιος
Sepia officinalis: σηπίη
Sesamum indicum: σήσαμον
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Sisymbrium officinale: ἐρύσιμον
Smyrnium olusatrum: ἱπποσέλινον
Solanum nigrum: στρύχνος

Styrax offcinalis: στύραξ
Sus scrofa: σῦς; ὗς

Thalassochelys corticata: χελώνη, ἡ θαλάσσιη
Thelphusa fluviatilis: καρκίνος, ὁ ποτάμιος
Tordylium officinale: σέσελι
Trifolium spp.: τρίφυλλον
Triticum dicoccon: ζειά

Urginea maritima: σκίλλα
Urtica spp.: κνίδη

Veratrum album: ἐλλέβορος, ὁ λευκός
Vicia ervilia: ὄροβος
Vitex agnus-castus: λύγος
Vitis vinifera: ἀμπέλιον

Zelcova cretica: αἴγαιρος, ἡ Κρητική

Key to index 2: common names
(including parts of plants or animals and geographical epithets)

acacia: ἄκανθα, ἡ Αἰγύπτια
acorn: βάλανος; *see also* βάλανος, ἡ Αἰγύπτια
afterbirth: χόριον
agnus castus: λύγος
alexanders: ἱπποσέλινον
all-heal: πάνακες
almond: ἀμύγδαλον; κάρυον, τὸ Θάσιον; *see also* νέτωπον
alum: στυπτηρίη
amomum: ἄμωμον
anise: ἄννησον
apple: μῆλον
ash: σποδός

balsam: βάλσαμον
bark: φλοιός: *see* κρῆθμον; μάραθον
barley: κριθή; *see also* ἄλφιτον; ἔριγμα; κρίμνα; πτισάνη
bay, sweet: δάφνη; *see also* δαφνίς
beaver: κάστωρ
beet: τεῦτλον
beetle, blister: βούπρηστις
berry, Cnidian: κόκκος, ὁ Κνίδιος
berry: καρπός: *see* ἀκτῆ; *see also* ἀρκευθίς; δαφνίς; κεδρίς; μύρτον
bile: χολή: *see* βοῦς; σκορπίος, ὁ θαλάσσιος; ταῦρος; ὗς
bitumen: ἄσφαλτος
bladder: κύστις: *see* σὺς
breastmilk: *see* γάλα
brimstone: θεῖον
brine: ἅλμη
bull: βοῦς; ταῦρος
bullhead: σκορπίος, ὁ θαλάσσιος
butter: βούτυρον

cabbage: κράμβη
camelthorn: ἀσπάλαθος
cantharid: κανθαρίς
caprifig: ἐρινέον; ὄλυνθος
cardamom: καρδάμωμον
carrot: *see* δαῦκος
cassia: κασ(σ)ία
castoreum: καστόριον
cedar: κέδρος; *see also* ἔλαιον; κεδρία; κέδριον; κεδρίς
celery: σέλινον
chaff: ἄχυρον: *see* κριθή
chamomile: ἄνθεμον; βοάνθεμον; εὐάνθεμον
cheese: τυρός
chickpea: ἐρέβινθος
cinnamon: κινάμωμον
cinquefoil: πεντάφυλλον
clover: τρίφυλλον
colocynth: κολοκύντη; σικυώνη
copper: χαλκός; *see also*: ἄνθος; λεπίς; μίσυ; σποδός, ἡ Κύπριη; χαλκῖτις; χάλκανθος
coriander: κορίαννον
costus: κόστος
cow: βοῦς, *see also* οὖρον
crab: καρκίνος
cress: κάρδαμον
cucumber, squirting: ἐλατήριον; σίκυος, ὁ ἄγριος
cucumber: σίκυος
cumin: κύμινον; *see also* μελάνθιον
cuttlefish: σηπίη
cyclamen: κυκλάμινος
cyperus: κύπειρος
cypress: κυπάρισσος

deer: ἔλαφος
dill: ἄνηθον
dittany: δίκταμνον
donkey: *see* γάλα

earth: γῆ
egg: ᾠόν; *see also* ἀλεκτορίς; σηπίη
elder tree: ἀκτῆ

emmer: ζειά
excrement: ἄφοδος: *see* ἴρηξ; κόπρος: *see* πελιάς; *see also* μυόχοδον

fennel: μάραθον
fig: ἰσχάς; συκῆ; σῦκον; *see also* ὄλυνθος
flag, sweet: κάλαμος, ὁ εὐώδης
flax: λίνον
fleabane: κόνυζα
flour: ἄλευρον; ἄλητον; *see also* κρίμνα
fowl: ἀλεκτορίς
frankincense: λιβανωτός; *see also* μάννα
fur: θρίξ: *see* λαγωὸς

galbanum: χαλβάνη
garlic: σκόροδον
ginger-grass: σχοῖνος 2
goat: αἴξ; *see also* γάλα; τυρός
gold: χρυσός
goose: χήν; *see also* ἔλαιον; στέαρ; χηναλώπηξ
gourd, bottle: σικύη
gourd: σικυώνη
grain: χόνδρος: *see* ἅλς
grape: ὄμφαξ; *see also* γίγαρτον; σταφίς
grease extracted from wool: οἰσύπη: *see* αἴξ
gruel: *see* πτισάνη
gum: κόμμι

hare: λαγωός
hare's ear: δαῦκος, ὁ Αἰθιοπικός
hartwort: σέσελι
hawk: ἴρηξ
hazelnut: κάρυον, τὸ Ποντικόν
head: κεφαλή: *see* εὐλή
head (of garlic): μώλυζα: *see* σκόροδον
hellebore: ἐλλέβορος, ὁ μέλας; ἐλλέβορος, ὁ λευκός
henbane: ὑοσκυάμος
honey: μέλι; μελίκρατον
horn: κέρας: *see* ἔλαφος
hyssop: ὕσσωπον

iris: ἶρις; *see also* ἔλαιον; μύρον
iron: σίδηρος
ivy: κισσὸς

juice, ὀπός: *see* μανδραγόρας; συκῆ; σίκυος, ὁ ἄγριος; σίλφιον; χυλός: *see* κράμβη; μαλάχη; ὄμφαξ; πτισάνη; πράσον; ῥόα; σίδη; στρύχνος
juniper: κέδρος, ἡ Κρητική; *see also* ἀρκευθίς; κεδρίς

kernel: κόκκος: *see* σίδη
kidney: νεφρός: *see* ἔνυδρις

lead: μόλιβος
leaf: πέταλον: *see* ἐλαίη; κράμβη; φύλλον: *see* ἀκτῆ; δάφνη; κύτισος; λύγος; μυρσίνη; ῥοῦς; τρίβολος
leek: πράσον
lentil: *see* φάκιον
lily: *see* ἔλαιον
linseed: λίνον
liver: ἦπαρ: *see* ταῦρος; χελώνη
lizard: σαῦρος
lotus, pink: κύαμος, ὁ Αἰγύπτιος
love-in-a-mist: μελάνθιον
lupine: θέρμος

mallow: μαλάχη
mandrake: μανδραγόρας
marjoram: ἀμάρακον
marrow: μυελός: *see* βοῦς; ἔλαφος
mastic: σχῖνος
meal: ἄλητον; ἄλφιτον; κρίμνα; ὠμήλυσις
melilot: λωτός
mercury: λινόζωστις
milk: γάλα; *see also* μελίκρατον
millet: κέγχρος
mint: μίνθη
moss: ψώρη: *see* ἐλαίη
mouse, dung: μυόχοδον
mulberry tree: συκαμίνος
mustard, hedge: ἐρύσιμον
myrrh: σμύρνα; *see also* στακτή
myrtle: μυρσίνη; μυρτιδάνον 1; μύρτον; *see also* water

narcissus: νάρκισσος; *see also* ἔλαιον
nettle: κνίδη
nigella: κύμινον, τὸ Αἰθιοπικόν
nightshade: στρύχνος
nut: κάρυον

oak gall: κηκίς
octopus: πουλύπους
oil: ἔλαιον; *see also* ἄλειφα; νέτωπον; στακτή; φώκη; χήν
olive tree: ἐλαίη
onion: κρόμμυον
oregano: ὀρίγανον

orpiment: ἀρρενικόν
otter: ἔνυδρις

peel: *see* σίδιον
penis: αἰδοῖον: *see* ἔλαφος
pennyroyal: βλήχων, γλήχων
peony: γλυκυσίδη
pepper: πέπερι
perfume: ἄλειφα; μύρον
perineum: περίνεος, *see* χελώνη, ἡ θαλάσσιη
pig: σῦς; ὗς
pigeon: πελιάς
pigment, black: μελαντηρίη
pine: πίτυς; *see also* δαΐς
pitch: πίσσα
pomegranate: ῥόα; σίδη; *see also* σίδιον
poplar: *see* αἴγειρος, ἡ Κρητική
poppy: μήκων
potsherd: ὄστρακον
poultry: ὄρνις
pulses: *see* πύανα
puppy: σκύλαξ
purse tassel: βολβός

quince: μῆλον, τὸ Κυδώνιον

radish: ῥάφανος
raisin: σταφίς
realgar: σανδαράχη
reed: κάλαμος
resin: ῥητίνη; *see also* τέρμινθος
rind: λέμμα: *see* σικύη
root: ῥίζα: *see* γλυκυσίδη; δαῦκος, ὁ Αἰθιοπικός; δάφνη; ἐλλέβορος, ὁ λευκός; κορίαννον; κρῆθμον; κυκλάμινος; λαπάθον; μαλάχη; πεντάφύλλον; πήγανον; σίκυος, ὁ ἄγριος; στρουθίον; τρίβολος, ὁ παραθαλάσσιος
rose: ῥόδον; *see also* ἄλειφα; ἔλαιον; μύρον
rue: πήγανον
rush: σχοῖνος 1

safflower: κνῆκος; κρόκος, ὁ Αἰγύπτιος
saffron crocus: κρόκος; *see also* ἔκμαγμα; μαγίς
sagapenum: σαγάπηνον
sage, Mediterranean: ῥίζα, ἡ Αἰθιοπική
sage: ἐλελίσφακος
salt: ἅλς
salt-fish: τάρικος, ὁ Γαδειρικός
samphire, prickly: τρίβολος, ὁ παραθαλάσσιος
samphire: κρῆθμον
sawdust: πρίσμα: *see* κέδρος; κυπάρισσος
scorpion, sea: σκορπίος, ὁ θαλάσσιος
seal: φώκη
seed: καρπός: *see* ἄνηθον; δαῦκος; ἱπποσέλινον; κασ(σ)ία; κισσὸς, ὁ λευκός; κνίδη, κύμινον; κυπάρισσος; κύπειρος; λύγος; μάραθον; σέλινον; σίκυος, ὁ ἄγριος; τρίφυλλον; ὑοσκυάμος; κόκκος: *see* γλυκυσίδη; σπέρμα: *see* γλυκυσίδη; κάρδαμον; λίνον; μάραθον; ῥάφανος; σέλινον; σίκυος
sesame: σήσαμον
sheep: ὄϊς; *see also* στέαρ
shell: κέλυφος: *see* ἐρύσιμον
silphium: σίλφιον; *see also* φύλλον, τὸ Λιβυκόν
silver: ἄργυρος
snake: ὄφις
soapwort: στρουθίον
soda: λίτρον, νίτρον
soot: αἰθάλη
sorrel: λαπάθον
spikenard: νάρδος
sprout: κόρος: *see* δάφνη
spurge: τιθύμαλλος
squill: σκίλλα
St John's wort: ὑπερικόν
stag: ἔλαφος
styrax: στύραξ
suet: στέαρ: *see also* αἴξ; ἔλαφος; ὄϊς; ὄρνις; ὄφις; χήν
sumach: ῥοῦς

tail: κέρκος: *see* εὐλή
terebinth: τέρμινθος
testis: ὄρχις: *see* κάστωρ
tree-medick: κύτισος
turpentine: *see* ῥητίνη, ἡ τερμίνθινος
turtle: χελώνη, ἡ θαλάσσιη
twig: κλωνίον: *see* μυρτιδάνον 1; *see also* δαΐς

unguent: ἄλειφα; *see also* χήν
urine: οὖρον

verdigris: ἰός χαλκοῦ
vetch, bitter: ὄροβος; *see also* ἄλητον

vine: ἀμπέλιον
vinegar: ὄξος; *see also* ὀξῦμελι
vitriol: ἄνθος; χάλκανθος

water: ὕδωρ; *see also* πήγανον
water, sea: θάλασσα
wax: κηρός
wheat: *see* ἄλευρον
white of an egg: λευκόν: *see* ᾠόν
wine: οἶνος; *see also* ὀξῦμελι
woman: *see* γάλα; οὖρον; χόρίον
wool: εἴριον; *see also* αἴξ
worm: εὐλή
wormwood: ἀβρότονον; ἀρτεμισία; ἀψίνθιον

yolk of an egg: λέκιθος; πυρρὸν; ὠχρόν: *see* ᾠόν