

The Emergence of Black Bile in Humoral Theory

Masayuki Fukushima

I. Introduction

Humoralism (or humoral theory) is a system of medicine that regards disease as the result of imbalance and separation of ‘humours’ in the human body. Numerous ancient physicians used this theory to gain insight into the invisible internal constitution of the body. It is surprising that humoral theory held such dominance in the history of western medicine that it lasted until the nineteenth century.¹ However, its origin is not known.²

Since humoralism permeates the Hippocratic Corpus, it is important to analyse it for a better understanding of Hippocratic pathology. The most famous passages about humoral theory can be found in *On the Nature of Man*. The authorship of this treatise is questionable and it is attributed in whole or in part to Polybos.³ This treatise can be dated to the last decades of the fifth century.⁴ The descriptions about the humour by this author are as follows.

Hp. *Nat. Hom.* 4 (Jouanna 172. 13–174. 3=Littré VI 38. 19–40. 6)

Τὸ δὲ σῶμα τοῦ ἀνθρώπου ἔχει ἐν ἑωυτῷ αἷμα καὶ φλέγμα καὶ γολήν ξανθὴν τε καὶ μέλαιναν, καὶ ταῦτ' ἐστὶν αὐτέω ἢ φύσις τοῦ σώματος, καὶ διὰ ταῦτα ἀλγέει καὶ ὑγιαίνει. Ὑγιαίνει μὲν οὖν μάλιστα, ὀκότεν μετρίως ἔχη ταῦτα τῆς πρὸς ἄλληλα κρήσιος καὶ δυνάμιος καὶ τοῦ

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¹ For the later influence and development of humoral theory, See Schönér (1964), Nutton (1993: 282).

² One may suggest that humoral theory dates back to the sixth or fifth century BC, e.g. to Alcmaeon's theory (*DK*. 24 A3). See Thivel (1981: 338–356), Hankinson (2018).

³ Polybos was a Greek physician, between the fifth and fourth centuries. According to later biographical accounts, he was a pupil and son-in-law of Hippocrates. However, Anonymus medicus, the nameless author of the medical texts found in *Papyrus London inv.* 137, does not make a connection between them. Anonymus Londiniensis also testifies that Polybos adopted four humours: blood, phlegm, black bile and yellow bile. Anon. Lond. 19: τήν] τῶν σωμά(των) μίξι[ν (εἶναι) ἐξ αἵματος τε] καὶ φλέγματος καὶ γ[ολῆς ξανθῆς τε] καὶ μελαίνης (Manetti 40. 17–41.3). See, *EANS*. s.v. Polubos [Manetti], Grensemann (1968: 3–5), Craik (2015: 209).

⁴ Craik (2015: 212).

πλήθεος, καὶ μάλιστα μεμιγμένα ἢ· ἀλγέει δὲ ὀκόταν τι τούτέων ἔλασσον ἢ πλέον ἢ ἢ χωρισθῆ ἔν τῷ σώματι καὶ μὴ κεκρημένον ἢ τοῖσι πᾶσιν.

The body of man has in itself blood, phlegm, yellow bile and black bile; these make up the nature of his body, and because of these he feels pain or enjoys health. Now he enjoys the most perfect health when these elements are duly proportioned to one another in respect of compounding, power and bulk, and when they are perfectly mingled. Pain is felt when one of these elements is in defect or excess, or is isolated in the body without being compound with all the others. (Trans.by Jones slightly modified)

Contrary to common belief, this canonical schema (blood, phlegm, yellow bile, and black bile) can be only found in *On the Nature of Man* in the Hippocratic Corpus. In fact, its dissemination is mostly ascribed to Galen, who adapted and promulgated this work, enhancing its prestige as a major work of Hippocrates representing the most authentic Hippocratic doctrine.⁵ Since the Corpus is an agglomeration of the more than sixty medical treatises generally believed to have common authorship, it often showcases the diversity and difference between characteristics in some treatises. The same applies to humoralism.

For instance, the author of *On Diseases IV* also adopted a four-humour theory, but counted four different components: blood, phlegm, bile and water.⁶ In some treatise, the term ‘humour’ is merely attributed to different types of fluids or fluxes, such as in *On Nutriment*, *On Humours* and *On Places in Man*.⁷

In this paper I will investigate some descriptions of humours in the Hippocratic Corpus and highlight their common features, exploring the change in perception of bile, especially, black bile.

II. Polarities of bile and phlegm

Although the notions of ‘humours’ differ widely in the Hippocratic Corpus, there is a general agreement that diseases occur from a pathological imbalance in bodily constituents. In several treatises, especially nosological works, Hippocratic authors enumerate bile and/or phlegm as

⁵ Gal, *In Hipp. De nat. hom. comm.*, 1 prooem. 11 (Mewaldt 9. 19–28=Kühn XV 11. 11–12. 5).

⁶ In spite of the title, this treatise does not show much affinity with *On Diseases I, II and III*. Craik (2015: 186–190). For the relation with other treatises in the Corpus, see Lonie (1981: 51–62).

⁷ For instance, the author of *On Nutriment* uses ‘humour’ in its plural form (χυμοί), stating ambiguously that humours can cause internal and external damage. On the other hand, he uses the same term (χυμοί) for describing the chyme (indigested juice). For the comparison, see Hp. *Alim.* 10. (Joly 141. 12–15=Littré IX 102. 6–8), *Alim.* 14 (Joly 141. 20–21=Littré IX 102. 12–13). See also Craik (1998: 14–16, 2015: 288–289), Hankinson (2018: 94).

natural components of the body that cause disease. As a starting point, take an example from *On Affections* that refers to aetiology. This treatise can be divided into two schematic groups. The first section is nosological and the second dietetic (1–38 and 39–61) and the former shows a strong affinity with other Hippocratic nosological treatises.⁸

Hp. *Aff.* 1 (Potter 6. 9–13 =Littre VI 208.7–10)

νοσήματα τοῖσιν ἀνθρώποισι γίνεται ἅπαντα ὑπὸ χολῆς καὶ φλέγματος· ἡ δὲ χολὴ καὶ τὸ φλέγμα τὰς νόσους παρέχει, ὅταν ἐν τῷ σώματι ἢ ὑπερξηραίνηται, ἢ ὑπερυγραίνηται, ἢ ὑπερθερμαίνηται, ἢ ὑπερψύχηται.

all human diseases arise from bile and phlegm; the bile and phlegm produce diseases when, inside the body, one of them becomes too moist, too dry, too hot, too cold. (Trans. by Potter)

Thus, according to this author, the disease arises on the circumstance that bile and phlegm acquire a bad quality (moisture, dryness, heat, and cold). He goes on to provide examples, assigning different diseases to each of the two humours.⁹ Having itemised each disease in the nosological schema, the author repeatedly places emphasis on bile and phlegm as preliminary causes and advises physicians to first consider whether the disease develops from bile, phlegm, or indeed both.¹⁰

The author of *On Diseases I* shares a similar idea by asserting that all diseases arise from bile and phlegm; he also adds exertions, wounds, heat, and cold as external causes.¹¹ It is noteworthy that both authors of *On Affections* and *On Diseases I* cite food and drink as precipitating causes.¹²

Apart from these nosological works, comparable descriptions can also be found in other Hippocratic works that likely date back to the fifth century. The author of *On the Sacred Disease*

⁸ For the comprehensive work on the relation between the nosological treatises, such as *On Affections* and *On Diseases I, II*, see Jouanna (2009).

⁹ For example, all diseases located in the head (headache, earache, inflammation of the throat, gums, tongue, and uvula, toothache, and polyps in the nose) are associated with phlegm. To the contrary, most acute diseases (πλευρίτις, φρενίτις and καύσος) are attributed to bile. Despite defective bile and phlegm almost exclusively being the cause of diseases, the author refers to blood as the cause of all pustules (φύματα). Hp. *Aff.* 34 (Potter 56. 17–18=Littre VI 20–21). For other references of these humours in this treatise, including discharge, see Craik (2015: 16–17).

¹⁰ Hp. *Aff.* 37: καὶ ἐνθυμέσθαι πρῶτα μὲν τὸ νόσημα πότερον ἀπὸ χολῆς ἢ φλέγματος γεγένηται ἢ ἀμφοτέρω, καὶ τοῦτο εὖ εἰδέναι ὅτι ἀνάγκη ἔχει ὥστε ὑπὸ τούτων τοῦ ἐτέρου ἢ ἀμφοτέρων γίνεσθαι (Potter 58. 22–60. 4=Littre VI 246. 18–21).

¹¹ Hp. *Morb.* I 2: (Wittern 6. 6–8 =Littre VI 142. 14–17), *Aff.* 1: Πάσχει δὲ ταῦτα τὸ φλέγμα καὶ ἡ χολὴ καὶ ἀπὸ στίτων καὶ πιπῶν, καὶ ἀπὸ πόνων καὶ τρωμάτων, καὶ ἀπὸ ὀσμῆς καὶ ἀκοῆς καὶ ὄνιου καὶ λαγνείης, καὶ ἀπὸ τοῦ θερμοῦ τε καὶ ψυχροῦ (Potter 6. 13–17=Littre VI 208. 10–13).

¹² Jouanna (2009: 306–311), Hankinson (2018: 98).

denounces the purifiers and charlatans who applied supernatural incantations to their patients and rejected divine causation for epileptic disorders. After this, he reiterates that ‘epilepsy’ affected only phlegmatic people.¹³ This original explication is traced to the embryonic stage. The brain of a foetus in the womb is purged even before the birth, and if congestion in the brain occurs due to the failure of purging flux, the foetus becomes phlegmatic.¹⁴ As the author of this treatise particularly emphasises the importance of brain function, as a result, he concludes that phlegm and bile both cause brain corruption.¹⁵ Although he pays attention to blood, the main characteristics of fluids always reflect bile and phlegm.

On Airs, Waters, and Places, which is one of the most ancient treatises in the Corpus (probably dates back to the mid to late fifth century),¹⁶ shows a strong affinity with this view.¹⁷ Though the main focus remains on the influence of climate and environment, the polarities of bile and phlegm are present throughout the treatise. While the inhabitants of a city exposed to hot wind are phlegmatic and rarely suffer from diseases considered acute, those who are exposed to cold wind are prone to these diseases.¹⁸ The author repeatedly expresses this notion later in the work.¹⁹

III. Visible manifestation of bile and phlegm

The question remains as to why bile and phlegm take precedence over other fluids. Jacques Jouanna and Vivian Nutton have aptly remarked on the pervasive tendency of the Hippocratic authors to postulate the cause of diseases from visible and palpable symptoms.²⁰ In fact, the connection between humours and physical manifestations is briefly noted by the author of

¹³ Hp. *Morb. Sacr.* 2 (Jouanna 11. 1–2=Littré VI 366. 1–2) and 5 (Jouanna 12. 21–22=Littré VI 368. 10–11). The author places emphasis that ‘epilepsy’ does not occur in bilious people, but in phlegmatic. The term ἐπιληψία in ancient medical text does not entirely correspond to the modern terminology ‘epilepsy’. See Craik (2015: 191).

¹⁴ Hp. *Morb. Sacr.* 5 (Jouanna 13. 10–12=Littré VI 370. 1–2).

¹⁵ Hp. *Morb. Sacr.* 15 (Jouanna 27. 5–11=Littré VI 388. 12–16). The author explicitly made a distinction between the corruption stemming from bile and that from phlegm with a particular focus on mental disorders.

¹⁶ Jouanna (1992: 529), Craik (2015:11).

¹⁷ For the resemblance between *On Airs, Waters, and Places* and *On the Sacred Disease*, see Jouanna (1996: 71–73, 2003. lxx–lxxiv), Bruun (1997: 147). Although it is widely accepted that both treatises were written by the same author, there are some skeptical opinions from religious perspectives. See Bourgey (1953: 76 n.2), Ducatillon (1977: 197–226).

¹⁸ Hp. *Aer.* 3: τούς τε ἀνθρώπους τὰς κεφαλάς ὑγρὰς ἔχειν καὶ φλεγματώδεας (Jouanna 190. 6–7=Littré II 16. 5–6), Πλευρίτιδες δὲ καὶ περιπλευμονία καὶ καύσοι καὶ ὀκόσα ὀξεία νοσήματα νομίζονται, οὐκ ἐγγίγονται πολλά (Jouanna 191. 6–8=Littré II, 18, 7–9). *Aer.* 4: χολώδεας τε μᾶλλον ἢ φλεγματίας εἶναι. Τὰς δὲ κεφαλάς ὑγυρὰς ἔχουσι καὶ σκληρὰς ῥηγματίας τέ εἰσιν ἐπὶ τὸ πλῆθος. Νοσεύματα δὲ αὐτοῖσιν ἐπιδημεῖ τάδε: πλευρίτιδες τε πολλοὶ αἱ τε ὀξεία νομίζόμενα νοῦσοι (Jouanna 193. 4–8=Littré II 20. 2–5).

¹⁹ Hp. *Aer.* 10: τοῖσι δὲ χολώδεσι πλευρίτιδας καὶ περιπλευμονίας (Jouanna 216. 13–14=Littré II 50. 2–3).

²⁰ Jouanna (1992: 442–443), Nutton (2013: 80).

Hp. *Epid.* VI 3. 2 (Manetti and Roselli 78. 1–2=Littré V 304. 9–10)

Διὰ τὴν ῥοπὴν οὐκ ἔτι αἷμα ἔρχεται, ἀλλὰ κατὰ τοῦ χυμοῦ τὴν ξυγγένειαν τοιαῦτ' ἀποπτύουσιν.

Because of the tilt of the balance blood does not continue to come, but according to the relationship of the humor they expectorate those sorts of things. (Trans. by Smith)

Some Hippocratic authors likewise described bile and phlegm as external manifestations of diseases. Discharges both upwards and downwards of the body, such as sputum, vomit, urine, and faeces are frequently related to humours. In several nosological works, bile and phlegm are considered the main internal causes of disease, with some authors of the treatises acknowledging the manifestation of the above substances. Some part of bile and phlegm are passed out of the body as perspiration,²² and vessels discharge bile and phlegm to the exterior together with blood.²³ A more explicit explanation is attested in *On Diseases I 29*, relating to the aetiology of ardent fever (καῦσος).²⁴

Hp. *Morb.* I 29 (Wittem 86. 2–5=Littré VI 86. 15–18)

Ἵσων δ' ἂν ἐν τῇ κοιλίῃ ἢ [καί: Littré] ἐν τῇ κύστει ἐγγένηται χολῆς, τὸ μὲν ἐν τῇ κοιλίῃ ἐνίοτε μὲν διαταράσσεται κάτω, τὰ δὲ πολλὰ ἐμέεται ἐν τῆσι πρώτησιν ἡμέρησιν, ἢ τέσσαρσιν, ἢ πέντε·[...] Ἵσων δ' ἐς τὴν κύστιν συρρεῖ χολῆς, οὐρεῖται παχύ, παχὺ δ' ὑπὸ φλέγματος καὶ χολῆς· χολῶδες δὲ διαχωρεῖ [φλέγματος καὶ χολῆς διαχωρεῖ: Θ, Littré], ὅταν διαχωρῆ, ὑπὸ τοῦ ξυγκεκαῦσθαι ἐν τῇ κοιλίῃ τὰ ἐνέοντα.

Any bile that occupied the cavity or bladder. In the case of the cavity, it is sometimes evacuated downwards, but mostly vomited up in the first four or five days, [...]Any bile that flows into bladder is passed as thick urine, thick because of phlegm and bile. The patient passes bilious faeces, when he goes pass any, because the contents in the cavity have been

²¹ See also Manetti and Roselli (1982: 78–79).

²² Hp. *Morb.* I 25: (Wittem 74. 2–4=Littré VI 190. 15–17).

²³ Hp. *Morb.* I 28: (Wittem 82. 11–13=Littré VI 196. 17–19).

²⁴ Hp. *Morb.* I 29 (Wittem 86. 2–18=Littré VI 198. 20–200. 10). Καῦσος is widely considered to be an acute disease in the Hippocratic Corpus.

burnt out.²⁵ (Trans. by Potter slightly modified)

The author of *On Diseases I* postulates that these visible appearances directly relate to internal fluids. In nosological treatises, there are numerous descriptions of bile and phlegm as visible signs, and they are often associated with vomit,²⁶ but also with sputum,²⁷ urine,²⁸ and faeces.²⁹ When the author of *On Diseases II* itemises bile as discharges of ‘withering disease (ὠπαντή)’, the bile seems merely to be one of several symptoms rather than a separate substance, something which is often found in aetiology.³⁰ Consequently, the evacuation of bile and phlegm is recommended in therapy.³¹

Exhaustive observations of such manifestations are abundant in case histories of *Epidemics*. In these examples, bile is mostly associated with vomit and faeces, and phlegm with vomit and sputum, but a clear distinction is yet to be settled (Table 1). For instance, in the case histories of *Epidemics I*, the word *χολώδης* (bilious) is attested in all fourteen case studies of the patients, and is used only for vomit and faeces.³² In *Epidemics III* likewise, amongst 28 case studies, the same term is only referred to vomit and faeces.³³

²⁵ Θ (Vindobonensis med. gr. 4 [f. 88r–114v]) is one of the oldest manuscripts, which probably dates to the 10th or 11th century. Another important manuscript in the same period is manuscript M (Marcianus gr. 269 [f. 91r–102r]). In some cases M provides better readings, but it is often neglected by Potter. There are some divergences on the readings of the last passage above, but I follow the edition by Wittem.

²⁶ Hp. *Aff.* 14 (ἐμοῦσι χολήν: Potter 24. 6=Littre VI 220. 24), *Aff.* 21 (ἐμεί χολήν: Potter 38. 2=Littre 230. 25), *Morb.* II 3 (ἐμεί χολήν: Jouanna 134. 1=Littre VI 10. 4–5), *Morb.* II 14 (ἐμεί χολήν: Jouanna 147. 9=Littre VI 24. 21), *Morb.* II 66 (ἐμεί...χολήν: Jouanna 204. 13=Littre VI 100. 10), *Morb.* II 67 (ἐμεί...χολήν: Jouanna 205. 19=Littre VI 102. 6), *Morb.* II 68 (ἐμεί...χολήν: Jouanna 207. 3=Littre VI 104. 3), *Morb.* II 70 (ἀτεμεί...χολήν: Jouanna 209. 12–13=Littre VI 106. 13), *Morb.* II 75 (ἐμεί...θρόμβους πεπιγότας χολῆς: Jouanna 214. 18=Littre VI 114. 1–2). In both treatises the symptoms are described at the beginning of each chapter, and vomiting is often mentioned relatively early on, after fever and cough.

²⁷ Hp. *Morb.* II 44 (σίελον...ὑπόχολον: Jouanna 175. 11=Littre VI 62. 3), *Morb.* II 45 (σίελον...ὑπόχολον: Jouanna 176. 18=Littre VI 62. 23–64. 1).

²⁸ Hp. *Morb.* II 38 (οὔρει...χολῶδες: Jouanna 170. 2=Littre VII 54. 4), *Morb.* II 41 (οὔρει...χολῶδες: Jouanna 173. 3=Littre VII 58. 11), *Morb.* III 6 (However, Potter reads *χλωρά* instead of *χολῶδεα* [Potter 14. 7=Littre VII 124. 5]).

²⁹ Hp. *Aff.* 14 ([χολήν] διαχωρέει: Potter 24. 7=Littre VI 220. 24), *Aff.* 25(διαχωρέει...φλέγμα: Potter 44. 16–17=Littre VI 236. 12–13).

³⁰ Hp. *Morb.* II 66 (Jouanna 204. 13–14=Littre VI 100. 10–11)

³¹ Hp. *Aff.* 2, 4, 7, 20, 22, 33, 36, *Morb.* I 8, *Morb.* II 13, 15, *Morb.* III 8, 10, 17,

³² Except for the first case of Philiscos, this term is used to describe vomit (11 times) and faeces (25 times) in *Epidemics I* and III.

³³ ὑδατόχολος and ὑδατόγλοος are also used to describe faeces. Hp. *Epid.* I 27.10: ὑδατόχολα [ὑδατόχροα: Littre] (Jouanna 55. 6=Littre II 706. 5), *Epid.* III 17. 2: ὑδατόχολους (Jouanna 94. 3=Littre III 110. 6–7), *Epid.* III 17. 12: ὑδατόγλοα (Jouanna 106. 21=Littre III 136. 5), *Epid.* III 17. 16: ὑδατόγλοα (Jouanna 112. 2=Littre III 146. 11–12). As for the first case, there are three variants for the reading: ὑδατόγλοα, ὑδατόγλοα, and ὑδατόχροα. Jouanna adopted the reading from manuscript A (Parisinus gr. 2253) which dates to the 11th century. He

(Table 1: Bile and phlegm associated with symptoms in *Epidemics*)

	Bile	Phlegm
Sputum	<i>Epid.</i> VI 3. 24 (χολή)	<i>Epid.</i> VII 6 (ἀνῆγε βήσσοσα...φλεγματοῶδα), <i>Epid.</i> VII 9 (ἀπόχρεμνις...φλέγματος), <i>Epid.</i> VII 51 (ἀπόχρεμνις φλέγματος), <i>Epid.</i> VII 83 (ἐνέβηξεν [ἀνέβηξεν Litttré]...λευκῶ φλέγματι περιεχόμενον) <i>Epid.</i> VII 93 (ἀποχρέμνις ... φλεγματοῶδες)
Vomit	<i>Epid.</i> I 5 (ἔμετοι...χολώδεις), <i>Epid.</i> I 27. 5 (ἤμεσε χολώδα), <i>Epid.</i> I 27. 6 (ἤμεσε χολώδα), <i>Epid.</i> IV 24 (ἔμετος...χολώδης), <i>Epid.</i> VII 2 (ἤμεσε χολήν) <i>Epid.</i> VII 5 (χολῆς ἔμετος), <i>Epid.</i> VII 10 (ἔμετος χολῆς), <i>Epid.</i> VII 29 (ἤμει χλώδα), <i>Epid.</i> VII 43 (ἔμετος χολῆς), <i>Epid.</i> VII 74 (ἔμετος χολωδέων), <i>Epid.</i> VII 84 (ἔμετος χολῆς)	<i>Epid.</i> I 5 (ἔμετοι...φλεγματοῶδες), <i>Epid.</i> 2.12 (ἐπανεμέουσι...φλεγματοῶδα), <i>Epid.</i> IV 24 (ἔμετος...φλεγματοῶδης), <i>Epid.</i> V 51 (ἤμεε...φλέγμα), <i>Epid.</i> VI 1. 5 (ἐμέουσι φλέγμα) <i>Epid.</i> VII 52 (ἐμέσας ... φλεγματοῶδες), <i>Epid.</i> VII 70 (ἤμει...φλέγμα), <i>Epid.</i> VII 84 (ἔμετος ...ὡς φλέγμα), <i>Epid.</i> VII 109 (ἐξήμεσε φλέγμα)
Urine	<i>Epid.</i> VII 98 (οὔρα χολώδα)	N/A

mentioned an important discussion by Galen about these different readings. Thus, dissimilarities in the readings can be assumed to have already existed in ancient times. Galen has developed a detailed argument here, stating that ὑδατόχλοα refers to the colour of the leaf (χλόη) and ὑδατόχολα to the colour of the bile (χολή). His etymological explanation focuses on colour (κατὰ τὴν χροίαν). In contrast, ὑδατόχροα, which could not be found in the old manuscripts or in the accurate manuscripts, was rejected as a clearly incorrect reading. See Gal, *In Hipp. Epid. comm.* (Wenkebach 168. 15–22=Kühn 750. 13–751. 6) and the notes by Jouanna (2016: 281–282).

Faeces	<p><i>Epid.</i>I 27.1 (χολώδεα; διαχωρήματα...χολώδεα), <i>Epid.</i> I 27. 2 (διήει χολώδεα), <i>Epid.</i> I 27. 3 (διήει χολώδεα), <i>Epid.</i> I 27.4 (διαχωρήματα...χολώδεα; περιφρόου χολώδεος), <i>Epid.</i> I 27. 5 (χολώδεα...διήει), <i>Epid.</i> IV 9 (ύποχωρήσιος, χολώδεος), <i>Epid.</i> VII 1 (ύποχωρήσιος...χολής), <i>Epid.</i> VII 2 (ύποχωρήματα...χολώδεα, χολώδεα), <i>Epid.</i> VII 39 (ύποχώρησιος... χολώδης), <i>Epid.</i> VII 83 (χολώδεα), <i>Epid.</i> VII 118 (χολώδεα κατέρρηξε), <i>Epid.</i> VII 93 (ύποχωρησιος... χολώδης)</p>	<p><i>Epid.</i> I 5 (διάρροια χολώδεες), <i>Epid.</i> III 1, 3 (διεχώρησε φλεγματούδεα), <i>Epid.</i> VII 5 (ύπεχώρησε φλεγματούδεα)</p>
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Although it is still far from clear what colour ‘bilious’ might refer to in *Epidemics*, it should be noted that references to bilious faeces frequently appear with ‘black (μέλαν)’ or ‘slightly black (ύπομέλαν)’ materials.³⁴ A unique observation of said materials can be found in *Epidemics* I 27. 5, in which the wife of Epicrates showed a variety of discharges such as ‘slightly black urine (ούρα...ύπομέλινα)’ and ‘bilious faeces (διαχωρήματα χολώδεα)’. Further, she vomited ‘bilious and yellow materials (χολώδεα ξανθά)’ on the 15th day, and also vomited ‘bilious and black materials (χολώδεα...μέλινα)’ on a separate occasion.³⁵ Each one of these examples is useful for understanding the affinity between colour and such external, visible materials.

In addition to the term χολή (bile) and its adjective χολώδης (bilious), other adjectives were used to modify certain materials: ύπόχολος (slightly bilious) and κατάχολος (very bilious). In terms of ύπόχολος, of all of its occurrences in the Corpus, two cases directly relate to colour,³⁶ but it is not clear which colours they might be. Most cases refer to ύραιμος (slightly sanguine) which is used to modify expectoration.³⁷ The sentence ‘the patient coughs up slightly bilious material like

³⁴ See, for instance, Hr. *Epid.* I 27. 2: διαχωρήματα λεπτά, ύπομέλινα (Jouanna 42. 3=Littré II 686. 5), *Epid.* I 27. 5: ήμεσε χολώδεα όλίγα μέλινα (Jouanna 49. 6–7=Littré II 696. 11), *Epid.* I 27. 12: ήμεσε μέλινα, όλίγα, χολώδεα (Jouanna 59. 2=Littré II 712. 10).

³⁵ Hr. *Epid.* I 27. 5 (Jouanna 47. 8–50. 4=Littré II 694. 4–698. 5).

³⁶ Hr. *Aff.* 10: τώ χρώμα ύπόχολον γίνεται (Potter 18. 18–19=Littré VI 216. 24), *Aff.* 11: τώ χρώμα ύπόχολον (Potter 20. 14–15=Littré VI 218. 15).

³⁷ Expectoration: Hr. *Aff.* 7 (ύπόχολον πτύει: Potter 14. 16=Littré VI 214. 12]), *Coac.* 401 (ανάπτυνοντες πύόδεα, ύπόχολα...ύραιμοι: Potter 204. 14–15=Littré V 674. 24–25]), *Epid.* VII 2 (άπήμει...ύπόχολον: Jouanna 49. 25–26=Littré V 366. 24–368. 1), Id. 93 (άποχρέμιμες ύπόχολοι: Jouanna 105. 14=Littré V 450. 3), *Morb.* II. 44 (τώ σίελον λευκόν και ύπόχολον: Jouanna 175. 11=Littré VII 62. 3), Id. 45 (τώ σίελον πτύει ύπόχολον, και ύραιμον: Jouanna 176. 18=Littré VII 62. 23–64. 1), *Prorrh.* II. 28 (ύπόχολα έμέουσι: Potter 272. 20=Littré

pomegranate-peel' suggests that the bile is linked to the colour red.³⁸ However, the passage, 'when he sat up, he defecated a slightly bilious, sticky, and egglike pale-yellow material (ἀνακαθίζομένω ἐγένετο υπόχολον, γλίσχρον ὡς ἐξ ὠοῦ, ὕπωχρον)' probably indicates the bile is yellow,³⁹ with 'slightly bilious and livid (φλέγμα υπόχολον καὶ ὑποπέλιον)' sputum intimating a strong connection with the colour livid.⁴⁰ Adding to this, the patients affected by so called 'livid disease (πελίη)' are said to have vomited bile.⁴¹ Galen explains the name of this disease and asserts that it is called 'livid' due to the colour of the skin, critically writes: 'some people who here again wrongly commented the "livid fever" in which the faeces are livid'.⁴²

When it comes to the colours of phlegm, there is a general consensus amongst Hippocratic authors that phlegm is white in colour.⁴³ In some cases, phlegmatic material as a symptom is juxtaposed with a white substance. Further, symptoms related to white are described as stemming from diseases caused by phlegm.⁴⁴ Phlegm and whiteness are so closely linked that there are coinages such as λευκοφλεγματώ and other terms stemming from similar roots.⁴⁵

To sum up, while the colour of bile is not always the same, phlegm is often considered to be white. However, due to the diversity of the Corpus, even this association is not absolute. In *Epidemics* VII 74, the author gives a detailed description of the phlegmatic vomit of Simos' wife: '...vomit of much bilious material, pale-yellow, leek-green, and black, whenever she drank'.⁴⁶ A

IX 60. 4), Faeces: *Epid.* IV. 18 (υπόχολα...διαχωρήματα: Smith 98. 19–20=Littré V 154. 19)], *Epid.* VII 12 (υποχωρήματα...υπόχολα: Jouanna 62. 2–3=Littré V 388. 2), *Epid.* VII 14 (κατάχολα υποχωρήματα: Jouanna 62. 21–22=Littré V 388. 18–19), Skin (that is very rare in the Corpus): *Epid.* VI.3.16 (χρωτός... τὸ υπόχολον: Manetti and Roselli 68. 6–8=Littré V 300. 7–8), Blood: *Mul.* 121 (τὸ αἷμα ἐξεραθὲν υπόχολον: Littré VIII 262. 17–18), Phlegm: *Aff.* 9 (φλέγμα υπόχολον καὶ ὑποπέλιον: Potter 16. 19–20=Littré VI 216. 7–8), *Morb.* II 2 (φλέγμα υπόχολον: Jouanna 133. 10=Littré VII 8. 19), Water: *Morb.* II 14 (υπόχολον ὕδωρ: Jouanna 147. 13–14=Littré VII 26. 1).

³⁸ Hp. *Morb.* III. 16: ἀποβήσσει υπόχολον [υπόχολα: Littré] οἶνον ἀπὸ σιδίου (Potter 38. 12=Littré VII 142. 11).

³⁹ Hp. *Epid.* VII 5 (Jouanna 53. 7–8=Littré V 372. 20).

⁴⁰ Hp. *Aff.* 9: φλέγμα... υπόχολον καὶ ὑποπέλιον (Potter 16. 19–20=Littré VI 216. 7–8).

⁴¹ Hp. *Morb.* II 68: ἐμεῖ [ἐμέει: Littré] χολήν (Jouanna 207. 3=Littré II 104. 3).

⁴² Gal. *Comm. Epid.* VI: τινὲς δὲ πάλιν ἐνταῦθα μοχθηρῶς ἐξηγήσαντο πλεὸν πυρετόν, ἐὰν οὐ τὰ διαχωρήματα περὶ φαίνεται (Wenkebach 56. 8–9=Kühn XVIII 889. 4–5). English translation is my own. See also Jouanna (2003: 207, n. 1).

⁴³ Hp. *Aer.* 3, *Aff.* 19, 22, *Aph.* 7. 29, 7. 75, *Gland.* 1, *Int.* 17, 50, *Judic.* 53, *Morb.* I 3, 7, *Morb.* II 71, *Prog.* 17, *Sperf.* 17, *Vict.* 54.

⁴⁴ It is recorded that the jaundice (ἰκτερός) arised from phlegm and that the patient's complexion turned white and that he excreted white urine. Hp. *Int.* 38 (Potter 198. 4–9=Littré VII 260. 7–10). Furthermore, a pregnant women who became phlegmatic experienced a whitening of the tongue and the urine along with the discharge of phlegm. *Mul.* I 29 (Littré VIII 4–8).

⁴⁵ λευκοφλεγματος (*Epid.* II 1 10 [Smith 28. 3=Littré V 82. 6], *Epid.* IV 30 [Smith 116. 14–15=Littré V 172. 19]), λευκοφλεγματοδής (*Epid.* IV 10 [Smith 92. 10=Littré V 148. 24]), λευκοφλεγματώ (*Coac.* 472 [Potter 220. 26=Littré V 690. 6–7]), λευκοφλεγματίας (*Epid.* III 3. 14 [Jouanna 90. 14=Littré III 96. 5]).

⁴⁶ Hp. *Epid.* VII 74: ἐμετος χολωδέων πολλῶν, ὠχρῶν, πρασοειδέων, μελάνων, ὅτε πίοι (Jouanna 93.

similar expression appears in *Epidemics* VII 84 where the vomit is discussed. The patient recorded here vomited abundant bile in a leek-green colour on the third day, and then the vomit changed into a smooth and sticky substance maintaining its leek-green colour. The author of this treatise states that the latter is similar to phlegm.⁴⁷ Therefore, for this author the colour is not a solely definite factor to distinguish the characteristics of fluids, since both bile and phlegm are related to a leek-green colour. The texture of the material seems to be the preferred criterion for this distinction, rather than the colour.

It should be re-emphasised that the two bodily fluids are loosely connected rather than opposed. In several cases, the patient vomited both bilious and phlegmatic materials as the result of one disease.⁴⁸ The patient who vomited bile had sometimes phlegmatic faeces.⁴⁹ It has been also asserted that the vomit compounded of bile and phlegm is better.⁵⁰ The disease referred to as ‘phlegmatic disease (φλεγματοδές)’ even illustrates that the patient vomited much bile.⁵¹

IV. From black ‘bile’ to ‘black bile’

I would now like to focus more on black bile and to discuss the peculiarity of this fluid. Nutton highlights this peculiarity in saying ‘the question that should be raised is not why there should be four humours but why the fourth humour should be black bile rather than another fluid.’⁵² As I briefly mentioned, the author of *On Diseases* IV puts water in his four humours list instead of black bile.⁵³ In fact, several Hippocratic authors recognised the importance of water.⁵⁴ However, this component was underestimated by posterity and never entered the four-humour theory of future medicine. I suggest that this is not only because Galen prioritised *On the Nature of Man*, but also

5–7=Littre V 432. 21–22).

⁴⁷ Hp. *Epid.* VII 84: ἔμετος χολῆς πολλῆς· ἢ πλείστη πρασοειδής (Jouanna 99. 9–10=Littre V 440. 18–19), Id.: ἔμετος πρασοειδής, λειός, γλίςχος ὡς φλέγμα (Jouanna 99. 15–16=Littre V 442. 2–3).

⁴⁸ Hp. *Aff.* 9: ἀποχρέμνεται...φλέγμα...υπόχολον (Potter 16.19–20=Littre VI 216. 6–8), *Epid.* I 12: ἐπανεμέουσι χολώδεα καὶ φλεγματοῦδεα (Jouanna 19. 9–10=Littre II 638. 2–3), *Epid.* IV 24: ἔμετος φλεγματοῦδε, ὅτε δὲ χολώδε (Smith 108. 6–7=Littre V 164. 7), *Morb.* II 74: ἐμει...χολῆν καὶ φλέγμα (Jouanna 214. 3–5=Littre VII 112. 15–17), *Morb.* III 14: ἐμει...φλεγματοῦδεα, ἔπειτα χολώδεα (Potter 28. 5–6=Littre VII 134. 11–12).

⁴⁹ Hp. *Epid.* VII 5: χολῆς ἔμετος (Jouanna 53. 7=Littre V. 372. 19), ὑπεχώρησεν φλεγματοῦδεα (Jouanna 53. 24=Littre V 374. 10).

⁵⁰ Hp. *Prog.* 13 (Jouanna 37. 3–4=Littre II 142. 16–144. 2).

⁵¹ Hp. *Morb.* II 70: Φλεγματοῦδε· .χολῆν πολλὴν καὶ σίελα πολλά (Jouanna 209. 9–13=Littre VII 106. 10–14).

⁵² Nutton (2013: 83).

⁵³ Hp. *Morb.* IV 1: φλέγμα καὶ αἷμα <καὶ> χολῆ καὶ ὕδρων (Potter 100. 8=Littre VII 542. 8–9), *Morb.* IV 2: ἡ χολῆ καὶ τὸ αἷμα καὶ ὁ ὕδρων καὶ τὸ φλέγμα (Potter 102. 1–2=Littre VII 542. 18–544. 1).

⁵⁴ *Aer.* 3, *Aff.* 22, *Morb.* II 13, 17. Especially the following juxtaposition of ‘watery’ and ‘phlegmatic’ is notable. *Aer.* 3: τοὺς τε ἀνθρώπους τὰς κεφαλὰς ὑγρὰς ἔχειν καὶ φλεγματοῦδεας, τὰς τε κοιλίας αὐτῶν πικρὰ ἐκταράσσεσθαι ἀπὸ τῆς κεφαλῆς τοῦ φλέγματος ἐπικαταρρέοντος (Jouanna 190. 7–10=Littre II 16. 5–7), Id. 7: αἱ ὑδῶες καὶ ὑγρά εἰσι καὶ φλεγματοῦδεες (Jouanna 203. 17=Littre II 32. 6).

bile alone attracted the attention of more Hippocratic authors than water.

This stance on bile can be seen in the writing of some physicians. One of the authors of *Epidemics* suggests physicians examine certain manifestations of disease, with the phrase ‘bile, the other humours (χολή, οἱ ἄλλοι χυμοί)’, thus distinguishing bile from the other humours.⁵⁵

Essential testimony of one epidemic disease is given by Thucydides (*Historiae*, Book II, 49–54). Though not a doctor, Thucydides provides us with detailed descriptions of the symptoms: ‘[The affected] vomits every kind of biles named by physicians (χολῆς πᾶσαι ὅσαι ὑπὸ ἰατρῶν ὠνομασμένα εἰσίν)’.⁵⁶ This statement implies that there were several types of bile recognised by ancient physicians.

It is certainly true that the importance of bile, *per se*, was acknowledged by many medical writers in terms of aetiology and symptomatology, but why was the particular attention paid to black bile? The significance of black bile can be seen not only in medical writings, but also in Greek drama.⁵⁷ In Sophocles, the adjective ‘black-clotted (μελαγχόλος Soph. *Tr.* 573–4)’ is used to describe arrows dipped in the Hydra’s poison. The term μελαγχόλος is attested only once in Sophocles, but later on, Deianeira describes the arrow poisoned with Nessus’ blood as ‘ἰὸς αἷματος μέλας (Soph. *Tr.* 717)’. Black bodily fluids have negative connotations in Greek tragedy. After having committed suicide, Ajax shed black blood (ἐρεμνὸν αἷμα Soph. *Aj.* 376).⁵⁸ The blood which flow from the fratricide of Polynices and Eteocles is described figuratively as ‘black-clotted blood (μελαμπαγῆς αἷμα Aesch. *Sept.* 737)’.⁵⁹

The idea that black substances (bile or blood) are malignant was apparently widespread outside of the medical context, in antiquity. As a result, bile that was black in colour might draw physicians’ attention. The author of *On the Nature of Man* adopted and systematised black bile as one element of four-humor theory, but he was not the only one to mention it. In *Epidemics* IV 16, Eumenes’ wife vomited black bile in addition to ‘worms (τὸ ἐλμύνθιον)’.⁶⁰ Apellaos of Larissa also ‘vomited reddish bile when he was awake, and he sometimes vomited black bile.’⁶¹

⁵⁵ Hp. *Epid.* IV 43 (Smith 126, 20–21=Littre V, 184, 11).

⁵⁶ Thuc. *Hist.* II 49.

⁵⁷ Flashar (1966), Langholf (1990: 50, n. 73).

⁵⁸ There is another statement in Socrates that Oedipus shed black blood when he pointed his eye with a brooch (Soph. *OT.* 1278–1279), but this is excluded from the examples since the passage has been deleted by West (1978).

⁵⁹ See further examples: Aesch. *Ag.* 1020 (μέλαν αἷμα), *Eum.* 980 (μέλαν αἷμα), Eur. *El.* 319 (αἷμα...μέλαν), 513 (μελάγχμιον αἷμα), Id. *IA.* 1114 (μέλανος αἷματος).

⁶⁰ Hp. *Epid.* IV 16 (Smith 98, 3–7=Littre V 154, 6–13).

⁶¹ Hp. *Epid.* V 22. Text is different amongst editors. I followed the edition by Jouanna (ἤμει δὲ χολὴν πυρρὴν ἐνότιε, ἐπεὶ διέγροτο· ἤμει δὲ καὶ μέλαιναν [Jouanna 14, 5–6=Littre V 222, 2]) and translated in English. Smith adopts ‘ἤμει δὲ χολὴν πυρρὴν. ἐνότιε ἐπιδιέγροτο, ἤμει δὲ καὶ μέλαιναν (Smith 162, 5–6)’.

Somewhat different from these references are the following two instances, both of which focus on how black bile is produced in the body. The author of *Epidemics* VI explains that small blood vessels, filled with blood and hot, separate the burning part (καυσῶδες) out, separating the yellow bile where there is fat and the black bile where there is blood.⁶² Further, the author of *On Regimen in Acute Diseases* analyses the effect of vinegar with a different tone, using two compound-words of bile.

Hp. *Acut.* 61 (Joly 63, 10–15=Littré II 358. 1–5)

αἱ ἀπὸ ὀξέος ὀξύτητες πικρογόλοισι μᾶλλον ἢ μελαργολοῖσι ζυμῆρουσι τὰ μὲν γὰρ πικρὰ διαλύεται καὶ ἐκφλεγματοῦται, μετεωρίζομενα ὑπ' αὐτέου· τὰ δὲ μέλανα ζυμοῦνται καὶ μετεωρίζεται καὶ πολλαπλασιοῦνται· ἀναγωγὸν γὰρ μελάνων, ὄξος.

acidities from vinegar benefit those who suffer from bitter bile more than those who suffer from black bile. For the bitter humours are dissolved and turned into phlegm by it, not being brought up; but the black are fermented brought up and multiplied, vinegar being apt to raise black humours. (Trans. by Jones slightly modified)

The above examples thus show that black bile appears simply as one type of bile, having a variety of hues, yet being treated at the same level as any other types of bile (red, yellow-green, etc.). Black bile still does not occupy a prominent place as a separate humour in bodily fluids.⁶³

Another important aspect of black bile is its connection with madness. For instance, the author of *On Diseases* I notices a resemblance between the patients suffering from *phrenitis* and those experiencing melancholy. He writes of melancholic patients being deranged, and that some of them even became mad.⁶⁴ In *On Diseases* III, mad and melancholic patients are presented alongside one another as a result of *opisthotonos* which led some patients to death.⁶⁵ In *Epidemics* V, the first symptom that Timocrates showed after excessive drinking is madness caused by black bile. Thus, the patient purges the phlegm and black bile with medicine.⁶⁶

⁶² Hp. *Epid.* VI 6. 1 (Manetti and Roselli 120. 8–122.2=Littré V 322. 7–10). For the interpretation of these puzzling passages, see Manetti and Roselli (1982: 123).

⁶³ Nutton (2013), Hankinson (2017).

⁶⁴ Hp. *Morb.* I 30: Προσεόικασι δὲ μάλιστα οἱ ὑπὸ τῆς φρενίτιδος ἐχόμενοι τοῖσι μελαργολῶσι κατὰ τὴν παράνοιαν· οἷ τε γὰρ μελαργολῶδες, ὅκταν φθαρή τὸ αἷμα ὑπὸ χολῆς καὶ φλέγματος, τὴν νοῦσον ἴσχυσι καὶ παράνοιοι γίνονται, ἐνιοὶ δὲ καὶ μαινόνται (Wittem 88. 7–11=Littré VII 200. 18–21).

⁶⁵ *Morb.* III. 13 (Potter 26. 13–16=Littré VII 132. 25–134. 1).

⁶⁶ Hp. *Epid.* V 2: Ἐν Ἡλίδι, Τιμοκράτης ἔπει πλέον· μαινόμενος δὲ ὑπὸ χολῆς μελαίνης, ἔπει τὸ φάρμακον· οὕτως ἐκαθάρθη τὸ κάθαρμα πούλυ, φλέγμα τε καὶ χολὴν μελαινὰν (Jouanna 2. 8–11=Littré V 204. 7–9).

The relationship between black bile and *epilepsia* is notable. The author of *Aphorisms* enumerates madness, melancholy and *epilepsia* as ailments occurring in spring and autumn.⁶⁷ In *Epidemics VI*, it is said that melancholy and *epilepsia* are often interchangeable.⁶⁸ These examples resonate with the notions of a Pseudo-Aristotelian work, *Problemata*, where black bile is considered to be a cause of madness.⁶⁹

In medical contexts, melancholy is not the only affliction comparable to madness. ‘Itchiness (αἰ κνιδῶσιες)’ and ‘melancholy (τὰ μελαγχολικά)’ are stated to affect women less than they do men, according to the author of *Prorrhetic II*.⁷⁰ In *Aphorisms*, ‘the sudden paralysis of the tongue (ἡ γλῶσσα ἐξαίφνης ἀκρατής)’, ‘paralysis of the whole body (ἀπόπληξις τοῦ σώματος)’, and ‘paralysis of part of the body (ἀπόπληκτόν τι τοῦ σώματος)’ are recognised to be signs of melancholic disease.⁷¹ Furthermore, in *Aphorisms* 3. 14, which has a close resemblance to *On Airs, Waters and Places* 10, ‘dry eye diseases (ὀφθαλμῖαι ξηραί)’ and ‘acute fevers (πυρετοὶ ὀξέεις)’ are listed together with melancholy as diseases of the autumn, during which a northern wind blows and rainfall is lighter. Additionally, even in the same treatise, in one chapter melancholy is associated with madness, but it is simply enumerated as one of the less fatal diseases in another.⁷²

Therefore, even though this peculiar effect of black bile was recognised by some authors, black bile as a category within the four-humours is not clearly established in the Corpus. Lastly, I would like to draw your attention to two more examples.

Hp. *Epid.* III. 14 (Jouanna 90. 13–19=Littre III 96. 4–98. 5)

Εἶδος δὲ τῶν φθινωδέων ἦν τὸ λεῖον, τὸ ὑπόλευκον, τὸ φακῶδες, τὸ ὑπέρυθρον, τὸ χαροπὸν λευκοφλεγματῖαι πτερυγώδες· καὶ γυναῖκες, οὕτω. Τὸ μελαγχολικόν τε καὶ ὑφαιμιον οἱ καῦσοι καὶ τὰ φρενιτικά, καὶ τὰ δυσεντεριώδεα τούτων ἦπτετο. Τεινεσμοὶ νέοισι φλεγματώδεσιν. Μακρὰι διάρροιαι καὶ τὰ δριμέα διαχωρήματα καὶ λιπαρὰ πικροχόλοισιν.

The physical characteristics of the patients of consumption were: skin smooth, whitish, lentil-coloured, reddish; bright eyes; white-phlegmatic condition; shoulder-blades projecting like wings. Women too so. As to those who with black-bilious or rather sanguine complexion, they were attacked by ardent fevers, consumption and dysenteric troubles. Tenesmus affected

⁶⁷ Hp. *Aph.* 3. 20 (Jones 128. 16–21=Littre IV 494. 16–19), *Aph.* 3. 22 (Jones 130. 1–7=Littre IV 496. 4–8).

⁶⁸ Hp. *Epid.* VI. 8. 31 (Smith 274. 5–9=Littre V 354. 19–356. 3).

⁶⁹ *Problemata* 30.1, 953 a30.

⁷⁰ Hp. *Prorrh.* II 30 (Potter 276. 21–23=Littre IX 64. 6–8).

⁷¹ Hp. *Aph.* 6. 56 (Jones 192. 3–6=Littre IV 576. 19–21), *Aph.* 7. 40 (Jones 202. 1–3=Littre IV 588. 5–7).

⁷² Hp. *Morb.* I 3 (Wittern 8. 12–14=Littre VI 144. 11–13).

young, phlegmatic people; the chronic diarrhoea and acrid, greasy stools affected bitter-bilious people. (Trans. by Smith slightly modified)

This passage in *Epidemics* III demonstrates that bile and phlegm are associated with colours, and that the author, intentionally or not, itemises four different characteristics of bodily fluids. Nonetheless, it should be stressed that even two-humoral theory (bile and phlegm) is not fixed, and therefore it seems that he has adopted the ambiguous fluxes that can be observed in *On Places in Man*.⁷³ Another example is attested in *Epidemics* VI.

Hp. *Epid.* VI 5. 8 (Manetti and Roselli 112. 1–4=Littré V 318. 5–8).

Γλώσσα οὔρον σημαίνει: γλωραὶ γλώσσα, γολώδεες, τὸ δὲ γολῶδες, ἀπὸ πίονος· ἐρυθραὶ δὲ, ἀφ' αἵματος· μέλαιναὶ δὲ, ἀπὸ μελαίνης γολῆς· αὔαι δὲ, ἀπὸ ἐκκαύσιος λιγνυώδεος καὶ μητρώου μορίου· λευκαὶ δὲ, ἀπὸ φλέγματος.

The tongue indicates the urine. Greenish tongues are bilious. Biliousness is from fat. Ruddy ones are from blood. Black ones are from black bile. Dry ones are from smoky burning and from the area of the womb. White ones are from phlegm. (Trans. by Smith)

That the same scheme of four humours is used by the author is noteworthy, even if they are used in a different context, given the author's implication that the four main innate components are closely linked to visible symptoms. There is no consensus about humoral theory in the Corpus – even the list of humours is not perfectly determined. It can be assumed that these four fluids form the rudimentary structure of four-humour theory.⁷⁴ Although the author of this treatise does not clearly adopt the humoral system, he states that the patient vomits phlegm as a manifestation of kidney diseases, and emphasises the relationship between humours and expectorations.⁷⁵ On the other hand, he mentions some obscure humours (χυμοί) found in the body.⁷⁶

This phenomenon is common amongst the works of *Epidemics*. Just as in *Epidemics* III, the author of *Epidemics* II mentions the downward flow of humours from the head as an invisible

⁷³ Thivel (1981: 311) pointed out that *Epidemics* III is based on the bipolarities of bile and phlegm such as *On Regimen in Acute Diseases* and *On Airs, Waters, and Places*, but it is not clear whether this author's beliefs are indeed in line with this system. See, for example, *Epid.* III. 3. 13: τὰ μέντοι γλίσχροα, καὶ λευκὰ, καὶ ὑγρά, καὶ ἀφρώδεα πολλὰ ἀπὸ κεφαλῆς ἦει [κατήει: Littré] (*Jouanna* 90. 4–6=Littré III 94. 16–17).

⁷⁴ *Jouanna* (2016: 387), Langholf (1990: 136).

⁷⁵ Hp. *Epid.* VI 1. 5 (Manetti and Roselli 4. 5–6.1=Littré V 268. 3–4).

⁷⁶ Hp. *Epid.* VI 2. 1: Χυμοὺς, τοὺς μὲν, ἐξῶσα, τοὺς δὲ ζηρᾶναι, τοὺς δὲ ἐνθεῖναι, καὶ τῆ μὲν, τῆ δὲ μί. (Manetti and Roselli 20. 1–3=Littré V 276. 4–6).

change within the body.⁷⁷ At the same time, the author notes bile and phlegm as a visible manifestation of diseases.⁷⁸ From these investigations, I suggest that the predominance of black bile developed independently from the aetiological explanation of disease-causing humours.⁷⁹

V. Conclusion

Hippocratic authors recognised the importance of humours, describing them both aetiologically and symptomatologically. This is evidenced in the texts of the Hippocratic Corpus. As the texts were written by a diverse groups of authors, their aetiologies differ: some attribute disease to an imbalance of the four humours, while others attribute it to bile and phlegm only. Although suppositions differ on which innate substance causes disease, most Hippocratic physicians paid great attention to bile and phlegm that manifested outside the body in various forms, in order to estimate internal causes. It is clear that four-humour theory is not yet established in the Hippocratic Corpus, and it was instead Galen who contributed to its diffusion. This lack of establishment can be seen in the author of *On the Nature of Man*'s reference to 'so-called black bile (ή μέλαινα καλομένη)'. Though it is true that black bile appears most often in later works, such as *On the Nature of Man*, *Epidemics* II, IV, and VI, there are several passages in earlier works of the Corpus associated with black bile. Among them, a rudimentary schema of the four-humours theory can be found. Therefore, I draw a conclusion that the well-known humoral theory is not the entirely new invention of the author of *On the Nature of Man*. It is simply a stage of development in humoral theory in ancient Greek world.

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⁷⁷ Hp. *Epid.* II 1. 10: τὸ ἀπὸ τῶν χυμῶν τῶν ἐκ τοῦ σώματος τοῦ ἀλμώδεος ὅτι ὑπὸ τὸ δέρμα μάλιστα καὶ ἀπὸ τῆς κεφαλῆς ὅταν ἀπὸ τοῦ πλεύμονος διαθερμαίνηται. (Smith 27. 7–9=Littre V 82. 9–11).

⁷⁸ For instance, *Epid.* II 3. 11(Smith 54. 6–7=Littre V 112. 9–10 and Smith 56. 3=Littre V 114. 5).

⁷⁹ See, Thivel (1981: 312).

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