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Doṣas by the Numbers

Buddhist Contributions to the Origins of the Tridoṣa-theory in Early Indian Medical Literature with Comparisons to Early Greek Theories of the Humours

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Article abstract

This paper explores the origins of the Indian medical nosology involving the three doṣas from the perspective of its formulation into three or four distinct types. The essay compares similarities in passages from three different literary sources: Pāḷi texts of early Buddhism, early Sanskrit medical literature, and Greek texts from the Hippocratic Corpus and the Anonymus Londiniensis. The study reveals that the tridoṣa-theory, common to āyurvedic literature from an early time was based on the adoption and then adaption of ideas nourished by an intellectual exchange with the Greek-speaking world.

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Doṣas by the Numbers: Buddhist Contributions to the Origins of the Tridoṣa-theory in Early Indian Medical Literature with Comparisons to Early Greek Theories of the Humours

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In this paper I should like to revisit a problem in the history of Indian medicine that has yet to find a satisfactory solution. The issue centers on explaining the origin of the three-"humour" theory (*tridoṣavāda*), a central Ayurvedic concept of disease-causation.

At the core of classical Ayurveda stands the aetiological theory of the three "humours" (*doṣa*s), which are defined as wind (*vāta*/*vāyu*), bile (*pitta*), and phlegm (*kapha*/*śleṣman*). They become pathogenic, when, for one or another reason, one or more of the *doṣa*s becomes riled, dislodges from its natural resting place, and manifests in some other part in the body. Since this theory includes a group of three well-defined Sanskrit terms, at first glance, it seems straightforward to trace this transparent mode of thinking through Indian literature down to the earliest medical treatises where early versions of the theory are first expounded. However, no such single literary precedent has yet been found in Sanskrit literature.

Of the previous attempts to find the beginnings of the *tridoṣa*-theory, the most important contributions occur in a series of articles by Jan Meulenbeld,[1] a seminal study by Hartmut Scharfe,[2] and a recent investigation from the perspective of Chinese translations of Buddhist literature by Natalie Köhle.[3] Dominik Wujastyk has touched on the subject of the three *doṣa*s in his studies of the more scientific and theoretic side of early Indian medicine, while Vicky Pitman has addressed overall similarities between Hippocratic medicine of ancient Greece and early

1 Meulenbeld 1990; 1992; 2008; 2009; in preparation. See also the study of Dasgupta (1952–61: I: 333), who attempted to find links between the three *doṣa*s and the early philosophical notions of air (*pavana*), fire (*dahana*) and water (*toya*).

2 Scharfe 1999.

3 Köhle 2016.

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Ayurveda.[4] Their examinations of the subject are the points of departure for my exploration of the basis of the *tridoṣa* theory in Indian medicine. In the course of this paper, I shall try to trace a likely path that led to the development of a theory of disease-causation in ancient Indian medical thought and shall focus specifically on the enumeration of the *doṣa*s.

We turn first to the early Prakritic Pāli literature of the Theravāda Buddhists, where we find a detailed presentation of the theory of humankind's suffering in the world, which takes the form of one of the Buddha's teaching, thus positioning medical theory close to the fundamental principles of early Buddhist thought. A succinct presentation of the nosology is recorded in the *Sutta Piṭaka* of the Buddhist Canon, which dates back to at least the first century BCE, when the Pāli Canon was first written down on Sri Lanka, but in fact reflects the early period of Buddhist doctrinal development during the second half of the first millennium BCE.[5]

The Buddhist version is perhaps the earliest formulation of the *dosa*-theory,[6] which also bears a close resemblance in number of *doṣa*s and literary style of the version put forth in the classical Ayurvedic compilation of the *Suśruta Saṃhitā*. One is composed in Pāli and the other in Sanskrit, but both count four *doṣa*s in a three-plus-one enumeration and present the theory in prose followed by a versified summary meant for memory, which is typical of both Pāli Buddhism and early Sanskrit Ayurveda.

1 DOSA-THEORY IN THE PĀLI CANON

The formulation occurs in the "Sīvakasutta" of *Saṃyuttanikāya* (4.230–31), where the wandering mendicant Sīvaka, who is characterised by the top-knot on his head and who might well have been a physician,[7] visited the Buddha to consult with him about the cause of human suffering. Here is how the conversation is recorded.

> There are, Gotama, some ascetics and Brāhmans who speak and hold the viewpoint that whatsoever a human experiences, be it pleasure or pain, or be it non-pain or non-pleasure, all that what has gone before (i.e., past action) is its single cause. What say you, Gotama?
>
> Now, Sīvaka, some experiences arise that have (only) bile (*pitta*) as their cause. Surely, it is but self-evident, Sīvaka, that some experiences arise that have bile as their cause. In this world, Sīvaka, it is

4 Wujastyk 2000; 2004; 2017, Pitman 2006.
5 Scharfe 1999: 616; cf. Wujastyk 2017: 3 (mid-first millennium BCE).
6 I use *dosa*, when referring to the Pāli literature of early Buddhism and *doṣa*, when talking about the Sanskrit literature of early Ayurveda.
7 See BKS: v. 4 154 n. 4. In this regard, I wonder if Sīvaka is not a variant or even a mistake for the name Jīvaka.

considered as truth that some experiences arise because of bile. In this case, it is like those ascetics and Brāhmans who speak and hold this view point that whatsoever a human experiences, be it pleasure or pain, or be it non-pain or non-pleasure, all that what has gone before is its single cause. What is self-evident is that this has gone too far. Also in this case, that it is considered as truth in the world has also gone too far. Therefore, I say those ascetics and Brāhmans are wrong.

There are, Gotama, some ascetics and Brāhmans who speak and hold the viewpoint that whatsoever a human experiences, be it pleasure or pain, or be it non-pain or non-pleasure, all that what has gone before is its single cause. Now, Sīvaka, some experiences arise that have phlegm (*semha*) as their cause.... Some experiences arise that have wind (*vāta*) as their cause.... Some experiences arise that are their simultaneous corruption (*sannipātaka*).... Some experiences arise due to the changes of seasons (*utu*) .... Some experiences arise due to going to extremes (*visamaparihara*).... Some experiences arise that are from an external agency (*opakkamika*).... And some experiences arise due to the ripening of one's actions (*kammavipāka*)....What is self-evident is that each viewpoint has gone too far. Likewise, the (corresponding) world maxim has gone too far. Therefore, I say those ascetics and Brāhmans are wrong.

[Here is the verse]

Bile, phlegm, wind, and their simultaneous corruption, season, imbalance, external agency, and ripening of past actions is the eighth.[8]

8 SN: 4.230–39: *santi bho gotama eke samaṇabrāhmaṇā evaṃ vādino evaṃ diṭṭhino-yaṃ kiñcāyaṃ purisapuggalo paṭisaṃvedeti sukhaṃ vā dukkhaṃ vā adukkham asukhaṃ vā sabbaṃ taṃ pubbekatahetūti/ idha pana bhavaṃ gotamo kim āhāti. pittasamuṭṭhānāni pi kho sīvaka idhekaccāni vedayitāni uppajjanti | sāmaṃ pi kho etaṃ sīvaka veditabbaṃ yathā pittassamuṭṭhānāni pi idhekaccāni vedayitāni uppajanti; lokasya pi kho etaṃ sīvaka saccasammataṃ yathā pittasamuṭṭhānāni pi idhekaccāni vedayitāni uppajjanti/ tatra sīvaka, ye te samaṇabrāhmaṇā evaṃ vādinā evaṃ diṭṭhino-yaṃ kiñcāyaṃ purisapuggalo paṭisaṃvedeti sukhaṃ vā dukkhaṃ vā adukkham asukhaṃ va sabbaṃ taṃ pubbekatahetūti | yaṃ ca sāmaṃ ñātaṃ taṃ ca atidhāvanti, yaṃ ca loke saccasammataṃ taṃ ca atidhāvanti/ tesaṃ samaṇabrāhmāṇam micchā ti vadāmi. semhasamuṭṭhānāṇi pi kho sīvaka ... vātasamuṭṭhānāni pi kho sīvaka ... sannipātakāni pi kho sīvaka ... utupariṇāmajāni pi kho sīvaka ... visamaparihārajāni pi kho sīvaka ... opakamikāni pi kho śīvaka ... kammavipākajāni pi kho sīvaka ... yaṃ ca sāmaṃ ñātaṃ taṃ ca atidhāvanti, yaṃ ca loke saccasammataṃ taṃ ca atidhāvanti/ tesaṃ samaṇabrāhmāṇam micchā ti vadāmiti ... pittaṃ semhaṃ ca vāto ca sannipātam utūni ca | visamaṃ opakamikam (ca) kammavipākena aṭṭhamīti ||* This eightfold enumeration of sufferings is repeated at AN: 2.87 and 3.130–131, where the most exquisite ascetic (*samaṇasukhamāla*) is said to be one in whom these eight do not much arise (*na bahud eva upajanti*) and

> This typical piece of Buddhist teaching uses prose repetition to emphasise a point and metrical verse to aid the memory of its central message.

The meaning is clear and straightforward. It involves the systematic rejection of previous theories for the imbalances that humankind experiences, explained in terms of the opposite pairs of pleasure and pain and non-pain and non-pleasure. It begins with the theory that the root cause lies in a person's past actions. The presentation follows a fixed pattern of rejection for each of the theories, concluding with the assertion that there is not just one cause of human suffering in the world.

The list of eight causes is divided into two parts: four caused by each of the three dosas plus their simultaneous corruption to form a three-plus-one configuration and four from a variety of external factors. Because the number eight also occurs as the number of steps on the Eight-Fold Path and the number four corresponds the number of the Four Noble Truths (*cattāri ariyasaccāni*),[9] two cornerstones of Buddhist thought, it would indicate that medicine was already well-integrated into early Buddhist thought. My focus is on the first group of four, leaving the other group of four until later.

This is the earliest version of the fixed number of causes for disease. The number is four: wind, bile, phlegm, plus their combination. Scharfe points out that the same list of four occurs in grammatical literature in Sanskrit dating from the middle of the third century BCE, and well as in a later Buddhist Sūtra in Sanskrit, the *Suvarṇaprabhāsottamasūtra* (c. 300 CE), where they are linked to the times of the day and where the first three are linked to the process of digestion in the body.[10] The occurrence in both Buddhist and Brahmanic śāstric literature indicates a fourfold configuration of disease-causation was widely known and accepted around the third century BCE. Furthermore, Köhle confirms Dominik Wujastyk's claim that the earliest configuration may have really only included two elements: bile and phlegm, which occur as both root bodily elements (*dhātu*) and waste products of digestion. They further correspond to fire (*agni*) and water (*soma*) on the cosmological plain and could stem from Indo-European or Indo-Iranian thought.[11] Recently, Vitus Agermeier has re-examined the *agni*/*soma* dichotomy in early Ayurveda, concluding that "there clearly exists a much older and much more deeply rooted concept of hot/cold in these Ayurvedic works

one has little affliction (*appābādho*). It is repeated at Trenckner (Miln: 134–38), with the following change in the order of the dosas: *vāta*, *pitta*, *semha*, and *sannipāta*. See also the summarised translation by Scharfe (1999: 613).

9 The Four Noble Truths are the following: pain (*dukkha*/*duḥkha*), desire (*tanhā*/*tṛṣṇā*), cessation (*nirodha*), and path (*magga*/*mārga*), which, in a way, reflects an implied medical paradigm of disease, cause, cure, and treatment. Cf. Scharfe's rejection of Demiéville's attempt to harmonise the four elements of the body (*bhūta*) with the three *doṣa*s (Scharfe 1999: 618, n. 28). See also the discussions of **maus-2008**; Wezler (1984) and Halbfass (1992).

10 Scharfe 1999: 617; Köhle 2016: 487.

11 Wujastyk 2004: 365; Köhle 2016: 478–83; Scharfe 1999: 615 n. 48.

than the *agni*/*soma* concept".[12] These same two, bile and phlegm, connected to digestion, are the most important among the Greek humours from the Hippocratic Corpus onward.[13] Although two, bile and phlegm, find a place in the early list of root bodily elements, their grouping with wind and their combination to make a fourfold configuration is the earliest formulation of the specific pathogenic agents and finds its exposition as part or early Buddhist doctrine. Early Ayurvedic literature, which otherwise harmonises with the medicine of early Buddhism, exhibits a variation in the number of the *doṣa*s.

2 DOṢA-THEORY IN EARLY SANSKRIT MEDICAL LITERATURE

The theory of the doṣas is introduced in the classical Sanskrit medical treatises compiled by Caraka and by Suśruta, whose exact dates are far from certain, but the collection of medical information contained in them spans several centuries from as early as the fourth century BCE to the fourth century CE.[14] I begin with Suśruta's collection.

The discussion of *doṣa*s in the *Suśruta Saṃhitā* is presented in same style as that found in early Buddhist literature. Not only are there four pathogenic agents, arranged in a similar three-plus-one construction, but the literary style used to introduce them is also the same, a prose passage followed by a summary verse.

> Wind, bile, and phlegm are indeed causes (*hetu*) that give rise to/appear in the body. This body is maintained by them when they are uncorrupted (*vyāpanna*) and seated below, in the middle, and above like a house with three pillars. And, because of this, some called it (i.e., the body) three-pillared. The body does not exist without these (three) that have blood as the fourth, in its production, stability, and dissolution.
>
> Here is the verse:
>
> > There is no body without phlegm (*kapha*), bile (*pitta*), wind (*māruta*), and blood (*śoṇita*). The body is always supported by them.[15]

12 Angermeier 2021: 30.

13 Nutton 1993: 284; Pitman 2006: 148 with reference to Disease I.2.

14 Wujastyk 1998: 40–41, 104–05.

15 Su: Sūtrasthāna 21.3–4: *vātapittaśleṣmāṇā eva dehasaṃbhavahetavaḥ | tair evāvyāpannair adhomadhyordhvasannivisṭaiḥ śarīram idaṃ dhāryate 'gāram iva sthūlābhis tisṛbhiḥ, ataś ca tristhūṇam āhur eke | ta eva ca vyāpannāḥ pralayahetavaḥ | tad ebhir eva śoṇitacaturthaiḥ saṃbhavasthitipralayeṣv apy avirahitaṃ śarīraṃ bhavati || 3 || bhavati cātra*
narte dehaḥ kaphād asti na pittānna ca mārutāt | śoṇitād api nityaṃ deha etais tu dhāryate || 4
The twelfth-century commentator Ḍalhaṇa points out that some teachers read this as an

The author describes four causes for a disease in the human body. He begins with the three pillar-like support of the body containing wind, bile, and phlegm, and explains that they have seats, each located in a different part of the body from toe to head.[16] In their uncorrupted state, they maintain a healthy body throughout life. Then, almost as an afterthought, he includes blood as the fourth *doṣa*. The summary verse, meant to aid memory, confirms the number to be four in the configuration of three-plus-one. Therefore, as in the Buddhist enumeration, the total number of pathogenic agents at this place in Suśruta's compilation is four.

A slightly different enumeration occurs in a line of prose earlier in same chapter:

> But bodily (imbalances) that have their roots in food and drink result from an imbalance of wind, bile, phlegm, blood, and their simultaneous corruption.[17]

Here the pathogenic agents are now five, by adding blood to the four already presented in the Buddhist list. Furthermore, they are linked to the process of digestion in the human body. It would appear this version by Suśruta is a blending of two different enumerations of the four pathogenic agents: one with the simultaneous corruption of the three (*sannipāta*) and one with blood (*śoṇita*) as the fourth. The former is Buddhist and the latter is Ayurvedic. As Meulenbeld has already shown the enumeration of four with blood as the fourth is old in

"unexpected" verse, being a *śloka* that summarises what was stated in prose (*narte dehaḥ…ato gadyoktasyārthasya saṃgrahaśloka ity āpatanikām* (corrected from *āpātanikāṃ*, see 1914 edition) *kecid ācāryāḥ paṭhanti*). My translation agrees with Scharfe (1999: 625). There remains a question about the meaning of *dehasaṃbhavahetavaḥ*, which he renders "causes for the constitution of the body," presumably following Ḍalhaṇa's *dehotpattihetavaḥ*, who glosses *saṃbhava* as *utpatti*, a noun with the general meaning: arising, birth, or origin, causes for the origin of the body. But taking it as a Tatpuruṣa compound, one could have "causes at/from the time of birth of the body." Another meaning of *utpatti* can be "giving rise to," which is how Scharfe understands it. Certainly, *dhātus*, but not *doṣa*s give rise to the body, so it is difficult to understand the meaning here. In common occurrences, *saṃbhava* means "occurring or appearing," hence the whole compound would mean: "causes appearing in the body". So the reading remains tentative.

16 Köhle (2016: 486–487) takes these general locations to represent a late stratum of the text.

17 Su: Sūtrasthāna 1.24(2): *śārīrās tv annapānamūlā vātapittakaphaśoṇitasannipātavaiṣamyanimittāḥ*. Ḍalhaṇa quotes an unidentified *śloka* that mentions specifically the number four: "this is the collection of the four kinds of bodily imbalances. The physicians call it 'cause,' when they are in a state of agitation and calmness." (*śārīrāṇāṃ vikārāṇām eṣa vargaś caturvidhaḥ | prakope praśame caiva hetur uktaś cikitsakaiḥ*). Here the number four could refer either to the enumeration three plus blood (*śoṇita*) found later in the same chapter or to three plus there simultaneous corruption (*sannipātika*) found in the Pāli version. See also Scharfe (1999: 626), with reference to Su: Sūtrasthāna 1.34 f.

Ayurveda, occurring as the standard formulation in the Ayurvedic tradition of veterinary medicine.[18]

The *Caraka Saṃhitā*, however, adopts a threefold formula, which is the preferred enumeration of *doṣa*s from Vāgbhaṭa (seventh century CE) to present-day. The number three seems to harmonise with the number of "qualities" (*guṇa*) in Sāṃkhya philosophy. It is expressed in a single verse in the didactic Anuṣṭubh-metre.

> The collection of bodily *doṣa*s is called wind (*vāyu*), bile (*pitta*), and phlegm (*kapha*). Moreover, the mental (collection) is particularised as passion (*rajas*) and dullness (*tamas*).[19]

Here, the enumeration of the *doṣa*s is threefold. In the second line only two of the standard three guṇas are mentioned, since creativity (*sattva*) is missing. Scharfe understands this to indicate that wind, bile, phlegm on the physical level correspond to (creativity), passion, and dullness on the psychological level.[20]

The cognitive process of counting or enumeration (*saṃkhyā*) occurs early in Sanskrit literature, being already found in the *Ṛgveda*, and is indicative of the early Indian method of organising and explaining the physical world.[21] It reaches a highpoint in both the Pāli literature of the Buddhist Canon and the Sanskrit literature of early Ayurveda.

Dominik Wujastyk has drawn our attention to the importance of the number three in other contexts in the *Caraka Saṃhitā*, where early in the chapter on general considerations (Sūtrasthāna), central concepts are presented in eight sets of three.[22] It would appear, therefore, that the number three is deliberate in Caraka's compilation, coming from the number of qualities or properties (*guṇa*) expressed in the early philosophical school of Sāṃkhya. According to Sāṃkhya, the three guṇas are constituent processes operating in the world, being defined in a philosophical sense as the [pure] intelligibility-process (*sattva*), the activity-process (*rajas*) and the [dark] inertia- process (*tamas*).[23]

Thus far in our inquiry into the origin of the Ayurvedic nosology of *doṣa*s, we can posit that the number three harmonises with the number of the guṇas in early Brahmanic thought. The number four, however, is an anomaly, occurring in the same formulation in early Buddhist Pāli and Sanskrit grammatical literature, and in a different formulation in first book of the medical treatise compiled

18 Meulenbeld 1991; Wujastyk 2000: 485–86.

19 Ca: Sūtrasthāna 1.57: *vāyuḥ pittaṃ kaphaś coktaḥ śarīro doṣasaṃgrahaḥ | mānasaḥ punar uddiṣṭo rajaś ca tama eva ca ||*

20 Scharfe 1999: 622–623.

21 Zysk 2009: 9–10.

22 Ca: Sūtrasthāna 1.11. They include: three pillars, three kinds of strength, three sources of diseases, three diseases, three paths of diseases, three kinds of physicians, three kinds of medicine, and three kinds of therapy (Wujastyk 1998: 60–73).

23 Larson and Bhattacharya 1987: 65–75, 665, *et passim*; cf. Scharfe (1999: 622 n. 84).

by Suśruta, who also offers in one place a blending of the two different enumerations of four, yielding the number five pathogenic agents. The *Suśruta Saṃhitā*, therefore, represents an early stage in the development of the Indian nosology when there were three, four, or five specific causes of disease.

I wish now to explore more closely the two different forms of the fourth agent, simultaneous corruption (*sannipāta*) and blood (*śoṇita*), in early Ayurveda.

3 SANNIPĀTA IN EARLY AYURVEDA

Early Buddhist literature states that the fourth agent causing suffering is simply the simultaneous corruption (*sannipāta*) of the three, wind, bile, and phlegm, which finds expression in the Ayurvedic works of both Caraka and Suśruta. Dominik Wujastyk has examined the term in the context Ayurvedic combinatorics and models of disease and translates it as "humoral colligation," i.e. "a category of disturbance in which all the three humours are either increased or decreased simultaneously."[24] This cause is in contradistinction to the coalescence (*saṃsarga*), which is the simultaneous disturbance of only two *doṣa*s.[25]

Elsewhere in Caraka's text the term occurs in connection with different diseases. After a discussion of head diseases caused by wind, bile, and phlegm, the text says that there is a complicated form of head disease caused by the simultaneous corruption (*sānnipātika*) of the three pathogenic agents.[26] Also in connection with head diseases, it mentions specifically thirteen conditions in which there is a simultaneous corruption of the three.

> The (number) of morbid conditions resulting from the simultaneous corruption (*sannipāta*) (of the three) is thirteen: six (conditions): (three) whereby two dominate and (three) whereby one dominates; six whereby each is slightly, moderately, or excessively dominant; and one whereby (all three) are simultaneously dominant.[27]

24 Wujastyk 2017: 1; 2000: 483 f.

25 Ca: Vimānasthāna 6.11 (prose): *anubandhyalakṣaṇasamanvitās tatra yadi doṣā bhavanti | tattrikaṃ sannipātam ācakṣate, dvayaṃ vā saṃsargam |* The eleventh-century commentator Cakrapāṇidatta clarifies that the word *anubandhya* is a technical term where a *doṣa* obeys the laws beginning with manifested symptoms (*anubandhyaśabdaś cāyaṃ vyaktaliṅgādidharmayukte doṣe vartate*).

26 Ca: Sūtrasthāna 17.36ab: *hetulakṣaṇasaṃsargād ucyate sānnipātikaḥ.*

27 Ca: Sūtrasthāna 17.41: *dvyulbaṇaikolbaṇaiḥ ṣaṭ syur hīnamadhyādhikaiś ca ṣaṭ | samaiś caiko vikārāste sannipātās trayodaśa ||* For "slightly, moderately, or excessively dominant" Cakrapāṇidatta glosses: "increased, more increased, and most increased" (*vṛddhavṛddhataravṛddhatamaiḥ*). The following three verses (42–44) further delineate these thirteen types. See also Wujastyk 2000: 438 f.

Finally, Caraka's work describes in much the same way the thirteen types of fever caused by the concurrent derangement of the three agents; however, here it includes physical symptoms for each of the types.[28]

Although the *Caraka Saṃhitā* does not include *sannipāta* together with wind, bile, phlegm in the basic enumeration of the pathogenic agents, it provides a definition of the condition along with a rather elaborate description of it in terms of thirteen types specific to the head-diseases and to fevers. The inclusion of *sannipāta* in a basic definition of the disease-causing agents, in a three-plus-one configuration belongs both to early Buddhist medical doctrine and to the Ayurvedic system expounded by Suśruta.

Like the *Caraka Saṃhitā*, Suśruta's text also includes the simultaneous corruption of *doṣa*s in the context of a specific disease. It explains that there are eight types of the abdominal swelling (*udara*): four that include the *doṣa*s individually (*pṛthak*) and together (*sama*) and a group of four others that are specific kinds of morbid abdominal conditions.[29] The enumeration of fifteen ways that the *doṣa*s spread in the body occurs in a passage from the Sūtrasthāna. Here, it includes blood in the list of *doṣa*s and their simultaneous corruption, yielding a total of fifteen types. It explains that they spread alone, in various combinations, in pairs, all together, or along with blood (*śoṇita*), using the metaphor of the spreading (i.e., rising) of dough due to the mixture of yeast, water, and flour. He gives the fifteen combinations as follows: *vāta, pitta, śleṣman, śoṇita, vātapitta, vātaśleṣman, pittaśleṣman, vātaśoṇita, pittaśoṇita, śleṣmaśonita, vātapittaśoṇita, vātaśleṣmaśoṇita, pittaśleṣmaśoṇita, vātapittakapha, and vātapittakaphaśoṇita*.[30]

The passage from Suśruta's text follows that of Caraka's, but includes the fourth doṣa, blood, which elsewhere in Suśruta's compilation figures in the three-plus-one configuration of disease-causing agents. Because of the inclusion of blood, the version from the *Suśruta Saṃhitā* marks a deviation from that of Caraka's text. Furthermore, the *Suśruta Saṃhitā*'s inclusion of sannipāta under the discussion of specific diseases points to an attempt to harmonise with the *Caraka Saṃhitā*, where it applied only in specific cases or morbid conditions.

The Buddhist's understanding of sannipāta occupying a part in the general doṣic nosology does not carry over into early Ayurveda, except in a remark found in the *Suśruta Saṃhitā*, which combines it with blood to produce an unorthodox enumeration of five disease-causing agents. But a key question is: from where does Suśruta get the idea of blood (*śoṇitā/rakta*) as the fourth doṣa?

28 Ca: Cikitsāsthāna 3.89–108.

29 Su: Nidānasthāna 7.4. See also Meulenbeld 1991: 94.

30 Su: Sūtrasthāna 21.28 (see also Meulenbeld (1991: 98)). The NSP edition gives both variations of the words phlegm (*śleṣman/kapha*) and blood (*śoṇita/rakta*) in this enumeration, indicating that they are clearly synonyms and final editing of the prose passage was not yet achieved. See also Wujastyk 2000: 485.

4 BLOOD AS THE FOURTH IN THE *SUŚRUTA SAṂHITĀ*

The topic has already received attention by Meulenbeld and Scharfe, both of whom understand blood in the *Suśruta Saṃhitā* to occupy an ambiguous position between being a root support of the body (*dhātu*) and a pathogenic agent (*doṣa*), when acted upon by one or a simultaneous corruption of wind, bile, and phlegm.[31] As Pitman points out, blood occupies the same ambiguous position as humour in the *Concerning Disease IV* (*peri nousōn D*) in the Hippocratic Corpus, where it mixes with other humours to cause pain (38.2).[32] Lonie remarks in this connections that a distinction needs to be made "between blood as one of the constituent humours which are the basis of health and disease, and blood as the carrier of life, vitality and in some cases, consciousness".[33] In both cases, the ambiguity is rather implicit than explicit in the early texts, but nevertheless, the dual role of blood as a constituent of life and direct or indirect cause of disease is in both Suśruta's and the Hippocratic texts.

Since Suśruta's mention of blood as the fourth agent is unique in India, it has given rise to speculation that the origin of his three-plus-one nosology may not have arisen on Indian soil.[34] The only other well-known fourfold nosological theory from antiquity to include blood is the Greco-Roman theory of the four humours, which in its final formulation included two types of bile (black and yellow) along with phlegm and blood. In place of one type of bile, Suśruta has wind, which is found in the enumeration of the humours in the Greco-Roman system. Since wind factors also in enumeration of the *dosas*/*doṣa*s in both Buddhist medical doctrine and Caraka's compilation, it indicates that it was well-established in Indian nosology. In fact, Caraka devotes an entire chapter to it in his introductory book, called "on the merits and demerits of wind (*vātakalākalīya*)," in which the principals and properties of wind as a doṣa are debated, discussed, and established in Ayurveda.[35]

Wind (*vāta, vāyu*) and vital breath (*prāṇa*) have a significant role to play in the early Indian ascetic traditions at least from the time of the early Upaniṣads around 800 BCE. Their concept of the five breaths carried over into early Ayurveda, where its enumeration and explanations were adopted into to a medical context.[36] Although wind in early Ayurveda is varied and incorporates a diversification of ideas, the use of a fivefold enumeration of the vital breaths indicates an adaption from ancient Indian traditions of asceticism, which included practices of breath-control (*prāṇāyāma*), as part of their religious discipline.

31 Meulenbeld 1990; 1991; Scharfe 1999: 616; cf. Wujastyk 2000: 485–86. The viewpoint is clearly expressed by Cakrapāṇidatta at Ca: Sūtrasthāna 1.57.

32 Pitman 2006: 188 and n. 154.

33 Lonie 1981: 26, 293.

34 Pitman 2006: 159–60.

35 Ca: Sūtrasthāna 1.12.

36 Zysk 1993; 2007.

Inspired by Pitman's list of similarities between early Ayurveda and Hippocratic medicine, I will explore more closely the idea of blood as one of the pathogenic agents in early Greek texts on medicine.[37]

5 BLOOD IN THE EARLY GREEK AND EARLY AYURVEDA THEORIES OF DISEASE

Texts from the hippocratic corpus speak of blood in various contexts, but it is its specific mention in the numeric formulation of the causes of disease that concerns us here. We shall consequently focus on the specific formulation of the agents of disease, as it is presented by four different authors, whose writings date from the late fifth to early fourth century BCE in Greece and southern Italy. The four Greek authors are chosen because their formulations fit our interest in specific enumerations of humours.

One author, Polybus of Cos, is considered an author of a book of the *Corpus*; another author is unidentified, but presumably not Hippocrates. Two other authors are Philolaus of Croton and Menecrates called Zeus of Syracuse. Their formulations occur in a fragment of a doxography from the late second century CE, called *Anonymus Londinensis*. I shall examine the relevant portions of each, focussing on correspondences with the formulation of the *doṣa*s of the early Buddhist and early Ayurvedic thinkers.

POLYBUS' FORMULATION

The first account in the Hippocratic Corpus is in the book called *On the Nature of Man* (peri physios anthrōpou), where rather than juices or humours (*chymos*), there are four essential elements (eon/onta) of the body. Notably, the style is reminiscent of the above-mentioned passage on the four agents of suffering from the Buddhist Pāli Canon. The author Polybus was the son-in-law and disciple of Hippocrates, who wrote his work around 370 BCE. He presents the views of physicians (iatros) on the cause of disease:

37 She concludes her study with the following seven general similarities between the Hippocratic and early Ayurvedic medicine: both *doṣa*s and humours are bodily manifestations of natural and cosmic elements in the body; both systems see a humour or *doṣa* as capable of moving in the body; both models recognise a divine aspect to creation and see the mental-spiritual aspects of human as also part of the qualities of the humours or *doṣa*s; both recognise that humans can be grouped according to shared physical and mental features into constitutional types based on their balance of the humours or *doṣa*s; both models employ concepts of like to like and antagonism of opposites in their explanations of disease; both...give fundamental importance to the concept of cosmic air; and both include the idea of void or space (*aether, ākāśa*) in the understanding of the natural world (Pitman 2006: 206–210).

> They [i.e. physicians] are the ones who say that man is blood (*haima*), others among them claim man to be bile (*cholos*), but some say he is phlegm (*phlegma*). They all come to the same conclusion, for they claim that there is one (*en*), no matter what name each of them wants to give it; and that (substance) changes its form/appearance/kind (*idea*) and property (*dynamis*) under the constraint of heat (*thermos*) and cold (*psychros*) and becomes sweet or bitter, white or black, or of many different kinds. But it does not at all seem to me to be the case. Contrary to the majority, who hold such a view or one similar to it, I say that if a man is one (*en*), then he never suffers bodily pain, for there is nothing from which one entity (*on*) could suffer bodily pain....[38]
>
> But I ask him who asserts that blood alone and no other to be the man to show that he changes neither his outward appearance (*idea*) nor turns into multiple types; and to show any times of the year or of the life-time (*ēlikia*) of the man, during which blood appears alone (*mounax*) in man; for, it is indeed reasonable that there is a single season during which blood itself appears to be the essential element (*eon*).
>
> I speak these remarks to him who asserts phlegm to be the man, and to him who claims bile to be the man.
>
> I, for my part, will show what I assert to be the essential elements (*onta*), according to custom (*nomon*) and nature (*physis*)....[39]

38 II. ...τῶν δὲ ἰητρῶν οἱ μέν τινες λέγουσιν ὡς ὥνθρωπος αἷμά ἐστιν, οἱ δὲ αὐτῶν χολήν φασιν εἶναι τὸν ἄνθρωπον, ἔνιοι δέ τινες φλέγμα ἐπίλογον δὲ ποιέονται καὶ οὗτοι πάντες τὸν αὐτόν ἕν γὰρ εἶναί φασιν, ὅ τι ἕκαστος αὐτῶν βούλεται ὀνομάσας, καὶ τοῦτο μεταλλάσσειν τὴν ἰδέην καὶ τὴν δύναμιν, ἀναγκαζόμενον ὑπό τε τοῦ θερμοῦ καὶ τοῦ ψυχροῦ, καὶ γίνεσθαι γλυκὺ καὶ πικρὸν καὶ λευκὸν καὶ μέλαν καὶ παντοῖον. ἐμοὶ δὲ οὐδέν τι δοκεῖ ταῦτα οὕτως ἔχειν. οἱ μὲν οὖν πλεῖστοι τοιαῦτά τινα ἢ ὅτι ἐγγύτατα τούτων ἀποφαίνονται, ἐγὼ δέ φημι, εἰ ἕν ἦν ὥνθρωπος, οὐδέποτ' ἂν ἤλγει. οὐδὲ γὰρ ἂν ἦν ὑπ' ὅτευ ἀλγήσειεν ἕν ἐόν... Text from Jouanna (2002: 166.12–168.5), whose French translation is the clearest. Cf. Jones et al. 1972–2018: v. 4, 2–13. The argument at the end seems to be saying that a man would not be able to distinguish pain from pleasure. It would all be the same if he were one.

39 ἀξιῶ δ' ἐγὼ τὸν φάσκοντα αἷμα μοῦνον εἶναι τὸν ἄνθρωπον, καὶ ἄλλο μηδέν, δεικνύειν αὐτὸ[ν] μήτε μεταλλάσσον[τα] τὴν ἰδέην μήτε γινόμενον παντοῖον, ἀλλ' ἢ ὥρην τινὰ τοῦ ἐνιαυτοῦ ἢ τῆς ἡλικίης τῆς τοῦ ἀνθρώπου, ἐνὴ αἷμα ἐνεὸν φαίνεται μοῦνον ἐν τῷ ἀνθρώπῳ. εἰκὸς γάρ ἐστιν εἶναι μίαν γέ τινα ὥρην, ἐν ἢ φαίνεται αὐτὸ ἐφ' ἑωυτοῦ ἐόν, ὃ τι ἐστίν. ταὐτὰ δὲ λέγω ταῦτα καὶ περὶ τοῦ φάσκοντος φλέγμα εἶναι τὸν ἄνθρωπον, καὶ περὶ τοῦ χολὴν φάσκοντος εἶναι. ἐγὼ μὲν γὰρ ἀποδείξω ἃ ἂν φήσω τὸν ἄνθρωπον εἶναι, καὶ κατὰ [τὸν] νόμον καὶ κατὰ [τὴν] φύσιν, αἰεὶ ταὐτὰ ἐόντα ὁμοίως,... Jouanna 2002: 168.9–170.7.

The beginning of part IV provides the first of two succinct formulations of his theory.

> The body of man holds in itself blood (*haima*), phlegm (*phlegma*), yellow (*xanthos*) and black (*melas*) bile (*cholos*); and these are his nature (*physis*) and his body (*sōma*); and through them, he suffers and is healthy....[40]

And again, as a kind of summary statement at the beginning of part V, he states:

> As mentioned, I promised to show that man is those essential entities (*onta*), both according to custom (*nomos*) and nature (*physis*). Therefore, I say, that they (i.e. the essential entities) are blood (*haima*), phlegm (*phlegma*), yellow (*xanthos*) and black (*melas*) bile (*cholos*)....They are not all the same; each has its own properties (*dynamis*) and its own nature (*physis*).[41]

Several things catch the eye in Polybus' presentation. In the first part, the author mentions only one type of bile; but in his concise summaries, he speaks of two kinds of bile. Why is there not the mention of two types of bile in the first part of the discussion and from where does the distinction come? According to Nutton, black bile, as the fourth humour, first appears in the Hippocratic Corpus, without further explanation.[42] Secondly, the author does not call these juices or humours (*chymos*) as is found elsewhere in early Greek medicine, being fully elaborated in the synthesis of the commentator Galen (129–210 CE).[43] In the book on *Humours* (*peri chymōn*) in the Hippocratic Corpus, the four occur often but not in a succinct formulation beginning with blood.[44] Polybus gives them the name "essential entities" (*eonto*/*onto*), which suggests an early understanding of them as basic bodily elements, not dissimilar to the Sanskrit *dhātu*, which, as we have seen, indicates a root element of the body. Thirdly, he makes the micro-macrosomic connection by connecting these essential entities to the seasons, which is also in Suśruta's compilation, where in the Sūtrasthāna, both seasons and the times of day are brought in connection with the *doṣa*s. It should be noted that seasons (*utu*) occurs in the Buddhist nosology, immediately after the fourfold enumeration of the dosas. According to Suśruta's text, bile becomes

40 IV. Τὸ δὲ σῶμα τοῦ ἀνθρώπου ἔχει ἐν ἑωυτῷ αἷμα καὶ φλέγμα | καὶ χολὴν ξανθὴν καὶ μέλαιναν, καὶ ταῦτά ἐστιν αὐτῷ ἡ φύσις τοῦ σώματος καὶ διὰ ταῦτα ἀλγεῖ καὶ ὑγιαίνει. Jouanna 2002: 172.13–15.

41 V. Εἰπὼν δέ, ἃ ἂν φήσω τὸν ἄνθρωπον εἶναι, ἀποφανεῖν αἰεὶ ταὐτὰ ἐόντα καὶ κατὰ νόμον καὶ κατὰ φύσιν, φημὶ δὲ εἶναι αἷμα καὶ φλέγμα καὶ χολὴν ξανθὴν καὶ μέλαιναν. Text from Jouanna (2002: 174.11–176.1).

42 Nutton 1993: 285.

43 Nutton 1993: 286.

44 See Jones 1931 (1979): IV, 61–95.

riled in the hot season and phlegm at the end of the rainy season, at noon, at midnight, and while food is digested, and phlegm becomes riled in the cold season, in spring, in the morning and evening, and just after a meal.[45] Fourthly, he introduces a system of opposites (hot and cold) that change the elements' appearance and properties. As seen previously, this same opposition occurs in early Ayurveda in terms of bile and phlegm, which goes back to the fire (*agni*) and water (*soma*) dichotomy.[46] Fourthly, Polybus, as in the Pāli passage, takes each of the views individually, rejects it, and provides his own theory that humans are not composed of any one of them alone. A human is made up of four essential elements formulated in terms of blood, phlegm and two forms of bile, black and yellow, and that they have their own properties and characteristics. Finally, the same technique of argumentation is employed in both the Greek and the Pāli. The author states his position in detail for one of the elements (i.e., blood) and goes on to say in brief that it applies to the other elements as well (i.e., phlegm and bile). Even a similar turn of phrase is employed in both versions. In Pāli, the phrase "it is considered as truth in the world" (*loke saccasammatam*) is found; in Greek the same idea is expressed as "according to custom and nature" [kai kata (ton) nomon kai kata (ten) physin]. In terms of style, like the Pāli passage, a cumbersome discussion and proof are followed by a concise summary statement. It occurs two times in the Greek, while only once in verse in Pāli. In both cases, it is the summary statement that a student should remember.

HIPPOCRATIC FORMULATION FROM UNIDENTIFIED AUTHOR

The second example comes from the book *Concerning Diseases* IV (*peri nousōn D*), which was composed around 420 BCE, perhaps by an author whose identity remains obscure.[47] It enumerates four causes of disease and their locations in the body.

45 SuSū 21.22, 24: *taduṣṇair uṣṇakāle ca ghanānte ca viśeṣataḥ | madyāhne cārdharātre ca jīryaty anne ca kupyati || na śītaiḥ śītakāle ca vasante ca viśeṣataḥ | pūrvāhne ca pradoṣe ca bhuktamātre prakupyati ||*
Between these two verses is a prose passage listing the causes, mostly food products, which rile phlegm. It would appear to be a later, almost commentarial, addition to the metrical text. A connection to the times of day occurs in the early-fourth-century CE Buddhist text, *Suvarṇaprabhāsottmasūtra*. See Köhle (2016: 485, 487) and Scharfe (1999: 617).

46 Scharfe (1999); Wujastyk (2004: 40); Köhle (2016). Both claim that phlegm and bile were the original *doṣa*s, to which wind (and blood) were added later. Further investigation is required into Köhle's idea that the twofold *dhātu*s, phlegm and bile, as a pair, represents the earliest numerical formulation that resulted in the threefold *doṣa*s, with the addition of wind, especially because a similar development seems to have taken place in Greek medical thinking.

47 According to Lonie, he could have been the same person who penned *On Generation*, *On the Nature of the Child* and *On the Diseases of Women* (Lonie 1981: 43–51, 71).

> The man and the woman have in the body four kinds of fluid (*tessaras ideas hygrou*), from which diseases come into being, but not so much those powerful diseases that come into existence because of force. The kinds (of fluids) are phlegm (*plegma*), blood (*haima*), bile (*cholos*), and watery discharge (*hydrōps*); and neither the least nor the weakest of them assembles in the semen; and when the living being comes into existence, there is, in it, as many healthy and diseased kinds of fluid as in its parents…[48]

He follows this with an explanation of their locations in the body.

> I wish to explain in the first instance, how bile, blood, watery discharge, and phlegm exist in excess and defect on account of the foods and drinks accumulated in such ways in the belly, which when full is the source (*pēgē*) of all things for the body, but when empty, gets its nourishment from bodily materials that are being dissolved.[49]

Now the sources of the four fluids.

> The four sources of the four fluid parts, excluding the belly, are as follows: the heart (*kardia*) is the source (*pēgē*) of blood, the head (*kephalē*) of phlegm, the spleen (*splēn*) of water, and the place of bile is near the liver (*to chorion to epi tō ēpati*). Such are the four sources.[50]

Several things are noteworthy in these passages, which contain much detail. First, the substances are characterised as liquid parts (*eideas hygrou*) of the body; secondly, their number is four (*tessara*); thirdly, they exist in specific proportions in the body, which are inherited; fourthly, the fourth part is a type

48 4.32. Ἔχει δὲ καὶ ἡ γυνὴ καὶ ὁ ἀνὴρ ὑγροῦ τέσσαρα εἴδεα ἐν τῷ σώματι, ἀφ' ὧν αἱ νοῦσοι γίνονται, ὁκόσα μὴ ἀπὸ βίης νουσήματα γίνεται. αὗται δὲ αἱ ἰδέαι εἰσὶ φλέγμα καὶ αἷμα <καὶ> χολὴ καὶ ὕδρωψ, καὶ ἀπὸ τούτων ἐς τὸ σπέρμα οὐκ ἐλάχιστον οὐδὲ ἀσθενέστατον συνέρχεται, καὶ ἐπειδὴ τὸ ζῷον ἐγένετο, κατὰ τοὺς τοκλῆας τοσαύτας ἰδέας ὑγροῦ ὑγιηροῦ τε καὶ νοσεροῦ ἔχει ἐν ἑωυτῷ. (Jones et al. 1972–2018: v. 10, 100; Littré (1839–61: v. 7, 542); cf. Lonie (1981: 22))

49 4.33. Ἐθέλω δὲ ἀποφῆναι πρῶτον, πῶς ἡ χολὴ καὶ τὸ αἷμα καὶ ὁ | ὕδρωψ καὶ τὸ φλέγμα πλέονα καὶ ἐλάσσονα γίνεται, ἀπὸ τῶν βρωμάτων καὶ τῶν ποτῶν τρόπῳ τοιῷδε· ἡ κοιλίη τῷ σώματι πάντων πηγή ἐστι πλέη ἐοῦσα. κενεὴ δὲ γενομένη ἐπαυρίσκεται ἀπὸ τοῦ σώματος τηκομένου. (Jones et al. 1972–2018: v. 10, 102; Littré (1839–61: v. 7, 542, 534); cf. Lonie (1981: 22))

50 4.33. τῷ μὲν δὴ αἵματι ἡ καρδίη πηγή ἐστι, τῷ δὲ φλέγματι ἡ κεφαλή, τῷ δὲ ὕδατι ὁ σπλήν, τῇ δὲ χολῇ τὸ χωρίον τὸ ἐπί τῷ ἤπατι. αὗται αἱ τέσσαρες τουτοισίν εἰσι πηγαὶ ἄνευ τῆς κοιλίης. Jones et al. 1972–2018: v. 10, 100; Littré (1839–61: v. 7, 544); cf. Lonie (1981: 22)).

of watery discharge (*hydrōps*);[51] fifthly, they have a fundamental connection to the digestive process through the bowels (*koilia*); and finally, four corresponding anatomical locations are specified for each of the liquid parts.

Here four rather than three essential parts are enumerated. The idea that these four are liquid in nature harmonises with their identification as juices or humours (*chymos*), but their enumeration includes only one type of bile, with the fourth being watery discharge. Although the topic requires further detailed examination, there is noticed common importance placed on digestion in both the Ayurvedic treatises and versions of the formulation of Greek nosology. In early Ayurveda, Suśruta expresses it succinctly: both the *doṣa*s and the tissues (*dhātu*) derived from digested food and drink. Fire (*agni*) in the bowels (i.e., digestion) is the ultimate source of all substances that are responsible for both health and disease.[52]

Likewise, the idea that individuals have a specific configuration of liquids from conception is found in both the Greek version and Ayurveda. In the *Caraka Saṃhitā*, it says that from conception (*garbha*), certain humans have an equality of bile, wind, and phlegm, while some are seen with a predominance of wind, bile, or phlegm. Of them the former are free of malady, while those with a predominance of wind, etc., are always sick. The natural bodily constitution of those (humans) is said to be the result of the (predominant) *doṣa*.[53]

By far the most interesting part of this Hippocratic formulation is the list of the anatomical seats for each of the liquid substances: blood-heart, phlegm-head, water-spleen, and place near the liver-bile. Both Caraka's and Suśruta's compilations provide correspondences between the *doṣa*s and their anatomical seats.

The *Suśruta Saṃhitā*, as already seen, locates the *doṣa*s generally in the bottom, middle, and top of the body, which is probably a later addition.[54] But, like the Hippocratic formulation, almost in the same breath, he provides an earlier prose account of their specific locations, with focus on the alimentary channels.

> Henceforth, we shall speak about the sites of the *doṣa*s. Therefore, succinctly they are: wind resides in the pelvis (*sroṇi*) and the rectum (*guda*); above them and below the navel (*nābhi*) is the receptacle of digested food (*pakvāśaya*). (The site) of bile is between the receptacle

51 Could the author be describing chyle or lymph? The specific work for watery discharge, *hydrops*, is also used for the disease dropsy.

52 Cf. Su: Sūtrasthāna 1.24 (2) above. See also Scharfe 1999: 626 and Pitman 2006: 141.

53 Ca: Sūtrasthāna 7.39–40: *samapittānilakaphāḥ kecid garbhād mānavāḥ | dṛśyante vātalāḥ kecitpittalāḥ śleṣmalās tathā | | teṣām anāturāḥ pūrve vātalādyāḥ sadāturāḥ | doṣānuśayitā hy eṣāṃ dehaprakṛtir ucyate | |* Cf. Cakrapāṇidatta: *doṣānuśayitā ulbaṇavātādibhāvitā 'vyabhicāriṇīti yāvat,* "to be the result of the (predominant) *doṣa*" means infused with excessive wind, etc., i.e., it is the 'norm'."

54 On textual layering in the compilations of Caraka and Suśruta, see Scharfe 1999: 624–625 and Köhle 2016: 483–490.

> of digested and undigested food (*āmāśaya*); and the site of phlegm is the receptacle of undigested food.[55]

The *Caraka Saṃhitā* also gives the locations of the *doṣa*s in a prose passage found in another chapter dealing with major diseases (*mahāroga*) in its first book. The description tends to be longer with more reference to anatomical parts, but also locates the most important sites of each of the *doṣa*s as follows: the receptacle of digested food (*pakvāśaya*) or lower bowels as the site of wind, the receptacle of undigested food (*āmāśaya*) or the stomach as the site of bile, and the chest as the site of phlegm.[56]

Neither of the Indian treatises agrees with each other nor do their formulations correspond to the Hippocratic version. However, they harmonise in more general ways. First, they share the idea that the three or four disease-causing agents in the body are connected to the digestive process, occur at specific times of the year, and finally have specific locations in the body, where the *Suśruta Saṃhitā*, like the Greek text, keeps the discussion of the locations closely linked to its presentation of the *doṣa*s.

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55 Su: Sūtrasthāna 21.6: *doṣasthānāny ata vakṣyāmaḥ/ tatra samāsena vātaḥ śroṇigudasaṃśrayaḥ taduparyadho nābheḥ pakvāśayaḥ pakvāmāśayamadhyaṃ pittasya āmāśayaḥ śleṣmaṇaḥ* | Ḍalhaṇa says that the word "succinctly" (*samāsena*) implies that the seats of bile include the liver (*yakṛt*), the spleen (*plīha*), the heart region (*hṛdaya*), the eyes (*dṛṣṭi*), the skin (*tvac*), and the sense faculties (*indriya*); and the sites of phlegm include the head (*śiras*), the throat (*kaṇṭha*), and the joints (*sandhi*). See also Köhle 2016: 484, 486–487.

56 Ca: Sūtrasthāna 20.8. The full text reads as follows: *teṣāṃ trayāṇām api doṣāṇāṃ śarīre sthānavibhāga upadekṣyate, tad yathā bastiḥ purīṣādhānaṃ kaṭiḥ sakthinī pādāvasthīni pakvāśayaś ca vātasthānāni, tatrāpi pakvāśayo viśeṣeṇa vātasthānaṃ; svedo raso lasīkā rudhiram āmāśayaś ca pittasthānāni, tatrāpy āmāśayao viśeṣeṇa pittasthānam; uraḥ śiro grīvā parvāṇy āmāśayo medaś ca śleṣmasthānāni, tatrāpy uro viśeṣeṇa śleṣmasthānam* | "The individual sites (*sthāna*) of the three *doṣa*s will be explained as follows. The bladder, the receptacle of excrement, the pelvis region, the thights, the feet, the bones, and the receptacle of digested food are the sites of wind; moreover, the receptacle of digested food (*pakvāśaya*) is the particular site of wind. Sweat, chyle, lymph, blood, and the receptacle of undigested food are the sites of bile; moreover, the receptacle of undigested food (*āmāśaya*) is the particular site of bile. The chest, head, nape of the neck, joints, receptacle of undigested food, and fat are the sites of phlegm; moreover, the chest is the particular site of phlegm." Cakrapāṇidatta explains that the receptacle of excrement (*purīṣādhāna*) is the receptacle of digested food (*pakvāśaya*), i.e., the lower bowels, that the lymph (*lasīkā*) is the slimy part of the stomach (*udarasya picchābhāgaḥ*), that bile's receptacle of undigested food (*āmāśaya*), i.e., the stomach, is the part below the receptacle of undigested food; and that phlegm's receptacle of undigested food is the part above the receptacle of undigested food. He points out that wind refers to the vital breath (*prāṇa*) and that its site is the throat, tongue, face, and nose as mentioned at Ca: Ciktisāsthāna 28.6ab, which includes head (*mūrdhan*) and chest (*uraḥ*), and has the variant *karṇa* (ear) for *kaṇṭha* (throat).

PHILOLAUS' FORMULATION

The ANONYMUS LONDINENSIS is the name given to a fragment of an Egyptian papyrus preserved in the British Museum. Its content is a doxography of different views on medicine composed but probably not completed by an unknown scribe in about 175–200 CE. According to Gourevitch, it represents the thinking of five medical authors from the southern Italy and Sicily, who were not in contact with the Greek schools of Cos and Cnide, but perhaps were influenced by the ancient Egyptian medicine.[57] Therefore, their theories exhibit variations that derive elsewhere than from the Hippocratics, perhaps via the Middle East. It points to the plurality of medical thinking in the ancient Mediterranean world.

The compiler divides the medical author's opinions on disease-causation into two types: diseases caused by the residues of foods in the body (*perissōmata*) and diseases caused by the essential elements (*stoicheia*).[58] Although the former suggests the Ayurvedic notion of diseases caused by the accumulation of *āma* or "uncooked" (*apakva*), i.e., undigested, food in the body, it is the latter that concerns us here because of its succinct formulation of the elements.[59]

The author of the first formulation is the Pythagorean philosopher Philolaus of Croton who lived between 470–385 BCE. He says that "diseases (*nosos*) arise through bile (*cholos*) and blood (*haima*) and phlegm (*phlegma*) and that these are the origin (*archē*) of diseases".[60] Important to note here is that, like Polybus, only three causes are mentioned, one of which is blood, and that they are specifically stated to be the origin of diseases. But, unlike Polybus, he does not offer a system of opposites into which to fit the three causes of disease. In fact, he states at the beginning of his discourse that our bodies are composed of only one of the opposites, the hot element.[61]

57 Gourevitch 1989.

58 Saumell 2017: 121. See also Wujastyk 2004: 362.

59 On *āma* as uncooked or undigested food, see citations mentioned above, as well as Ca: Ciktisāsthāna 2.4 and Su: Sūtrasthāna 46.209; on the alimentary canal as the "abode of *āma* being cooked/digested" (*āmapakvāśaya*) at Ca: Sūtrasthāna 11.48, Su: Sūtrasthāna 11.48, Su: Nidānasthāna 1.16 (Ḍalhaṇa: *āmasya pakvamāmapakvaṃ tasyāśayaḥ*) and Su: Śārīrasthāna 9.7; and diseases associated with *āma* at Ca: Nidānasthāna 2.6; Ca: Ciktisāsthāna 2.10, 5.26, 15.54, 19.9; Ca: Vimānasthāna 2.12; Su: Sūtrasthāna 17 ff; and Su: Uttaratantra 50.4 (*āmadoṣa*). See also Wujastyk 2004: 362; 2017: 43; Pitman 2006: 113 f.

60 l8.8 λέγει δὲ γί(νεσ)θίαι) τὰς νόςους διά τε χολὴν καὶ αἷμα καὶ φλέγμα, ἀρχὴν δὲ γί(νεσ)θί(αι) τῶν νόσων ταῦτα. Manetti (2011: 39.30–32); cf. Diels 1893: 32.30–32; and Jones 1947: 72–73. See Huffman 1993: 289, 291 and Gourevitch 1989: 242.

61 18.8: Φιλόλαος δὲ ὁ Κροτίω[νιάἰ]της συνεςτάναι φί(ηςὶν) τὰ ἡμέτερα σώμ[ατα ἐκ] θερμοῦ. Manetti (2011: 38.8–10); cf. Diels 1893: 31.8–310 and Jones 1947: 72–73. See Huffman 1993: 289–290 and Gourevitch 1989: 242.

MENECRATES' FORMULATION

The second passage from the *Anonymus Londinensis* is attributed to Menecrates with the surname Zeus. He was thought to be a doctor who lived in the fourth century BCE, placing all of the authors mentioned so far around the same time.[62] In his book on *Medicine*, he explores the causes of suffering (*pathos*). He explains that bodies are made from four essential elements (*tessarōn stoicheiōn*): two are hot (*thermos*) and two cold (*psychros*). The two hot are blood (*haima*) and bile (*cholos*) and the two cold are breath/wind (*pneuma*) and phlegm (*phlegma*). When they are not in a state of discord (*mē stastiaxontōn*), but in a state of harmony (*eukratōs*), bodies are in a healthy state; but when they are in a state of disharmony (*dyskratōs*), they suffer.[63]

Several important points are to be noted here. Menecrates uses another term with the meaning essential element, which is similar to Polybus' idea of the *onta*. Secondly, he, like Polybus, divides the four elements into two types, hot and cold. Thirdly, his fourfold enumeration includes wind or breath, rather than, another type of bile. Finally, health results when the four are not discord but work together in harmony (*eukratos*). Suffering and disease occur, on the other hand, when the elements are in a state of disharmony (*dyskratos*). Many points in common to early Ayurveda occur in this Greek version.

Philolaus' formulation of three causes of disease harmonises with the number of *doṣa*s in Caraka's enumeration, but where he has wind, the former has blood. Menecrates' formulation of four essential elements coincides with both the number and content of Suśruta's three-plus-one formulation, as well as with the same numerical formulation seen in the Buddhist version. Like the author of the Buddhist version, Menecrates explores the origins of human suffering (*pathos*), a concept more philosophical than medical. Moreover, the basic notion that disease and health result of respectively from the disruption and non-disruption of the four essential elements occurs also the early Ayurvedic treatises.

Suśruta, as mentioned above, states that a body is kept in good health when the *doṣa*s are not corrupted or disrupted (*vyāpanna*) and unseated from their natural locations in the body. Caraka, on the other hand, gives a rather detailed discussion immediately following his enumerations of the sites or locations of each of the *doṣa*s.

62 Squillace 2015: 79–82; Saumell 2020.

63 19.18: Μενεκράτη]ς δὲ ὁ Ζεί[ὺ]ς ἐπικληθεὶς ἐν Ἰατρικῆι δ[ε]ῖξίν τι[ν]α τ(ῶν) σωμάτί(ων) ἐκτιθέμενος ο(ὕτως) αἰτιολογεῖ τὰ πάθη,...συνεστάναι γ[(ὰρ)] λέγει τὰ σώματα ἐκ τ(ῶν) τεσσάρων στοιχείων β́ μ(ὲν) θερμῶν β́ δὲ [ψ]υχρῶν. θερμῶν μ(ὲν) αἵματος χολῆς, ψυχρῶν δὲ πνεύματος [κ]αὶ φλέγματος. τοὐτί(ων) μ(ὲν) δὴ μὴ στασιαζόντ(ων), ἀλλ' εὐκράτως διακειμέν(ων), ὑγιαίνει τὸ ζῶιον, δυσκράτως δὲ ἐχόντων νο[σεῖ.] Manetti 2011: 41.23–42.2; cf. Diels 1893: 34.22–35.2, Jones 1947: 76–79 and Gourevitch 1989: 246. στοιχείων is a word whose meaning is unclear.

> Now, wind, bile, and phlegm move throughout the entire body, and when in a state of riled and not riled in the entire body, they bring about (correspondingly) inauspicious and auspicious (conditions). Being in the natural state (*prakṛti*), auspicious (conditions) ensue, such as growth, strength, complexion, and calmness; but when they change into an abnormal state (*vikṛti*), the inauspicious (conditions) are called disorders (*vikāra*).[64]

This passage harmonises with Menecrates' statement that when in their natural state of accord, they maintain health, but when they are in the unnatural state of discord, there is disease.

Both systems of thought rely on dualistic thinking, which here are the same in both Indian and Greek medical thought. The division of the hot and cold goes back to Aristotle in Greek thinking and agni and soma in early Indian thought, which led Dominik Wujastyk to posit a possible Indo-European origin.[65]

The inclusion of wind or breath (*pneuma*) in Menecrates' formulation is significant. It is the only Greek formulation that has wind, which is one of the pathogenic agents in all of the Indian versions. The question of origin arises here. From where does the inclusion of wind, along with the three fixed elements, bile, phlegm, and blood, come in his presentation? One could argue that it resulted from an attempt on the part of Menecrates to bring wind into the paradigm together with the other three, since it is a known disease-causing agent. Already in the book of the Hippocratic Corpus, entitled *On the Breaths* (*peri physōn*), breath (*physa*), understood as wind (*pneuma*) or air (*aēr*), is said to be the sole cause of disease.[66]

The importance of wind/breath in early Ayurveda, as already noticed, owes it origin to a long-standing occupation with wind and breath in Indian thought, and therefore likely does not derive from Menecrates or from the Hippocratic work, as Jean Filliozat assured many years ago.[67] Given the differences of time and place, therefore, it might well have been an independent development in both systems of medical thought; but the topic of wind in early Ayurvedic and Greek medical thinking needs to be further explored, starting from Filliozat's seminal study.

As with the Indian *doṣa*-theory of disease-causation, the Greek nosology of the four humours was varied and represented by different points of view in

64 Ca: Sūtrasthāna 20.9: *sarvaśarīracarās tu vātapittaśleṣmāṇaḥ sarvasmiñ charīre kupitākupitāḥ śubhāsubhāni kurvanti prakṛtibhūtāḥ śubhāny upacayabalavarṇaprasādādīni, aśubhāni punar vikṛtim āpannā vikārasaṃjñakāni.*

65 Wujastyk 2004: 366.

66 Jones et al. 1972–2018: vol. 2 220–53 and Filliozat 1975: 184–190 (tr. Filliozat 1964: 218–228).

67 Filliozat 1975: 190 (tr. Filliozat 1964: 228.

the late fifth and early fourth century BCE. Although there may not be a one-to-one correspondence between the Greek and Indian numerical formulation of disease causation, nevertheless, all of the ideas that occur in the Buddhist and early Ayurvedic formulation of the doṣa-theory of disease causation already existed among early Greek-speaking medical thinkers, but, interestingly, an exact match between the two does not exist. The closest in overall connections is that of Menecrates, who also harmonises with Buddhist medical thought. Since no precise textual transfer seems to have taken place, one must assume that if exchanges took place they were done orally by word of mouth, a mode of communication and education fundamental to the early Indian intellectuals. This suggests that medical ideas may have been discussed orally (as doctors tend to do when seeking opinions on cases) and adaptions took place gradually over time, rather than one text being copied or translated directly from another. Different ideas circulated as far south and east as the Indian subcontinent, where the medical thinking took on a distinctive Indian point-of-view based on current thinking and cultural norms. The precise where, when, and with whom these proposed exchanges took place is unknown for certain, but the most likely candidate would be the north-western part of the Indian subcontinent when in third century BCE, Buddhism was influential in the area and exchanges occurred between Buddhists and Indo-Greeks. We shall have occasion to return to possible historical connections at the end of the paper.

6 THE EIGHTFOLD DISEASE-CAUSATION IN BUDDHIST MEDICINE AND SUŚRUTA

Before closing the discussion of Indian medical nosology, I would like to return to the Buddhist eightfold formulation of disease-causation. After the four dosas are enumerated, there are four other causes (season, imbalance, external agency and ripening of past actions). Although not in the same formulation involving the *doṣa*s, each of these four occur in the early Ayurvedic compendia as independent causes, often for specific ailments. They are never found all grouped together with either the three *doṣa*s of Caraka or the four *doṣa*s of Suśruta.[68]

Although the eightfold configuration is unique to early Buddhist medicine, a formulation of eight causes involving the *doṣa*s does occur in Suśruta's compilation. Its individual elements are, however, for the most part, different. As seen above, it is found in connection with the abdominal swelling (*udara*). Besides the *doṣa*s, a set of four other kinds of abdominal swellings is mentioned, bringing the total number of causes to eight. Among the second set of four, the one

68 See Zysk 2000*a*: 30, 142 n. 38 and 39.

called *āgantuka* bears a close semantic similarity to the Pāli *opakkamika*, "external agency."[69] Based on the number eight attached to disease-causation, Suśruta's compendium again shows correspondence with medical doctrines of the early Buddhists. Moreover, with five of the eight finding matches in both versions, it points to an affinity between the Ayurveda of Suśruta and Buddhist medicine. Much more work needs to be done on the subject of the connections between Buddhist and Ayurvedic medicine and the medical thinking of the ancient Greek-speaking world, especially with attention paid to wording of the Sanskrit version of the Vinaya and the medical references in it. For now, I should like to close this essay with a resume of my current thoughts on the subject.

7 CONCLUSIONS

Our investigation has, I hope, given a little better picture of complex process that resulted in the central Ayurvedic nosology of tridoṣavāda or the theory of the three *doṣa*s. The early Sanskrit and Pāli texts indicate it to be a theory that evolved over time, while the Greek parallels and similarities point to influences from the ancient Mediterranean medical thinkers. This theoretical underpinning provided a theoretic structure for a storehouse of traditional recipes and medical formulae preserved fin the beginning by the early Buddhists as part of the rules of coenobitic life.

The earliest Buddhist sources mention that there were eight causes for suffering, the first four of which included wind, bile, phlegm, and their simultaneous corruption (*sannipātika*). The number four was maintained in part of Suśruta's compilation, where blood replaces the simultaneous corruption of the *doṣa*s to yield a three-plus-one formulation; and in an attempt to harmonise with the Buddhist version, simultaneous corruption (*sannipāta*) was added bringing the number of *doṣa*s to five. Caraka's number of three *doṣa*s is fixed and, as Scharfe asserts, is probably based on the three guṇas, which became a cornerstone of the Sāṃkhya system of thought. Caraka's formulation persists in present-day Ayurveda.

The idea of four pathogenic agents is old in Indian medical thought. Since the fourth was blood in one of formulations found in the *Suśruta Saṃhitā* and in early Ayurvedic veterinary medicine, an obvious link to early Greek medical thinking suggests itself, since blood factors in all of configurations of the basic elements or (later) humours of ancient Greek medicine. While Vicki Pittman has provided a nice summary of general similarities between Hippocratic and early Ayurvedic medical thinking, my study delved deeper into the two systems of nosology.

69 See Zysk 2000*a*: 30. Wujastyk calls this category "invasive diseases" (2017: 46–47).

The examination of the Greek theories of disease-causation revealed a plurality of ideas, some of which harmonised with the developing Ayurvedic nosology, where different theories and numerical configurations of the basic elements were being discussed and tried out. A fixed number of *doṣa*s, therefore, evolved over time. Although none of the several Greek formulations corresponds precisely to the early Indian versions, the accumulation of the similarities centring on structure, mode of argumentation, use of idiom, and overall content, leaves little doubt that Greek medical knowledge was circulating in ancient India, and parts of it were adapted and used by early Indian medical doctors and intellectuals. How might this have happened? Exact information to answer this question is unfortunately wanting, but enough data exists to allow for informed speculation.

The historical record indicates quite clearly the presence of Greeks and Greek customs and cultural life in the north-western parts of the Indian subcontinent from at least 323 BCE, when Alexander of Macedon invaded and established Greek satraps in the region.[70] Mere presence does not establish intellectual exchange, but neither does it exclude it. The extant archaeological and epigraphic evidence points to visible Greek influence on Indian life and culture. One important example is the adoption and adaptation of the Greek social custom of the symposion into the Indian social and intellectual life of the people in the north-western regions of subcontinent in the centuries bracketing the beginning of the Common Era. The Greek symposion was primarily a male drinking event; but it also provided the occasion for intellectual exchanges and discussions. The historian of medicine, Ludwig Edelstein, argues with regard to physicians attending the symposion that since the physician Eryximachus was a key figure in Plato's *Symposium*, the opinions of physicians were likely to have been common at such social gatherings among the ancient Greek intelligensia.[71] With the evolution of the Indian goṣṭhī and its adaption of elements of the Greek symposion, the intellectual part would have included the same topics of discussion. In addition to literature and philosophy, discussions would also include medicine and science.[72] An example of such a discussion and debate is mentioned in the *Caraka Saṃhitā*. At Sūtrasthāna 25, there occurs an account of a physicians' examination of the topic, "what man is born from" (*yajjaḥpuruṣīya*), where the theme focussed on what is it that is "called human" (4b: *puruṣasaṃjñakaḥ*). In a style resembling the symposion, public debates, recitations, and discourses regularly took place under royal patronage in ancient India. So it is natural to find in Caraka's version King Vāmaka of Kāśī (5a: *kāśīpatir vāmakaḥ*) posing the first question: "whether

70 See Neelis 2011: 98–108.

71 O. Tempkin and C. L. Tempkin 1967: 153–171. See also Nutton 2004: 80 and Pitman 2006: 151.

72 Zysk 2016; 2018; forthcoming. See also Pingree 1976.

indeed that from which a human is born is (the same) or not as that from which his diseases are said to be born?" (6a–c: *kin nu bhoḥ puruṣo yajjas tajjās tasyāmayāḥ smṛtāḥ/ na vety ukte narendreṇa*).[73] In other words, do humans and their diseases have a common origin? This is followed by series of presentations and debates by different learned physicians, representing different points of view. The whole event was orchestrated by a type of master of ceremonies (Sanskrit *nāyaka*, Greek, *basileus, archos*). In Caraka's account, he is the medical savant, Lord Purnarvasu (3a: *bhagavantaṃ punarvasum*), who has the final word. This has all the hallmarks of a symposion, minus the wine and women. Furthermore, it resembles the royal *goṣṭhī*s described in Rājasekara's tenth-century *Kāvyamīmāṃsā*. The names of the learned men and seers, who participated in the debate mentioned in Caraka's collection, are sometimes obscure, but they made up the medical intellectuals.[74] Other sciences also testify to an adaptation of Greek knowledge by Indian intellectuals. The best example is the *Yavanajātaka* of Sphujidhvaja (c. first century CE), which is an explicit acknowledgement of Greek science in an Indian intellectual format.[75]

The parallels and similarities between ancient Indian and Greek nosological theories further testifies to an intellectual environment in ancient (northwest) India, where medical concepts were discussed and eventually adopted. One occasion for the exchange of ideas could have been something that resembled the Greek symposion, which took place at the *goṣṭhī* in the Indian context. The overall result was the establishment of a theoretical framework for a substantial collection of medicines and medical recipes and treatments for a variety of human sufferings, originally completed by the Buddhists. Much more work is required on the subject, but it is hoped that this essay is but a step along the path leading to a better understanding of India's medical history in antiquity.

73 Cakrapāṇidatta tells us here: *yasmāj jāto yajjaḥ tata eva puruṣajanakāt kāraṇāj jātās tajjāḥ, na veti anyataḥ puruṣo jāyate 'nyataś ca tasya rogā ity arthaḥ*, ""*yajjaḥ*" is from what (a puruṣa) is born, just from that, i.e., because of the puruṣa's father (?), (*āmaya*s, diseases) are born. 'Or not.' The meaning is 'on the one hand a puruṣa is born, and on the other hand, there are his diseases'." Here Cakrapāṇidatta points out that a person is born, and there are his diseases. Do they both have a common origin (or father?)? This is the King's question.

74 The list includes the following speakers: Pārīkṣī Maudgalya, Saraloman, Vāryovida, Hiraṇyākṣa, Kauśika, Bhadrakāpya, Bharadvāja, Kāṅkāyana, Bhikṣu Ātreya (Buddhist?), and Lord Punarvasu.

75 Mak 2021.

ABBREVIATIONS

AN Morris, R., Hardy, E., and Hunt, M. (1883–1910) (eds.), *The Aṅguttara-nikāya*, 6 vols. (London: The Pali Text Society), https://tinyurl.com/y8guf3b5, (on 29 Dec. 2020); Reprinted by Luzac.

BKS Rhys Davids, C. A. F., Woodward, F. L., and Sumangala Thera, S. (1917–30), *The Book of the Kindred Sayings* (*Saṃyutta-Nikāya*) *or Gropuped Sayings*, 5 vols. (London: The Pali Text Society), https://tinyurl.com/y7xxqab2, (on 29 Dec. 2020); Reprinted London: Luzac, 1950.

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