GALEN ON TREMOR, RIGOR, PALPITATION AND SPASM:
A CRITICAL EDITION

By

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To my friend Gian
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In his work *De tremore, rigore, palpitatione, et convulsione* (“On Tremor, Rigor, Palpitation, and Spasm”), Galen of Pergamum defines four involuntary motions, which beset the human body and limbs during many diseases, especially fevers: respectively, tremors, palpitations, rigors and spasms. Its intellectual significance lies in Galen’s attempt to put an end to a long-standing medical debate around this topic, by distinguishing among the appearance, cause and treatment of these discordant motions.

This dissertation offers a critical edition of this important Galenic work, which has been often neglected in the bibliography of the Galenic Corpus. The Greek text is based upon all known Greek textual witnesses and is accompanied by a full English translation.

Galen of Pergamum (129 C.E. - c.216/17) was a Greek physician, surgeon and philosopher, who served in Rome as medical advisor to Marcus Aurelius. He is a pivotal figure in the history of Western medicine. He remained, with his vast oeuvre, the definitive authority on medicine, imposing upon later physicians an idea of what medicine was (and, equally important, was not), that lasted for more than a millennium.

The publication of Galen’s *De tremore, rigore, palpitatione, et convulsione* is of interest not only to classical philologists, but also to contemporary scholars in the history of medicine.
CHAPTER 1
INTRODUCTION

Preface

This research has grown out of an interest in the study of the function and diseases of the nervous system in the history of medicine, especially in Galen’s doctrines and observations of abnormal movements of the skeletal muscle. My initial investigation into the history of the description of these motions led me to discover Galen’s *De tremore, rigore, palpitatione, et convulsione liber* (“On Tremor, Rigor, Palpitation, and Spasm”). This treatise is one of the most influential texts about discordant movements, which are involuntary and beset the human body and limbs.

The objectives of this dissertation are to reconstruct, to illuminate and to make accessible to scholars this treatise that has been often neglected in the bibliography of the Galenic corpus. The publication of its critical edition in the series of the Corpus Medicorum Graecorum (CMG) is a major *desideratum.*

The unveiling of these doctrines about disordered movements is of interest to contemporary scholars in the history of medicine for at least two reasons. First, these ancient theories represent legitimate attempts to explain some phenomena that have been of the highest importance in the story of chronic diseases of the nervous system (e.g. the history of multiple sclerosis); and secondly, Galen’s treatise provides a general framework within which the analysis of these conditions may be profitably elaborated.

The intellectual significance of this Galenic treatise lies in his attempt to give an authoritative answer to a matter of long standing medical debate, namely the appearance, causes

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1 http://cmg.bbaw.de/project-office/aufgabenstellung-des-cmg.
Title and Date of the Treatise

The present short treatise Περὶ τρόμου καὶ ρίγους καὶ παλμοῦ καὶ σπασμοῦ (De tremore, rigore, palpitatione et convulsione, “On Tremor, Rigor, Palpitation, and Spasm”) was probably written by Galen between 169 and 180, during his second stay in Rome. In the winter 168/169, the emperors Marcus Aurelius and Lucius Verus called on Galen to leave Pergamum – in the summer of 166, Galen left Rome, and he set off for Pergamum – and to join them in the winter quarters at Aquileia. The coming of the plague to Aquileia led the emperors, their entourage and part of the army to return to Rome. Lucius Verus died of heart failure in Altinum in February 169. It was around that date that Galen’s friendship with Marcus Aurelius became more firmly established, and he was appointed physician to Commodus, the emperor’s son and heir. Until 180, when Marcus Aurelius died, Galen spent his life dedicated to his duties as court physician, to the practice of medicine, to teaching and to the writing of his most important medical and philosophical works. In practical terms, this period, above all the seven years from 169–176, between the ages of 40 and 47, was his period of maximum creativity. The number and the significance of the works that he published in this time is impressive. He composed more than forty works, some completed, and others in part. These included: the first five books of De anatomicis administrationibus (“On Anatomical Procedures”), three of the books (7–9) of De placitis Hippocratis et Platonis (“On the Doctrines of Hippocrates and Plato”), the first eight

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3 In my research, Latin titles of Galen’s works are indicated according to the bibliographical reference works on Galen in http://cmg.bbaw.de/online-publications/Galen-Bibliographie_2015-09.pdf.
books of *De simplicium medicamentorum temperamentis et facultatis* ("On the Temperaments and Faculties of Medicinal Simples"), the first three of his *De sanitate tuenda* ("Hygiene"), together with the first six of his important treatise *Methodi medendi* ("Method of Healing").

In Galen’s survey of his own literature (*De libris propriis*), the last mentioned books were περὶ τρόμου καὶ ῥίγους καὶ παλμοῦ καὶ σπασμοῦ (*De tremore, rigore, palpitatione et convulsione*, “On Tremor, Rigor, Palpitation and Spasm”) and τέχνη ἱατρική (*Ars Medica*, “The Art of Medicine”):

The fourth book of my summary covers the remaining five volumes, from the sixteenth to the twentieth. … (The argument) of the nineteenth (concerns) the nerves that have their origin in the brain, the sense of smell and source of its faculty of perception, the nerves leading to the eyes… *Distinctions between diseases* and *Distinctions between symptoms*; also, following the former of these, one volume explaining the *Causes of diseases*; and following the latter, three volumes of the *Causes of symptoms*, followed in turn by *Affected places*. Also among those which logically precede my therapeutic works: *Distinctions between fevers, mass, unnatural lumps*, as well as *Predisposing causes*, to which may be added *Continuous causes and Tremor, shivering, twitching, and convulsion*, and the work entitled *The art of medicine*.6

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5 τρόμου καὶ ῥίγους καὶ παλμοῦ καὶ σπασμοῦ *Ambrosianus* gr. 659 (olim Q 3 Sup) Vlatadon 14 Kühn: τρόμου καὶ παλμοῦ καὶ ῥίγους καὶ σπασμοῦ Müller: παλμοῦ καὶ ῥίγους καὶ τρόμου καὶ σπασμοῦ Boudon-Millot Cf. Galeni Scripta Minora p. LXXIX.

6 English translation adapted from Singer (1997, p. 13).
Those symptoms considered in the first of these two books are taken up in the following order: τρόμος, tremor (p. 58,9), παλμός, palpitation (p. 60,8), ρίγος, rigor (p. 73,12) and σπασμός, spasm (p. 97,7). However, in his citations they also appear in a different order, proof that Galen did not set any importance on exact titles. In this introductory study, I will refer to this work with the following Latin title: De tremore, rigore, palpitatione et convulsione (De tremore). I will also use its English translation: “On Tremor, Rigor, Palpitation and Spasm” (“On Tremor”).

On the other hand, in Kühn’s edition, volume VII 584 ff., the Latin title for this treatise is: De tremore, palpitazione, convulsione et rigore liber. In the same edition the correspondent Greek title has the same word order: Γαληνοὶ περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ρίγους βιβλίον. However, as indicated above, this work is titled differently in De libris propriis (“My Own Books”); in fact, the only survived Greek manuscript that contains Galen’s De libris propriis – the codex Ambrosianus Q 3 Sup – presents the following Greek title: Τὸ περὶ τρόμου καὶ ρίγους καὶ παλμοῦ καὶ σπασμοῦ. Müller, in his edition, edited a different title, distinguishing it from Kühn’s edition and the Greek text in De libris propriis: Τὸ περὶ τρόμου καὶ παλμοῦ καὶ ρίγους καὶ σπασμοῦ.9

A comparative study of the Greek manuscripts that contain “On Tremor” and “My Own Books” may be helpful in establishing the Greek title for this edition. De tremore has been

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8 Müller (1891, p. 91–124)

transmitted by eleven manuscripts. According to Konstantinides (1977), seven are apographs of the codex Vaticanus gr. 1845, XII century, fol. 171v–197r, and this manuscript together with the Marcianus Venetus gr. Z. 282, XV century, fol. 183–189v, may be of considerable value in establishing the Greek text. In his work, Konstantinides adopted the Greek title located in the Vaticanus gr. 1845 and in the Vaticanus gr. 285: Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ ρίγους καὶ σπασμοῦ. The Marcianus Venetus app. c1. V, 9 has also Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ ρίγους καὶ σπασμοῦ. Moreover, three of the five manuscripts preserved at the Bibliothèque National de Paris (the Parisini gr. 2269, 2270 and 2271) confirm this title: Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ ρίγους καὶ σπασμοῦ (σπάσμων in Parisinus gr. 2270). This version corresponds exactly to the correction by Müller. On the other hand, the Marcianus Venetus gr. Z 282 gives the following title: περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ρίγους. Furthermore, the two titles of the Parisinus suppl. gr. 35 respect the same word orders: (1) Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ρίγους, and (2) περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ρίγους βιβλίον, which has also been adopted in Kühn’s edition. Therefore, none of the Greek manuscripts that contain De tremore have the title transmitted in De libris propriis.

Before deciding the title for my edition, it is important to search for the origin of its variants. Müller’s correction relies on the order of exposition of the topics: first, Galen discusses tremor (τρόμος), following, in turn, palpitation, rigor and spasm (παλμός, ρίγος, and σπασμός). Müller provides some evidence to support his correction. Three of the passages he quotes (De trem., palp., convuls. et rig. p. 57,1; De difficult. respir. VII 803,2 K.) are not about the title, so

10 Diels (1905, p. 82)
11 Konstantinides (1977, p. 3–6)
12 Parisinus gr. 2283 gives only περὶ τρόμου, while in the Marcianus Venetus app. c1. V, 5 there is no title. The empty space left above the text was probably for a decorated title, which has never been realized.
they should not be considered for this matter. But the passage that Müller selected from *De pulsuum differentiis* (VIII 724,10 K.) refers directly to the present treatise: ‘ἐν ὅλον ἐμὸν ἔστιν ὑπόμνημα περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ρίγους’. The term ὑπόμνημα (treatise, commentary, explanatory notes) is used here by Galen to indicate which of his works were not intended to be published, but were instead addressed to his circle of friends. For such works a precise title was rarely attached to this kind of writings.

Before jumping to any conclusions and correcting the Greek text of *De libris propriis*, one should compare the Greek text in the Ambrosianus Q 3 Sup – that lists *De tremore* among the other anatomical works – with the Arabic tradition. In his translation of the *De libris propriis*, Ḥunain Ibn Ishāq (808–873) rendered the Greek text to Syriac “word-for-word” (literal translation), namely περὶ τρόμου καὶ ρίγους καὶ παλμοῦ καὶ σπασμοῦ. Likewise, in his *Risāla* – the long letter addressed to Alī Ibn Yahyā where Ḥunain did the inventory of translations of Galen’s works – the famous Nestorian translator cited this title once again, observing the same word order. Therefore, the title of the treatise is the same in the Greek and Arabic tradition of *De libris propriis*.13 Since the manuscript of the Greek tradition (the Ambrosianus Q 3 Sup) agrees with the Arabic tradition, one should not change the Greek text and publish, in the *De libris propriis* at least, the following title: περὶ τρόμου καὶ ρίγους καὶ παλμοῦ καὶ σπασμοῦ.

Moreover, in the Latin translation from the Arabic text by Arnald of Villanova (1282), this work has been transmitted under the following title: *Liber de rigore et tremore et ictigatione et spasmo*. Therefore, since there is an inversion between the first two words (*rigore* and *tremore*), Arnald’s text differs even from *De libris propriis*. In addition, the different titles used for this treatise in the Greek, Arabic and Latin traditions correspond neither to the *incipit*,

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13 Boudon-Millot (2003, p. 29)
nor to the exposition of the content indicated in p. 57,3–5 (Ἐπειδή Πραξαγόρας ὁ Νικάρχου, τά τε ἄλλα τῆς ἰατρικῆς ἐν τοῖς ἀρίστοις γενόμενος ἐν τε τοῖς περὶ φύσιν λογισμοίς δεινότατος, οὐκ ὃρθος μοι δοκεῖ περὶ τε σφυγμοῦ καὶ παλμοῦ καὶ σπασμοῦ καὶ τρόμου γινώσκειν, where ρίγους is replace with σφυγμοῦ), and not even to the outline of the text (1–2. introduction; 3. τρόμος; 4. παλμός; 5. distinction between τρόμος and παλμός; 6–7, ρίγος; 8. σπασμός). In this particular case, the editor of De tremore may choose a title that does not necessarily have to agree with that given in De libris propriis: τὸ περὶ τρόμου καὶ ρίγους καὶ παλμοῦ καὶ σπασμοῦ.

Text and Sources

To my knowledge, Galen’s De tremore has been previously translated into English once, by David Sider and Michael McVaugh (1979); their translation was based not on the text printed by Kühn, but on an independent collation of manuscripts. However four translations from Greek into Latin were prepared in the sixteenth century. It was also translated into Syriac by Hunain ibn Ishaq and then into Arabic by Ḫunain’s nephew, Ḫubaish ibn al-Ḥasan, in the ninth century. No manuscript of the Arabic or Syriac texts has yet been found, but the Arabic version was rendered into Latin in 1282 by the Catalan physician Arnald of Villanova. The text of Arnald’s translation thus represents a very different tradition from that of the surviving Greek manuscripts, and has occasionally proved quite useful in restoring the Galenic original.

Two years before Sider and McVaugh’s translation, Myrodes Konstantinides examined and collated some of the Greek manuscripts containing De tremore, attempting to establish a stemma for these codices and to describe their relationship. He also critically edited the first five

14 Sider and McVaugh (1979, p. 183–210)
15 Durling (1961, p. 288, n°. 80)
16 Sider and McVaugh (1979, p. 184)
chapters of the treatise. However, a critical edition of the full treatise, together with English translation, commentary, indexes and historical contextualization, has not yet appeared in the edition series of the CMG.

The treatise was written along with a group of twenty-seven treatises and supplements Praxagoras’ work explicitly adhering to his thought.\(^{17}\) It was written at about the same time *De placitis Hippocratis et Platonis* was finished: in fact in the next to the last book of *De placitis*, as well as in *De tremore*, Galen takes his medical exegesis of Plato’s *Timaeus* into close consideration. In *De placitis* and in *De tremore*, Galen compares the teachings of Hippocrates and Plato with regard to the human body.\(^{18}\)

Tremor (τρόμος), the first phenomenon that Galen describes, is a shaking that occurs when we voluntarily move (or try to hold steady) a part of the body, and is due to a weakness of the motive force – a weakness that can be caused by lack of nourishment, chills, overwork, etc. – and has equally many cures. Since it is a weakness of the motive faculty, not of an instrument, it can occur to any moving part of the body.\(^{19}\) Galen wrote that trembling is an involuntary vibrating motion (κίνησις… ἄβολητος τε καὶ ἀκούσιος, p. 60,9–10) of the entire limb that arises spontaneously during voluntary innervation. He did not consider the rapid trembling motion of the limb during tremor as the result of an alternate contraction and relaxation of the muscle because he could not observe a rhythmic swelling and flattening of the involved muscle (p. 63–64). Galen also did not discuss the possibility that only a part of each muscle may be active at one time or other. He compared the tremor of normal people trying to lift a weight too heavy for

\(^{17}\) Ilberg (1896, p. 194–195)


\(^{19}\) McVaugh (1981, p. 11–13)
a smooth functioning of their muscles to the tremulous motor impulse in people weakened by age, illness or fear (p. 58–59).\footnote{Siegel (1973, p. 69–72)}

Palpitation (παλμός) happens to relaxed members, as in the tic of an eye. According to Galen, it is due to the expansion and contraction of a portion of the body, caused by a swelling from a thick pneuma; hence it can happen only in soft bodies or those with cavities, and it is caused by cold, which thickens, and relieved by warmth, which thins. It is a weakness of the instrument, not of the faculty. In contrast to tremor, Galen described quivering as a coarse tremor-like shaking of the muscle. It is an unnatural involuntary motion of the limbs and occurs independently of intentional movement. If only one muscle of an extremity moves in this manner, we should not speak of quivering palpitation, since the antagonist remains immobile. Palmos also could be observed at complete rest of an extremity or at an unmoved area supplied with striated muscle, such as the eyebrow (p. 63–64). Galen assumed that palmos resulted from an accumulation of a cold or an abnormally heavy pneuma that vainly attempted to escape through nervous or muscular channels (p. 66, 67–71).\footnote{Cf. Siegel (1973, p. 70)} Application of heat and phlebotomy appeared to be appropriate remedies.

Rigor (ῥῖγος) differs from both of tremor and palpitation. It is a condition not of one part, but of the whole body, and it is totally involuntary. It is always accompanied by a sensation of cold and by a shaking of the body but it is more than a ‘shiver’: it is a jolting painful agitation. It is caused by a sudden violent cooling of the natural heat which produces violent agitation. It usually accompanies tertian fevers, and marks the crisis in continuous fevers. Hence, inexplicably, the warmth as well as the cold can somehow produce rigor. The Greek term ῥῖγος,
rigos (cold, frost) did not express the same medical concept as its modern counterpart, rigor, which indicates to us the stiffness of a dead body. To Galen, ῥῖγος suggested only the shivering of an entire body due to cold. In contrast to the often localized tremor, rigor always seemed to be caused by a considerable loss of the body’s internal heat (ἐμφυτος θερμασία, cf. p. 82,3; 85,3; 87,2; 93,14) and was associated with the sensation of being thoroughly chilled (p. 75, 82). In contrast φρίκη, phrike (shivering) is a feeling that only the skin is affected by cold (p. 77–78). Galen distinguished the rigor of healthy persons exposed to a cold from the rigor of disease (νοσήματος… ῥῖγος, p. 78,2), the latter mostly a symptom of incipient fever, especially in malaria. Rigor results from spontaneous heat loss as Galen well recognized, whereas a dead body loses heat but ‘does not shiver’. The rigor from heat loss during life is due to a dissipation of heat, undernourishment or disturbance of heat production in the left heart, where most of the body’s heat originated. There is, however, a contradiction in Galen’s account of febrile rigor due to a cooling, and the increased production of heat during febrile disease. Since Galen could not measure temperature except by touching the skin, he was unable to form a clear concept about the vasomotor cause of rigor during rising fever. Anticipating a serious course of the disease, he wrote that ‘it is a bad sign when people who become cool by rigor, do not warm up’ (αἱ ἐκ ῥίγος ἀφονίαι μὴ ἀναθερμανόμεναι, κακόν, p. 88,1). He was aware that a patient’s skin feels cool during a chill, while the patient loses the heat ‘like a boiling kettle’ (p. 88), especially during the profuse sweat following the fever. Rigor could secondarily occur when a disease of

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23 Galen did not accept the explanation of Asclepiades (1st or 2nd century CE) that the heat of fever resulted from friction of the humors passing through more or less patent channels (poroi) of the tissues, and that any deviation from the normal temperature of the body could be directly explained by constriction or relaxation of these passages (p. 79–80). Cf. Siegel (1968, p. 163–164; p. 168; p. 338).
stomach or heart resulted from under cooling the body. Galen blamed an abnormally violent struggle of the body’s heat against the cold humors for the plight of such patients: ‘Because in this struggle the weaker heat of the body is overwhelmed by the strength of the ailment’ (p. 87,13–15).

About spasm (σπασμός), Galen has less to say here. It arises from a sudden stretching taut of the sinews, which in turn tighten the muscles and stretch the limbs. Depending on the direction in which the body is pulled, a spasm can take three forms: ‘tetanus’ (τέτανος), ‘emprosthotonos’ (ἐμπροσθότονος) and ‘opisthotonos’ (ὀπισθότονος). Spasms are caused by various things: if by dryness, they are incurable; if by excess of humors or by phlegmon, they can be cured. He defined spasmos as the unintentional forceful contraction of muscles, temporarily unable or unfit to relax (p. 97–98; also 99), the opposite to paralysis. But spasmos and paralysis were considered to be a result of damage of the spinal nerves in contrast to tremor which he attributed to a weakened nervous impulse. It remains unclear to us what the true difference was. Spasmos could affect the entire body by the spread of an irritation from one area through the ramifications of the peripheral nerves. In Latin the translation as convulsio conveys to us the impression of a general affliction, although the Renaissance translators also spoke of convulsio of a single limb.

Structure of the Text

The structure of the text may be illustrated by the following outline.

I. Introduction (p. 57–58,8): purpose and definitions.
II. Tremor and palpitation (p. 58,9–73,12)
   1. Tremor is caused by a weakness of the motive force (p. 58,9–60,7).

24 Cf. Siegel (1973, p. 164) on combustion; (p. 360 sq.) on sympathetic diseases.
25 Cf. Siegel (1973, p. 70)
2. Tremors occur in those trying to move (even though seeming motionless) (p. 60,8–63,13), while palpitations happen to the unmoved (p. 63,14–64,11).
3. Tremor is an up-and-down motion, while palpitation is expansion and contraction (p. 64,13–15).
4. Palpitations are caused by a gross *pneuma* swelling the parts, especially the muscle and the skin, and not (as Praxagoras says) the arteries (p. 66,2–68,5); it is caused by cold and relieved by warmth (p. 68,6–69,12).
5. Tremor is caused not by cold nor by a single cause but by many causes: lack of nourishment or of tonos, etc., each requiring its own remedies (p. 69,12–70,13). Excess of humor requires purging (p. 70,13–15). No one place is affected – neither arteries (Praxagoras) nor nerves (Herophilus) (p. 72,7–73,3).

### III. Rigor (p. 73,12–97,7)
1. Tremor and rigor are different: tremor is voluntary and local, while rigor is involuntary and general (p. 73,12–74,11). Plato is wrong in his equation of the two; so is Athenaeus, following Plato (p. 74,12–76,9).
2. Definition of rigor: a painful chill with a certain irregular shock and agitation of the whole body (p. 76,10–79,1).
3. Cause of rigor: an affliction of the innate heat (despite those who do not recognize that there is an innate heat) (p. 79,1–80,9), an inward chilling of the heat which is sudden, strong, and violent (p. 80,9–84,6), occurring when strong innate heat is extended and then checked, producing a series of violent, disordered motions (p. 84,6–88,5).
4. ‘Is the agent producing rigor cold, just as rigor itself is cold? No. Other dispositions and humors, bitterness and bile also produce rigor, even if they are warm’ (p. 88,5–90,9). Special circumstances also may be involved: quantity, quality or place in which the humor is collected (all factors identified by Plato in *Timaeus*, 85d) (p. 90,9–92,5). Both hotness and coldness can produce rigor, then, both bile and phlegm. In phlegm, however, rigor is less violent (p. 92,5–96,1), but the ancients did not recognize this form of rigor (p. 96,1–97,7).

### IV. Spasm (p. 97,7–99,12)
1. It is produced by the stretching of the sinews through dryness or from excess of humors; this yields muscle tension and involuntary motion. Three types are named (99,4–8). The first type of spasm is forward-pulling and is called ‘emprosthotonos’; the second type is backward-pulling and is called ‘opisthotonos’, and the third type is called ‘tetanus’.

These four conditions described by Galen may recall certain clinical conditions of today’s medicine. Yet the similarity of names must not mislead us into imagining that Galen is writing about modern clinical entities.\(^{27}\) It would be a mistake to suppose a real identity between the modern clinical conditions and the Galenic definitions. In fact, Galen’s terms are built up on an elaborate physiology of humors and qualities which has no correspondence today, and they

represent clinical entities that a physician could learn to recognize in Galen’s age, but not in our own.

Galen’s treatise on the De tremore was written to describe and resolve a long standing medical debate (p. 57,3–9):

"Επειδὴ Πραξαγόρας ὁ Νικάρχου, τά τε άλλα τῆς ιατρικῆς ἐν τοῖς ἀρίστοις γενόμενος ἐν τε τοῖς περί φύσιν λογισμοῖς δεινότατος, οὐκ ὀρθῶς μοι δοκεῖ περί τε σφυγμοῦ καὶ παλμοῦ καὶ σπασμοῦ καὶ τρόμου γινώσκειν, ἁρτηριῶν μὲν ἅπαντα νομίζων εἶναι πάθη, διαφέρειν δὲ ἀλλήλων μεγέθει· διὰ τοῦτο ἔδοξέ μοι κοινῇ περί πάντων αὐτῶν ἐν τῷ δὲ γράμματι διελθεῖν, οὐχ ἵνα ἐλέγξαιμι Πραξαγόραν ἐν οἷς σφάλλεται, τούτῳ μὲν γάρ αὐτάρκως ‘Ηρόφιλος ἔπραξε, μαθητής αὐτοῦ γενόμενος, ἀλλ’ ἵν’ οἷς ὀρθῶς ἐκεῖνος ἔγραψε τὰ λείποντα προσθῆ.

Since Praxagoras, the son of Nicarchus, who was very accomplished in other aspects of medicine and truly intuitive in his theories on nature, does not seem to me to understand correctly pulsation, palpitation, spam and tremor, thinking all of them to be affections of the arteries, only different from each other in magnitude, for this reason, it is now my intention to treat all these topics together in the following treatise, not so that I refute Praxagoras in those arguments he is wrong – for his student Herophilus did this well enough – but so that I add what is missing in those theories he wrote correctly.

Not only Praxagoras and Herophilus, but other classical physicians (Demetrius the Herophilian and Asclepiades) had also been at odds over the nature of these conditions. For instance, in the Acute Diseases – a Latin translation of Soranus of Ephesus by Caelius Aurelianus – there are chapters on spasm and tetanus, on how to distinguish spasm from tremor and ‘saltus’ (παλμός), and on the treatment of spasm.

Galen’s analysis undoubtedly owed much to an existing Greek medical tradition going back as far as Hippocrates and still active in his own day. Hippocrates makes frequent allusion to these four conditions, particularly in his Aphorisms. Hippocrates’ Aphorisms carried a unique authority among the Western physicians, were widely read and widely quoted. They had much to

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28 Drabkin (1950, p. 344–345)
say about these neurological conditions and Galen himself in the *De tremore* cites the *Aphorisms* four times in building up a harmonious description of their symptoms and treatments.

**The Textual Tradition: Prolegomena**

In the introduction of *Galeni De praecognitione* (CMG V 8,1), Vivian Nutton stresses how difficult the textual criticism of a medical author can be, even of one as committed to posterity as Galen. Prose is corrupted more easily and with less chance of detection than is poetry, and a technical treatise such as *De tremore*, in which content was more important than style, was always open to alteration in a way in which one whose merit and survival depended upon the beauty and the rhythms of its language was not.31 Treatises might be combined in order of subject rather than of author, and works and sections not by Galen or extracted from his other writings might be added to another related book. No matter how careful Galen tried to be in limiting copies of his books to those who were worthy of them and in preventing any loss of meaning through changes in the text – by, for example, writing out all numbers in full – the lack of any official text and of any mechanism for ensuring a regular and faithful transmission betrayed his intentions. Indeed, the Galenic scholars of sixth and seventh century Alexandria helped to establish a canon of his writings, but they did not bring a single text back to its original state. There is no evidence that their critical work, if there was any, has preserved the textual tradition for the Middle Ages. Moreover, the Arabic tradition and the Latin translation offer readings that differ from those of the Greek manuscripts and sometimes supplement their

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29 For example, Hipp. Aphor. IV 46, 58; V 17, 69; VI 26.


deficiencies. This demonstrates that considerable changes happened in the text of *De tremore* between the ninth century and the period when the Greek manuscripts of this treatise were written.

Therefore, the Greek manuscripts, coming at late stage in the transmission when corruption and contamination had long occurred and when scribes were capable of collating and correcting the texts they themselves were transcribing, offer us only a “Byzantine Galen.” Although a stemma of the Greek manuscripts containing *De Tremore* can be constructed, its value is limited. In fact, a stemma makes it possible to deduce the exemplar (archetype) from which the late manuscripts descended, but it does not reconstruct the text as though it was transcribed from the lips of Galen. Not even the help given by the Arabic and Latin versions permits such a reconstruction in every detail, and the Greek text given here might represent more than a variant of the exemplars that would have been in circulation in the ninth century. Some of the changes that had taken place before then can be divined and cured, but, in absence of any adequate earlier textual quotations, it is impossible to say how far this treatise suffered the mutilation and alterations already noted for other medical writings.

**The Greek Manuscripts**

I myself collated the Greek manuscripts that contain *De tremore* and obtained their photographic reproductions either from microfilms or directly from the original exemplars. I also had the opportunity to study *in loco* the Vaticanus gr. 1845 and the Vaticanus gr. 285 in the

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32 Cf. Diels (1905, p. 82)

33 I ordered photographic reproductions from the Vatican Library (Vaticanus gr. 1845 and Vaticanus gr. 285), from SHYLOCK e-Solutions (Marcianus Venetus app. c1. V 9, Marcianus Venetus app. c1. V 5 and Marcianus Venetus gr. Z 282), and from the Bibliothèque nationale de France (Parisinus suppl. gr. 35; Parisinus gr. 2269, 2270, 2271 and 2283). The manuscript Laurentianus gr. 74, 12 has been digitized and is freely available online at www.teca.bmlonline.it. I am grateful for the Madelyn Lockhart Dissertation Fellowship, which helped me to cover all the expenses for the reproductions of the manuscripts.
Vatican Library; thus, I was able to clarify the passages that I was not able to read in their reproductions. The Greek manuscripts are the following:

V Vaticanus gr. 1845, oriental paper, XII century\(^{34}\), fol. 171\(^{v}\)–197\(^{r}\)

R Parisinus gr. 2270, paper, XV-XVI century, fol. 124\(^{r}\)–147\(^{v}\)\(^{35}\)

M Marcianus Venetus app. c1. V 9 (=1071), paper, XV century, fol. 164\(^{v}\)–178\(^{r}\)\(^{36}\)

L Marcianus Venetus app. c1. V 5 (=1053), parchment, XVI century, fol. 421\(^{r}\)–427\(^{v}\)\(^{37}\)

S Parisinus gr. 2271, paper, XV century, fol. 107\(^{v}\)–127\(^{v}\)\(^{38}\)

T Vaticanus gr. 285, paper, XVI century, fol. 110\(^{r}\)–126\(^{v}\)\(^{39}\)

Q Parisinus gr. 2269, paper, XV century, fol. 219\(^{r}\)–242\(^{v}\)\(^{40}\)

K Marcianus Venetus gr. Z 282, parchment, XV century, fol. 183\(^{r}\)–189\(^{v}\)\(^{41}\)

P Parisinus suppl. gr. 35, paper, XV-XVI century, fol. 77\(^{r}\)–92\(^{v}\)\(^{42}\)

p Parisinus gr. 2283, paper,\(^{43}\) XVI century, fol. 135\(^{r}\)–\(^{v}\)

f Laurentianus plut. 74, 12, paper,\(^{44}\) XV century, fol. 28\(^{r}\) (= p. 37)

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\(^{34}\) Canart (1970) dates V to the twelfth century as opposed to Diels (1905: p. 82), who dates L to thirteenth century.

\(^{35}\) Cf. Omont (1888, vol. 2, p. 227)

\(^{36}\) Cf. Mioni (1972: p. 256)


\(^{38}\) Cf. Omont (1888, vol. 2, p. 227)

\(^{39}\) Cf. Mercati, Cavalieri (1923, p. 395–400)

\(^{40}\) Cf. Omont (1888, vol. 2, p. 227)

\(^{41}\) Cf. Zanetti, Bongiovanni (1776, p. 136)

\(^{42}\) Cf. Omont (1888, vol. 3, p. 207)

\(^{43}\) Cf. Omont (1888, vol. 2, p. 229)

\(^{44}\) Bandini (1770, col. 100)
The same manuscript has been given different sigla in different works of Galen. For instance, in *Galeni De constitutio artis medicae ad Patrophi lum*, Marcianus Venetus app. cl. V 5 (L) is identified by the manuscript siglum M; in *Galeni De atra bile* by the manuscript siglum γ; but in *Galeni De uteri dissectione*, the same manuscript is indicated as L. In this critical edition, I use mostly the manuscript sigla given by Konstantinides and Nickel.

**The Relationship between the Greek Manuscripts**

The manuscripts Marcianus Venetus gr. Z 282 (K) and Parisinus suppl. gr. 35 (P) both omit the text from p. 97,12 ‘αὐτὸ μὲν γὰρ’ to 99,12 ‘γράμμασιν’. In addition, both K and P share in common the title: περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ῥίγους.

Likewise, Vaticanus gr. 1845 (V) as well as R M L S T Q, which are the apographs of V, against the other manuscripts P and K, omit the text from p. 59,3 ‘οἶμαι σε’ to 60,12 ‘μή προ’. This omission corresponds to a missing folio of codex V (between f. 172 and f. 173). The lacuna is clearly reflected in Q by leaving a gap that corresponds to the omitted text (i.e. after the word ‘εἰσίν’ and before ‘ἐλόμενος’). Therefore, Q reflects awareness of the missing folio of V and leaves an empty space for it. Codices R M L S T, however, omit the text without any indication of such awareness as that displayed by Q; their text is flowing smoothly, with a period mark after

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45 Cf. Galeni De constitutio artis medicae ad Patrophi lum (CMG V 1,3, p. 17; p. 52–53)

46 Cf. Galeni De atra bile (CMG V 4,1,1, p. 70)

47 Cf. Galeni De uteri dissectione (CMG V,2,1, p. 32)

48 Cf. Konstantinides (1977, p. 3)

49 Cf. Galeni De uteri dissectione (CMG V 2,1, p. 32); however, in the conspectus siglorum for this critical edition, Parisinus gr. 2269 is Q.

50 At the end of the treatise in P, a note in Latin refers to the twenty-six lines omitted: Desunt hic 26 lineae quae habentur in editione germanica graeca; cf. Konstantinides (1977, p. 35, n. 43).

51 P gives two titles: (1) Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ῥίγους; (2) περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ῥίγους βιβλίον.
the word ‘εἰσίν’ and does not leave any empty space, with the ‘ἐλόμενος’. Moreover, concerning the title of the treatise, V R M L S T Q have the same reading: Γάληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ ρίγους καὶ σπασμοῦ.\(^{52}\)

The two families of manuscripts can be distinguished both from the lacuna mentioned above, the title, the dissonant script, and from many different readings. K and P form a family (B) distinct from V R L M S T Q (family A).\(^{53}\)

**Common Errors**\(^{54}\) of Family B

52. \(\text{L lacks the title, but does have the following colophon: τέλος Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ ρίγους καὶ σπασμοῦ.}\)

53. Cf. Konstantinides (1977, p. 5)

54. In what follows ‘errors’ should be understood as a convenient abbreviation for ‘readings of secondary origin’.

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\(p. \) 58,7 υγιαινόντων V R M L S T Q: om. K P

\(p. \) 59,1 φέρειν V R M L S T Q: om. K P

\(p. \) 61,7 τετύχηκεν. ὡστε V R M L S T Q: ἕτυχεν K: ἔτυχεν ὡστ’ P

\(p. \) 61,8 κίνησις V R M L S T Q: om. K P


\(p. \) 66,7 τῆς γενέσεως καὶ τῆς λύσεως V R M L S T Q: om. K P

\(p. \) 71,14 φλεβοτομίαν μὲν V R M L S T Q: om. K P

\(p. \) 76,10 ἀπλῶς, οὐ μήν οὐδὲ κατάψυξις V R M L S T Q: om. K P


\(p. \) 86,6 ἐκ διαδοχῆς V R M L S T Q: om. K P

\(p. \) 90,1 ὅπως ὁρῶμεν V R M L S T Q: om. K P

\(p. \) 90,1 οὐδὲν ἦττον V R M L S T Q: om. K P


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\(^{52}\) L lacks the title, but does have the following colophon: τέλος Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ ρίγους καὶ σπασμοῦ.

\(^{53}\) Cf. Konstantinides (1977, p. 5)

\(^{54}\) In what follows ‘errors’ should be understood as a convenient abbreviation for ‘readings of secondary origin’.
Common Errors of Family A

p. 62,10 μὴ δύνασθαι K P: om. V R M L S T Q
p. 63,12 κἀνταῦθα K P: om. V R M L S T Q
p. 64,7 καὶ νέῳρα K P: om. V R M L S T Q
p. 67,10 ὡσπερ ἀμέλει K P: om. V R M L S T Q
p. 71,1 τῆς μήτρας K P: om. V R M L S T Q
p. 71,3 τὰ δεύτερα K P: om. V R M L S T Q
p. 72,1 περιέχεται K P: om. V R M L S T Q
p. 72,8 ἐν τρόμοις K P: om. V R M L S T Q
p. 76,16 ἐμβαλὼν K P: om. V R M L S T Q
p. 85,8 τὸ σῶμα K P: om. V R M L S T Q

The Manuscripts of Family A

Vaticanus gr. 1845

V Vaticanus gr. 1845 (=V) was written in the late twelfth or early thirteenth century on oriental paper, 205 mm. by 145 mm. in size, and with 20/23 lines to the page. It consists of 197 leaves and the present treatise is contained in folia 171v–197r. In the restoration of the last century, the original margins have been trimmed away, so that the pages have been preserved

55 Cf. Galeni De Praecognitione (CMG V 8,1, p. 14), Konstantinides (1977, p. 5) and Canart (1970, p. 314–315). It has been widely used and studied by editors of Galen: see especially Boer (1933, p. 56–58) and Galeni De atra bile (CMG V 4,1,1, p. X–XI); Galeni De uteri dissectione (CMG V 2,1, p. 13–14).

56 Choulis (2013, p. 174–192)
up to the very edge of the script. It has suffered badly from the attacks of worms and the effects of aging, with the result that often significant parts of the text, particularly the two upper lines, are lost or not legible. Its loss is serious, for its text is by far the best of the manuscripts. The worm-holes in the upper third lines of the text become progressively bigger toward the end of the manuscript. Folio 197 has a big hole, in the form of a trapezoid, and lacks almost all the words in the upper three lines of the script. This manuscript will be identified as V* whenever its text is damaged and unreadable.

The treatise De tremore is included in the last half page of a quaternion (λ); a quaternion (λα), which has lost a folio; two quaternia (λβ and λγ); and two folia of a quaternion (λδ). A complete folio is missing after f. 172, where the quaternion pagination number λα is still visible on the lower right margin of its verso. The lost folio in V is indicated in the manuscript Q by leaving a large blank space in f. 220 recto and verso. This blank page corresponds exactly to the missing portion of text in V. The other manuscripts R M L S T do not preserve the same missing text in V, but they do not have such an indication of the lost folio as Q does. This lost folio indicates V as a common source of the manuscripts R M L S T and Q.57

The writing is clear and easily legible. The scribe uses regularly abbreviations. On the outer margins there are chapter headings by the original hand. There are many typical scribal errors:

1. Single λ, ρ, μ, and ν for λλ, ρρ, μμ, νν: p. 58,13 ἀπόλλωσι V (R M L T Q); p. 71,1 ἐρήμωσε] ἐρήμωσε V (R M L S T Q K); ἐρήμωσε P; p. 77,2 ἐρήμωσε] ἐρήμωσα V (R S T Q K P; ἐρήμωσα M L);58 p. 81,7 συνεύσεισι] συνεύσεισι V; p. 88,2 ὀμμάτων] ὀμμάτων V (R M L Q); p. 98,12 γεννῶνται] γεννῶνται V.


57 Cf. Konstantinides (1977, p. 7)
58 Cf. p. 90,9

4. Confusion of ε and αι: p. 57,7 σφάλλεται] σφάλλετε V (Q); and α and o and o and viceversa: p. 57,7 τοῦτο] τοῦτω V; p. 61,13 ὀφελοῦν] ὀφελοῦν V; p. 62,12 κακὸν ἔσχατον] κακὸν ἔσχατον V (R M L S T Q K P);60 p. 63,1 τοῦ κατακείσθαι] τὸ κατακείσθαι V; p. 63,12 ὅτε] ὃ τὸ V; p. 64,12 σκεφόμεθα] σκεφόμεθα V (R M L S T Q P);61 p. 65,1 τὸ ἀνώτερον 

5. Iotacism: η for οι: p. 60,13 ἐπάγης] ἐπάγοις (homoioleteuton αὐτοῖς); p. 68,9 ὃποιοι ἐν... ἐθέλησι] ὃποιος ἐν... ἐθέλεις V; p. 85,1 εἰ... προσάγης] εἰ... προσαγόμενος V; p. 99,11 θεραπευτικής] θεραπευτικοὶ V; η for ει: p. 61,11 ἕν... ἐξη] ἕν... ἐξει V;62 p. 63,4–5 μὴ δοῦσιν] μὴ δοῦσιν V;63 p. 68,6–7 δᾶν... βραδύνη] δᾶν... βραδύνη V (R M L S T Q); and ει for η: p. 64,11 ὑπάρξει] ὑπάρχει V; οι for ει: p. 61,9 ἀφέλεις] ἀφέλεις V; p. 62,4 εἰ... ἔχοι] εἰ... ἔχει V (R M L S T Q); ει for οι: p. 63,9–10 εἰ... μνημονεύεις εἰ... μνημονεύεις V (Q); p. 66,5 μέλει] μέλει V;64 p. 71,15 ἐπεπόνθει] ἐπεπόνθει V (Q); p. 88,13–14 εἰ μὴ διαλείποντες] εἰ μὴ διαλείποντες V; οι for υ: p. 65,2 ἀπολείπουν] ἀπολείπουντα V (R M L S T Q);65 p. 86,10 συννευσις... ἐξαιρέσεις] συννευσις... ἐξαιρέσεις V; and οι for ει: p. 86,8 εἰ... ἐπιδοθῇ V; p. 92,1 παρέλειπεν] παρέλειπεν V; οι for υ: p. 61,14 οἱ μένες] οἱ μένες V; η for υ: p. 63,3 κατάκλησις] κατάκλησις V (M L T: κατάκλησις K P); and οι for η: p. 91,4 ἐν ἀπάθῃ] ἐν ἀπάθῃ V (R M L S T Q).


59 Cf. p. 88,3
60 Cf. p. 70,9
61 Cf. p. 92,5
62 Cf. p. 85,5 ὀκλαζει] ὀκλαζει
63 Cf. p. 63,9 διαφυλάττεις] διαφυλάττεις
64 Cf. p. 77,12 V (R M L S T Q) and p. 77,13 κινε] κινε V (R S, post corr. T, Q).
65 Cf. p. 65,4 ἀπολείπει] ἀπολείπει (R Q).
66 Cf. p. 74,15 in accusative case as well as p. 67,14 in genitive case.

7. Iota subscript is always omitted.

8. Smooth for rough breathing.

9. After elision sign, rough breathing for initial vowel or diphthong, despite what it looks like.

10. Παρὰ for περὶ: p. 64,12 περὶ] παρὰ V (R M L S Q).70

11. Neuter nouns ending in -ος have acute accent for circumflex, such as ῥίγος] ῥίγος V; πνίγος] πνίγος V.

12. After words such as ὅταν, ὅποταν, ἕαν ὅπως etc. …, V has the indicative form for subjunctive: p. 64,6 ὅποταν … ἐπιχειρώμεν] ὅποταν … ἐπιχειροῦμεν V; p. 64,10 ὅταν; διαστέλληται … συστέλληται] ὅταν διαστέλλεται … συστέλλεται V; p. 84,11 ὅταν … ἀνάπτηται] ὅταν … ἀνάπτεται V; p. 96,1 ὅταν … χειμάζωνται] ὅταν … χειμάζονται V.

13. V adds ephelkustic νυ, but omits the final -ν: p. 79,5 πολύν] πολύ V; 90,10 ύπάρχειν] ύπάρχει V.71

14. The attic construction (a neuter plural subject regularly takes a third person singular verb) is often changed into the standard verbal form: p. 66,2 τάδε … τά γνωρίσματα … διαφέρει] τάδε … τά γνωρίσματα … διαφέρουσιν V; p. 69,5 τά ἰάματα … ὅσα … δύναται] τά ἰάματα … ὅσα … δύνανται V.


67 Cf. p. 76,3 ὡς πού φησι] ὡς πού φησί

68 Cf. p. 92,14

69 Cf. p. 79,9

70 Cf. p. 72,2 and p. 90,12

71 Cf. p. 94,13
Apographs of V

The manuscripts R M L S T Q descend from Vaticanus gr. 1845, which is the hyparchetype of family A as well as the oldest witness of all the extant manuscripts. After their examination, it becomes clear that none of these six apographs adds any value to the text preserved by V. Their readings are mostly omissions, variants of a merely orthographical nature or misinterpretations. Therefore, the apographs contain nothing of independent value, except if V is illegible.

I have already noted above that V has lost some parts of the text because of worm-holes, aging and/or trimming damages. The deterioration of the transmitted text in V, however, has occurred gradually; thus, a codicological study of V and its apographs seems to be of primary importance for the restoration of the text itself. In fact, the analysis of the interrelationships between the apographs demonstrates that R M L S T Q were copied in different periods of time and that each of them (or each subgroup with their respective exemplars) reflects different stages of the deterioration of V: there is a first stage with minimal degree of deterioration; a second stage with an intermediate deterioration; and a final stage with extensive deterioration of the manuscript V. At this time, V shows more damaged parts of the treatise than its apographs; it worsens its condition especially towards the end, particularly folios 192–197. Among the later copies, Q is the one that reflects better the actual status of V, leaving lacunae wherever V presents damaged script. Following Q, manuscripts S and T report a significant number of mutilated passages either through blank spaces (T) or omissions (S). Yet, after the manuscript Q

72 My recension has been confirmed Boer (1933, p. 59), Keil (1959, p. X) and Konstantinides (1977, p. 12); see also Galeni De atra bile (CMG V 4,1,1, p. X) and Galeni De uteri dissectione (CMG V 2,1, p. 12).

73 Cf. supra, p. 28–29

74 Cf. supra, p. 29
was copied from V (or its hyparchetype), it seems to me that V did not suffer more severe losses of the text, except for the final leaves.

Therefore, I could discern three types of lacunae in V:

1. lacunae of V which are present in S T Q, but are missing in R M L;
2. lacunae of V which are indicated as blanks in Q, but are absent from R M L S T; thus, these lacunae came from a later period;
3. lacunae of V which are not found in any of the apographs, and can be dated to even a later period.

First, I will report the lacunae of V that are found in S T Q, but not in R M L:

p. 71, 15 τοῖς] lac. 3 litt. in V+ S T Q
p. 85, 2 σεισμὸν] lac. 6 litt. in V+ Q τινα] lac. 4 litt. in V+ Q: om. S T
p. 85, 2 τινα γενέσθαι] γενέσθαι (lac. 4 litt. ante) in V+ Q
p. 85, 12 οὐκ ἐσω] οὐκ ἔτι lac. 1 litt. in V+ Q: οὐκ ἔτι R M L S T
p. 85, 12 τὴν] lac. 3 litt. in V+ Q L: om. R M S T: ante τὴν add. ἦ S
p. 85, 12 ἅβιαστον] lac. 8 litt. in V+ Q: ἰαστον (lac. 2 litt. ante) in T ἀποτείνεται] ποτείνεται (lac. 1 litt. ante) in V+ Q
p. 90, 1 μηδὲ ὀραν ἡμᾶς ὀμολογεῖν, ὅτι R M L: μηδὲ ὀραν ἡμᾶς ὁ lac. ὅτι V+ Q: μηδὲ ὀραν ἡμᾶς ὀμοιάζειν, ὅτι S T: μηδ᾽ ὀραν ἡμᾶς ὀμολογεῖν, ὅτι K: μηδ᾽ ὀραν ἡμᾶς ὀμολογεῖν, όσα P
p. 93, 5 μέλλει ρήγος ἐργάσασθαι R M L K P: lac. ρήγ lac. σ lac. σθαί V+: lac. 19 fere litt. in Q: μέλλοι ρήγος ἐργάζεσθαι S T
p. 93, 7 πυρετοῖς καὶ τοῖς τριταίοις R M L K P: πυρετοῖς καὶ οἷς (lac. 1 litt.) τριταίοις in V+: πυρετοῖς καὶ (lac. 4 fere litt.) τριταίοις in S T

75 Cf. Konstantinides (1977, p. 13)
p. 98,3 παροσάμενοι κατατίθενται. ῥήγνυνται δὲ RML: παυ lac. ρήγνυ lac. γάρ V*: παυ lac. γάρ Q: σπασάμενοι κατατίθενται. ρήγνυνται γάρ ST

According to the passages listed above, the apographs of V can be distinguished in two subgroups: R M L and S T Q. Moreover, since S T do not share all the lacunae who are carried over by Q, I will not consider S T Q as one single subgroup. In fact, I believe that manuscripts S and T share an intermediate hyparchetype (e) and were copied after R M L; nonetheless, they do not reflect the extensive deterioration of V as Q does. In order to prove my conjecture, I will provide some examples of such lacunae in V, which are received by Q, but not by the other apographs (R M L S T):

p. 73,14 οὐ ταύτη μόνον, ὃτι τὴν R M L S T: καὶ lac. τῇ lac. τὴν V*Q


p. 82,9–10 πάθη. ἐν τὶ τῶν τοιούτων παθῶν... ἀπλῶς ὁ R M L S T: πάθη. ἐν τ lac. (1 lit. fere) παθῶν... ἀ lac. V* Q

p. 83,10 ὑπερτεθερμασμένῳ σώματι προσάγοιτο R M L S T (P): ὑπερτεθερμασ lac. προσάγοιτο V*: ὑπερτεθερμασ lac. (6 fere litt.) προσάγοιτο Q

p. 84,4–5 θερμὸν, ἀλλὰ θρόφως τε καὶ βιαίως, τουτέστιν R M L S T: θερμὸν, lac. ως, τουτέστιν V*: θερμὸν, ἀ lac. τουτέστιν Q

p. 84,5 αὐτὸ μένον, οὕτε τὴν R M L S T (K P): αὐτὸ lac. τὴν V*Q

p. 88,4–5 ἡ ἄδειανεός ἐόντος... ἀλλὰ περὶ μὲν τοιοῦτον ἐπὶ R M L S T: lac. ἐόντος... ἀλλὰ lac. ἐπὶ V* Q

p. 95,11–13 προετρεφώμην χρῆσθαι τοῖς... πάχος χυμὸν... τε καὶ... ἐκεῖνος τε όὗν οὕτω κατέστη R M L S T: προετρεψά lac. χρῆσθαι lac. ... lac. ... lac. καὶ... lac. τε όὗν οὕν lac. (2 litt.) κατέστη V* Q

p. 97,5 καὶ περὶ ρίγους αὐτάρκως R M L S T (K P): καὶ lac. ἀ lac. V*: καὶ lac. αὐτάρκως Q

p. 98,3 ἐν ταῖς τὸῦ περιέχοντος ἀμετροτέραις κράσεσι R M L S T: ἐν τα lac. ἐχο lac. μ lac. τροτέραις κ lac. σεσι V*: ἐν τ lac. κράσεσι Q

p. 98,5 ἵππηρος ξηραινόμεναι R M L S T: ἵππα lac. νόμεναι V*: ἵππα lac. ξηραινόμεναι Q
As a result, Q appears to share the lacunae of V, where R M L and S T do not.\textsuperscript{76} The readings of R M L S T are very important in this part of the text, because they preserve the script of V before it was damaged. Also, we can assume that Q was copied from V after R M L and S T.

Lastly, there are lacunae in V that none of the apographs received. Most of these happen to be around the lacunae that have already existed in V\textsuperscript{+} and Q. Hence, V\textsuperscript{+} was affected with further damage after it was used as exemplar of Q. In the next paragraph, I list few examples of these lacunae:

\begin{itemize}
  \item p. 57,7 τοῦτο μὲν γὰρ R M L S T (K P): τοῦτο lac. γὰρ V\textsuperscript{+}
  \item p. 91,1 τὴν τῶν ἵναν R M L S T (K P): τὴν lac. ἵναν V\textsuperscript{+}
  \item p. 95,11 ἀδεέστερόν τε τῷ ἔταιρον ἑποίησα R M L S T Q: ἀδεε lac. ποίησα V\textsuperscript{+}
  \item p. 96,8 χυμόν. ὀσπερ δὲ R M L S T Q (K P): χυμ lac. ε V\textsuperscript{+}
  \item p. 97,5 διελθεῖν. ἔσται R M L S T (K P): δι lac. V\textsuperscript{+}: διελθεῖν ἐστί Q
  \item p. 97,6 ἅσαφῆς ὁ λόγος, εἴτε ὃν ἄχρι δεύρο R M L S T (K P): ἄσ lac. η lac. εἰ lac. ὃν ἄ lac. 1 δεύρο V\textsuperscript{+}: ἅσαφής ὁ λόγος, εἰ lac. ὃν ἄχρι δεύρο Q
  \item p. 98,2 τοῖς ὀργάνοις, ἀνιεμένας R M L S T Q (K P): lac. ὀργάνοις, ἃ lac. μένας V\textsuperscript{+}
  \item p. 98,4 κατὰ μὲν τὰς ὑγρᾶς R M S T Q: κ lac. σεσι, κ lac. ιεν τὰς lac. ρὰ lac. V\textsuperscript{+}: κρούσει, κατὰ μὲν τὰς ὑγρᾶς L
  \item p. 98,4 διαβρεχόμεναι… τὰς ἕρας τε καὶ βορείους R M L Q (K P): δι lac. ὑμεναι… τ lac. ρὰς τε lac. ορείο lac. V\textsuperscript{+}: διαβρεχόμενοι, κατὰ δὲ τὰς ἕρας τε καὶ βορείους S T
\end{itemize}

\textsuperscript{76} Konstantinides (1977, p. 17)
Accordingly, the six apographs reflect the condition of V in accordance with the damages and deteriorations V had suffered when its apographs and their common ancestral hyparchetypes were transcribed. Two groups are clearly identified: R M L, which descend from a common hyparchetype $\gamma$, and S T, which descend from a common hyparchetype $\varepsilon$. Q seems to stand out by itself, as single letters and even words, which S T omit from the text, are pointed out by Q through lacunae. The exemplar manuscript (i.e. V or an intervening hyparchetype) from which Q transcribed, were severely damaged. The arrangement of the apographs of V agrees with the readings, and confirm the accuracy of their division into three groups: R M L, S T and Q.

The readings of R M L (and to a lesser degree those of S T, and at times those of Q) become very important whenever V has deteriorations in the text, and absolutely essential when these deteriorations of V occur where K and P themselves have corruptions, or lack the entire part of the text, such as in p. 97,11–99,12. Here are a few examples:

p. 98,3 παυσάμενοι κατατίθενται. ρήγνυνται δὲ R M L: παυ lac. ρήγνυ lac. γάρ V+: παυ lac. γάρ Q: σπασάμενοι κατατίθενται. ρήγνυνται γάρ S T

77 See the three sets of lacunae listed above, where the readings of K and P are corrupted and the text relies upon the apographs of V. Cf. Konstantinides (1977, p. 19–20).

78 In all the examples out of p. 97,11–99,12, in which V is damaged, the text depends entirely on the readings of the apographs, because K and P lack this entire part of the treatise. Cf. supra p. 26.
The authority of the apographs is determined by the degree of deterioration of \( V^+ \) they handed on. Nonetheless, all of the apographs of \( V \) prove to be important witnesses and their study is worthwhile in order to establish those parts of *De tremore* that show damages, lacunae, or an unreadable script. Above all, the final part of the treatise (p. 97,12–99,12), that is totally missing from all witnesses of family B (K P), relies exclusively upon the witnesses of family A.

**Hyparchetype \( \gamma \) and its descendants R M L**

**R** Parisinus gr. 2270 (=R, formerly Med.-Reg. 3149), written between the fifteenth and the sixteenth century, is a paper manuscript of 386 pages, with 22 lines to the page. The text of *De tremore* is on folios 104\(^{v}\)–124\(^{v}\).\(^79\) For a further description of the manuscript, see the introduction of Galeni de uteri dissectione (CMG V 2,1), p. 15–17.

**M** Marcianus Venetus app. cl. V 9 (=M, formerly 1017) is written in the fifteenth century on paper, 295 mm. by 215 mm. in size (but folios 422–429 are 270 mm. by 195 mm.). It contains 725 leaves, together with a doublet at fol. 109, with a different number of lines per page. This

\(^{79}\) Cf. Omont (1888, vol. 2, p. 227)
treatise appears on folios 164r–178r, with 26 or 27 lines to the page. See the Helmreich’s Praefatio of Galeni De victu acutorum commentaria (CMG V 9,1), p. XXXI, and the preface to the edition of Galeni de uteri dissectione (CMG V 2,1), p. 15–17.

L Marcianus Venetus app. cl. V 5 (=L, formerly 1053) is a parchment manuscript of the very beginning of the sixteenth century. It consists of 444 leaves, 390 mm. by 270 mm., with 39 lines to the page. *De tremore* is on folios 421r–427v. For a detailed study of the codex, see the introduction of Galeni de constitutione artis medicae ad Patrophilum (CMG V 1,3), p. 17.

R M L belong to the same subgroup of manuscripts, because they have some errors which are not shared by the whole group, such as:

- p. 60,15 οὐδὲν δὲ ἦττον κινεῖται V S T Q (K P): om. R M L
- p. 67,11 μὲν V S T Q (K P): om. R M L
- p. 71,9 οὖν V S T Q (K P): om. R M L
- p. 78,5 ἀπροαίρετον V S T Q (K P): om. R M L
- p. 81,2 ἐνεστὶν V S T Q (K P): ἐστὶν R M L
- p. 81,11 ψυχρὸν τι μετέχει· μικτὸν γὰρ ἐκ θερμοῦ καὶ V S T Q (K P): om. R M L

In order to deduce the relationships between R M L and identify their common hyparchetype(s), I will focus on the agreements and disagreements between R and M. In fact, as I will demonstrate later, M is the exemplar for L, so that their readings are the same in regard to

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80 Cf. Mioni (1972, p. 265–266)

81 Cf. Mioni (1972, p. 255–256)

82 Cf. Galeni de uteri dissectione (CMG V 2,1), p. 15–17. Also, see the prefaces to the following editions: Galeni In Hippocratis Prorrheticum I commentaria III (CMG V 9,2), p. XI; Galeni in Hippocratis Epidemiarum Libros I et II (CMG V 10,1), p. XV and In Hippocratis Epidemiarum Librum III commentaria III (CMG V 10,2.1), p. XI.
V. Therefore, the conjunctive errors of R M L are, in effect, the variants of R M, that were produced from a common hyparchetype ε, now lost. Moreover, R M have also errors of their own, and this excludes the possibility of one being exemplar for the other. I find more variants (separative errors) in M (=M L) than R, as attested in the passages:

**Variants of R in contrast to V M (L)**

p. 58,15 σώματος V M L S T Q (K P): σώματο R
p. 61,8 ἀπάγειν V S T Q (K P): ἀπέχειν R: ἐπέχειν M L
p. 67,1 ὄνομάσαμεν V M L S T Q (K P): ὄνομάσαι μὲν R
p. 73,1 πάθη V M L S T Q: πάθος R: om. K P
p. 74,9 ὁ δὲ V S T Q P: οὐδὲ R: ὃς K: om. M L
p. 79,5 πολύν K P: πολλὸν R: πολύ V M L S T Q
p. 82,8 τέτανοι καὶ παλμοὶ V M L S T Q (K P): τέτανος καὶ παλμός R
p. 82,12 ἄθρόαν V M L S T Q: ἄθρόαν R: om. K P
p. 84,7 ποτὲ δὲ ἐν ἡλίῳ λαμπρῷ μαρανομένην V M L S T Q (K P): in textu om., add in marg. R
p. 85,4 ἄρῳστήσαν V M L S T Q (K P): ἄρῳστήσαν R
p. 99,8 ἰσοσθενής M L: ἰσοσθενοῖς R: ἰσοσθενῶς V S T Q

These variants show that R could not have been the exemplar for M L. Furthermore, according to their codicological and paleographical data, R is the youngest of the subgroup, as such it cannot be the exemplar of M L. However, M, the oldest codex in the subgroup, cannot be the exemplar of R because of its own separative errors:

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83 See Galeni De uteri dissectione (CMG 2,1), p. 18; cf. Galeni De atra bile (CMG 4,1,1), p. X–XIII and Konstantinides (1977, p. 21–27). For a history of these manuscripts, see Heeg (CMG 9,2 p. XXI), who notes that M and L were transferred together from the monastery of St. John and Paul to the Marcian Library and have several affinities. Also Mioni (1972, p. 255–256; 265–266) mentions it in his description of the two manuscripts. Cf. Keil (1959, p. XI).
p. 57,14 μὲν V R (K P): om. M
p. 58,9 μὲν V R (K P): om. M
p. 61,6 τόπου V R (K P): om. M
p. 65,7 τὸ V R (K P): om. M
p. 72,9 δὲ V R (K P): om. M
p. 74,8–9 τρόμος μὲν – κλόνος V R (K P): om. M
p. 77,13 μηδὲ V R (K P): μῆ M
p. 81,8 καὶ V R (K P): om. M
p. 83,10 γὰρ V R (K P): om. M
p. 83,10 τὴν V R (K P): om. M
p. 91,11 τὸν V R (K P): om. M
p. 95,5 τὸ V R (K P): om. M
p. 96,13 ἐγὼ μὲν οὖν καὶ P: ἐγὼ οὖν καὶ M: ἐγὼ δὲ οὖν καὶ V R
p. 97,11 γὰρ V R (K P): om. M
p. 97,11 αὐτὸ μὲν γὰρ τείνεσθαι V R: αὐτὸ μὲν τείνεσθαι M
p. 98,2 ante χρῆσθαι add. δὲ M

As a result, R and M are independent witnesses of the Greek text within their subgroup. Since they have some errors which are not shared by the whole group of apographs, R M are descended from a lost hyparchetype γ,84 which itself comes from V. Since R M complete the text whenever V has corruptions or loss in the text, I can assume that they descended from a lost exemplar of V, before the hyparchetype V suffered those damages. Moreover, as it has already

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been stated above.\textsuperscript{85} \(R\ M\ (L)\) are the main authorities of the Greek text whenever \(K\ P\) have corruptions or lack a text section, as in \(p.\ 97,12–99,12.\)

Concerning the source of \(M\ L\), a separate hyparchetype \(\delta\) could have existed for them. \(M\ L\) have a remarkable number of conjunctive errors which could have come from \(\delta\) in the transcription of \(\gamma\). This conjecture is not certain, but likely to be true: in fact, the existence of the hyparchetype \(\delta\) could explain the many separative errors which \(M\ L\) have but \(R\) does not. Finally, \(M\ L\) carried over not only their own errors, but also those of \(\delta\) and \(\gamma\) with regard to the readings of \(V\).

The conjunctive errors of \(M\ L\) suggest that one was transcribed from the other; namely, \(M\) was the exemplar for \(L\), since \(L\) not only dates from some later time than \(M\), it also has the following disagreements with \(V\ M:\)

\begin{itemize}
  \item p. 66,1 ἀπελευστήτων μὲν ἄει τῆς ἀνω φορᾶς \(V\ R\ M\ S\ T\ Q\ (K\ P):\) om. \(L\)
  \item p. 68,9 ἀν \(V\ R\ M\ S\ T\ Q\ (K\ P):\) om. \(L\)
  \item p. 71,2 δεῖ ἐλθεῖν \(V\ R\ M\ S\ T\ Q:\) δεῖ διελθεῖν \(L:\) δ’ ἐλθεῖν \(K\ P\)
  \item p. 72,9–10 αὐτὸ γένος ἄει \(V\ R\ M\ S\ T\ Q\ (K\ P):\) ἄει γένος ἄει \(L\)
  \item p. 77,7 όι \(V\ R\ M\ S\ T\ Q\ (K\ P):\) om. \(L\)
  \item p. 77,10 μετὰ καταψύξεως \(V\ R\ M\ S\ T\ Q\ (K\ P):\) μετὰ φύξεως \(L\)
  \item p. 96,10 τὸ \(V\ R\ M\ S\ T\ Q\ (K\ P):\) om. \(L\)
  \item p. 98,11 ταύτας \(V\ R\ M\ S\ T\ Q\ (K\ P):\) om. \(L\)
\end{itemize}

The copyist of \(L\) tends to emend and correct his exemplar. \(M\) has many superscript corrections (single letter, word endings and entire words), probably by the same or a second hand (\(M^{2}\)), which \(L\) usually discards by choosing the readings in the script of \(M\). Meanwhile, \(L\) corrected some of the orthographical and grammatical mistakes of \(M\); however, it added a

\textsuperscript{85} Cf. p. 37
substantial number of similar errors and, at times, it emended erroneously the readings of M. Following are a list of errors of M, which L received or emended:

p. 60,14 ἀποτεταμένον K: ἀποτεταγμένον ante corr. M, L: ἀποτεταμένον M²


p. 67,10 ταῖς ἀρτηρίαις L: ταῖς ἀρτηρίαις M, supra lin. corr. M²


p. 69,4 οὗτω καὶ L Kühn: καὶ M, supra lin. corr. M²

p. 71,4 φλεβοτομήσας L: φλετομήσας M, supra lin. corr. M²

p. 72,5 ἐντέμοις K: ἐκτέμνους M: ἐκτάμνους L

p. 74,5 ἀπηνέχθησαν] ὑπηνέχθησαν M L, supra lin. corr. M²

p. 75,8 τρόμον· οὔτε V K P: τρόμον· οὔτω M: τρόμος οὔτω L

p. 79,2 ἔδωμεν V K P: ἔδωμεν L et ante corr. M, ἔδωμεν supra lin. corr. M² L²

p. 82,9 παραλύσεις L: παραλήσεις ante corr. M, supra lin. corr. M²

p. 83,9 ἀνιάσεις ante corr. M L: ἀνιάσης supra lin. corr. M²

p. 85,14 γεγονὸς L: γεγονῶς ante corr. M, supra lin. corr. M²

p. 93,8 χειμῶν L et ante corr. M: χυμῶν supra lin. corr. M²

p. 97,10 ἄγον L: ἄγεν M ante corr. M, supra lin. corr. M²

p. 98,9 ἐνδέχεται L: δέχεται ante corr. M, supra lin. corr. M²

In conclusion, R M L belong to the same subgroup of apographs. M was the exemplar of L, while R is an independent copy within the subgroup; however, M, perhaps through a lost hyparchetype δ, and R were transcribed from a common lost witness γ, which itself was descended from V. In most cases, there is a progressive deterioration of the readings of the Greek

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86 R and M share the same conjunctive error from γ, but both have been corrected.
text, from V through γ (and δ, if it existed) to R and M L, although some improvements may be seen especially in case of orthographical or grammatical errors.

**Hyparchetype ε and its descendants S T**

S  
Parisinus gr. 2271 (=S, formerly Fontebl.-Reg. 3153) is written on paper, 157 leaves with 23 lines to the page. It dates from the fifteenth century. *De tremore* is on folios 107v–127v.87

T  
Vaticanus gr. 285 (=T, formerly 224), is a sixteenth century paper manuscript of 304 pages, 218 mm. by 156 mm. in size and with about 25 lines to the page. It merges two codices whose first part (folios 1-152) contains nearly the same works of Galen that are found in S as well. T presents *De tremore* at folios 110–126v. For a complete description of the manuscript, see Mercati and Cavalieri (1923, p. 395–400).88

S T share errors that are not present in V and the apographs R M L Q. Therefore, they originated from a lost subarchetype ε.

p. 61,1 ταῦτα κινεῖσθαι V: om. S T
p. 62,6 ρέπων V: ρεπόντων S T
p. 63,8 ἐνεργεῖ V: ἐνεργειοῦν S T
p. 63,11 κινήσεως V: δυνάμεως S T
p. 68,4 τοῦς V: om. S T
p. 79,12 περί V: om. S T
p. 82,10 post αὐτῷ add. τὸ S T
p. 83,9 post ὅτε add. τὸ S T
p. 83,9 ἔχον V: ἔχοντα S T
p. 83,11 χρῆ V: om. S T

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88 Cf. Keil (1959, p. IX and XII)
p. 85,2 τινα V: om. S T
p. 85,2 γενέσθαι V: περιγενέσθαι S T
p. 86,3 προσκρούειν V: κρούειν S T
p. 87,9 θερμὸν V: σφοδρὸν S T
p. 93,7 τοις V: om. S T
p. 95,9 κινήσει V: κινήσι S T
p. 95,13 τὸν V: om. S T
p. 97,13 καὶ V: om. S T
p. 98,3 παυσάμενοι RML: παυσά lac. 5 fere litt. in V+: σπασάμενοι S T
p. 99,7 τὸ πρόσω V: τουπίσω S T

However, S T also have peculiar errors, so neither is derived from the other, but both are dependent upon hyparchetype ε. 89

**Variants of S in contrast to V T**

p. 64,8 δὲ V T: om. S
p. 72,12 τὸ V T: om. S
p. 78,3 ύπανόμενοι V T: ύπανόμενοι S
p. 85,6 αὐτὸ δὲ τοῦτο K P: αὐτὸ τοι τοῦτο V T: αὐτὸ τοῦτο S
p. 86,13 καλὸς V+: ante καλὸς add. καὶ T: ante καλὸς add. κἀν τὰ S
p. 88,11 ἡ τε V T: εἶτε S
p. 90,11 πᾶν V T: πάντα S
p. 91,2 ἐξεθέρμανε K P: ἐθέρμαναν V T: ἐξεθέρμανεν S
p. 94,4 ante τῆς add. τὸ S

**Variants of T in contrast to V S**

89 I do not follow the conjecture of Boer (Galen De atra bile, CMG V 4,1,1, p. XI) and Keil (1959, p. XII), who both describe T as dependent on S; cf. Nickel (CMG 2,1, p. 19–20) and Konstantinides (1977, p. 29).
p. 65,4 ante ὁσά add. καὶ T
p. 71,2 δὲ ἐλθεῖν S (K): χρῆ ἐλθεῖν V R M L Q: δὲ ἐλθεῖν T (P)
p. 73,14 εὐρεῖν V, add. in marg. S: om. T
p. 79,4 δὲ πᾶς ὁ λόγος K P: δὲ πᾶς ὁ μὲν λόγος VS: δὲ μὲν λόγος T
p. 83,7 post ei add. μὴ T
p. 86,13 καλῶς V*: ante καλῶς add. κἂν τὰ S: ante καλῶς add. καὶ T
p. 86,14 ἐν V: ἔνιοι T
p. 94,15 ἐπὶ λουτροῖς τε καὶ πρὸ τούτων V S, om. in textu T, add. in marg T
p. 96,13 τοῦ S: om. T
p. 98,13 post τὰς add. τὰς T

S T came independently from ε not only because of their separative errors, but also for the chapter headings in V T contrary to S: for example, p. 58,9 περὶ τρόμου καὶ πῶς γίνεται in marg. V: τρόμος γίνεται τῆς ὀχύρωσης καὶ κινούσης τὸ σῶμα δυνάμεως ἀρρωστίᾳ in marg. T: om. S; p. 66,6 τίς αἰτία παλμοῦ in marg. V: παλμοῦ in marg. T: om. S.90

On account of this description, S T may be traced back to a lost hyparchetype ε, which itself was derived from V. As illuminated in the examples above, they share some readings that the other later manuscripts do not; thus, they belong to the same subgroup, although none of them depends on the other.

The manuscript Q

Q Parisinus gr. 2269 (= Q, formerly Fonteb. Reg.3145) is a paper manuscript of 243 leaves, 200 mm by 135 mm and 25 lines to a page. It dated from the fifteenth century. Q contains De tremore on folios 219r–242v.91 For a short description of the codex and its history, see the


introduction of the edition of Galeni De constitutione artis medicae ad Patrophilum (CMG V 4,1,1, p. 16–17, n. 2–3).

As discussed in the previous paragraphs, it is clear that Q has several variants in common with the apographs of V; however, it has a series of separative errors against the rest of the manuscripts:

p. 62,6 τινὶ V R M L S T: τι Q
p. 65,1 μὲν V R M L S T: om. Q
p. 65,12 παλλομένους V R M L S T: παλμοῦς Q
p. 70,13 γε V R M L S T: om. Q
p. 79,12 τε V R M L S T: om. Q
p. 81,1 νοὸν V R M L S T: οὖν Q
p. 83,7 ύπερτεθερμασμένῳ V R M L S T: ύπερτέθερμαι Q
p. 87,2 γεγενημένης V R M L S T: γενομένης Q
p. 88,5 ante δικαίως add. καὶ Q
p. 89,4 ἄλλων V R M L S T: ἄλλ᾽ Q

Because of its separative errors and the lacunae in its script, Q is a witness of V that stands by itself, being independent from the other apographs. Whether Q has been transcribed directly from V or from an intervening lost hyparchetype, it cannot be verified from this treatise alone.\(^\text{92}\) However, Q is extremely close to the actual manuscript V, such as V turned out to be after it was transcribed for R M L and later for S T.

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\(^\text{92}\) Parisinus gr. 2269 is also the witness of other Galenic works, such as Galeni consilium pro pueri epileptico (fol. 193r–201r) and Galeni De atra bile (fol. 201r–218r), whose texts were edited respectively by Keil (1959, p. XII) and Nickel (see CMG V 2,1, p. 20–21). These Galenic works have in common another witness, the manuscript Ambrosianus C 4 Sup (=A, formerly 164), written in the fifteenth century at about the same time as Q. A shares readings and lacunae with Q, but each of them has separative errors, so that the two manuscripts could have been from a common source \(z\), which derived from V. Cf. also Konstantinides (1977, p. 31–32).
Although the scribe of Q was very knowledgeable and faithful in transcribing V (or its hyparchetype z), he added many corruptions to the script. When the text of the exemplar is not legible, Q omits single letters, words or even phrases through lacunae. As already mentioned, the scribe of Q is the only one among the apographs who is aware of the missing folio of V and leaves a blank page for it, while all the rest omit the text without any indication of such awareness as that displayed by Q. In Q the chapter headings, as far as they are still visible, appear in the margin.

The Manuscripts of Family B

Marcianus gr. Z 282 and Parisinus suppl. gr. 35

K The most elegantly written manuscript of this treatise is Venice, Biblioteca Marciana, gr. Z 282 (= K, formerly 648), a parchment codex written for Cardinal Bessarione between 1468 and 1472, as part of a set of eight volumes, Marciani graeci 279–286. It is a majestic manuscript of 213 leaves, with 47 lines to the page. Although its script is the clearest and neatest of all the Greek manuscripts, it contains many errors, such as omissions, repetitions, single ν for νν, αι for ε, iotacism, incorrect word division, etc… The text of De tremore is contained on folios 183r–189v, under the title: περὶ τρόμου καὶ παλμὸς καὶ σπασμὸς καὶ ῥίγους.

P The last of the manuscripts with a full text, Paris, Bibliothèque Nationale, Supplément grec 35 (=P), contains De tremore on folios 77r–92r, under two titles: Γαληνοὶ περὶ τρόμου καὶ

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93 Cf. p. 26, 29
94 Cf. Galeni De atra bile (CMG V,2,1, p. 21)
95 See Galeni De praecognitione (V 8,1, p. 18), with a bibliography of earlier descriptions as well as Galeni De propriis placitis (V 3,2, p. 18, n. 2).
96 A. M. Zanetti and A. Bongiovanni (1740, p. 136) and Mioni (1981). See also Galeni De sanitate tuenda (V 4,2, p. XV), and Galeni In Hippocratis de natura hominis (V 9,1, p. XII).
παλμοῦ καὶ σπασμοῦ καὶ ρίγους and περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ρίγους. The manuscript, written on paper in the late fifteenth/early sixteenth century and consisting of 245 leaves, plus two preliminary leaves, measures 290 mm. by 200 mm. and has 30 lines to the page. There are many scribal errors: omissions, additions, repetition, confusion of β and μ, μ and κ, 0 and ω, iotacisms (ει for η; ει for ι; ι for η; ι for υ), and incorrect edits. Two sets of corrections are found in the text: the first is that of the original scribe (P), the second that of the writer of the title and of the first letter (P²), who used a much darker ink. Most of the corrections in P are clearly taken from his original manuscript. The scribe is a competent transcriber, careful to check his errors against his exemplar and confident to make slight changes in the text where the sense demanded it. The scribe seems to have fair knowledge of Greek and is not afraid to put forward his own emendations. In both P and P², we have the familiar figure of emending scribe of the Renaissance period.

K and P form a family distinct from A. They are closely related, as it is proved by the great number of errors common to both. However, each has in addition its own private errors, so that they descend independently from the hyparchetype. The following examples illustrate their diversity:

**Individual readings of K**

p. 61,9 την V R L M S T Q: om. K
p. 63,10 λόγον V R L M S T Q: om. K
p. 68,13 παλμόν V R L M S T Q: παλαιῶν K

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97 Omont (1888, vol. 3, p. 207). This manuscript has been described in several editions of Galen; see especially Galeni De affectuum et peccatorum dignotione (CMG V 4,1,1, p. V), Keil (1959, p. IX), and Galeni De propriis placitis (V 3,2, p. 19).

98 Cf. Galeni De praecognitione (V 8,1, p. 19)

99 Cf. Galeni De praecognitione (V 8,1, p. 20)
p. 72,13 κινοῦσα V R L M S T Q P: τεκοῦσα K
p. 73,4 γὰρ V R L M S T Q P: om. K
p. 73,14 μόνον V R L M S T Q P: om. K: lac. in Q
p. 75,12–13 τὴν γένεσιν V R L M S T Q P: τὰ γένη K: τὴν γε P
p. 76,4 δὴ V R L M S T Q P: om. K
p. 79,12 προσῆκοντι V R L M S T Q P: προδιώκοντι K
p. 80,8 τε V R L M S T Q P: γε K
p. 81,5 ἐσκέδασέ τε V R L M S T Q P: lac. in K
p. 89,1 μὲν V R L M S T Q P: om. K
p. 89,5 εἰ V R L M S T Q P: lac. in K

**Individual readings of P**

p. 58,5 τὰ V R M L S T Q K: om. P
p. 59,4 εἰ K: om. P
p. 60,5–6 ἡ πᾶσα – τοῖς σώμασι τῷ K: om. P
p. 60,12 οὐδεῖς V R M L S T Q K: ἤμων P
p. 62,14 δίκην V R M L S T Q K: δύναμιν P
p. 63,14 γε V R M L S T Q K: om. P
p. 67,12 δὲ V R M L S T Q K: om. P
p. 68,9 διὰ V R M L S T Q K: διὰ P
p. 70,7 ψυχοῦσας V R M L S T Q K: om. P
p. 81,7 μὲν V R M L S T Q K: om. P
p. 87,2 γεγενημένης V R M L S T Q K: γενομένης P Q
p. 90,4 δ' ἐκεῖνο V R M L S T Q K: δ' εἱ et lac. P
Furthermore, P interrupts the text at p. 97,12 after σπασμός, where there is a note written in Latin, probably by a later owner of the manuscript: Dessunt hic 26 lineae quae habentur in editione germanica graeca. The germanica editione could refer to the Basel edition published in 1538, which contains this portion of text in its final 16 lines.

The agreements and disagreements between K and P establish that these two witnesses belong to the same family B and came from a common lost exemplar, hyparchetype β, whose text, in turn, derived – directly, or through no longer extant intervening witnesses – from the archetype α.

Excerpts of Greek Manuscripts: Parisinus gr. 2283 and Laurentianus pl. 74, 12

There are excerpts from De tremore in the following Greek manuscripts: Parisinus gr. 2283 and Laurentianus plut. 74, 12.

Parisinus gr. 2283 (= p, formerly Medic-Reg. 3156) is a sixteenth century paper manuscript consisting of 141 leaves, with a different number of lines to the page. It contains many brief excerpts from several Galenic works, under the title: Υπομνήματα καὶ Παρασημειώσεις ἐκλεγέσαι ὑπὸ ἐξ ἐξωκοσι πεσσάρων τοῦ Γαληνοῦ βιβλίων. Some excerpts from De tremore are at folio 135r and 135v, and they contribute nothing of substance to the constitution of the treatise; thus, their readings are not recorded in the apparatus criticus. This

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101 Omont (1888, vol. 2, p. 229)
witness lacks continuity in the text and its script is not very legible; its scattered lemmata and excerpts correspond inconsistently to p. 83,6–97,11. Only the very last excerpt in folio 135v seems to be closer to the reading of the manuscripts in p. 97,11–12: οἰ μῆς ἀνελκόμενοι ἐπὶ τὰς ἑαυτῶν κεφαλὰς συνεπιστένται τὰ μόρια εἰς ὁ καταπεφύκασι ἐπειδὰν γένηται τὰ πάθος εἰς τὰς αὐτοὺς ἄγον καὶ ταύτη ἔπεται κίνησις ὁμοία μὲν τῇ κατὰ φύσιν. ἀβούλητος δὲ καὶ καλεῖται τὸ παθος σπασμὸς. However, it is of little value for the establishment of the text.¹⁰²

f  
Laurentianus plut. 74, 12 (= f), is a fifteenth century paper manuscript of 66 leaves. It contains on folio 28r (= p. 37r) a brief fragment of De tremore (from p. 80,13 τὸ μὲν to p. 81,1 ὁμάρτοις), under the subtitle: Γαληνοῦ αὐτοῦ τῷ περὶ τρόμου καὶ ρήγους.¹⁰³ The manuscript f shares some readings with the manuscripts of the family A, against B, while a few readings with family B, against family A. It has only one separative errors from the other witnesses: p. 80,14 ἡγομένων om. f; nonetheless, the precise source of f remains obscure. Therefore, it contains nothing of significance for the establishment of the text.

Excerptors in general feel less obligated than other copyists to reproduce exactly the text before them; and if we grant to p f a reasonable degree of freedom in this regard, there is no reason that they had any source other than a relative of V or its hyparchetype from α.

Although I examined both of these two manuscripts, they do not add any value to the establishment of the Greek text. For this reason, their readings are not recorded in the apparatus criticus nor in the stemma codicum.¹⁰⁴

¹⁰² For further details about the manuscript, see Galeni De placitis Hippocratis et Platonis (CMG V,4,1,2 p. 29–30).

¹⁰³ In his catalogue, Bandini (1770, cols. 100-101) indicates this excerpt as “aliud brevissimum fragmento ex libro de tremitu et rigore”. See also Galeni De elementis (CMG V 1,2, p. 33) and Galeni De placitis Hippocratis et Platonis (CMG V,4,1,2 p. 26-27).

Kühn’s Readings (VII,584–642 K.)

p. 57,1–2 Γαληνοῦ περὶ τρόμου καὶ ρίγους καὶ παλμοῦ καὶ σπασμοῦ: Γαληνοῦ περὶ τρόμου καὶ παλμοῦ καὶ σπασμοῦ καὶ ρίγους βιβλίον VII 584,1–2 K.

p. 57,11 γράμματι: πράγματι VII 585,6 K.

p. 58,14 ύπολείπεται: ἀπολείπεται VII 586,14 K.

p. 60,4 δὲ: del. in VII 588,10 K.

p. 62,3 τὸ κουφίζον: κουφίζον VII 591,4 K.

p. 62,1 οὖν: γοῦν VII 591,1 K.

p. 62,9 καὶ ἔστάναι: ἔστάναι VII 591,13 K.

p. 62,11 παρόντες: προϊόντες VII 591,16 K.

p. 63,2 ἐπὶ τὴν γῆν: ἐπὶ γῆν VII 592,7 K.

p. 65,6 μηδέποτε: μή ποτε VII 595,10 K.

p. 69,8 καὶ ταῦτα: τε ταῦτα VII 601,3 K.

p. 69,9 θαλάττη: θαλάττη VII 601,3 K.

p. 70,14–15 ἡ Στυμάργεω οἰκέτις: Ἐστυμάργεω οἰκέτις VII 602,17–18 K.

p. 70,15 τὸ στόμα: δὲ στόμα VII 603,1 K.

p. 71,3–4 γυναῖκα μέμνηται μετὰ τόκον μὴ καθαρθέντος τὴν λεγομένην λοχείαν κάθαρσιν, εἶτα τρομώδους γενομένης: γυναῖκα μέμνηται μετὰ τόκον οὐ καθαρθέντος τὴν λεγομένην τὰ δεύτερα λοχείαν κάθαρσιν, εἶτα τρομώδους γενομένου VII 603,4–6 K.

p. 72,7 τρόμων: τρόμου VII 604,17 K.

p. 74,3 ριγοῦντες: ἄλγοῦντες VII 607,8 K.

p. 74,5 ὑπηνέχθησαν: ἀπηνέχθησαν VII 607,11 K.

p. 74,11 μέρους πάθος: πάθος μέρους VII 608,3 K.

p. 74,15 ἐχοντας αἰσθησιν: αἰσθησιν ἐχοντας VII 608,9 K.

p. 75,8 γὰρ del. VII 609,5–6 K.

p. 75,10–11 τῆς περὶ τὸ κινεῖν ὀρμῆς: τοῦ περὶ τὸ κινεῖν ὀρμῆς VII 609,9 K.

52
p. 76,2 ἐτέθη: ἔπεται VII 610,1 K.
p. 76,9 ante καὶ add. τοῦτο in VII 610,12 K.
p. 76,9 οὖν om. VII 610,13 K.
p. 77,2 ἐπὶ: οὖν VII 611,7 K.
p. 78,3–4 ὁ ύπειδόμενοι, μετὰ τρόμου μὲν κατάψυξιν τινες εἰπόντες αὐτό: ὁ ἐπαγόμενοι τινες, μετὰ τρόμου κατάψυξιν εἴπον αὐτό VII 612,16 K.
p. 78,7 τὸ γένος ὅλον: τὸ νοσερὸν ρίγος VII 613,5 K.
p. 81,2 δὲ νῦν: νῦν δὲ VII 616,16 K.
p. 81,11 τοῦτο γὰρ ἐστὶ τὸ αὐτοκίνητον: τούτ' ἐστι αὐτοκίνητον VII 617,13 K.
p. 83,9 τὴν ἐαυτοῦ δὲ φύσιν: τὴν δ' ἐαυτοῦ φύσιν VII 620,5 K.
p. 83,10 post γὰρ add. κατὰ in VII 620,7 K.
p. 84,2 αὐτῷ: αὐτοῦ VII 621,1 K.
p. 85,10 τὸνον om. VII 621,13–14 K.
p. 86,13 ἐμπίπτειν: ἐκπίπτειν VII 624,12 K.
p. 88,1 ἀφωνίαι: καταψυκτίες VII 626,5–6 K.
p. 90,3 ὡς: ἤ VII 629,4 K.
p. 90,5 διορισώμεθα: διορισώμεθα VII 629,7 K.
p. 91,2 πλέον δ': πλείον δ' VII 630,10 K.
p. 91,3 δήσασα: ζέσασα VII 630,11 K.
p. 91,6 τῇ τοιαύτῃ χολῇ: τῇ νοιαύτῃ χολῇ VII 630,16 K.
p. 94,3 τοῦτο om. VII 634,12 K.
p. 94,4 κατὰ: μετὰ VII 634,12 K.
p. 96,1 χειμάζονται: χειμάζωνται VII 636,18 K.
p. 96,11 κατὰ δὲ τοὺς τριταίους, ώσαύτως δὲ τοὺς καῦσους πυρετοὺς: ώσαύτως δὲ κατὰ τοὺς τριταίους καὶ τοὺς καῦσους πυρετοὺς VII 637,16–17 K.
p. 97,11 αὐτό μὲν γὰρ τό: τὸ μὲν γὰρ VII 639,6 K.
Editorial principles adopted in this edition

Editing an ancient medical text presents a series of problems unfamiliar to a scholar of Greek literature who has edited Galen for the first time; almost any decision or orthographical consistency can be challenged.

In the apparatus criticus of this treatise, unless the variant readings are given, the manuscripts contain the text as printed. Manuscripts are not cited, except if the reading diverges from the text. In exceptional cases, for the sake of clarity, I have given the readings of all the manuscripts, listing first the manuscripts that confirm the chosen reading, followed by the variants. I have considered V the most reliable witness, and I have chosen to use it as the main authority in establishing the Greek text for this edition. The readings of its apographs are usually omitted, except where the exemplar V is illegible or where an interesting emendation is involved. In this instance, I have relied especially on R and M. I have depended on K and P in those parts where they transmitted the treatise exclusively or in a few other cases as explained in the apparatus. When a word is omitted from V, but it appears in K, P and Köhn (and the Aldine edition), then I include the word in the Greek text. Moreover, when V has a different word order than K, P, and Köhn, I chose to keep the word ordering that appears in Köhn’s edition. V does not usually elide, although Galen tended to avoid the hiatus. Therefore, in this case, I followed K and P and I indicated the readings of V in the apparatus.
As for the Greek manuscripts, I have tended to exclude the errors of L, the copy of M, and its absence from the apparatus does not mean that it has the reading given in the text. Likewise Q has been usually omitted from the apparatus. Although Q is extremely close to V (as V came to be after it was transcribed for R M L and later S T), it has many corruptions and vanished text loci.

Stemma codicum

The stemma of the Greek manuscripts can be expressed thus:
Conspectus siglorum et compendiorum

V = Vaticanus gr. 1845; XII
V⁺ = eiusdem codicis loci perdit
Q = Parisinus gr. 2269; XV
R = Parisiunus gr. 2270; XV/XVI
M = Marcianus Venetus app. cl. V 9; XV
L = Marcianus Venetus app. cl. V 5; XVI
S = Parisinus gr. 2271; XV
T = Vaticanus gr. 285; XVI
K = Marcianus gr. Z 282; XV
P = Parisinus gr. suppl. 35; XV/XVI

ω = Codicum RMLSTQ consensus (omnia apographa codicis V)
ν = Codicum RMLST consensus
γ = Codicum RML consensus
δ = Codicum ML consensus
ε = Codicum ST consensus

Ald. = editio Aldina, Venetiis, a. 1525
Bas. = editio Basileensis, a. 1538
Chart. = editio Charterii, Lutetiae Parisiorum, a. 1679
Kühn = editio Kühnii, Lipsiae, a. 1824
Konst. = editio Konstantinidis, Novum Eboracum, 1977
CHAPTER 2
GREEK TEXT

ГΑΛΗΝΟΥ
ΠΕΡΙ ΤΡΟΜΟΥ ΚΑΙ ΡΙΓΟΥΣ ΚΑΙ ΠΑΛΜΟΥ ΚΑΙ ΣΠΑΣΜΟΥ

1. [VII 584 K.] Ἐπειδὴ Πραξιγόρας ὁ Νικάρχος, τά τε ἄλλα τῆς ιατρικῆς ἐν τοῖς ἀρίστοις γενόμενοι ἐν τε τοῖς περὶ φύσιν λογισμοῖς δεινότατος, οὐκ ὀρθῶς ἦν δοκεῖ περὶ τέσσερις μελετήσεως πάθη, διαφέρειν δέ ἀλλήλους μεγεθείς διὰ τούτο ἐδοξεῖ μοι κοινῇ περὶ πάντων αὐτῶν ἐν τῇ γράμματι διελθεῖν, οὐ χάνει ἐλέγξαμεν Πραξιγόραν ἐν οἷς σφάλλεσθαι (τούτῳ μὲν γὰρ αὐτάρκεις [585 K.] Ἡρόφιλος ἐπράξε), μαθητὴς αὐτοῦ γενόμενος, ἀλλ' ἐν' οἷς ὀρθῶς ἐκεῖνος ἔγραψε τὰ λείποντα προσθῆ, περὶ μὲν δὴ τοῦ σφυγμοῦ, τί ποτ' ἔστι καὶ καθ' ὄντινα τρόπον γίνεσθαι πέφυκεν, ἐν τῇ Περὶ σφυγμοῦ πραγματεία δέδεικται καὶ νῦν εἰρήσεται τοσοῦτον, ὡςον ἐν εἰς τὰ προκείμενα χρῆσιμον εἶναι φαίνεται. περὶ δέ τῶν ἄλλων ἐν τῷ τῷ γράμματι δίειμι, τὴν ἀρχὴν ἐνθένδε ποιησάμενος.

2. Αἰσθηταί κινήσεις ἐν τοῖς τῶν ζώων σώμασιν, ὡςον ἄγαλασθοί, διίτα τῷ γένει φαίνονται: καθ' ὀρμήν μὲν ἢ κατὰ προαίρεσιν, ὡς αὐτοὶ ἐν ὁνομάζειν ἐθέλωσιν οἱ τὰ μὲν τοιαῦτα δεινοὶ, τῆς δὲ αὐτῶν τῶν πραγμάτων ἐπιστήμης ἀμελεώντες, αἱ διὰ νεύρων τε καὶ μυῶν


γινόμεναι, καὶ ταύτας ἐθὸς ἐστὶ τοῖς ἰατροῖς ὀνομάζειν προαιρετικὰς ἐνεργείας. ἕτεραι δὲ κινήσεις εἰσὶν ἐν τοῖς τῶν ζώων σώμασιν αἱ κατὰ τὰς ἀρτηρίας τε καὶ τὴν καρδίαν, ὡς προσαγορεύουσι ζωτικὰς, ὁντος καὶ άλλου τρίτου γένους κινήσεων ἐν ταῖς φλεξίν, σύκο αἰσθητοῦ, ὑπὲρ ouden ἐν τῷ παρόντι δέομαι λέγειν. ἀλλ' ἥ γε διὰ τῶν μυῶν καὶ τῶν νεύρων γινομένη, καθ' ἣν [586 K.] καὶ τὰς χεῖρας καὶ τὰ σκέλη κινούμενε, ἐν τρόμοις καὶ σπασμοῖς καὶ ῥίγεσι νοσώδεσιν, ἐνίοτε δὲ καὶ τοῖς παλμοῖς φαίνεται. πάντα γὰρ τὰ τοιούτα παθήματα πλημμελείς κινήσεις εἰσὶ τῶν αὐτῶν ὄργανων, ἀφ' ἑνὶ υγιαίνοντων αἱ καθ' ὄρμην ἐπιτελοῦνται κινήσεις.

3. 'Ο τρόμος μὲν οὖν γίνεται τῆς ὀχούσης καὶ κινούσης τὸ σῶμα δυνάμεως ἀρρωστία. οὐ γὰρ ἐξ ἑαυτῶν δήπου τὰ μόρια τῶν ζώων οὕτως βαρέως καὶ κάτω ϕέρεσθαι πεϕυκότα, τὰς εἰς ἀπαντά τόπον ἔχει κινήσεις, ἀλλ' ἡ διὰ τῶν νεύρων τοῖς μυσὶν ἀπὸ τῆς ἀρχῆς ἐπιπεμπομένη δύναμις οἰον υγιείας καὶ πτερώμα τῆς κινήσεως αὐτοῖς ἐστιν, ἐν ὅσιāν μὲν ἀπολέση τελέως, ἀπόλλυσι δὲ τὰ παραλελυμένα, καταφέρεται καὶ ἰστεὶ κάτω ὂρνιθος πτερορρύησαντος, ὅθεν οὐδεμία κίνησις ὑπολείπεται τοῖς οὕτω παθοῦσιν. εἰ δὲ περιγίνοιτο μὲν ἡ δύναμις, ὄλιγη δὲ καὶ ἀσθενής, ὡς μήθ' ἱκανῶς ὑπεῖν τε καὶ βαστάζειν τὰ μέρη τοῦ σώματος, ἢ ὥσπέρ τι φορτίον πεὑρκότας.
φέρειν μὴ δύνασθαι, ἀνάγκη τὸ διακείμενον οὕτω μόριον ἐν τρόμῳ καθορᾶσθαι. αἱ γὰρ ὑπὲρ τὴν
dύναμιν τοῖς [587 K.] ἀσθενείς κινήσεις βίαιοί τε καὶ πρὸς ἀνάγκην γιγνόμεναι τρομώδεις εἰσίν.
oἵμαι σε πολλάκις ἑκατέροις βιαστικοῖς βιαστικοίς σωφάς καὶ πρὸς ἀνάγκην γιγνόμεναι ἐπιχειροῦντα πρὸς
βιαν, ὡς τρομώδης γίνεται τοῖς σκελεῖς. καὶ γὰρ εἰ καὶ ταῖς χερῶν ὑπέρβαρον τι βαστάζειν
ἐπιχειροῖς, τρομώδης ἔσται ταῖς χερῶν. οὕτω δὲ καὶ ἀνθρώπως <ὅταν φοβηταί>, ἦν τέ τι ταῖς
χερών διαθάνει, ἄν ἕτερως ἐπικέλησε τρομώδης μὲν ἄν θερές ἀντὶς τοις τοις ἐνηργεῖν,
tρομώδης δὲ τὰ σκέλη βαδίζειν ἐπιχειροῦντα. καθ' ὁ τὰς χεῖρες αὐτῷ τολμῶν διὰ τοὺς
<τῶν ἄλλων> φόβος. ἦν δὲ ἀπερ ἀυτή κατατέθη καὶ ἀφροστήσης, πάντως γιγνεῖται, κἂν παντελῶς ἤ
κουφοτάτων. ὡστε καὶ τὸ σώμα τοῦ βίαν, κούφον ὃν πρὸς τόπον, οἰον σφοτρώσει, αἱ κινήσεις αὐτήν βαρύνει.
5

gέροντες δὲ ὡσισάιτος ἀπ' ἀσθενείας τὰ πολλά τρομώδεις εἰσί, ὡσις τε διὰ νόσον ἢ τοῦ σώματος
ἰσχύς ἐποήθησυν, οὐδὲ τοῖς ἀνευ τρόμων αὐτή κινήσεις. ἐν πᾶσι γὰρ ταῖς οὔτως ἐχούσιν ἢ
κινοῦσα τὰ μέρη καὶ βαστάζουσα δύναμις, ἀφροστήσεται νυνί, οἷον ἐπεφύκει πρὸς τόρον
[588 K.] αὐρείν, οὐκετε δύναται, καθάπερ ὁλάζουσα περὶ τὴν κίνησιν. ἔνθα δὲ ἄν ὁ τό τονος ἐνδιδ
tῆς φύσεως, ἐνταῦθα τοῦ κουφίζοντος ἄποροιντα τὰ σώματα τῷ σφετέρῳ βάρει φέρεται
κάτω, καὶ ἐμεῖνεν ἐνταῦθα. καθάπερ ἐν παραλύσεις, ἐπι πᾶσαι τὴν δύναμιν ἢ ἰσχύς ἐπελελούης
tελέως;

ὅσον δὲ αὐτῆς λείπεται, τούτο πάλιν ὄχειν ἐπιχειρεῖ. δύναται δὲ οὐδὲ νῦν ὅσον βούλεται δι᾽ ἀσθένειαν ἀλλ᾽ ὅλιγον μὲν τι κουφίζει, τὸ πλέον δ᾽ ἀπολεῖπε, ἀτελὴ καὶ κολοβὴν ἐγκαταλείπουσα καὶ ταύτη τὴν κίνησιν. αὖθις <οὖν> ἐπιτρέπει τοῖς σώμασι φέρεσθαι κάτω. τούτου δὲ συνεχῶς ἀποτελουμένου, καὶ τὴν ἄνω φορᾶν ἐκδηχομένης ἀεὶ τῆς κάτω, συναπτούσης δὲ αὐτὸ πάλιν τῆς ἄνω, διπλὴ μὲν καὶ σύνθετη τῇ πάσῃ γίνεται κίνησις, ἀμειβούσος ἀεὶ τῶν μορίων τοὺς τόπους. ὄνομα δὲ τῷ πάθει τρόμος, εἰς μὲν τὰ κάτω τῆς φορᾶς τοῖς σώμασι τῷ σφετέρῳ βάρει γινομένης, ἀνω δὲ αὐτὸ πάλιν ύπὸ τῆς συνάμειας αἱρομένης.

4. Ἀλλὰ καὶ παλμὸς, ἴσως φήσει τις, ὡσαύτως τῷ τρόμῳ κίνησις ἐστιν ἀβούλητός τε καὶ ἀκούσιος ἐπαιρομένων [589 Κ.] τε καὶ καταφερομένων τῶν παλλομένων μερῶν. πῇ ποτε οὖν διοίσει τρόμο παλμοῦ; μέχρι μὲν τοῦτο φαίνεται μηδὲν ἄλλη ἔκφραστης, διεννόχασι δὲ, οὔτε γὰρ τόπον πάσχοντα τὸν αὐτὸν φημι εἶναι τοῖς παλλομένοις, οὔτε αἰτίαν, οὔτε σύμπτωμα. τρέμει μὲν γὰρ προελόμενος κινεῖ τὸ κάδον οὔδεις: πάλλεται δὲ τὰ παλλόμενα, κἂν ἀποκείμενα τύχῃ, κἂν μηδεμίαν κίνησιν αὐτοῖς ἐπάγης. ἀπατῶνται δὲ κἂν καίγοντα τολοί, κεφαλάς τε τρομώδεις χαλαίροντες, καίριοι τε χεῖρα, καὶ σκέλος, ὡς ἂν δόξειεν, ἀποτεταμένοι νάχον τινῶν, ἐπειτ' οὖν ἦττον τρεμόντων. οὕς χρῆ διδάξαι τὸν λόγον τοῦτον, οὕς ὑπʼ ἐμοῦ νῦν τινῶν, ἐπειτ' οὖν ἦττον τρεμόντων. οὕς χρῆ διδάξαι τὸν λόγον τοῦτον, οὕς ὑπʼ ἐμοῦ νῦν τινῶν, ἐπειτ' οὖν ἦττον τρεμόντων. οὕς χρῆ διδάξαι τὸν λόγον τοῦτον, οὕς ὑπʼ ἐμοῦ νῦν τινῶν, ἐπειτ' οὖν ἦττον τρεμόντων. οὕς χρῆ διδάξαι τὸν λόγον τοῦτον, οὕς ὑπʼ ἐμοῦ νῦν
πρῶτον λεγόμενον, ἀλλὰ καὶ πολλοῖς τῶν παλαιῶν, οὐχ ὅσα φαίνεται κινεῖσθαι, ταῦτα κινεῖσθαι
φάσι μόνα. πολλά γοῦν ἁκίνητα μὲν εἶναι δοκεῖ, ἕνα καὶ τὸν αὐτὸν ἐπέχοντα τόπον, οὐδὲν δὲ
ήττον κινεῖται. τοὺς γοῦν ὄρνιθας οὐ μόνον ἄνω καὶ κάτω φερομένους, ἀλλὰ κἂν ἕνα τόπον ἐν
tῷ ἀέρι κατειληφότες ὃσιν, ἐν κινήσει καὶ τόθ' ὑπάρχειν. ἐὰν γοῦν ἐν ἐκείνω τῷ τόπῳ νεκρὸν
ὅρνιθος [590 K.] σῶμα τεθήκη, ῥαδίως ἐπὶ τὴν γῆν κατενεχθήσεται τῷ βάρει ῥέψαν. ὃ δὴλον ὅτι
cαὶ τὸ μένον ἐπὶ τοῦ αὐτοῦ τόπου σῶμα κινήσει τινὶ προσχρώμενον ἐμετεωρίζετο, κατά
tοσοῦτον μέρος γε κινήσεως, ὃσον ἔσχεν ἃν, εἰ μόνῳ τῷ βάρει καταφερόμενον τετύχει. ὧστε
ἥν δοκεῖς ἁκινθεῖσαν εἶναι, σύνθετος ἐστι κίνησις ἐκ δύο τινῶν εἰς ὑπεναντίους τόπους ἀπάγειν τὸ
σῶμα δυναμένον κινήσεων συγκειμένην. ὃν εἰ τὴν ἑτέραν ἄφελοις τὴν ἄνω, τὴν λοιπὴν οὔ
ραδίως εἰς τὸν κάτω τόπον ἀπάγουσαν τὸ σῶμα. τοῦτ' οὖν καὶ Ἱπποκράτης διδάσκει εἰπών·
“ἐστάναι ἐλκεσιν ἥκιστα συμφέρει, καὶ ἄλλως, ἢ ἐν σκέλει ἔχῃ τὸ ἐλκός, οὐδὲ καθῆσθαι,
oὐδὲ πορεύεσθαι, ἀλλὰ ἴσως ἔχειν καὶ ἄτρεμίζεισι συμφέρει.” τὸ μὲν γὰρ ἄτρεμίζει καὶ
ισυχαζεῖν ὡς ὑφελοῦν ἐπαινεῖτ' δὲ ἐστάναι καὶ καθῆσθαι, φησιν, Ἡκίστα συμφέρει, ἐτέρον τι
tοῦ ἄτρεμίζει καὶ ἴσυχαζεῖ ὑπάρχον. ἐντέτανται γὰρ καὶ τόθ' οἱ μύες βαστάζοντές τε καὶ ἀπὸ
tῆς γῆς ἐξαίροντες καὶ ὀρθοῦντές τὸ σῶμα. διὰ τοῦτο τοῦ περιπατεῖν οὐδὲν ἦττον τὸ ἑστάναι


τῷ κατακεῖσθαι, ἀλλ' ὃν ἔχει λόγον τὸ καταπίπτειν πρὸς τὸ κατακεῖσθαι. οὔτω κατὶ τῶν ὄρνιθων ἐτερων μὲν ἐστὶν ἐπὶ τὴν γῆν καταπτῆναι, ἐτερων δὲ πεσείν ἐπὶ τὴν γῆν. τὸ μὲν γὰρ ἐνέργεια, τὸ δὲ πάθος. ὡσαύτως οὖν τοῦτοι ἐνέργεια μὲν ἡ κατάκλισις ἐστι, πάθημα δὲ ἡ ἔρριψις. πρὸς τί δὴ μοι ταῦτα λέγεται; ἵνα τοὺς ἐπηρκότας ἢ σκέλος ἢ χεῖρα, κάπειτα φυλάττοντας, ὡς ἔχουσι, μή δὸ ἰκνίς ἀκινήτους εἶναι, μηδ' ἂν ὅτι μάλιστα τυγχάνωσιν ἕνα καὶ τὸν αὐτὸν ἂν κατέχοντες τόπον.

εἰ δ' οὐ βούλει συγχωρῆσαι κίνησιν ὑπάρχειν τοῖς οὕτω διακειμένοις, ἀλλ' ἐνέργειαν τε πάντως αὐτοῖς συγχωρῆσεις ὑπάρχειν, καὶ διαπλασίαν γε τὴν ῥώμην παρὰ τὴς ἄστρης ἐνεργείας. εἰ μὲν γὰρ ταῖς ἀπλαῖς ἐν γένος ἐνέργεια, ἐν μὲν ἂν τοῖς ἐπανατεθημένοις ἃ τῇ ἁπλῇ ἐνεργείᾳ. εἰ δὲ τοῦτοι μνημονευεῖς, ἄληθε συγχωρήσεις ἐνεργείας δέ τοι τὸν ἀλλ' ἕν, ἀλλ' ἓν συγχωρήσεις αὐτοῖς ὑπάρχειν, καὶ διαπλασίαν γε τὴν ῥώμην τῆς ἁπλῆς ἐνεργείας. ἐν μὲν 

τοῦτοι μνημονευεῖς, ἄληθε συγχωρήσεις εἰς τὸν ἐρρίφθαι, ἥτοι τῶν καμπτόντων, ἕτερον δὲ πεσεῖν ἐπὶ τὴν γῆν. τὸ μὲν εὔνοια, τὸ δὲ πάθος. ὡσαύτως οὖν τούτοις ἐνέργεια μὲν ἡ κατάκλισις ἐστι, πάθημα δὲ ἡ ἔρριψις. πρὸς τί δή μοι ταῦτα λέγεται; ἵνα τοὺς ἐπηρκότας ἢ σκέλος ἢ χεῖρα, κάπειτα φυλάττοντας, ὡς ἔχουσι, μή δὸ ἰκνίς ἀκινήτους εἶναι, μηδ' ἂν ὅτι μάλιστα τυγχάνωσιν ἕνα καὶ τὸν αὐτὸν ἂν κατέχοντες τόπον. 

5 τοῦτοι μνημονευεῖς, ἄληθε συγχωρήσεις εἰς τὸν ἐρρίφθαι, ἥτοι τῶν καμπτόντων, ἕτερον δὲ πεσεῖν ἐπὶ τὴν γῆν. τὸ μὲν εὔνοια, τὸ δὲ πάθος. ὡσαύτως οὖν τούτοις ἐνέργεια μὲν ἡ κατάκλισις ἐστι, πάθημα δὲ ἡ ἔρριψις. πρὸς τί δή μοι ταῦτα λέγεται; ἵνα τοὺς ἐπηρκότας ἢ σκέλος ἢ χεῖρα, κάπειτα φυλάττοντας, ὡς ἔχουσι, μή δὸ ἰκνίς ἀκινήτους εἶναι, μηδ' ἂν ὅτι μάλιστα τυγχάνωσιν ἕνα καὶ τὸν αὐτὸν ἂν κατέχοντες τόπον. 

εἰ δ' οὐ βούλει συγχωρῆσαι κίνησιν ὑπάρχειν τοῖς οὕτω διακειμένοις, ἀλλ' ἐνέργειαν τε πάντως αὐτοῖς συγχωρῆσεις ὑπάρχειν, καὶ διαπλασίαν γε τὴν ῥώμην παρὰ τὴς ἁπλῆς ἐνεργείας. εἰ μὲν γὰρ ταῖς ἀπλαῖς ἐν γένος ἐνέργεια, ἐν μὲν ἂν τοῖς ἐπανατεθημένοις ἃ τῇ ἁπλῇ ἐνεργείᾳ. εἰ δὲ τοῦτοι μνημονευεῖς, ἄληθε συγχωρήσεις εἰς τὸν ἐρρίφθαι, ἥτοι τῶν καμπτόντων, ἕτερον δὲ πεσεῖν ἐπὶ τὴν γῆν. τὸ μὲν εὔνοια, τὸ δὲ πάθος. ὡσαύτως οὖν τούτοις ἐνέργεια μὲν ἡ κατάκλισις ἐστι, πάθημα δὲ ἡ ἔρριψις. εἰ δὲ τοῦτοι μνημονευεῖς, ἄληθε συγχωρήσεις εἰς τὸν ἐρρίφθαι, ἥτοι τῶν καμπτόντων, ἕτερον δὲ πεσεῖν ἐπὶ τὴν γῆν. τὸ μὲν εὔνοια, τὸ δὲ πάθος. ὡσαύτως οὖν τούτοις ἐνέργεια μὲν ἡ κατάκλισις ἐστι, πάθημα δὲ ἡ ἔρριψις.
θεάσασθαι μεγάλην ἔχον μοῖραν εἰς ἔπιγνωσίν τε τοῦ πάθους τῆς φύσεως ἀκριβῆ τε διάκρισιν ἀπὸ τὸν τρεμόντων. αἱ μὲν γὰρ ἐν τοῖς παλλομένοις μέρεσιν ἐπάρσεις τε καὶ θέσεις φαινόμεναι διατάσεις εἰσὶ τινες τοῦ σωμάτων, οἷα πληρουμένων αὐθίς τε πάλιν κενουμένων συνιζήσεις· αἱ δὲ ἐπὶ τὸν τρεμόντων ὄλου τοῦ κώλου κινήσεις εἰσὶ, ποτὲ μὲν εἰς τὸ κάτω ῥέοντος, αὐθίς δὲ ἄνω 

5 φερομένου, διαστέλλεται [594 K.] δὲ οὐδὲν, οὐδὲ συστέλλεται. διὰ τούτο τρέμει μὲν ὄλον τὸ μέρος, ὁπόταν τι δρᾶν ἐπιχειρῶμεν, οὐδενὸς ἁκινήτου τῶν ἐν αὐτῷ μένοντος· ἂλλ' ὁμοίως μὲν οἱ μύες, ὁμοίως δὲ τούτοις ἀρτηρίαι καὶ νεῦρα καὶ φλέβες καὶ αὐτὰ τὰ ὀστᾶ καὶ τὸ δέρμα ποτὲ μὲν ἄνω φέρεται, ποτὲ δὲ κάτω. πάλλεται δὲ οὐ πάντα. νεῦρον γοῦν, ἢ ὀστοῦν, ἢ χόνδρον, ἢ τι τοιοῦτον ἔτερον οὐκ ἂν ἴδοις ποτὲ παλλόμενον. οὐ γὰρ ἐχει κοιλίαν, ἤς ἐν μέρει διαστελλομένης 

tε καὶ συστελλομένης, ἐπαίρεσθαι μὲν, ὅταν διαστελλῆται, συμπίπτειν δὲ, ὅταν συστελλῆται, 
tοῖς μέρεσιν ὑπάρξει. ἂλλ' εἰτε μυὸν ἐστὶ πάθος μόνον ὁ παλμὸς, ὡς Ἰρόφιλος ἐνόμιζεν, ἢ καὶ 
tοῦ δέρματος, ἢ ἀρτηρίων, ὡς ὑπελάμβανε Πραξαγόρας, αὖθις τοῦτο σκεψόμεθα. τῇ γὰρ παρὰ τῇ τοῦ πεπονθότος τόπου ζητήσει οἰκειοτέρα ἡ σκέψις. τὸ δὲ γε νῦν εἶναι τοσοῦτον λαβόντες εἰς τὸ πρόσθεν ἴωμεν, ὅτι διάστασις μὲν τις ἐστὶ καὶ συνιζήσεις παρὰ φύσιν ὁ παλμὸς, ἀκούσιος δὲ 
kίνησις ἄνω τε καὶ κάτω τὸν μερὸν ἐναλλάξεις φερομένων ὁ τρόμος. ἔστι δὲ οὐ [595 K.] ταῦτο 

11–12 Prax. fr. 27: p. 61–63 Steckerl

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οὔτε τῷ ἄνω φέρεσθαι τὸ διαστέλλεσθαι οὔτε τῷ κάτω τὸ συστέλλεσθαι. τὰ μὲν γὰρ ἄνω καὶ κάτω φερόμενα, τὸν πρῶτον ἀπολείποντα τόπον, εἰς ἄτερον μεθίσταται· τὰ διαστελλόμενα δὲ καὶ συστέλλόμενα, τὴν ἁρχαίαν ἐδραν φυλάττοντα, τὸ μὲν ἐπιλαμβάνει τοῦ πέριξ χωρίου, τὸ δὲ ἀπολεῖπε. ὡστε τὸ κινεῖσθαι μὲν ἁμφοτέροις κοινῶν, ὃσα τε διαστέλλεται καὶ συστέλλεται, καὶ μὲν τοι καὶ ὃσα κάτω τε καὶ ἄνω φέρεται· ὃδε δὲ τοῖς μὲν ἐλάττονα τόπον ἤ πλέονα κατειλη-φέναι, τὸν εὖ ἁρχής οὐκ ἀπολείπουσιν τοῖς δὲ ἀεὶ τοὺς τόπους ἁμείβειν, μηδέποτε ἐν ταύτῃ μένουσιν. δεησέ, δὲ, οἵμαι, κἂνταθά μοι διορισμὸν πρὸς τὸ πάντη τὸν λόγον ἀληθεύειν.

πολλάκις γὰρ ἡ ἐκ οἷα μονῆς ἤ τινος ἑνὸς μεγάλου σφοδρῶς παλλομένου, συνεπαίρεται μὲν διαστελλομένους αὐτοῖς τὸ κῶλον, αὐθίς δὲ καταπίπτει συστελλομένων. ένθάδε τὴν ἀκούσιον ἔπαρσίν τε καὶ θέσιν τοῦ κῶλου τρόμου ὡς χρή καλείν. ὁπειρεῖ τε γὰρ σαφῶς τοὺς παλλο-μένους μύας, οἷς κινεῖται τὸ κῶλον, αὐτὴ τε ἡ κίνησις [596 K.] οὐχ ὧν ἢ ἐν τοῖς τρέμουσιν. ἐπὶ μὲν γὰρ τῶν διὰ τοὺς παλλομένους μύας ἤ περὶ κινεῖται τὸ κῶλον ὅπου ἱσχύσει τῶν ἑδρῶν ἤ περὶ κινεῖται τῶν τρυπῶν ὡς ἀν τῷ φαίη, τὴν ἐναντία αὐτῇ συνάπτουσαν εὐρήσεις, ὡστε ἀεὶ μὲν τὴν ἄνω φορᾶν ἐκδέχεσθαι τὴν κάτω, ταύτην δ' ὑπ' ἕκεινης πάλιν κωλύεσθαι συνεχῶς.
ἀτελευτήτου μὲν ἀεὶ τῆς ἄνω ϕορᾶς, ἀτελευτήτου δὲ τῆς κάτω ροπῆς υπαρχούσης. τάδε μὲν σοι τῶν παθῶν τὰ γνωρίσματα καὶ τοῦσδε τοὺς συμπτώμασιν ἀλλήλων διαφέρει. τόπον δὲ πάσχοντα καὶ τὸ ποιοῦν αἴτιον ἐφεξῆς ἂν εἴη σκοπεῖσθαι. πνεῦμα παχῦ καὶ ἀτμῶδες οὐκ ἔχον διέξοδον αἰτίου εἶναι φημὶ παλμῶν. ἀθροίζεσθαι δὲ τούτο φημὶ χρῆναι κατὰ τινα κοιλότητα μη κομιδῇ μικρὰν, εἰ μέλλει τὴν διάστασιν αἰσθητὴν ἔξειν τὸ μέρος. εἶρηται μὲν δὴ τὸ πάν ἐν κεφαλαίῳ. δεῖ δὲ σε τὸν ἀποδείξεων ἐτί πνευματικὴν μὲν εἶναι τὴν οὐσίαν τὸ αἰτίῳ τιθέναι, διὰ τὸ τάχος τῆς κινήσεως καὶ τῆς γενέσεως καὶ τῆς λύσεως. τί γὰρ οὕτω ῥᾳδίως ἀθροίζεσθαι καὶ κενοῦσθαι δυνατὸν ἄλλο πλὴν πνεύματος; ἔστι μὲν γὰρ τὰ συντιθέντα τὸν ἄνθρωπον, ὡς Ἰπποκράτης ἐδίδασκεν ἡμᾶς, στερεὰ, ὑγρὰ, καὶ πνεύματα. μέμνηται δὲ πως αὐτῶν δὴ, τὰ ἒγχοντα λέγων, καὶ τὰ ἔνισχυμα, καὶ τὰ ἔνορμόντα· ἔστι μὲν τὰ στερεὰ καλῶν, περιέχει γὰρ ἀποστέγει τὰ ὑγρὰ· ἐνισχόμενα δὲ, τὰ ὑγρὰ, περιέχεται ὑπὸ τῶν στερεῶν· ἐνορμῶντα δὲ τὰ πνεύματα, πάνη γὰρ ἐξικνεῖται τοῦ σώματος ἐν ἀκάρει χρόνῳ ῥᾳδίως τε καὶ ἀκωλύτως. ταχεῖαν οὖν κένωσιν, ἢ πλήρωσιν, ἢ διάστασιν, ἢ συνίζησιν, ἢ θέσιν, ἢ ἔπαρσιν, ἢ τινα ἄλλην κίνησιν οὐδὲν ἂν τῶν ἁπάντων ἐργάσαιτο πλὴν πνεύματος. ὥστε καὶ παλμῶν αἰτία οὐσία μὲν τὸ πνεῦμα, ποιότης δὲ τῆς οὐσίας υγρότης τε ἐστὶ καὶ παχύτης, ὡς ὀλίγῳ πρόσθεν εἶναι παλμῶν, ἡνίκα παχῦ καὶ πιθαίνῃσθαι. 

8–10 Hipp. Epid. VI 8: p. 265 Smith = V 346,5–6 L. De flat. 3: CMG I 1, p. 91–93= VI 92–95 L.

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ἀτμῶδες ὠνομάσαμεν αὐτό. εἰ γὰρ αἰθερῶδες εἰ ἐκεῖ, καθαρὸν, ἀκωλύτως διεξ-ερχόμενον οὔτε πληρώσει ποτὲ οὔτε κενώσει τά μέρη. τὸ δὲ παχύτερον ἢ κατὰ τοὺς πόρους τῶν σωμάτων, ἐν οἷς ἀθροίζεται, [598 K.] στεγόμενον ἐντὸς, εἰ μὲν ἔχοι κοιλότητα τὸ σῶμα, ταύτην πληρώσαν ἤγειρέ τε καὶ διέστειλε τὸ περίεχον· εἰ δ' οὐκ ἔχοι, μεταξὺ δυσῶν ἀθροιζόμενον

σωμάτων ἀπὸ θατέρου θάτερον ἄφιστησιν, ἐπίκτητον ἐαυτῷ κοιλίαν ἐργαζόμενον. οὔτος μὲν ὁ τρόπος ὁ δεύτερος εἰρημένος καὶ περὶ τὸ δέρμα παλμοὺς ἐργάζεται πολλάκις, οὐκ ἐαυτῷ τοῦ δέρματος ἐν ἀεικών κοιλότητα τίνα κεκτήμενον, ἀλλ' ἐν τῷ μεταξὺ τοῦ δέρματος καὶ τῶν ὑποκειμένων σωμάτων ἀθροίζεται τηνικαῦτα τὸ πνεῦμα. οὗτος μὲν ὁ τρόπος ὁ πρότερον εἰρημένος ἐν μοι κλαίστα γίνεται. κοιλότητες γὰρ ἐν τούτοις εἰσὶ πολλάκις καὶ σμικρά. Πραξαγόρας δὲ καὶ ταῖς ἀρτηρίαις ἀνετίθει ψυχήν, ὥσπερ ἀμέλει καὶ παλμόν καὶ τρόμον καὶ σπασμὸν ἀρτηριῶν πάθη· καὶ σφυγμόν μὲν ἐν τῷ κατὰ φύσιν ἔχειν· παλμόν δὲ καὶ τρόμον καὶ σπασμὸν ἀλλήλων μὲν διαφέρειν μεγέθει, κινήσεις δὲ εἶναι παρὰ φύσιν. ὅτι δὲ οὐκ ὀρθῶς ἐγίνωσκε μόναις ἀρτηρίαις ἀνατίθενται πάθη· καὶ ψυχήν μὲν ἐν τῷ κατὰ φύσιν ἔχειν· παλμόν δὲ καὶ τρόμον καὶ σπασμὸν ἀλλήλων μὲν διαφέρειν μεγέθει, κινήσεις δὲ εἶναι παρὰ φύσιν. ὅτι δὲ οὐκ ὀρθῶς ἐγίνωσκε μόναις ἀρτηρίαις ἀνατίθενται πάθη· καὶ ψυχήν μὲν ἐν τῷ κατὰ φύσιν ἔχειν· παλμόν δὲ καὶ τρόμον καὶ σπασμὸν ἀλλήλων μὲν διαφέρειν μεγέθει, κινήσεις δὲ εἶναι παρὰ φύσιν. ὅτι δὲ οὐκ ὀρθῶς ἐγίνωσκε μόναις ἀρτηρίαις ἀνατίθενται πάθη· καὶ ψυχήν μὲν ἐν τῷ κατὰ φύσιν ἔχειν· παλμόν δὲ καὶ τρόμον καὶ σπασμὸν ἀλλήλων μὲν διαφέρειν μεγέθει, κινήσεις δὲ εἶναι παρὰ φύσιν. ὅτι δὲ οὐκ ὀρθῶς ἐγίνωσκε μόναις ἀρτηρίαις ἀνατίθενται πάθη· καὶ ψυχήν μὲν ἐν τῷ κατὰ φύσιν ἔχειν· παλμόν δὲ καὶ τρόμον καὶ σπασμὸν ἀλλήλων μὲν διαφέρειν μεγέθει, κινήσεις δὲ εἶναι παρὰ φύσιν.
διάστασιν οὐκ εἶναι κατὰ τὸ τῆς ἀρτηρίας μέγεθος. εἰ δὲ ὀρθῶς ἧνοι τοῖς μυώδεσι σώμασι
μόνοις ἀνατιθέασι τὸν παλμὸν, τοῦτο μοι δοκεῖ μᾶλλον ἢξιόν ἐπισκέψεως εἶναι. ἐγὼ μὲν γὰρ καί
πάνυ νομίζω σαφῶς τὴν ἀρτηρίαν οὐ μόνον παλμῶδες ἀλλὰ καὶ σπασμῶδες τι πολλάκις
ἐμφαίνουσαν εὐρίσκειν, ὥσπερ καὶ ἄλλοι τῶν περὶ τοὺς σφυγμοὺς δεινῶν ὀμολογοῦσιν. ἀλλὰ

5 περὶ μὲν τοῦτον μακρότερὸς τε ὁ λόγος ἐστὶ κἀκεῖνος, ἠφαίνεται. κατὰ δὲ τὸ δέρμα
μόνον ἐναργῶς σαφῶς παλμοὶ γινόμενοι πολλοὶς τῶν ἀνθρώπων οὐκ ὀλιγάκις, ὅταν ἄτμῳρδες
πνεῦμα κατὰ τὸ μόριον αὐτοῦ γεννηθὲν ἴσχηται καὶ βραδύττει κατὰ τὴν διέξοδον. οὕτω δὲ κἀκ
ἐν μυσὶν ἤ ἄλλω τινὶ σώματι φυσῶδες πνεῦμα πλεονάσῃ, καὶ ἰκεῖνο παλμὸν ἐργάζεται. ὅτι δὲ

10 πνεῦμα παχύ καὶ ὁμιχλῶδες ἢ ἀχλυῶδες ἢ ψυχρῶδες, ἢ ψυχρῷ ὀνομάζειν ἐθέλης, αἴτιον γίνεται
παλμοῦ, καὶ διὰ τοῦτο τὸν ἡλικιωτὸν αἰ ψυχρότερα παλμῷ εὐάλωτοι, καὶ φύσις σώματος ἢ
ψυχρότερα, καὶ χωρία [600 K.] ψυχρά, καὶ ὤρα τοῦ ἔτους ἢ χειμερινή, καὶ βίος ἄργως ἢν
πλησιοναίς <τ>ε> καὶ μέθαις, ἐδέσμητα τὸν ψυχρὰ καὶ ψυχώδη, καὶ πάνθ' ἀπλῶς, ὅσα τὸ σῶμα
καταγύχει· τὰ δὲ ἐναντία τὸν τῶν καθαιρετικά ἐστιν αὐτίκα τῶν παλμῶν. τὰ μὲν γὰρ θερμαίνοντα

15 λεπτύνει τὲ τὸ πνεῦμα καὶ τὰ σώματα τίθησιν ἀραιὰ καὶ μαλακὰ· τὰ δὲ ψύχοντα πυκνὸι μὲν καὶ

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ἀποδείκνυσι τὸ πνεῦμα. ῥᾴδιως οὖν ἱσχεται, διαπνεῖσθαι μῆ δυνάμενον, τῷ θ' ἐαυτοῦ πάχει καὶ τῇ τῶν περιεχόντων αὐτὸ σωμάτων πυκνότητι. τὰ δὲ θερμαίνοντα πάλιν ἐξ ὑπεναντίου τοῖς ψύχουσι χέοντα καὶ χαλώντα καὶ διανοίγοντα τῶν σωμάτων τοὺς πόρους, αὐτὸ τε τὸ πνεῦμα λεπτύνονται καὶ πρὸς τὴν κίνησιν ἐπεγείροντα θρόνους, οὕτω καὶ εὐπετεῖς αὐτῷ τὰς διεξόδους ἐργάζεται. διὰ τούτο καὶ τὰ ἱάματα τῶν παλμῶν οἱ παλαιοὶ τῶν ιατρῶν ἐξεύρον, ὅσα λεπτύνειν τε καὶ θερμαίνειν δύναται, οία ἐστι τὰ τῇ εὐφορβίου, καὶ πυρέθρου, καὶ λιμνησίας, καὶ θείου, καὶ πεπέρεως, ὅσα τῇ ἀλλα τοιαύτα συγκείμενα [601 K.] φάρμακα, καὶ τῶν ὕδατων δὲ τὰ γήθεν ἀνιόντα ψυχικὰ, καὶ τούτων μᾶλιστα τὰ νιτρώδη καὶ θειώδη καὶ ταῦτα ἐπαινοῦσι. χρῶνται δὲ καὶ θαλάττῃ, θερμαίνοντες αὐτήν, καὶ ἀλμη, εἰ θάλαττα μὴ παρείη, καὶ πίνειν διδόσα τὰ θερμαίνοντα φάρμακα, καὶ μάλιστ' αὐτῶν τὰ διὰ καστορίου συγκείμενα: τοῦτο μὲν γε καὶ ἐξωθεὶν ἐπιτιθέμενον, οὐ μόνον πινόμενον, ἀγαθὸν φάρμακον, ὡς ἂν ἐκθερμαίνειν τε ἀμα καὶ λεπτύνειν καὶ ξηραίνειν ἀκριβῶς δυνάμενον. παλμοῦ μὲν δὴ παντὸς ἡ γένεσις ἐν τῷ ψυχρῷ, τρόμου δ' οὐδὲ μία πρόφασις, οὐδὲ τὸ ψυχρὸν αἴτιον· ἀλλ' ἡ μὲν διάθεσις ἀρρωστία τῆς κινούσης τὸ σῶμα δυνάμεως, τῆς δ' εἰς τούτο ἁγείν αἰτίας δυναμένης οὖχ ἐν εἰδος, ἀλλ' ἤτοι τροφῆς ἀπορίας, καθάπερ ἐν χολέραις καὶ ρεύμασι κοιλίας ἰσχυροῖς καὶ σφοδραῖς αἷμαρραγίαις καὶ παλμοῦ μὲν δὲν ἔχει ἐν τῷ ψυχρῷ, τρόμου δ' οὐδὲ μία πρόφασις, οὐδὲ τὸ ψυχρὸν αἴτιον· ἀλλ' ἡ μὲν διάθεσις ἀρρωστία τῆς κινούσης τὸ σῶμα δυνάμεως, τῆς δ' εἰς τούτο ἁγείν αἰτίας δυναμένης οὖχ ἐν εἰδος, ἀλλ' ἤτοι τροφῆς ἀπορίας, καθάπερ ἐν χολέραις καὶ ρεύμασι κοιλίας ἰσχυροῖς καὶ σφοδραῖς αἷμαρραγίαις.

καὶ τοῖς ἀποκαρτεροῦσιν, ἢ λυθέντος τοῦ ζωτικοῦ τόνου, καθάπερ ἐν στομαχικάς καὶ καρ-
diakaῖς ἐκλύσεσιν, ἢ βιαίας καὶ σφοδρᾶς ψύξεως καταλαμβανούσης ἢ πλήθους αὐτὴν ὀινον
φορτίου βαρύνοντος, ἀρρώστορος καὶ τίς κινήσεις γίνεται. ὃθεν οὐδὲ τῶν ἰαμάτων [602 Κ.] ἐν
εἴδος τοῖς τρέμουσιν, ὡσπερ. τε τοῖς παλλομένοις, ἀλλ' εἰ μὲν ὑπὸ καταψύξεως τρέμοιεν, τὸ
θερμὸν ἱαμάτος αὐτοῖς ἐστίν. ως ὁσοὶ καὶ χειμῶνος υδατοπαρθοῦντες, εἶτα ἐν κρύοις κατα-
lηϕθέντες ἡμιθνῆτες καὶ τρομώδεις οἴκαδε παρεγένοντο, ῥᾴστα τοῦ πάθος ἀπελλάγησαν
ἐκθερμανθέντες. ὁμοίως τοῖς τρέμουσιν, ἀλλ' εἰ μὲν ὑπὸ καταψύξεως τρέμοιεν, τὸ
θερμὸν ἱαμάτος αὐτοῖς ἐστίν. ὡς ὁσοὶ γε χειμῶνος ὁδοιποροῦντες, εἶτα ἐν κρύοις κατα-
ληϕθέντες ἡμιθνῆτες καὶ τρομώδεις οἴκαδε παρεγένοντο, ῥᾷστα τοῦ πάθος ἀπηλλάγησαν
ἐκθερμανθέντες. ὁμοίως τούτοις ἰώμεθα καὶ τοὺς ἐπὶ πυρετῶν καταβολαῖς ψυχούσαις
ῥίγονται καὶ τρέμοντας. εἰ δὲ διαφορούμενοι γίνοιντο, τὸ θερμαίνειν τούτους κακῶν ἔσχατον,
αὐτὸ γὰρ τοὐναντίον ἐν τοῖσδε πυκνῶσαι χρὴ τὴν ἐπιφάνειαν, ὅσα ψύχει καὶ στύ-
ϕει καὶ συνάγει τοὺς πόρους προσφέροντας, οὐχ ὁσα
θερμαίνει καὶ χαλαῖ καὶ ἀναπεπταμένους ἐργάζεται. εἰ δ' ἀπορία τροφῆς ως ἐν τοῖς ἀποκαρ-
τεροῦσιν ἢ ὑπερκενωθεῖσιν οἱ τρόμοι γίνοιντο, τοῦτο μὲν οὐδὲ λόγου δεῖ, παντὶ γὰρ δῆλον τοῦτο,
ὡς τροφῆς οὗτοί γε χρῄζοντες. ἀπέστραπτο τὸ στόμα
10 χρῆ τὴν ἐπιφάνειαν, ὡς ψύχει καὶ στόφει καὶ συνάγει τοὺς πόρους προσφέροντας, οὐχ ὁσα
θερμαίνει καὶ χαλαῖ καὶ ἀναπεπταμένους ἐργάζεται. εἰ δ' ἀπορία τροφῆς ως ἐν τοῖς ἀποκαρ-
τεροῦσιν ἢ ὑπερκενωθεῖσιν οἱ τρόμοι γίνοιντο, τοῦτο μὲν οὐδὲ λόγου δεῖ, παντὶ γὰρ δῆλον τοῦτο,
ὡς τροφῆς οὗτοί γε χρῄζοντες. ἀπέστραπτο τὸ στόμα
15 οἰκέτις, ἢ οὐδὲ ἀίμα ἐγένετο, ὡς ἐτεκε θυγατέρα, [603 Κ.] ἀπέστραπτο τὸ στόμα

τῆς μήτρας, καὶ ἐς ἱσχίον καὶ ἐς σκέλος ὀδύνη, παρὰ σφυρὸν φλεβοτομηθεῖσα, ἐρρηίσε, καὶ τοι
tρόμοι τὸ σῶμα πάν κατείχον. ἀλλ' ἐπὶ τὴν πρόφασιν δεῖ ἐλθεῖν καὶ τῆς προφάσεως τὴν
ἀφορμήν." γυναῖκι μέμνησε μετὰ τόκον μὴ καθαρθέντος τὴν λεγομένην ἱεραταί κάθαρσιν, εἶτα
τρομώδους γενομένης. "τοῦτό," φησιν, "ἰασάμην φλεβοτομήσας ἀπὸ σφυροῦ, καὶ τοι τρόμοι τὸ
σῶμα πάν εἶχον." τί δὴ έτερον αἰνίττεται ἐνταῦθα, ἢ ὅτι έτερος οὐκ ἂν ἐφλεβοτόμηση; ψυχρὸν
γὰρ εἶναι πεπίστευτον τὸ πάθος τὸ τρόμος, τὸ δ' αἷμα θερμὸν. οὐκουν ἐτόλμησεν ἃν τις αἴματος
κενοῦν ἐν πάθει θερμαίνεσθαι δεομένῳ. "ἀλλ' ἐγὼ" φησιν, "ἐτόλμησα", καὶ διδάσκει καὶ διὰ τί.
ἀλλ' ἐπὶ τὴν πρόφασιν δεῖ ἐλθεῖν καὶ τῆς προφάσεως τὴν ἀφορμήν.

5 ἀλλ' ἐπὶ τὴν πρόφασιν δεῖ ἐλθεῖν καὶ τῆς προφάσεως τὴν ἀφορμήν.

10 αὐτόν τῆς μήτρας ἢ πρὸς τὸ ἱσχίον ἔγκλισιν, δι' ἢν οὐκ ἐκαθάρθη τὸ γύναιον. ὅπερ οὖν ἔχρην
αἷμα κενοθῆναι, μὴ κενοῦμενον, ἀλλ' ἐν τῷ σώματι πλανώμενον, ἀχθος ἢν τῇ φύσει, οἶδεν ἐπιγνοὺς [604 Κ.] τοῦ τρόμου τὴν μὲν πρόφασιν αἵματος πλῆθος, ἀφορμήν δὲ τῆς προφάσεως τῆς
μήτρας τὸ πάθος, εἶτα τοῦ μὲν πλῆθους ἐνδειγμένου τῆς κένωσιν, τοῦ πεπονθότος δὲ μέρους
tὸν τόπον δι' ὁ χρὴ κενῶσαι, συνθεὶς ἀμφω ταῦτα, τὴν ἀπὸ τοῦ σφυροῦ φλεβοτομίαν

15 ἐποιήσατο, φλεβοτομίαν μὲν ὅτι κενοῦν αἷμα ἐβούλετο, ἀπὸ τοῦ σφυροῦ δὲ, μήτρα γὰρ
ἐπεπόνθει. ὅτι μὲν οὖν αἴματος
πλεονάζοντος φλεβοτομεῖν χρῆ, δῆλον οἴμαι παντι, τὸ γὰρ αἵμα ἐν φλεψὶ περιέχεται· ὅτι δὲ μήτρας πασχούσης περὶ σφυρὸν ἢ κατ' ἰγνύην χρῆ τέμνειν, εἰ μὴ πρῶτον εἴς ἀνατομής σε διδάξαι μᾶς κοινωνίας τῶν φλεβῶν, οὔκ ἄν ἔπεσθαι δύναι τῷ λόγῳ. ἄλλη γὰρ ἄλλῳ μέρει τοῦ σώματος κοινωνεῖ φλέσ, καὶ χρῆ διὰ τῶν κοινῶν άεί τὰς κενώσεις ποιεῖσθαι, ὡς εἴ γε τὰς μηδὲν κοινωνοῦσας τῷ πεπονθότι μέρει φλέβας ἑντέμους, οὔτε τὸ πεπονθὸς ἰάση, καὶ βλάψεις ἀεὶ τὸ ύγιὲς. ἀναγκαῖον οὖν ἄει φαίνει ντὶ μέλλοντι καλῶς ἰάσθαι τὴν αἰτίαν ἐπίστασθαι, ὅι ἂν γίνεται τὸ πάθος. ἀλλὰ περὶ μὲν αἰτίας τρόμων ἰκανὰ καὶ ταῦτα. [605 K.] πεπονθὸς δὲ τόπος εἰς οὐδεὶς ἐστὶν εἰς ἀνάγκης τῆς αἰτίας, καὶ μέμφομαι καὶ γένος Πραζαγόρας καὶ Ἰροφίλος, τῷ μὲν ἀρτηριῶν πάθος εἰπόντι τὸν τρόμον, Ἰροφίλος δὲ φιλοτιμουμένῳ δεῖξαι περὶ τὸ νευρῶδες αὐτὸ γένος ἀεὶ συνιστάμενον. ὁ μὲν οὖν Πραζαγόρας πόρρω τοῦ ἀληθοῦς ἠκεῖ· ὁ δὲ Ἰροφίλος ἡπατήθη τῆς δύναμεως πάθοις ἀναφέρων τοῖς ὀργάνοις. ὅτι μὲν γὰρ τὸ νευρῶδες γένος, οὐ τὸ ἀρτηριῶδες, ὑπήρετε ταῖς κατὰ προαίρεσιν κινήσεσιν, ὀρθῶς ἐγίνοικεν· ὅτι δὲ οὐκ αὐτὸ τὸ σῶμα τῶν νεύρων αἴτιον κινήσεως, ἀλλὰ τότε μὲν ὀργανῆ, ἢ κινοῦσα δὴ αἰτία ἢ διήκουσα δύναμις διὰ τῶν νεύρων εἴσ αὐτῷ, ἐνταῦθα μέμφομαι αὐτῷ μὴ διορίσαντι δύναμιν τε καὶ ὀργάνων. εἰ γὰρ διώρισεν, εὐθὺς ἂν ἐγνω ὅτι βλαβήσεται τοῦργον οὕκ ὀργάνων μόνων, ἀλλὰ καὶ δυνάμεων

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πάθει. ἐπὶ μὲν οὖν τὸν τεθνεῶτον οὐδὲν οὗτε τὰ νεῦρα πέπονθεν οὐθ’ οἱ μύες, ὡσα πάθη πάσχειν αὐτὰ νομίζουσιν Ἰρόφιλὸς τε καὶ Πραξαγόρας· ἀπολέλοιπος δ’ αὐτῶν πᾶσα κίνησις εὐθύς ἀμα τῇ ψυχῇ, μύες δὲ καὶ νεῦρα [606 Κ.] ταύτης ὄργανα. οὐκομοι μοῦς οὐδὲ νεύρῳ τὸ κινεῖν, ἀλλὰ ψυχῆς. οὐδὲ γὰρ αὐλὼν ἔργον <ἡ> αὐλήσις, οὐδὲ κιθάρας ἢ κιθάρισις· ἀλλ’ αὐλήσις μὲν ἔργον αὐλητοῦ δι’ ὁργάνων αὐλὼν, κιθάρισις δὲ τοῦ μουσικοῦ, τὸ δ’ ὁργανὸν ἢ κιθάρα. διαφθαρήσεται δὲ καὶ αὐλήματι καὶ κιθάρισις πολλάκις μὲν διὰ τοὺς τὸν ἔργον δημιουργοὺς, ἔσθ’ ὅτε δὲ διὰ τὴν τὸν ὀργάνων οἷς χρῶνται βλάβην. οὕτω δὲ καὶ κινήσεως ἢ διαιρθείν τὰ δ’ ἄθόμων ἐπὶ διαφθαρσίν ὥν μὲν οὖν δημιουργοὺς καὶ τεχνίτης ἢ διοικοῦσα τὸ ἐξόν ἐστι δύναμις, τὰ δὲ ὁργάνα νεῦρα καὶ μύες.

καὶ τὸ μὴ κινεῖσθαι τοιγαροῦν κἂν τὸ κακὸς κινεῖσθαι γένοιτ’ ἂν ἢ διὰ τῶν ὀργάνων τὸ πάθος, ἢ διὰ τὴν χρωμένην τοῖς ὀργάνοις δύναμιν. παλμοὶ μὲν οὖν καὶ σπασμοὶ καὶ παραλύσεις ὀργάνων βλάβαι, τρόμοι δὲ δυνάμεως ἀρρωστούσης πάθη.

6. Τρόμος μὲν δὴ σαφῶς διώρισται παλμοῦ· ρίγους δὲ τρόμον διορίσαις ἂν ὡδε. χρὴ δὲ πρότερον, οἷόν τι τὸ ῥιγοῦν ἐστιν ἐπισκέπτεσθαι. καὶ γὰρ οὖν καὶ τοῦτο δοκεῖ μὲν εἶναι τῶν πάνω γνωρίμων, ἐστι δ’ οὐδὲνὸς ἢ τοῦ [607 Κ.] δυσδιάγνωστον οὐ ταύτη μόνον, ὅτι τὴν αἰτίαν εὑρεῖν ἢ τὴν ἀπ’ αὐτῆς ὑπ’ αὐτῆς διάθεσιν οὐκ εὑπετές, ἀλλ’ ἐτί τοῦτον πρότερον, ὅτι ἐν αὐτῇ δοκοῦσί μοι τῇ τῆς ἐννοίας ὑπογραφῆ.
σφάλλεσθαι. ρίγος γάρ εἰ μὲν οὕτως ἀπλῶς κατάψυξιν εἴποις, ὡς τινες ἀπεφήναντο, κατάφωρον
tὸ σφάλμα, πολλῶν μὲν ἰσχυρῶς καταψυχομένων, οὔ μὴν καὶ ῥιγοῦντων· ἀλλ' οὐδ' εἰ κατάψυξιν
ἰσχυρὰν, οὔδ' τοῦτ' ἄλλης; οἱ γοῦν στομαχικῶς ριγοῦντες, ή καρδιακῶς, ἰσχυρῶς μὲν εἰσι
cαταψυχομένοι, ριγοῦσι δὲ οὕ. τὸ δὲ σὺν τρόμῳ λέγειν κατάψυξιν τὸ ρίγος, εἰς ὅπερ οἱ πολλοὶ τῶν
ιατρῶν ὑπηνέχθησαν, ἀφορμὴν ἔσχηκε τῆς ἀπάτης τὸν βρασμὸν καὶ τὸν κλόνον τὸν τοῖς
σφοδροῖς ρίγεσιν ἐξευγμένων. ἐξελέγχεται δ' ἐναργῶς ἕκ τοῦ μήθ' ἀπαίσι τοῖς ριγοῦσι συμβε-
βηκέναι, μόνοις δὲ τοῖς σφοδρῶς, μήθ' οἷς συμβεβηκε, τρόμου τὸν γινομένου πάθους ὄντος,
ἀλλὰ τὸν τὸν σισιμοῦ τέ καὶ κλόνον. τρόμος μὲν γάρ, ὡς ἀπεδειξάμεν, ἄνευ τοῦ προελέσθαι
κινεῖν τὸ μέρος οὗ γίνεται, ὁ δὲ τοῖς σφοδροῖς ρίγεσι συνεδρεύων κλόνος [608 Κ.] οὕτω βίαιός τε
cαὶ μετ' ἀνάγκης ἐμίπτει τοῖς σώμασιν, ὡστε ἀμήχανον ἡσυχάζειν, κἂν πάνυ τις ἀνδρείως
ἀντιτάξηται. καὶ τρόμος μὲν ἕνος μέρους πάθος, ὅλου δὲ τοῦ σώματος τὸ ρίγος. οὕτω ἔμοιγε καὶ
Πλάτωνος ἐπέρχεται ἐπηνέχθησαν, ἀτόπως οὗτος μᾶχεται, τὸ τρέμειν μένια, οὐδὲ μίαν ἔχοντας αἴσθησιν
ψύξεως, ἀμήχανον γάρ εἶναι ριγοῦν ἄνευ τοῦ δοκεῖν

2 καταψυχομένοι] καταψυχομένοι V || 3 ριγοῦντες omnes codd.: ἀλγοῦντες Kühn   ante ἢ add. καὶ P || 5
ὑπηνέχθησαν V M (L) P; ἀπηνέχθησαν K M² (L²) Kühn || 6 δ') δὲ V ἄπασι] ἄπασιν V || 9 οὗ δὲ] οὐκ K || 10 μετὰ

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κατεψύχθαι. διὰ τούτ’ οὖν οὐδ’ ἐκείνοι μοι δοκοῦσι πόρρω τῆς ἐννοίας ἐρχεσθαι τοῦ πάθους, ὁσοὶ καταψύξεως αἰσθήσιν ἔφασαν εἶναι τὸ ρίγος. οὐ γὰρ ταῦτάν δῆπον φαίης ἢν ἐψύχθαι τε καὶ ψύξεως αἰσθάνεσθαι. τὰ μέν τοι παρειμένα τε καὶ τὰ ναρκώδη καὶ δυσαίσθητα καὶ τὰ παντελῶς ἀναίσθητα κατέψυκται πάντα, καὶ τὸ τρομώδες, καὶ τὸ παράπληκτον, καὶ τὸ ἐπίληπτον, όσαυτώς δὲ καὶ τὸ φυσιδέος, καὶ τὸ ύδαρωδές, καὶ [609 Κ.] τὸ ἐμφυσηματῶδες, καὶ τὸ οἰδηματῶδες ἅπαν, τοῦτον ψυχρόν· οὐ γὰρ ταὐτὸ ψύχθατε καὶ ψύξεως αἰσθάνεσται. τὰ μέν τοι παρειμένα τε καὶ τὰ ναρκώδη καὶ δυσαίσθητα καὶ τὰ παντελῶς ἀναίσθητα κατέψυκται πάντα, καὶ τὸ τρομώδες, καὶ τὸ παράπληκτον, καὶ τὸ ἐπίληπτον, όσαυτώς ὡσάυτως καὶ τὸ ψυχηματῶδες, καὶ τὸ οἰδηματῶδες ἅπαν ψυχρόν· οὐδὲν τούτων αἰσθάνεται τῆς ἐν αὐτῷ ψύξεως, ὅτε οὐδὲ ρίγοι· εἰ δ’ αἰσθάνοτο, πάντως εὐθὺς καὶ ριγώσει. διὰ ταῦτα τοῖν τού拦截, φημὶ μὴ καλῶς ὑπολαμβάνειν τὸν Πλάτωνα, ταῦτάν εἶναι ρίγος τε καὶ τρόμον· οὔτε γὰρ ἐνός ἐστι μέρους τὸ πάθος τὸ ρίγον, ὡς τὸ τρέμειν, οὔτ' αἰσθήσις ψύξεως τοῖς τρέμουσι, ὡς τοῖς ριγοῦσι, ἢ τε κίνησις ἐπὶ μὲν τῶν, ἀνεύ τοῦ κινεῖν ἐθέλειν τὰ μέρη, παντάπασιν ἀκούσιον ἀκούσιοι· ἐπὶ δὲ τῶν τρεμόντων, οὐκ ἀνεύ τῆς περὶ τὸ κινεῖν ὅρμης. ἀλλὰ Πλάτωνι μὲν ἵσως καὶ συγχωρήσειεν ἂν τις ἐν οὕτω λεπτοῖς καὶ ιατρικοῖς πράγμασιν ἀμαρτάνειν, καὶ τοῖς τοῖς γε ἄλλων παθῶν τῶν κατὰ τὸ σῶμα σχεδὸν ἀπάντων τὴν γένεσιν ἀκριβῶς διεξῆλθεν· 'Ατταλέως δὲ ἀξίον εἶναι τὸ πάθος τὸ ριγοῦν, ὡς τὸ τρέμειν, οὔτε γὰρ ἑνός μέρους εἶναι τὸ πάθος τὸ ριγοῦν, ὡς τὸ τρέμειν, οὔτε ἔστι μὲν τῶν, ἀκούσιος· ἐπὶ δὲ τῶν τρεμόντων, οὐκ ἀνεύ τῆς περὶ τὸ κινεῖν ὅρμης. ἀλλὰ Πλάτωνι μὲν ἴσως καὶ συγχωρήσειεν ἂν τις ἐν οὕτω λεπτοῖς καὶ ιατρικοῖς πράγμασιν ἁμαρτάνειν, καί τοῖς τοῖς γε ἄλλων παθῶν τῶν κατὰ τὸ σῶμα σχεδὸν ἀπάντων τὴν γένεσιν ἀκριβῶς διεξῆλθεν· 'Αθηναίου δὲ ἄξιον ἐν τοῖς περὶ τῆς αἰτίας λογισμοῖς μόνον ἔπεται τῷ Πλάτωνι, τούτο μὲν γὰρ ἀνεκτὸν· ἀλλὰ καὶ περὶ τῆς ἐννοιαν ὁμοίως ἐκείνω φαίνεται συγκεχυμένος. οὔτε...
γάρ διωρίσατο ρίγους καὶ τρόμου τὴν ἔννοιαν, ύπογράϕων τε τὸ ρίγος ὡς φῆσι· [610 Κ.]

“τῇ δὴ μάχῃ καὶ τῷ σεισμῷ τούτῳ τρόμου καὶ ρίγους ἐτέθη. ψυχρὸν δὲ τὸ πάθος ἄπαν τούτῳ καὶ τὸ ὁδόν αὐτὸ ἐσχεν ὅνομα, ὡς πού,” φῆσι, „καὶ ὁ Πλάτων λέγει.” οὕτος γὰρ αὐτὴν τὴν λέξιν εἰρήκει τοῦ Πλάτωνος. ἐξεῖ δὴ ἡ σύμπασα τόνδε τὸν τρόπον· „τὰ γὰρ δὴ τῶν περὶ τὸ σῶμα ψυχρὸν μεγαλομερέστερα εἰς τὰς ἐκεῖνον οὐ δυνάμενα ἔδρας ἐνδῦναι, συνωθοῦντα ἡμῶν τὰ νοσερὰ (εἰσὶ δὲ τὰ σμικρότατα) ἐξωθοῦν τὸν ἐτερὸν ἐξ ἀνωμάλου κεκινημένων, (οὕτ') ἀκίνητον δι’ ὀμαλότητα καὶ τὴν ἐξώνωσιν ἐπεραγξόμενα πήγνυσι. τὸ δὲ παρὰ φύσιν συναγομένον μὰχεται κατὰ φύσιν αὐτὸ ἐαυτῷ εἰς τὸ ἐναντίον ἀπωθοῦν. τῇ δὲ μάχῃ καὶ τούτῳ τῷ σεισμῷ τρόμου καὶ ρίγους ἐτέθη ψυχρὸν δὲ τὸ πάθος ἅπαν, καὶ τὸ δρῶν αὐτὸ ἔσχεν ὄνομα, ὥς πού,“ φῆσι, καὶ ὁ Πλάτων λέγει. οὗτος γὰρ αὐτὴν τὴν λέξιν εἴρηκε τοῦ Πλάτωνος. ἔχει δὲ ἡ σύμπασα τὸν τρόπον· τὰ γὰρ τῶν περὶ τὸ σῶμα ὑγρῶν μεγαλομερέστερα εἰς τὰς ἐκεῖνον οὐ δυνάμενα ἔδρας ἐνδῦναι, συνωθοῦντα ἡμῶν τὰ νοσερὰ (εἰσὶ δὲ τὰ σμικρότατα) ἐξωθοῦν τὸν ἐτερὸν ἐξ ἀνωμάλου κεκινημένων, (οὕτ') ἀκίνητον δι’ ὀμαλότητα καὶ τὴν ἐξώνωσιν ἐπεραγξόμενα πήγνυσι. τὸ δὲ παρὰ φύσιν συναγομένον μὰχεται κατὰ φύσιν αὐτὸ ἐαυτῷ εἰς τὸ ἐναντίον ἀπωθοῦν. τῇ δὲ μάχῃ καὶ τούτῳ τῷ σεισμῷ τρόμου καὶ ρίγους ἐτέθη ψυχρὸν δὲ τὸ πάθος ἅπαν, καὶ τὸ δρῶν αὐτὸ ἔσχεν ὄνομα.” ὅτι μὲν οὖν οὐ γε γὰρ τὸν τρόμον τοῦτον ἄλλ’ οὐδὲ κατάψυξις ἁπλῶς, οὐ μὴν οὐδὲ κατάψυξις ἰσχυρὰ, σαφῶς ἐπιδέδεικται. τὸ δ’ ὀλίγῳ πρόσθεν ῥηθὲν, ὡς ἄρα κατάψυξις ἐστιν, ἀλλ’ αἰσθητὴ, βασανίσωμεν, εἰ μή ψευδῶς εἰρήται. τινὲς γὰρ οὐκ αἰσθητὴν ψύξιν τὸ ῥίγος, ἀλλὰ ὀδυνηρὰ νομίζουσι. καταψύχεσθαι μὲν γάρ ϕασιν ἰσχυρῶς πολλὶ καὶ τῶν ὑγιαινόντων, οἱ μὲν ἑκόνες, ἐμψύξεως ἐπιθυμίᾳ διατρίψαντες ἐπὶ πλέον ἐν ὕδατι ψυχρῷ, τινὲς δὲ καὶ χρείᾳ τοῦτον χρονίζουσιν ἐν τῷ ψυχρῷ, ρίγουσι δ’ οὔτε κατάψυχις, ὡσπερ οὐδ’ ὁ λελουμένος, εἰθ’ ἑαυτὸν ἐμβαλὼν εἰς ὕδωρ ψυχρόν. οὐδὲ γὰρ

οὗτος εἰ μὴ χρονίσειεν ἐπὶ πολὺ, ρίγοι, καίτοι τῆς γε τοῦ ψυχροῦ ποιότητος αἰσθάνεται σαφῶς. ὥσθ’ ὅσον ἐπὶ τῷ τῆς ψύξεως αἰσθάνεσθαι πάντες ἃν εὐθέως ἐρρίγουν οὗτοι, εἰπερ ἣν αἰσθητὴ ψύξες τὸ ρίγος. ἀλλ’ οὐ ρίγοῦσιν, εἰκότως: οὐ γὰρ ἐστὶν ἀπασὶ μετ’ ὀδύνης η ὑψός, ἀλλὰ τινες αὐτῶν, ὅσιθερος ὥρα μάλιστα μὴ φέροντες τὸ πάθος εἰς ψυχρὸν ὑδωρ ἑαυτοὺς ἐμβάλλουσιν, οὕτω φιληδοῦσι πρὸς τὴν ψύξιν, ὡστε διατρίβουσιν εἰς τοσοῦτον ἐν αὐτῷ, μέχρις ἃν ἀποτομένοι σοι δόξουσι ἀπεψύχθη τὸ κρυστάλλων. ἢρ’ οὖν ἐρρίγουν ἣν ἦπε τὸ πάν, ὀδυνηρὰς ψύξιν ὅσον ἐπὶ τῷ τῆς ψύξεως αἰσθάνεσθαι πάντες ἒρρίγουν οὗτοι, εἴπερ ἦν αἰσθητὴ ψύξις τὸ ῥίγος. ἀλλ’ οὐ ῥιγοῦσιν, εἰκότως· οὐ γάρ ἐστιν ἅπασι μετ’ ὀδύνης ἡ ψύξις, ἀλλά τινες αὐτῶν, ὅσιθερος ὥρα μάλιστα μὴ φέροντες τὸ πάθος εἰς ψυχρὸν ὑδωρ ἑαυτοὺς ἐμβάλλουσιν, 5 οὕτω φιληδοῦσι πρὸς τὴν ψύξιν, ὡστε διατρίβουσιν εἰς τοσοῦτον ἐν αὐτῷ, μέχρις ἃν ἀποτομένοι σοι δόξουσι ἀπεψύχθη τὸ κρυστάλλων. ἢρ’ οὖν ἐρρίγουν ἣν ἦπε τὸ πάν, ὀδυνηρὰς ψύξιν ἃν ἐπὶ τῷ τῆς ψύξεως αἰσθάνεσθαι πάντες ἒρρίγουν οὗτοι, εἴπερ ἦν αἰσθητὴ ψύξις τὸ ῥίγος. ἀλλ’ οὐ ῥιγοῦσιν, εἰκότως· οὐ γάρ ἐστιν ἅπασι μετ’ ὀδύνης ἡ ψύξις, ἀλλὰ τινες αὐτῶν, ὅσιθερος ὥρα μάλιστα μὴ φέροντες τὸ πάθος εἰς ψυχρὸν ὑδωρ ἑαυτοὺς ἐμβάλλουσιν, 10 οὕτω φιληδοῦσι πρὸς τὴν ψύξιν, ὡστε διατρίβουσιν εἰς τοσοῦτον ἐν αὐτῷ, μέχρις ἃν ἀποτομένοι σοι δόξουσι ἀπεψύχθη τὸ κρυστάλλων. ἢρ’ οὖν ἐρρίγουν ἣν ἦπε τὸ πάν, ὀδυνηρὰς ψύξιν ἃν ἐπὶ τῷ τῆς ψύξεως αἰσθάνεσθαι πάντες ἒρρίγουν οὗτοι, εἴπερ ἦν αἰσθητὴ ψύξις τὸ ῥίγος. ἀλλ’ οὐ ῥιγοῦσιν, εἰκότως· οὐ γάρ ἐστιν ἅπασι μετ’ ὀδύνης ἡ ψύξις, ἀλλὰ τινες αὐτῶν, ὅσιθερος ὥρα μάλιστα μὴ φέροντες τὸ πάθος εἰς ψυχρὸν ὑδωρ ἑαυτοὺς ἐμβάλλουσιν,
σώματος τὸ ῥίγος. ἐπὶ δὲ γε τῶν υγιαίνοντων ἐτέρως τὸ ῥιγὸν λέγομεν, ἐκτείνοντες ἐπὶ πᾶσαιν ὁδυνηράν κατάψυξιν. εἰ δὲ νοσήματος λόγῳ γίγνοιτο ῥίγος, οὐκ ἀρκεῖ μόνον τοῦτο φάναι, προσθείναι δὲ χρή τὴν παντὸς τοῦ σώματος ταραχὴν, δὲ τρόμου μὲν κατάψυξιν τινες εἰπόντες αὐτὸ, σαφὲς δὲ οὐχ ἢρμηνεύον. οὐ γὰρ χρή τρόμον καλεῖν ἀλλὰ τὸν τρόμον κατάψυξιν ὃ ὑπειδόμενοι, μετὰ τρόμου μὲν κατάψυξιν ἀλλο μηδὲν εἰπόντες, ὃ τοῖς υγιαίνοντις γινόμενον. καὶ τοι τὸ γένος ὅλον, ὑπὲρ οὐ τοῖς ἱατροῖς τὸ τοῖς ὑγιαίνουσι γίνεται, ἀλλὰ τὸ τοῖς νοσοῦσιν ὁρίζεται. ἐοίκασι οὖν οἱ τὸ νοσερὸν ῥῖγος ὁριζόμενοι κατάψυξιν ἀλλὰ καὶ τοῖς εἰρημένοις ἀνδράσι. νοσερὸν δὲ καλοῦμεν, ὅταν ἀπὸ μηδενὸς ἐξωθεὶς αἰτίας βιαῖας, ἀλλʼ ἐξ ἑαυτοῦ τὸ σῶμα τοιαύτην ἴσχει διάθεσιν. οὕτω γὰρ δὴ, οἶμαι, καὶ Ἰπποκράτης ἔλεγεν· ὑπὸ καύσου ἐχομένῳ, ῥίγεος ἐπιγενομένῳ, λύσις. οὐκουν ψυχρὸν ὕδωρ καταχέας τῷ πυρέττον ποιήσει ῥῖγος, ἀλλʼ ὅταν ἐξ αὐτῆς ἐγείρηται τῆς ἐν τῷ σώματι διαθέσεως. κατὰ δὲ τὸν αὐτὸν τρόπον εἴρηται καὶ ταῦτα· μετὰ ῥίγους ἄγνοια, κακὸν δὲ καὶ λήθη. τὰ ἑκταῖα ῥίγεα δύσκριτα. ρίγεα δʼ ἄρχεται γυναιξιν ἐξ ὀσφύος διὰ νωτοῦ μᾶλλον ἀτὰρ καὶ ἀνδράσι μᾶλλον ὄπισθεν ἢ ἐμπρόσθεν. ἐν ἅπασι γὰρ τούτοις οὐ τὸ τοῖς ὑγιαίνουσι γινόμενον, ἀλλὰ τὸ νοσῶδες εἴρηται ῥῖγος, ὅπερ ἐστὶ κατάψυξις ἅλγεινή.


μετά τινος ἀνωμάλου σεισμοῦ καὶ κλόνου παντὸς τοῦ σώματος. ὅπως οὖν τί ποτὲ ἐστί ρήγος ἐγνώκαμεν, ἐξῆς ἰδομεν καὶ τίς μὲν ἡ ποιουσα τὸ πάθος αἰτία, τίσι δὲ μάλιστα προηγουμέναις αἰτίαις ἐπεται, καὶ τίσιν ἐπιγίνεται διαθέσεσιν, ὑπέρ ἀπάσης τε τῆς γενέσεως αὐτοῦ, ὅτι μὲν γὰρ τὸ ρίγον πάθος ἐστὶ τοῦ κατὰ φύσιν θερμοῦ, σχεδὸν ἀπασιν ὑμολόγηται. δεῖται δὲ πᾶς ὁ λόγος οὕτως ἀκριβοῦς ἀκροατοῦ καὶ πολῶν μάλιστα νοῦν ἔχοντος. ἐγὼ μὲν γὰρ εἶπον τοῦ κατὰ φύσιν θερμοῦ πάθος εἶναι τὸ ρήγος, ἣν μὴ τις τοῦ ἐξωθεν νομίσας εἰρήσθαι, καταψεύδεσθαι με δόξειν Ἐρασιστράτου καὶ Πραξαγόρου καὶ Φιλοτίμου καὶ Ἀσκληπιάδου καὶ μυρίων ἄλλων, ὅσοι τὸ θερμὸν ὅων εμφυτον, ἀλλ' ἐπίκτητον εἶναι νομίζουσι. πῶς γὰρ οὗν οὕτοι πάθος εμφύτου θερμοῦ λέγουν, οἱ μηδὲ τὴν ἀρχὴν εμφυτον εἰδότες θερμόν; ἀλλ' εμφυτον μὲν, ὥσπερ επομεν, οὐ πάντες όμολογοῦσι τὸ θερμὸν ύπάρχειν, γένεσιν δὲ ἐπίκτητον αὐτοῦ τεχνωμενοι, διαφερόντος ἄλλος ἄλλην, ἐν τούτῳ πάντες όμολογοῦσιν, ὡς ἐσται τι κατὰ φύσιν ἐν ἐκάστῳ ζώω θερμον, [615 K.] ἐν τῷ προσήκοντι μέτρῳ θεωροῦμεν. καὶ δὴ περὶ τούτῳ ρήγος τε καὶ φρίκην φασίν ἀπασάν τε γίνεσθαι κατάψυξιν. Ἀσκληπιάδης γοῦν οὐ μόνον τὸ θερμὸν, ἀλλ' οὐδ' ἄλλην τινὰ τιθεὶς εμφανίζει τίνα τιθεὶς ἐν μεγέθεσι πόρων τὴν διαφορὰν τιθέμενοι, δείκνυσι τε, τίσι μὲν ἀνάγκη ἐν τῷ προσήκοντι μέτρῳ θεωροῦμεν. καὶ δὴ περὶ τοῦτο ρήγος τε καὶ φρίκην φασίν ἀπασάν τε γίνεσθαι κατάψυξιν. 'Ασκληπιάδης γοῦν οὐ μόνον τὸ θερμὸν, ἀλλ' οὐδ' ἄλλην τινὰ τιθεὶς εμφανίζει τίνα τιθεὶς ἐν μεγέθεσι πόρων τὴν διαφορὰν τιθέμενοι, δείκνυσι τε, τίσι μὲν ἀνάγκη ἐν τῷ προσήκοντι μέτρῳ θεωροῦμεν. καὶ δὴ περὶ τοῦτο ρήγος τε καὶ φρίκην φασίν ἀπασάν τε γίνεσθαι κατάψυξιν. 'Ασκληπιάδης γοῦν οὐ μόνον τὸ θερμὸν, ἀλλ' οὐδ' ἄλλην τινὰ τιθεὶς εμφανίζει τίνα τιθεὶς ἐν μεγέθεσι πόρων τὴν διαφορὰν τιθέμενοι, δείκνυσι τε, τίσι μὲν ἀνάγκη ἐν τῷ προσήκοντι μέτρῳ θεωροῦμεν. καὶ δὴ περὶ τοῦτο ρήγος τε καὶ φρίκην φασίν ἀπασάν τε γίνεσθαι κατάψυξιν. 'Ασκληπιάδης γοῦν οὐ μόνον τὸ θερμὸν, ἀλλ' οὐδ' ἄλλην τινὰ τιθεὶς εμφανίζει τίνα τιθεὶς ἐν μεγέθεσι πόρων τὴν διαφορὰν τιθέμενοι, δείκνυσι τε, τίσι μὲν ἀνάγκη
ῥῖγος ἐζεῦχαι, τίσι δ’ οὔ. καὶ ἔγωγ’ ἂν εἰ μὴ μακρότερον τε τοῦ καιροῦ τὸν λόγον ἦλπιζον ἔσ-
εσθαι καὶ ἄλλως οὐ δίκαιον ἦγομαι ὑπὲρ Ἄσκληπιαδόου μὲν ἐπισκέψασθαι μόνου, παρελθεὶν δὲ
tὰ τῶν ἄλλων, ἢ πάλιν ἀπάντων ἐπιχειρῶν μηνομενεύειν, εἰς μακρὸν καὶ ἀπέραντον ἐμπεσεῖν
λόγου μῆκος, ἔξης ἂν ὑπὲρ ἀπασῶν τῶν δοξῶν ἐπισκεψάμενος, ἄφι ὅτου γε πιθανὸν τὴν ἄφο-
μήν ἔσχηκεν ἐκάστη, καὶ τί μάλιστα τὸ ἄκατο ἂν, ὅπη τε σφάλλονται δείξασιν, οὕτως τὸ ἐπὶ τὴν
ημετέραν ἦκον δόξαν. ἀλλὰ τοῦτο μὲν εἰς ἔτερον ἀναβεβλήσθω καὶ παρελθεῖν δὲ τὰ τῶν ἄλλων, ἢ πάλιν ἁπάντων ἐπιχεῖρων ἔνδοξον καὶ πιθανὸν εἶχεν εἰπεῖν. ήμεῖς
οὖν ἀρχὴν ὁμολογούμενην λαβόντες, ὡς ἔστι τοῦ κατὰ φύσιν ἐν ἑκάστῳ ζώῳ πάθος τὸ
ῥῖγος, ἱδὼμεν ὅτι γίνεται. προκόψει δ’ ὁ λόγος ἤπει ταῖς Ἰπποκράτους ἀρχαῖς οὐκ ὑγιον καὶ
πόρους ἡμῶν στοιχεία τιθεμένων τοῦ σώματος, οὐδὲ κινήσεως ἢ παρατρίψεως ἢ τινος ἄλλης
αἰτίας ἐγγονὸν τὸ θερμὸν ἀποψαίνοντων, ἀλλὰ τὸ μὲν ὅλον σῶμα σύμπνουν τε καὶ σύρρουν
ἡγουμένων, τὸ θερμὸν δ’ οὐκ ἐπίκτητον οὐδ’ ὅστε τοῦ ζώου τῆς γενέσεως, ἀλλ’ αὐτὸ πρῶτὸν
τε καὶ ἀρχέγονον καὶ ἐμφυτόν. καὶ ἔστι καὶ ἡ ψυχὴ οὐδὲν ἄλλο ἢ τοῦτ’ ἔστιν, ὡστ’ οὐσίαν

7 Herac. fr. 82 Wehrli || 14 cf. Hipp. De alim.: CMG I 1, p. 83 = p. 143,1 Joly

αὐτοκίνητον τε καὶ ἀεικίνητον αὐτὸ νοῶν οὐκ ἂν ἁμάρτοις. ἐκαστὸν δὲ τούτων ἰδία βεβασάν
νισται, καὶ τοι μαθεῖν ἐνεστὶν ὑπὲρ αὐτῶν ἐτέρωθι, τὸ δὲ νῦν εἶναι τοῦ λόγου τὸ συνεχὲς
ἐρευνητέον. ἄτε γὰρ ἀεικίνητον [617 K.] ὅν τὸ ἐμφυτὸν θερμὸν, οὔτ' εἴσω μόνον οὔτ' ἔξω
κινεῖται, διαδέχεται δ' ἢ εἰς τὴν ἑτέραν αὐτοῦ κίνησιν ἢ ἑτέρα. ταχὺ γὰρ ἄν ἢ μὲν ἔξω μονὴ
5 κατέπαυσεν εἰς ὀκινησίαν, ἢ δὲ ἐκτὸς ἐσκέδασε τε καὶ ταύτη διέφθειρεν αὐτό. “μέτρια δὲ
σβεννύμενον καὶ μέτρια ἀναπτόμενον, ὡς Ἡράκλειτος ἔλεγεν, ἀεικίνητον οὐτω μένει.
ἄναπτεται μὲν οὖν τῇ κάτω συννεύσει, τῆς τροφῆς ὀρεγόμενον· αἰρόμενον δὲ καὶ πάντη
σκιδνάμενον σβέννυται. ἅτε γὰρ ἀεικίνητον ὁ τὸ ἔμϕυτον θερμὸν, οὔτ' εἴσω μόνον οὔτ' ἔξω
κινεῖται, διαδέχεται δ' ἢ τῇ τὴν ἑτέραν αὐτοῦ κίνησιν. ταχὺ γὰρ τὴν μὲν ἔσω μονὴ κατέπαυσεν εἰς ὀκινησίαν, ἢ δὲ ἐκτὸς ἐσκέδασε τε καὶ ταύτη διέφθειρεν αὐτό. “μέτρια δὲ
σβεννύμενον καὶ μέτρια ἀναπτόμενον, ὡς Ἡράκλειτος ἔλεγεν, ἀεικίνητον οὖτω μένει.
6 Heracl. fr. 30 D.–K. = fr. 51 Markovich
τῶν σωμάτων αὐτὸ. ἀλλὰ τὸ ψυχρὸν ἐπέχει τε καὶ κωλύει, καὶ τῆς ἰκανῆς κινήσεως ἀφαίρει
tὸ σφοδρὸν. ἐπανέλθωμεν οὖν ἐφ' ἄπερ ἐξ ἀρχῆς ὡς ἕπεθέμεθα, δεικνύντες οἶνον τι πάθος ἐστὶ τῆς
ἐμφύτου θερμασίας τὸ ρίγος. ὅτι μὲν γὰρ ἐπειδὴ ἐν τοῖς κατὰ φύσιν ὅροις μένῃ τῆς κράσεως,
ὑγιαίνει τὸ ρίγον, οὐ δεῖται λόγου, τούτουσιν ὅταν, ὡς Ἰπποκράτης ἔλεγε, μετρίως ἔχῃ τὸ θερμὸν
καὶ τὸ ψυχρὸν τῆς πρὸς ἀλλήλα κράσεως: ἢν δὲ τὸ έτερον τοῦ εἶναι κράσις, νοσεῖν ἀνάγκη
tὸ ρίγον εἶδος νοσήματος ἐοικός τῇ φύσει τοῦ κρατήσαντος αἰτίον. ἠλεγγοναι μὲν οὖν καὶ
ἔρυσιπέλατα καὶ ἐρυσιπέλατα καὶ ἀνθράκες καὶ τὰ καυσώδη καὶ ψυχρὸν καὶ πάντα τὰ πυρετώδη
πάθη, ὅταν ἢ τὸ θερμὸν δύναμις ἐπικρατῇ: σπασμοὶ δ' αὐτὸν καὶ τέτανοι καὶ παλμοὶ καὶ
νάρκαι καὶ πάθησις. ἐπιληψίαι τε καὶ παραλύσεις, τοῦ ψυχροῦ κρατοῦντος πάθη. ἐν τὶ τῶν
tοιούτων παθὸν ἐστὶ καὶ τὸ ρίγος τούτι, οὔχ ἀπλῶς ἐν κατάψυξις, ἀλλὰ συναισθήσισις, ὅθεν αὐτὸ
δεῖ προσθέναι καὶ [619 Κ.] τὸ θερμὸν· ἐκεῖ δὲ σφοδρῶς ἐναιρεῖ την κατάψυξιν καὶ βιαίαν, ὡς
eἶναι σαφῶς διοριζόμενον ἄλθετειν, κατάψυξιν ἀθρόαν καὶ βιαίον εἶναι τὸ ρίγος τοῦ ἐμφύτου
θερμοῦ. “πάλιν γὰρ,” ὡς ὁ Πλάτων ἔλεγε, “τὸ μὲν ἣρέμα καὶ κατὰ μικρὸν ἀναίσθητον”: εἰ δὲ
αισθητόν, ἀνάγκη τούτῳ μεγάλῳ κινεῖν, καὶ τρέμειν ἀθρόως. ὡστ' ἐμψυχεῖ ἢ μὲν ἀναίσθητος ἐν
χρόνῳ πλείον καὶ κατὰ βραχὺ καταγαίοντας πάντως

Plat. Tim. 64d
σὺν αἰσθήσει. οὐδὲ γὰρ ἂν τὸ τοιοῦτον πάθος διαλάβει. τὸ δὲ τοιοῦτον πάθος σὺν αἰσθήσει τῆς
ψυχῆς σοφίαν ἂν ἄκαμπτον Ὀλυμπίδην, ἀλλ' ἐστιν ὅτε καὶ ἡδίστων. ἔλεγε γὰρ αὐτὸν ὁ Πλάτων, "ὅτι τὸ
μὲν παρὰ φύσιν καὶ βίαιον γινόμενον ἄθροόν ἐν ἡμῖν πάθος ἀλγείνον, τὸ δὲ εἰς φύσιν ἀπὸν αὐτὸν ἄθροόν ἡδίστων.
" ὡστε τὸ μὲν ἄθροόν κοινὸν ἀμφότερον, ἡδίστως τε καὶ ἀλγείνον, τοῦ μὴ λαθεῖν τὸ
πάθος ἐνεκεν ἀναγκαίως ἑξευγμένον· ἐπὶ τούτῳ δὲ τὸ μὲν πρὸς τὸ μὴ λανθάνειν εἰς τὴν φύσιν
ἐπανάγων ἡδίστω, τὸ δ' ἐξιστάν τοῦ κατὰ φύσιν ἀλγείνον. ὅθεν ἐν καὶ ταύτῳ [620 Κ.] τὸ πλήθει
ψυχῆν, τὸ μὲν ἦσε, τὸ δ' ἠνίασε, εἰ μὲν ὑπερτερεμασμένῳ σώματι προσάγας, πάντως ἦσε·
τὸ γὰρ ἀμετρόν, τῇ θερμασίᾳ παρῄσκεν, ἐπὶ τῇ τοῦ λείποντος εἰσόδω ψυχὴν παρῄσκεν, ἦσθη μὲν,
ὅτε παρῄσκεν, τῇ ἑαυτοῦ φύσιν ἔχον ἢ ἀθρόως ἐμψυχίας, ἠνίασε, πονῆσει
5 γὰρ ἐπὶ τῇ τῆς κράσεως ἀμέτρῳ. "τοῖς γὰρ τὴν φύσιν," ὡς Ἰπποκράτης ἔλεγε, "διαλλασσομένοις καὶ διαφθειρομένοις αἱ ὀδύναι γίνονται." οὐ μόνον οὖν ἄθροαν χρή καὶ σφοδράν
εἶναι τὴν ψυχήν, ἵνα ρίγος γένηται, ἀλλ' ἐτι τούτῳ προσεῖναι δεῖ τὸ βίαιὸ πᾶθος, τουτέστι
tὸ παρὰ φύσιν, ὡστε ἄθροαν ψυχήν εἰς τὸ παρὰ φύσιν ἀγούσαι εἶναι τὸ ρίγος. καὶ μοι δοκεῖ
τοῦτο χρῆναι διαφυλάττειν ἐν τούτῳ τῇ φύσῃ. ὡς ἤτη τῆς δὲ πάθους γένεσιν, εἰ μέλλοι τις
10 ἀληθεύειν εἰπών, ψυχὴν ἀθρόαν καὶ βίαιον ἐν τῷ ρίγει γίνεσθαι τοῦ ἐμφύτου θερμοῦ. ψυχῆται μὲν

2 Plat. Tim. 64cd || 10 Hipp. De locis in hom. 42: p. 85–86 Potter = VI 334,7–8 L.
οὖν καὶ διαφορούμενον, ἑπλείποντος αὐτὸ τοῦ συνέχοντος τόνου, καὶ τροφῆς ἀποροῦν, οὖν ἀνήπτετο· ἀλλ' οὐδέτερον τούτων [621 Κ.] αὐτῷ τὸν παθημάτων ρίγος ἐργάζεται, ἢ πάντες ἂν οἱ ἀποθνήσκοντες ἐρρήγουν. ὅτε τὸ διαφθείρεσθαι τὸ θερμὸν ἐνὶ γε τρόπῳ κοινὸν ἀπασά τοῖς ἀποθνήσκουσιν· ἀλλ' οὐ ρίγουσιν, οὐ γὰρ ἀπλῶς φημι χρῆναι ψύχεσθαι τὸ θερμὸν, ἀλλ' ἀθρόως τε καὶ βιαίως, τοιτέστιν ἐρρήγουν αὐτῷ μένον, οὔτε τὴν οὐσίαν οὔτε τὸν τόνον βεβλαμένον, ὑπὸ τινος τῶν εἴσω αἰτίων ἀνάπτεσθαι. φλόγα δὴ μοι νόησον ἐκτός ποτὲ μὲν ἀπορία τῆς ὕλης οὖν ἀνήπτετο· ἀλλ' οὐδέτερον τούτων ἀνήπτετο διαϕθειρομένην, ποτὲ δὲ ἐν ἡλίῳ λαμπρῷ μαραινόμενην, αὖθις δ' ὑφ' ὑδάτος πολλοῦ κατασβεννυμένην, ἃ πλήθει ξύλων ἐπ' αὐτῆς σωρευθέντων καταπνιγομένην. τέτταρες αὐτῶν ἐπ' αἰτίοις τέτταραν οὗ τὸν αὐτὸν ἀπασά τρόπον ἀδικοῦσαι τὴν φλόγα. τῆς μὲν γὰρ ἐν ἡλίῳ μαραινόμενης ὁ τόνος σκίδναται, βιαὶ τοῦ περιέχοντος τόνον διαφορούμενος, ἐσχυροτέρα γὰρ ἐν ἡλίῳ λαμπρῷ μαραινόμενης, ἀλλ' ἐν ἡλίῳ λαμπρῷ μαραινόμενης, ἀδίκουσαι κατὰ τὴν ἐξω βίᾳ τοῦ περιέχοντος τόνον διαϕορούμενος, ἰσχυρὸτερα γὰρ ἡ τῆς ἡλιακῶν ἀκτίνων ῥώμη καὶ διαρκεστέρα τοῦ πυρὸς· ὅταν δὲ ἡ ὕλη ἀποροῦσα μηκέτι ἀνάπτηται, τῆς οὐσίας ἀπολλυμένης, διαϕθείρεται. τὸ μὲν ἀναϕθὲν ἀεὶ διαϕθείρεται κατὰ τὴν ἐξω βίᾳ τοῦ περιέχοντος τόνον διαϕορούμενος, ἰσχυρότερα γὰρ ἡ τῆς ἡλιακῶν ἀκτίνων ῥώμη καὶ διαρκεστέρα τοῦ πυρὸς· ὅταν δὲ ἡ ὕλη ἀποροῦσα μηκέτι ἀνάπτηται, τῆς οὐσίας ἀπολλυμένης, διαϕθείρεται. τὸ μὲν ἀναϕθὲν ἀεὶ διαϕθείρεται κατὰ τὴν ἐξω βίᾳ τοῦ περιέχοντος τόνον διαϕορούμενος, ἰσχυρότερα γὰρ ἡ τῆς ἡλιακῶν ἀκτίνων ῥώμη καὶ διαρκεστέρα τοῦ πυρὸς· ὅταν δὲ ἡ ὕλη ἀποροῦσα μηκέτι ἀνάπτηται, τῆς οὐσίας ἀπολλυμένης, διαϕθείρεται. τὸ μὲν ἀναϕθὲν ἀεὶ διαϕθείρεται κατὰ τὴν ἐξω βίᾳ τοῦ περιέχοντος τόνον διαϕορούμενος, ἰσχυρότερα γὰρ ἡ τῆς ἡλιακῶν ἀκτίνων ῥώμη καὶ διαρκεστέρα τοῦ πυρὸς· ὅταν δὲ ἡ ὕλη ἀποροῦσα μηκέτι ἀνάπτηται, τῆς οὐσίας ἀπολλυμένης, διαϕθείρεται.
εἰλικρινὴ τε καὶ πολλὴν υγρότητα, ὡς εἰ καὶ τούλαιον αὐτὴ προσάγης ἀθρόον, ἀνάγκη ψόφον καὶ υποτήλειαν τοῦ πυρὸς ἐνδεικνυμένου τὸ βίαιον. τοιοῦτον δὴ τι πάθος περὶ τὴν ἐμφύτευσιν νόει τὸ ρήγος. οὔτε γὰρ στειρόν, οὔτε γὰρ ἄνθρωπος ἀντρόφοιν τὸ θερμόν μαραίνειν, οὔθ' ὅταν ὑπὸ τοῦ πλῆθους αὐτῆς βαρυμομέναν, οὔθ' ὅταν ἄργωστήσαν

5 ὁμαλώς, βαρύνεις γινόμενα, ἀλλ' ὅταν ἴσχυος ὁ ἀποτείνηται ἄνθρωπος, κυβερνήτη τοῦ πυρὸς ἐνδεικνυμένον τὸ βίαιον. τοιοῦτον δὴ τι πάθος περὶ τὴν ἐμφύτευσιν νόει τὸ ρήγος. οὔτε γὰρ ἄνθρωπος ἀντρόφοιν τὸ βίαιον. τοιοῦτον δὴ τι πάθος περὶ τὴν ἐμφύτευσιν νόει τὸ ρήγος. εἰς τὸ κλονεῖσθαι τῷ σώματι συμβέβηκε, διπλῆς κᾀπαῦτος καὶ συνθέτου κινήσεως γενομένης, ὡς ἐπὶ τῶν τρεμόντων, ἕτερον δὲ τρόπον. ἐκεῖ μὲν γὰρ ἀσθενείᾳ τῆς κινούσης τὸ σῶμα δυνάμεως ἡ μικτὴ κίνησις ἐγίνετο, καθ' ὅσον ἂν ἐνδῷ τοῦ τόνου διαρροῦσα τὸ κόλον, ύπορρέοντος αὐτῷ τὸν μέρος [623 K. ] εἰς τὸ κάτω· νυνὶ δὲ τῆς ψυχικῆς τοῦ θερμοῦ κινήσεως ἰσχομένης βίᾳ, τὸ ρήγος ἀπαντᾷ. βούλεται μὲν γὰρ ἅτε μήτε τὴν οὐσίαν μήτε τὸν τόνον βεβλαμμένον, ἀποτείνηται τε καὶ πάντῃ τοῦ σώματος ψεύδομεν· κωλυόμενον δὲ καὶ βίᾳ συνωθούμενον εἰς τὸ βάθος, ἐπὶ τὴν ἰδίαν θάνατος, ἀθροῖσαν ἑαυτὸν καταφεύγει. μένειν δὲ ἐνταῦθα μὴ δυνάμενοι, ἀεικινήτῳ γὰρ οὐσίᾳ τὸ στῆναι θάνατος, ἀθροῖσαν ἑαυτὸν καταφεύγει. μένειν δὲ ἐνταῦθα μὴ δυνάμενοι, ἀεικινήτῳ γὰρ οὐσίᾳ τὸ στῆναι θάνατος, ἀθροῖσαν ἑαυτὸν καταφεύγει. μένειν δὲ ἐνταῦθα μὴ δυνάμενοι, ἀεικινήτῳ γὰρ οὐσίᾳ τὸ στῆναι θάνατος, ἀθροῖσαν ἑαυτὸν καταφεύγει.
διώσασθαι μὲν ταῦτα, καθαρὰς δὲ αὐτῷ τὰς ὁδοὺς ἀπεργάσασθαι σπεῦδον. προσκρούον δὲ
αὐτοῖς ἐπεσχεθή μὲν εἰς ἀνάγκης τῆς ροϊζώδους φορᾶς, ἐκλόνησε δὲ κατὰ τὴν ἐμπτωσιν ὅλον τὸ
σῶμα. τὰ τε γὰρ ἄλλα καὶ ἀτμῶδες νῦν γεγονός, ἐν τῷ προσκρούειν τοὺς ἐνισταμένους εἴσω πάλιν
ἀποπάλλεται, πληγῇ τι πάσχον ἑοικός· ἐπὶ δὲ τὴν ἄρχην ἀνέρχεται τὸ δεύτερον· ἐντεῦθεν δὲ
πάλιν ὅρμηθεν, ἑμπίπτει βιαιότερον, αὐθίς δ' ἀποπάλλεται καὶ κατὰ τήνδε τὴν ἐμπτωσιν·
[624 Κ.] καὶ τοῦτο πολλάκις ἐκ διαδοχῆς γίνεται, ἐφ' ὅσον μένει τὰ λυποῦντα. ὀδυνηρόν τε οὖν
ταῦτῃ τὸ πάθος, ἅτε τοῦ σώματος ταῖς πληγαῖς πονοῦντος, ἢ τε κίνησις ἀνωμάλως ἐπάγουσα κατ'
ἀμφοτέρας ταῖς κινήσεις τὸ ζῶον. ἐν μὲν γὰρ τῷ κατὰ φύσιν ἔχειν τὸ συγγενὲς ἡμῶν θερμὸν
ὀμαλέσι τε καὶ ἀκολούθοις ταῖς διεξόδοις ἐκέχρητο, καιρῷ καὶ μέτρῳ κινήσεως εἰς αὐτὸ
5 συννεύον, εἴτ' ἐξαπλούμενον· ἐν δὲ τῷ ῥιγοῦν οὔτε συννεύσεις οὔτ' ἐξαπλώσεις αἱ κινήσεις εἰσὶ,
δίκαιον δ' ἄν φαίης εἰσὼ μὲν ἰόν αὐτῷ, χρήσομαι δ' ὄνομασιν οὐκ ἐμοῖς, ἀλλ' ἀνδρῶν παλαιῶν,
καθάλλεσθαι τε καὶ συνωθεῖσθαι καὶ ἀναστέλλεσθαι καὶ συντρέχειν, ἐξω δὲ φερόμενον,
ἐκρήγνυσθαί τε καὶ ἐνσείσθαι καὶ ἐμπίπτειν καὶ ἐξάλλεσθαι. καὶ γὰρ αὖ καὶ ταῦτα παλαιῶν
ἀνδρῶν ὁνόματα, καλῶς ἀπανταία κείμενα, καὶ τὸ συμβαῖνον πάθος, ὡς ἐν μάλιστα, σαφῶς
10 ἐρμηνεύοντα. τὸ κλονεῖσθαι δὲ φημὶ πάντα τὰ ἐν τῷ σῶματι, καὶ τὸ σείεσθαι, καὶ τὸ βράττεσθαι,
καὶ πᾶσα ἡ κατὰ τὸ
ῥιγοῦν ἀνώμαλός τε καὶ ἄτακτος καὶ ἄβούλητος κίνησις ἐπὶ ταῖς ἀνωμαλοῖς τε καὶ σφοδραῖς καὶ
[625 K] βιαίοις ἐμπτώσεσι τῆς ἐμΦύτου θερμασίας ἀτμώδους γεγενημένης
ἐπιτελεῖται. διὰ τούτο ἐπὶ τοῖς ῥίγεσιν ἄναθερμαίνεται πλέον τὸ σῶμα ἢ ὅτε κατὰ φύσιν ἦχον
θερμὸν ἤν. ἐκχέονται δὲ καὶ ἰδρώτες. ὅταν γὰρ κατὰ πολλὰς ἐμπτώσεις διώσχεται ἀκωλύτως τὰ
λυποῦντα καὶ τελέως ἀναπνεύσῃ, διὰ τρεῖς αἰτίας ἀνάγκη τὸ σῶμα θερμανθῆναι, ὡς τε πολλάκις ἀποκλεισθὲν τὸ
θερμὸν τῆς ἐμπτώσεως ἀλλοτρίως κατὰ τὸ βάθος· ὅτε τε νῦν ἔξω πάν ἐτάθη
σφοδρῶς· καὶ τρίτον ὅτι ταῖς ἐμπτώσεσι καὶ πληγαῖς καὶ βιαίοις κινήσεσιν ἀνάπτεσθαι πέφυκεν ἢ
θερμασία. καὶ ξύλον μὲν ἢ λίθον παρατρίβων ἐϕάψεις ποτὲ πῦρ· τὸ δ’ ἐμΦυτὸν πνεῦμα, φύσει
θερμὸν ύπάρχον, ἢν σφοδρῶς τύχῃ κινηθὲν, ὡς πολῶ μάλλον εξαφθήσεται; ἀλλὰ τούτο κάπι τῶν
κατὰ φύσιν κινῆσεων ἐναργῶς ἔστιν ιδεῖν, ὡς δραμόντες ἀνθρώποι, καὶ διαπαλαισάντες, καὶ
τριψάμενοι, καὶ πως ἄλλως κινηθέντες ἐθερμάνθηκεν σφοδρῶς ἢν κατὰ τὴν τοιαύτην ἐκ τοῦ βάθους ἐπάνω
καὶ παρὰ πυρὶ ἐκπαιδεύσεται. πολλὰς δὴ καὶ κατὰ τὴν τοιαύτην ἐκ τοῦ βάθους ἐπάνω
θερμὸν ἀποχεῖ τι τῶν ὑγρῶν [626 K.] ἀθρόον, ὃ δὴ καλοῦμεν ἱδρῶτα. διὰ τοῦτο ἐπὶ ῥίγει ψυ-
γέντα μηκέτι ἀναθερμανθῆναι, πονηρόν· ἡττήθη γὰρ ἐν τῇ διαμάχῃ τὸ θερμὸν. ἡττᾶται δὲ ποτὲ
μὲν τῇ ρώμῃ τοῦ λυποῦντος αἰτίου κρατηθὲν, ποτὲ δ’ αὐτὸ τυχόνον ἀσθενέστερον. οὕτω γοῦν

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ἐἰρηταὶ κἀκεῖνο· “οἱ ἐκ ρίγεος ἀφωνίαι μὴ ἀναθερμαινόμεναι, κακὸν.” αὖθις δὲ τὰς διαθέσεις ἐϕ’ αἷς ὀλέθρια γίνεται ρίγη, διδάσκων ἐρεῖ· “ἐπ’ ὀμμάτων διαστροφῇ, πυρετῷ κοπιώδει, ρίγος ὀλέθριον.” τοῦτο μὲν δὴ τὸ ρίγος ἱσχυρὰς αἰτίας ἐγγον· ἐπεξ ἄλλα, ρίγος γνώρισμα. συνεισβάλλουσι γάρ τοῖς παροξυσμοῖς ρίγεσι σφοδροῖς, καὶ τὸν γε πυρετὸν τοῦτον [627 Κ. ὃς ἐν τοῖς οὐδὲνοι 

7. Τὸ δὲ νῦν εἶναι σκεπτέον εἰ δικαῖος ἀναφέρουσιν ἀπαντες σχεδὸν αἰτίω ψυχρῷ τὸ ρίγος. ὁτι μὲν γὰρ ψυχρῶν τὸ πάθος, ἐναργές· εἰ δὲ καὶ τὸ δρῶν αὐτὸ τοιοῦτον, ἀξίων μοι δοκεῖ σκέψεως εἶναι. τριταῖοι γοῦν ἀκριβοὶ, εἰπέρ τι καὶ ἄλλο, ρίγος γνώρισμα. συνεισβάλλουσι γάρ τοῖς παροξυσμοῖς ρίγεσι σφοδροῖς, καὶ τοῖς τόν γε πυρετὸν τοῦτον [627 Κ.] οὐκ ἂν τοῖς οὐδὲνοι 

10 μανόμενος ἐπὶ ψυχρῷ φαίη συνιστασθαί χυμῷ· καῦσος γάρ ἐστι τὸ γένει, τοσοῦτον ἀποδέων θατέρου καῦσοῦ τοῦ συνεχοῦς, ὅσον διαλείπει τὸ θερμόν τοῦ πυρετοῦ καὶ φλογῶδες καὶ περικαές. τὸ δὲ ἄπαυστον δίπος, ἥ τε τῆς ἐμψύξεως ἐπιθυμία, τὸ τ’ ἐμεῖν ἀκράτου χολῆς, καὶ ῥίγουσιν ἐν τριταίοις; πῶς οὖν ὅσον διαλείπει τὸ θερμὸν καῦσος γάρ, ἐστιν τοῖς γε ἐμεῖν ἀκράτου χολῆς, καὶ κριτικόν γε πυρετοῦ; πῶς δ’ ἐν καῦσοις πυρετοῖς τοῖς συνεχοῖς, εἰ μὴ διαλείποντες, ἀλλ’ ἂει καἰοντες ἐγκείνεται, ρίγος ἐπιγίνεται, καὶ κριτικόν γε πυρετοῦ; “ὅπο καῦσος γάρ,” φησιν, ἐξομένῳ, ρίγος ἐπιγενομένον, λύσις.” ἀλλὰ καὶ δριμὺ καὶ θερμὸν φάρμακον


ἐλκεῖ προσαχθὲν ὀδύνησε μὲν τὰ πρῶτα, φρίκην δ' αὖθις, εἰτ' ἐπ' αὐτῇ ρίγος ἐργάζεται, καί
pολλοὺς ἱσμεν ρηγόσαντάς τε καὶ πυρέξαντας ἐφ' ἐλκεσιν ἐρεθισθεῖσιν ὑπὸ δριμέων φαρμάκων.
アルバム καὶ φλεγμονῆς εἰς ἀπόστημα τρεπομένης ἀνάγκη ρίγος τε καὶ φρίκην συνεδρεύσαι. πολλῶν
δ' ἀν σε καὶ ἄλλων ἀνέμνησα διαθέσεων, ἐφ' ἂν ἐναργῶς ἐπὶ δριμεῖ μᾶλλον ἤ [628 K.] ψυχρῷ
χυμῷ συνίσταται ρίγος, εἰ μὴ τοῦ λόγου τὸ μῆκος ἐφευγόν. μὴ τοίνυν τῷ ψυχρῷ μόνοι βιαζό-
μενοι τὸ ρίγος ἀναφέρομεν, ἐπεὶ καὶ φοβερὸν ἄκουσμα καὶ θέαμα φρίκην τε καὶ ρίγος ἐργάζεται
ποτε. τοῦτο μὲν γε καὶ Πλάτων εὐγίνωσκεν, οὐ μόνον Ὅπποκράτης. διαλεγόμενος οὖν ὑπὲρ τὸν
ἐπὶ χολῆ ἐξανθής γινομένων νοσημάτων, ἐμνημόνευσε καὶ ρίγους. οθὲν ἄλλων τε πολλῶν χάριν
ἐπάρχεται μοι θαυμάζειν τῶν μετὰ ταῦτα γενομένων ιατρῶν, κἂν τοῖς περὶ τοῦ ρίγους λόγους οὐχ
ἡκίστα. πῶς γὰρ οὐ δεινόν, εἰ Πλάτων μὲν οὔκ ἂν ιατρὸς οὐκ ἠγνόησεν, ὅτι καὶ διὰ χολῆν γίνε-
tαι ποτε ρίγος, ἐξευρεῖν τε τὴν αἰτίαν ἐσπούδασεν, οἱ δὲ τοσοῦτον ἀποδέουσι τοῦτο πάντη
γινόσκειν, ὅστ' οὐδ' ὅτι καὶ διὰ χολῆν καὶ διὰ δριμῶν ὄντιναν χυμὸν ρίγος γίνεται, ἐπίστανται;
ἀλλ' ἀπορον ἐξευρεῖν τὴν αἰτίαν, ὅπως ἐπὶ δριμεῖ τε καὶ θερμῷ χυμῷ συνίσταται πάθος ψυχρόν.
ἰσως μὲν οὔκ ἀπορον, εἴη μηδὲ Πλάτων ἠπόρει· πολὺ δ' οὖν ἦν ἄμεινον, εἴπερ ὅτι ἐστὶν
ἀπορατομένῃ πράγμα ψαινομένον ἐναργῶς, ἀλλὰ τῆς αἰτίας ὁμολογῆσαι.
τὴν [629 Κ.] ἀγνοιαν. τὸ δὲ ἀναριθνοῖ τὸ φαινόμενον, ὁμοιὸν ἐστι τῷ μηδὲ ὑμᾶς ὡμολογεῖν, ὁτι μὴ γινώσκομεν ὅπως ὀρθῶν. οὐκοῦν ὅτι μὲν οὐδὲν ἦττον ἐπὶ δριμῇ τε καὶ θερμῷ χυμῷ γένοιτ' ἂν ρίγος, ὡς ἐπὶ ψυχρῷ τε καὶ πιγνυντι, παντός μᾶλλον ἀληθές. ἐπὶ σκοπεῖν, εἰ ἀπλῶς τὸ ψυχρὸν ἢ τὸ δριμὸ πλεοναζέειν χρῆ εἰς τὸ δυνηθῆναι ρίγος ἐργάσασθαι. ἐφεξῆς δ' ἐκεῖνο

5 διορισώμεθα, πολλοῖς ἀγνοούμενοι, οὔτε γὰρ ἀπλῶς ψυχρῷ χυμῷ πλεονάζοντος, οὐθ' ἀπλῶς ὁμολογεῖν ὅτι μὴ γινώσκομεν ὅπως ὁρῶμεν. οὐκοῦν ὅτι μὲν οὐδὲν ἧττον ἐπὶ δριμῇ καὶ θερμῷ γένοιτ' ῥίγος,

ὡς ἐπὶ ψυχρῷ τε καὶ πηγνύντι, παντὸς μᾶλλον ἀληθές. εἶτα σκοπεῖν, εἰ ἁπλῶς τὸ ψυχρὸν ἢ τὸ δριμὸ πλεονάζειν χρῆ εἰς τὸ δυνηθῆναι ρίγος ἐργάσασθαι. ἐϕεξῆς δ' ἐκεῖνο

διορισώμεθα, πολλοῖς ἀγνοούμενοι, οὔτε γὰρ ἀπλῶς ψυχρῷ χυμῷ πλεονάζοντος, οὐθ' ἀπλῶς ἀρμός γίνεται ρίγος. ἐπὶ μὲν τοι τοῦ ψυχροῦ σαφὸς ἐμπροσθέν ἐδείξα, τὸ οἰδηματῶδες ἅπαν καὶ τὸ ναρκῶδες καὶ τὸ παράλυτον καὶ τὸ ὑδαρῶδες ὑπομνήσας· ἐπὶ δὲ τοῦ θερμοῦ τε καὶ ὁριόμενον ἐπὶ ἐκεῖνο σοι· κακόχυμοι γὰρ ἂν ἰκτερικοὶ τε καὶ πυρέττοντες ὀξέως καὶ καυσοῦντες ὑπαρχεῖν δ' αὐτῶν ἀναγκαῖον ἑκατέρῳ τρόπον ἴδιον. εἴη δ' ἂν ὁ τρόπος, οὐ γὰρ ἀποκνητέον ἐπὶ πᾶν τῷ λόγῳ τῆς ἀληθείας ἐρωσιν, ἢ τοῦ τοῦ χυμοῦ ποιότης, ἤ τις τόπος τοῦ σώματος ἐν ᾧ χρὴ τοῦτον ἀθροίζεσθαι. γένοιτο δ' ἂν καὶ περὶ τὸ μένειν ἢ κινεῖσθαι καὶ περὶ τοῦ τρόπον τῆς κινήσεως οὐ μικρὰ διαϕορά. εἰς ταύτας οὖν αὐτὰς καὶ Πλάτων ἀϕορῶν ἔλεγε·

"ταύτην δὴ τὴν δύναμιν ἐχουσῶν ἰνῶν ἐν αἵματι, χολὴ ϕύσει παλαιὸν ἀἷμα γεγονυῖα, καὶ πάλιν ἐκ τῶν σαρκῶν εἰς τοῦτο τετηκυῖα, θερμὴ καὶ ὑγρὰ κατ' ὀλίγον..."
τὸ πρῶτον ἐμπίπτουσα, πήγνυται διὰ τὴν τῶν ἰνῶν δύναμιν· πηγνυμένη δὲ καὶ βίᾳ κατα-
βενυμένη κειμόνα καὶ τρόμον ἐντὸς παρέχει, πλέον δ' ἐπιρρέουσα, τῇ παρ' αὐτῆς θερμότητι
κρατήσασα τὰς ἰνας, εἰς ἄταξιαν δήσασα, διέσωσεν." ἐν τούτοις ὁ Πλάτων ἄπαντ' ἐπειραθῆ
dιελθεῖν, ὡσα χρὴ γινόσκειν ἐν ἐπισκοπῆι γένεσι πάθους. τὸ τε γὰρ εἶδος τοῦ χυμοῦ εἶπε, χολὴν
ὄνομάσας αὐτόν· ἐδήλωσε δὲ καὶ τὴν ποιότητα, θερμὴν καὶ υγρὴν εἰπὼν· ὅθεν τε ἡ γένεσις ἔστι
tῇ τοιαύτῃ χολῇ, τηκομένης γὰρ ἐφή γίνεσθαι σαρκὸς αὐτῆς. ἀλλὰ καὶ τὸν τόπον εἰς ὄν ῥεῖ
προσέθηκεν, ἐκ τοῦ δηλοῦσθαι πήγνυσθαι τὴν ἐπιρρέουσαν χολὴν ὑπὸ τῶν περιεχομένων
[631 Κ.] ἵνα κατὰ τὸ ἰμα. τούτῳ δὲ τῷ λόγῳ συνήπται καὶ ἡ τοῦ πάθους γένεσις, ἐν ὃς
κειμόνα καὶ τρόμον ἐφή γίνεσθαι, χολὸν μὲν ὄνομάσας τὴν ἐν τοῖς ρίγεσι πᾶσας, ἐν ὃς
κειμόνα και τρόμον ἐφή γίνεσθαι, χειμῶνα καὶ τρόμον ἐφή γίνεσθαι, χειμῶνα μὲν ὄνομάσας τὴν ἐν
toῖς ῥίγεσιν αἰσθήσει τῆς ψύξεως, ὁσα τε ἡ γένεσις ἐστὶ
τῇ τοιαύτῃ χολῇ
κατὰ τὸ ῥῖγος. ὅταν οὖν, φησι, νικήσῃ τὰς ἰνας ἐπιρρέουσα πλείως, ἐξεθέρμανε τὸ σῶμα
πρὸς τὴν ἑαυτῆς δύναμιν ἀντιμεταβάλλουσα τὰς ἰνας, ὡς αὐτὴ πρότερον ὑπ' ἐκείνων
μετεβάλλει. περὶ μὲν οὖν τῆς ἀληθείας ὣς ἑπεν ο Πλάτων οὐ πρόκειται νῦν ἐπισκοπεῖσθαι,
μελλόντως γε ἤμων ἐν ἐτέρως υπομνήμασιν εξηγεῖσθαι τε ἰμα καὶ κρίνειν ἃ κατὰ τὸν Τίμαιον

εἶπεν· δι Γ οὐδὲν παρέλιπεν ὅν ἔχρην λέγεσθαι τοῖς ἀποφαινομένοις περὶ ρίγους, τούτο ἦδη
πέφηνεν ἐκ τῆς ρήσεως αὐτοῦ. καὶ γὰρ τὸν χυμὸν εἶπεν ὑψ' οὗ γίνεται τὸ ρίγος, καὶ τὸν τόπον εἰς
δόθηκεν οὐδὲν τῶν καύσων τε καὶ τριταίων πυρετῶν κινουμένης τῆς ἐκ τῆς ἀγγείων, ἀλλὰ διὰ τῶν σαρκῶν, ήτοι τῷ γεννηθῆναι πλείονα, τούτον τὸν χυμὸν ἐν αὐταῖς, ἢ τῷ δι'
αὐτὸν ὑπὸ τῆς ψύξεως ἐκκαθαίρεσθαι. κατὰ τούτῳ γὰρ αὐτὸ μόνον καὶ οἱ καύσων πυρετοί τῶν
τριταίων διαφέρουσιν, τῶν μὲν (γὰρ) καύσων ἐν τοῖς ἀγγείοις ἐχόντων τῆν χολήν, τῶν δὲ τριταίων
ἐξω τῶν ἀγγείων διὰ τῶν αἰσθητικῶν σωμάτων φερομένην. ἐν γὰρ τῇ δι' αὐτῶν φορᾷ, ὑποστὰ
τῇ δριμύτητι, τὴν ὀδύνην ἐργάζεται. συμβαίνει τοιγαροῦν ἐν τῷ δύο τινά γίνεσθαι, συννεύειν
μὲν εἰς τὸ βάθος τοῦ σώματος τὸ ἁίμα, καὶ διὰ τοῦτο καταψύχεσθαι τάκτως αὐτοῦ· τὰ μόρια δὲ
αὐτὰ τοῦ σώματος, ἐν οἷς ἡ χολή, διὰ τῆς ἀποκριτικῆς τῶν ἀλλοτρίων [633 Κ.] δυνάμεως ὀθείν

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αὐτὴν ἕκαστον ἐξ ἑαυτοῦ πρὸς τὸ πλησιάζον, ἀχρις ἄν έξ ἀπάντων ἔλαυνομένη, δι' ιδρώτων ἢ δι' ἐμέτων ἢ κακοχυμίας μεστης ἢ εἰς ἡλιον θερινὸν ἢ βαλανεῖον ἀφικομένος, ἢ γυμναζομένος συμπίπτει. φρικώδεις οὖν αὐτίκα γίνονται, καὶ τινὲς αὐτῶν καὶ ρηγοῦσι, χρὴ γὰρ οὐ μόνον αἶτιον εἶναι τι δακνόδες ἐν ἡμῖν, ἀλλὰ καὶ σφοδρῶς κινούμενον, εἰ μέλλει ῥίγος ἐργάσασθαι. καὶ κοινὸ τοῦτο συμβέβηκεν ἀμφότερο τῷ γένει τῶν αἰτίων, ὅσα τε ψυχρὰ καὶ ὅσα θερμὰ ταῖς δυνάμεσιν ἐστι, τὸ κινεῖν ῥυμηρῶς τὸ σῶμα. καὶ διὰ τοῦτο τοῖς τεταρταῖοις πυρετοῖς καὶ τοῖς τριταῖοις συνεισβάλλει ῥίγος, καὶ τοι ὑπὸ χυμῶν ἐναντίων τῇ δυνάμει συνισταμένοις, ψυχρὸς μὲν γὰρ ὁ μελαγχολικὸς χυμὸς, θερμὸς δὲ ὁ τῆς ξανθῆς χολῆς. οὐχ ἁπλῶς δὲ πλεονάζειν αὐτοὺς ἐργάσασθαι ἢ ϕρίκην ἢ ῥίγος, ἀλλὰ καὶ διὰ τῶν αἰσθητικῶν σωμάτων φέρεσθαι κινούμενος σφοδρότερον. ἐν ὑπὸ δὲ συνενεύει mέν εἰς τὸ βάθος τοῦ σώματος καὶ τὰ σπλάγχνα τὸ αἷμα, καὶ σὺν [634 Κ.] αὐτῷ ὑπὸ χυμῶν καὶ ἡ θερμασία, ψυχρά τε καὶ ἀναιμά τὴν ἔναμι καὶ τὸ δέρμα καὶ σκελῶν καὶ χειρῶν τὰ τελευταῖα, διότι πλειστῶν ἔφην χρῆνα μέλλοντας ϕερεσθαι P || 10 ἐν ὑπὸ δὲ συνενεύει τὴν ἔμφυτον θερμασίαν, ἢ πνιγεῖσαν πρὸς τοῦκτος, ἢ ἐκνικηθεῖσαι ψυχρὸν αἰτίων, ἀποθνήσκει τὸ ὑπὸ ἑαυτὴν ἐν δὲ συνενεύῃ μὲν εἰς
τὸ βάθος, ἀντίσχη δὲ τοῖς βιασμένοις αἵτις ἀθροισθεὶσα, κατὰ τοῦτο καθάπερ ὄργανον γίνεται
tῆς τῶν ἀλλοτρίων ἀποκριτικῆς δυνάμεως τῆς ἐν ᾧ ἀπαντᾷ μορίῳ τοῦ σώματος ὑπαρχούσης.

πεφυκυία γὰρ ἤδη καὶ αὕτη καθ’ ἑαυτὴν ἐκκρίνει τὰ λυποῦντα, πολλάκις μὲν οὖν διὰ τοῦ δέρματος ἐκβάλλει τὰ λυποῦντα,
pολλάκις δὲ δὴ ἐμέτων καὶ τῆς κάτω γαστρός. οὐ μόνον δὲ ἐπί τῆς ξανθῆς ἢ μελαίνης χολῆς
ῥῖγος, ἀλλὰ καὶ ἐπὶ τὸ ψυχρὸ πάνυ φλέγματι φιλεῖ γίνεσθαι· καὶ αὐτὴ ἐπὶ τῆς ψυχρῆς τῆς ὑπαρχούσης

5 ἐν ᾧ ἐν ἑαυτῇ γένηται. πολλάκις μὲν οὖν διὰ τοῦ δέρματος ἐκβάλλει τὰ λυποῦντα, πολλάκις δὲ δὴ ἐμέτων καὶ τῆς κάτω γαστρός. οὐ μόνον δὲ ἐπί τῆς ξανθῆς ἢ μελαίνης χολῆς ῥῖγος, ἀλλὰ καὶ ἐπὶ τὸ ψυχρὸ πάνυ φλέγματι φιλεῖ γίνεσθαι· καὶ αὐτὴ ἐπὶ τῆς ψυχρῆς τῆς ὑπαρχούσης

10 ἐνίοτε πλείσθην ἐφεξῆς· ἡσυχαζόντων δὲ καὶ μηδόλως κινουμένων, ἡσυχάζει καὶ αὐτὸ· κινηθεῖσι δὲ εὐθέως ἐπετείη τὰ μέτρα τῆς κινήσεως, ἐπὶ μὲν ταῖς ἰσχυροτέραις καὶ συντόνοις κινήσεσι σφοδρότερον, ἐπὶ δὲ ταῖς ἀσθενέσι βραχύτερον. εἶδον τὸν τοιούτῳ ῥῖγος ἀργότατα διαιτωμέναι καὶ λουτροῖς χρωμέναις.

15 πλείσθην φοινίκων βαλάνους πολλὰς ἀπαλὰς καὶ νέας, ἐπὶ τοῖς ἰσχυροτέραις καὶ συντόνοις κινήσεσι σφοδρότερον, ἐπὶ δὲ ταῖς ἀσθενέσι βραχύτερον. εἶδον τὸν τοιούτῳ ῥῖγος ἀργότατα διαιτωμέναι καὶ λουτροῖς χρωμέναις.
οὐκ ἀκριβῶς αἱ γε πλείους αὐτῶν πέπειροι. συνέβη δὲ αὐτῷ τὸ γε πρῶτον ἀπὸ σφοδρᾶς ἄρξασθαι
φρίκης ἐπὶ γυμνασίῳ τε καὶ λουτρῷ, δι' ἦν καὶ προσδοκήσας πυρέξειν, κατεκλίθη τε καὶ
σκεπάσας ἑαυτὸν ἰματίοις ἔμεινεν ἆσυχος. ὡς δὲ διελθοῦσα ὁλὴ τῆς νυκτὸς ἀπόρετος ἦν,
ἐξανίστατο μὲν ἐξόθεν ἐπὶ τὰ συνήθη, φρικώδης δὲ ἐν τούτῳ γιγνόμενος αὕτης κατακλίθεις
ησύχαζεν [636 Κ. ἃρχι τῆς κατὰ τὸ βαλανεῖον ἀραγι. ἐξαναστάντι δὲ αὐτῷ πάλιν ὡς ἐπὶ τὸ
λουτρὸν ἡ φρίκη μείζον εγένετο, καὶ ἦν τὸ σύμπτωμα ρίγος καὶ ἢδη μικρόν. τότ' οὖν ἡγεσά-
μενος ἐκ παντὸς τρόπου πυρέξειν, ἐπὶ καὶ μᾶλλον ἐφ' ἠσυχίας αὐτῶν συνέσχεν. ἐπεὶ δὲ καὶ διὰ
τῆς ἱμέρας ὀλίκας καὶ διὰ τῆς ἐπιούσις νυκτὸς ἀποπειρώμενος ἔξευθεν ἑαυτὸν ἐπὶ μὲν ταῖς
μετρίαις κινήσει φρίττοντα, ρίγοῦντα δὲ, εἰ ποτε μειζόνως κινηθείς, συμβούλους ἡμῖν ἐχρήτο
περὶ τὸν ποιητέων. ἀναμνησθεὶς οὖν ἐγὼ κατὰ τὴν ἡμετέραν ἡμέτεραν 'Ασίαν γυναίκι
toιοῦτον τι
συμβεβηκός, ἀδεέστερόν τε τὸν ἑταῖρον ἐποίησα καὶ προετρεψάμην χρῆσθαι τοῖς θερμαίνουσί
te καὶ τέμνουσι πάχος χυμῶν ἐδέσμασί τε καὶ πόμασι καὶ φαρμάκοις. ἐκεῖνος τε οὖν οὕτω
κατέστη, καὶ μετὰ ταῦτα τοῖς ὁμοίως πάχοις ἐν ἀρχῇ μὲν ἐδώκα τὸ διὰ τῶν τριῶν πεπέρεων
φάρμακον, ἐφεξῆς δὲ τὸ διὰ τῆς καλαμίνθης ἠμέτερον, ἐτα τὸ δι’ ὁποῖο Κυρηναϊκοῦ καὶ καστο-
ρίου συντιθέμενον, δὲ καὶ ταῖς τεταρταϊκαῖς περιόδοις ἐστὶν ὑφελιμώτατον, καὶ μάλισθ’ ὅταν

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ὑπὸ ρίγους σφοδροῦ χειμάζονται. μὴ θαυμάσῃς δὲ παρὰ τοῖς παλαιοῖς ιατροῖς εὐρών γεγραμμένον ἐπὶ τοῖς ἀνευ κρύους ρίγεσιν εξ αὐτῆς τῆς ἐν τῷ σώματι διαθέσεως όρμωμένοις εξ ἀνάγκης ἐπεσθαί πυρετόν. οὔτε γάρ λουτροῖς τοσούτοις ἐπὶ τροφαῖς οὔτ’ ἁργῷ β⊇ χρωμένοις τοῖς παλαιοῖς οὐδὲν τοιούτον συνέπιπτε· νυνὶ δ’ ἁμφω ταῦτα πλεονάσαντα καὶ τουτὶ τὸ καλού-
μενον ἀνεκθέρμαντον ρίγος ἐργάζεται, νέον τι καὶ ξένον σύμπτωμα, διὰ τὸ νέον τῆς διαίτης· ἀπασὶ τε τοῖς οὕτω παθοῦσιν ἦτοι τάσεως ἤ βάρους αἴσθησις γίνεται κατὰ τὸ δεξιὸν υποχόνδριον, ἐνθά κείται τὸ ἦπαρ, ἐμϕράττομένων δηλονότι τῶν κατ’ αὐτὸ φλεβῶν ὑπὸ τοῦ πάχους τῶν χυμῶν. ὥσπερ δὲ βάρους καὶ τάσεως τῆς κατὰ τὸ σπλάγχνον οἱ πάσχοντες ἴσχους ἐξ αὐτῆς τῆς ἐν τῷ σώματι διαθέσεως ὁρμωμένοις αἴσθησιν, οὔτω καὶ τοῦ ρίγους αἰσθάνονται διαφέροντος τοῦ ἐν τεταρταίοις τε καὶ τριταίοις πυρετοῖς. ἐν μὲν γὰρ τοῖς τεταρταίοις τοιούτῳ γίνεσθαι φασιν αὐτοῖς τὸ ρίγος, οἶνον περ ὅταν ὀδοπορήσωσι διὰ κρύους ἰσχυροῦ. κατὰ δὲ τοὺς τριταίοις ωσαύτως δὲ τοὺς καύσους πυρετοὺς, ως ὑπὸ βελονῶν ὀξέων καὶ λεπτῶν κεντούμενοι τὰς σάρκας αἰσθάνονται [638 κ.] πολλάκις.

ἐγὼ μὲν οὖν καὶ αὐτὸς ἄπειρός εἰμι τοῦ τῶν τεταρταίων ῥίγους, ἔμπειρος δὲ θατέρου, τετράκις μὲν ἐν νεότητι πυρέξας τριταῖον πυρετὸν, καῦσον δὲ ἅπαξ. ὥστε ἔχω μαρτυρεῖν τῇ λελεγμένῃ τοῦ ῥίγους ποιότητι κατὰ τοιαῦτα παθήματα. τὸ δὲ τῶν τεταρταίων οἱ πειραθέντες ἄχρι καὶ τοῦ ρίγους ποιότητι κατὰ τοιαῦτα παθήματα. τὸ δὲ τῶν τεταρταίων οἱ πειραθέντες ἄχρι καὶ

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τῶν ὀστῶν φασὶ διήκειν, ὅταν ἄφωνον ἐμοιον ὑπάρχον τοῖς ἑκ τῶν περιέχων ἰσχυρῶς
ψυχροῖς γιγνομένοις ρίγεσιν. ἀλλὰ καὶ τοῦτ' ἔχουμεν προσθεῖναι tritaios te kai kaúsois
πυρετοῖς, οὐχ ὑπάρχον τοῖς τεταρταῖς και γὰρ διψῶσιν οἱ πλείστοι και θερμασίας αἰσθάνονται
κατά τὸ βάθος ἐν αὐτῷ τοῦ ρίγους τῷ χρόνῳ, ὃν οὐδέτερον ὑπάρχει τοῖς ἐν τεταρταῖοι πυρετοῖς
ρίγουσιν.

8. Ἕπει δὲ καὶ περὶ ρίγους αὐτάρκως εἰρηταί, λείποι' ἄν ἔτι καὶ περὶ σπασμοῦ διελθεῖν.

ἔσται δὲ οὔτε μακρὸς οὔτε ἄσαφής ὁ λόγος, εἰτίς ὃν ἄχρι δεῦρο διήλθον εἰ θερμασίας.

ἀρξομαι δὲ καὶ νῦν ἀπὸ τῆς ἀναμνήσεως ὧν ἐν τοῖς περὶ μυῶν κινήσεως ἐδείξα. πασῶν [639 θ.]

γὰρ τῶν καθ' ὁμοίον κινήσεως ἐπιτελούμενον διὰ τῶν μυῶν, ὅταν ἐπὶ τὰς ἑαυτῶν κεϕαλάς

ἀνελκομένους συνεπιπάσσωνται τῶν μορίων ἐκαστον εἰς ὁ γε καταπεφύκασιν, ἐπειδὴ ἡ γεννηταί τι

πάθος εἰς τάσιν αὐτοῦς ἄγον, ἀκολουθεῖ τούτῳ κίνησις, ὁμοία μὲν τῇ καθ' ὁμοίον, ἀβούλητος δὲ,

καὶ καλεῖται τὸ πάθος σπασμὸς. αὐτὸ μὲν γὰρ τὸ τείνεσθαι καὶ σπᾶσθαι πρὸς τὴν ἑαυτῆν ἀρχὴν

τὸν μῦν, ὥσπερ γε καὶ τὸ συνεπιπάσσωσθαι πρὸς αὐτοῦν ἐκεῖνο σῶματος τὸ μορίον εἰς ὁ τὴν

ἔμψυτιν ἐχεῖ, κοινὸν της θ' ὑγιαίνουσιν ἔστι καὶ της σπασμοῦ: τὸ δὲ ἀκούσιον ὑπάρχειν τοῖς

παρὰ φύσιν ἐχουσιν, οὐχ ὑπάρχον τοῖς ὑγιαίνουσιν. ἔαν οὖν εὑρομεν ὑπὸ πόσων αἰτίων τείνεται

τὰ νευρώδη σώματα, πέρας ἐν ἡ τῇ καταπεφύκασιν, κοινὸν τοῖς θ' ὑγιαίνουσι καὶ τοῖς σπωμένοις: τὸ δὲ ἀκούσιον ὑπάρχειν τοῖς

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τοῦ σώματος ἰδεῖν χορδῶν νευροδέστερον, ὡς ὀρθομεν ὅσημέραι κατά τε τὰς λύρας καὶ
κιθάρας ὑπὸ τῶν τεχνιτῶν ἐπειδὰν χρῆσθαι μέλλωσι τοῖς οργάνοις, ἀνιεμένας δὲ, ὅταν παυσάμενοι κατατίθενται. ῥήγνυται γὰρ ἐν ταῖς περιέχοντος [640 K] ἁμετροτέραις
kράσει, κατὰ μὲν τὰς ύψικες καὶ νοτίους διαβραχέομεναι, κατὰ δὲ τὰς ξηρὰς τε καὶ βορείους
ἰσχυρῶς ἐξηραίνομεναι. διὰ τοῦτο οὖν ἀνιάσιν αὐτάς κατατιθέμενοι, καὶ μάλισθ' ὅταν ἦ τι
περιέχον, ὅποιον εἰρήτα τρήγνυται γὰρ ἐκατέρως τεινόμεναι. νόει δὴ μοι καὶ τὰ νεύρα καὶ τοὺς
tένοντας ἐν τοῖς τῶν ζώων σώμασιν ἦτοι διατεινομένους ὑπὸ περιττῆς υγρότητος, ἢ ἐξηραίνο-
mένους ὑπὸ τῶν ἐξηραίνοντων αἰτίων, εἰς τοσαὐτὴν ἀγεσθαι τάσιν, ἐν ἦ τοῖς ὑγιαίνουσιν ἢ καθ'
όρμῃ ἐγίνετο κίνησις· ἐννόει δὲ καὶ όσον ἐνδέχεται τι τῶν ἐν τῷ σώματι μορίοι την ἀπὸ
διά φλεγμονὴν ἢ δι' ἀλλην τινά αὐτίας ἰσχυρῶς παθον, ἐαυτὸν συνεπισπᾶσθαι τὰ συνεχὴ νεύρα. νοήσας γάρ
tαῦτας πάσας τὰς διαθέσεις, εὐρήσεις εὗρ' αἵς γίνεται σπασμός. αἱ γὰρ φλεγμοναι τῶν νευρωδῶν
mορίων, καὶ μάλισθ' ὅταν ἐπὶ τῆς ἀρχῆς τῶν νεύρων ἢ καὶ πλησίον αὐτῆς γεννῶνται, τείνουσιν
ἐπισπώμεναι τὰ συνεχὴ νεύρα, καθάπερ οἱ τεχνῖται τὰς χορδὰς· εἰ δὲ ὑπὸ πλήθους χυμῶν
διαφραγμένα τὰ νευρώδη σώματα τείνοιτο, [641 K] παραπλήσιον ἐν τῷ ὀνόματι γίνεται
ἵ οί δι' ἀλλην τινά αὐτίας ἰσχυρῶς παθον, ἐαυτὸν συνεπισπᾶσθαι τὰ συνεχὴ νεύρα. νοήσας γάρ
tαῦτας πάσας τὰς διαθέσεις, εὐρήσεις εὗρ' αἵς γίνεται σπασμός. αἱ γὰρ φλεγμοναι τῶν νευρωδῶν

1 ἰδεῖν V (ἰδεῖν Ald.: εὑρεῖν] Kühn || 3 παυσάμενοι] παυ., μοι. in textu υ
κατατίθενται deest in V*, in textu γ' γάρ V; δὲ ὅταν τούτο τοὺς περιέχοντος] ταῖς ... ποισ.ος V*, in textu v || 4 καὶ
νοτίους desunt in V*, in textu v || 12 γένωνται V || 13 ἐπισπώμεναι] ἐπισπώμενοι v Ald. || 14
diaphragnetα] διαβραχέντα V || 15 τού τοῦ περιέχοντος – p. 99,2 οἱ σπασμοὶ γίνονται non legere potui in V*, in textu o
|| 15 post ἐμπαλιν δὲ ἐπὶ τοῖς ἐν τοῖς e
κακοήθεσι καύσοις καὶ ταῖς ἱσχυραῖς ψυχικές ψυχαίς, εἰς τὴν ἱσχυρὰν καύσον οὐκ ἐπετείη· ὡς γὰρ οἱ πλησιάζοντες ἱμάντες πυρὶ ξηραινοῦνται καὶ καύσοις τοῖς κτίσμασι τοῖς κτίσμασιν, ἵνα καὶ ταῖς ἱσχυραῖς ψυχικές ψυχαίς, εἰς τὴν ἱσχυρὰν καύσον οὐκ ἐπετείη· ὡς γὰρ οἱ πλησιάζοντες ἱμάντες πυρὶ ξηραινοῦνται καὶ καύσοις τοῖς κτίσμασι τοῖς κτίσμασιν.

5 ἀρχής τῶν νεύρων ἐπετείη τὸ σύμπτωμα. γινώσκεις δὲ ἡδί, ὡς πάσιν ὡμολόγησαν τοῦ πάθους τοῦτο οἱ πλησιάζόντες ἱμάντες πυρὶ ξηραινόμενοι καύσοις τοῖς κτίσμασι τοῖς κτίσμασιν.

10 ὁσοὶ δὲ διὰ πλήθος ἡ φλεγμονὴν [642 K.] γίνονται σπασμοὶ, τούτῳς ἱάσῃ, τὸ μὲν πλῆθος κενῶν, τὴν ἱσχυρὰν καύσον οὐκ ἐπετείη· ὡς γὰρ οἱ πλησιάζόντες ἱμάντες πυρὶ ξηραινοῦνται καύσοις τοῖς κτίσμασι τοῖς κτίσμασιν.
Every sensible and rigorous theory of language shows that a perfect translation is an impossible dream. In spite of this, people translate. It is like the paradox of Achilles and the turtle. Theoretically speaking, Achilles should never reach the turtle. But in reality, he does. No rigorous philosophical approach to that paradox can underestimate the fact that, not just Achilles, but any one of us, could beat a turtle at the Olympic Games. (U. Eco, 2001, p. ix)

**Introduction**

1. Since Praxagoras, the son of Nicarchus, who was very accomplished in other aspects of medicine and truly intuitive in his theories on nature, does not seem to me to understand correctly pulsation, palpitation, spam and tremor, thinking all of them to be affections of the arteries, only different from each other in magnitude, for this reason, it is now my intention to treat all these topics together in the following treatise, not so that I refute Praxagoras in those arguments he is wrong – for his student Herophilus did this well enough – but so that I add what is missing in those theories he wrote correctly. Concerning the pulse, its nature and its origin, this has been explained in my study “On the Pulse” and it will be mentioned here as far as it is useful for the present discussion; whereas I shall explain the other topics in the following treatise, starting from this point.

2. Perceptible motions in the bodies of animals, when they are healthy, appear to be of two kinds: *(a)* those due to impulse or will – or however those who are clever at this matter, but are careless of knowledge of the facts themselves, want to name them – which happen through the nerves and muscles and physicians used to call voluntary functions; *(b)* the other motions

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1 Following Kühn’s text, who in turn refers to Chartier’s 1679 edition, I divided the treatise in eight chapters; moreover, I added subheadings to the different sections of the text in the English translation.

2 Here I translate γράμμα just as σύγγραμμα, which discusses text from a specific thematic perspective or addresses a problem by examining a number of texts; thus, treatise. Cf. D. Manetti in Brill’s Companion to Ancient Scholarship (2015), p. 1153–1164.
acting in the body of the animals are those due to arteries and the heart, which they call vital. There is a third kind of motion in the veins, not perceptible, concerning which I do not need to say anything at the moment. But the motion that occurs through the muscles and the nerves, by which we move hands and legs, appears in sick people with tremors, spasms, rigors and sometimes palpitations. For all such affections are discordant motions of the same organs, through which, when they are healthy, the voluntary motions are accomplished.

**Tremor Is Caused by Weakness of the Capacity**

3. Tremor, then, happens because of a weakness of the capacity that supports and moves the body. For, I presume, the body parts of animals, being so heavy and by nature prone to be carried downwards, do not move everywhere by themselves, but the capacity, sent out of the source through the nerves to the muscles, is like the carriage or the wings of the movement. Whenever they lose this capacity completely, they lose it because they are paralyzed, they are carried down and fall downwards, like a bird that has shed all its feathers; whence, in those body parts such affected, no motion is left. On the other hand, if any capacity of motion should be left over, but little and weak, so that it neither carries adequately, nor lifts up the parts of the body, nor is it able to bear them, just as they were a burden, the part of the body in that disposition would necessarily be seen trembling. Indeed, motions exceeding the capacity, becoming forcibly violent, are tremulous. I believe that you have often seen someone lifting a heavy burden, and then trying to walk against this force, he trembles in the legs. Likewise <whenever a man is afraid>, if he wants either to do something with his hands or to walk, his hands will tremble when he attempts to do something with them, and his legs will tremble when he tries to walk. Fear reduces in fact the strength of the capacity no less <than other things>. Also if once the same strength drops and becomes weak, everything turns into a burden, even if it is altogether
very light. Therefore, even the body of an animal that was very light before weighs the strength down as a heavy load. In like manner, old men are often tremulous from weakness, and the movements occurs with tremors in all those in whom the strength of the body is worn out by disease. Indeed, the capacity which moves and lifts the body parts in all those people in such disposition, having now become weak, cannot lift longer what it naturally did before, just as it sinks down in the movement. Wherever the whole natural tone is deficient, there the bodies, lacking the power that lifts them, are carried downwards because of their own weight and remain there, just as in those paralyzed, if the strength has lost completely all the capacity of motion. This capacity, as much as it is left, attempts to hold it again, but, because of the weakness, it is not able to as much as it wants. And yet it lifts up a little, but for the most part it is in need of the strength, leaving in this way the movement incomplete and curtailed. Again, then, it leaves the bodies to be carried downwards. When this happens continuously, and the movement downwards always expects the motion upwards and, likewise the motion upwards follows once more, the whole movement becomes twofold and composite, with the body parts always changing their places. The affection is named tremor if the bodies move downwards because of their own weight and a movement goes upwards once again through the motion capacity.

**Tremor and Palpitation Distinguished by the Movements Involved**

4. However, perhaps one might say, even palpitation is an involuntary and constrained motion just like tremor, the palpitating parts being lifted up and brought down. How, then, will tremor possibly be distinguished from palpitation? Up to now, they do not appear to differ from each other, yet they are different, for I say that in palpitating parts neither the affected place, nor the cause, nor the symptom is the same. Certainly, no one who does not choose to move his limb trembles. However, palpitating parts palpitate whether if they happen to be at rest or if you do
not initiate any motion in them. And many are deceived here, because they see trembling heads in some people having, seemingly, motionless hands and outstretched legs, nevertheless, they tremble just as much. I should teach them this theory, which is not mentioned now for the first time by me, but it is in many of the ancients: they say that not only what seems to move actually moves. Certainly, many things seem to be motionless, occupying one and the same place, but nonetheless they move. And then, birds, for example, are in motion, not only when they move up and down, but also if they are occupying one single spot in the air. If a dead bird is ever placed in that spot, it will easily fall to earth, sinking because of its weight. For this reason, it is also clear that the body, remaining in the same spot, was suspended by using a certain motion – as much as it would have had if it happened to be carried down its own weight alone. Therefore, what you think to be immobility is a composite motion, composed of two movements able to move the body in opposite directions. Of these two movements, if you should eliminate the upward motion, you will readily see the other one, which carries the body downwards. In truth, Hippocrates teaches this too, saying: “To stand does not do any good at all to wounds,” besides, “If there is a wound in the leg, neither sitting, nor walking, but being at rest and motionless confers a benefit.” He praises, in fact, rest and immobility as beneficial; but standing and sitting, he says, are not beneficial at all, something that is different than being at rest and quiet. For, even then the muscles, holding, lifting from the ground and straightening the body, have been tensed. For this reason, standing is not less wearying than walking up and down, as if it was a movement too. Therefore, when the soul, which moves and keeps the body straight, has been taken away, you will certainly see the body lying on the ground, which was standing upright before. Whence it is clear that whenever the body was standing upright, it was not motionless but had something lifting up, holding and raising it. Then, I would not even consider motionless at all a man who is
lying down if he should have his head quite elevated, while his legs are quite relaxed. For he would sink to the level of his feet, inclining from the higher parts of his body to the lower, if he did not apply a force equal and opponent. That is why Hippocrates said: “it is worse if someone should be slipping down, and should fall from his bed to his feet.” Indeed, the most certain sign of a capacity completely weakened is to fall to the floor and lying down. In fact, not to be able to stand or sit or raise up is terrible, but less terrible, for many sick people desist from doing these motions, yet they have not arrived at the final stage of the disease. Nevertheless, not being able to lie down like a living man, but falling down like a dead and inanimate body, is the worst of evils. Hippocrates called this phenomenon ‘prostration’ in his work “On Humors”, and on this very topic the commentators of this book did not understand and talked nonsense. He said that prostration is falling down like an inanimate body, all the muscle tone being completely relaxed and lost, so that prostration is not the same as lying down, however is related to it as falling down is to lying down. Thus, it is one thing for birds to fly down to the ground, another to fall to the ground: one is a function, the other is an affection. Similarly, therefore, for these reasons lying down is a function, but prostration is an affection.

Why did I talk about these things? So that you do not think that those who lift either a leg or a hand, and then keeping it, as it is, are motionless, not even if they maintain always one and the same position as fixedly as possible. If you do not want to grant that there is a movement in such dispositions, yet you will agree without any doubt that an activity happens in them, and the force involved here is twice that of a simple function. For, in simple functions a certain kind of muscles acts, either bending or stretching out a limb; but whenever you keep extending it, both
kinds of muscles act with equal strength. If you keep this in mind, you will always find this argument true: that is, tremor does not appear in anyone who does not initiate a movement. In fact, it is a symptom of a powerless and weak movement. Whence, as it is surely evident to everybody, in a body in which there is absolutely no motion, there will be no weakness or disability in respect to motion.

5. But, at least, palpitation happens even to people that do not move. And in fact the eyebrow, eyelid, and eye are often raised up altogether involuntary. Hence, in my opinion, you will also see clearly that this part of the treatise is important both for an understanding of the nature of the affection and for an accurate differentiation from those affected by tremor. For, what appears to be risings and fallings in the palpitating parts are some dilatations of the bodies, as they fill up, and compressions, as they are emptied again. Motions in those who tremble are of the entire limb, which at one time is falling downwards, at another is carried upwards, but nothing is expanded nor contracted. For this reason, the entire body part trembles whenever we attempt to do something, nothing of that part remaining without movement: the muscles as well as the arteries in them, the nerves, the veins, the bones themselves and the skin are brought equally upwards, and then equally downwards. However, not everything palpitates. For instance, you would never see a nerve, bone, cartilage, or anything else like this, palpitate. They do not have a cavity which, expanding and contracting in turn, will allow the parts to be lifted up, whenever the cavity expands, and to fall, whenever it contracts. Whether palpitation is an affection only of the muscles, as Herophilus thought, or also of the skin, or of the arteries, as Praxagoras understood, we shall consider it here again. In fact, this inquiry is more suitable to

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our investigation of the affected place. Now, however, let us return to our previous point, having understood so far that palpitation is a dilatation and collapse contrary to nature, while tremor is an involuntary movement of the limbs carried, alternately, up and down. Now dilatation is not the same as an upward motion, nor is collapse as a downward motion. Things moving upward and downward leave their former place and they move to a new one, while things expanding and contracting, keeping to their initial place, alternatively fill and leave the surrounding space. Hence, movement is indeed common to both, to all that expands and contracts, and surely to all that is carried up and down. But it is peculiar to the former to occupy a smaller or greater space, staying in the very same place; on the other hand, it is on the nature of the latter to change place always, because they never stay in the same one. And at this point, in my opinion, it will be necessary for me to make a distinction, so that our account is completely true. Often, when several muscles together, or one big muscle, palpitate violently, the limb is lifted up by the muscles expanding, and falls back down when they contract. Here it is not accurate to call the involuntary rising and falling of the limb, tremor. For you will clearly see that the muscles, by which the limb is moved, are palpitating, and the movement itself is not as such as in those trembling. For example, when the movements through the palpitating parts keep the whole limb in motion, each of these movements is defined by its own discernible limits. Nevertheless, the affection of those trembling is not like this, but when one motion has just begun, as someone might explain, you will find the opposite joining together, so that the downward motion is always followed by the upward, which, in turn, is continuously checked by the former. The upward motion is always incomplete as well as the force that brings the limbs downwards. These are the signs of the affections – tremor and palpitation – (for your understanding), and in these symptoms they differ from each other.
Palpitation Is Caused by *Pneuma*; It Aroused Because of Cold, and Is Relieved by Warmth

Next, it would be best to consider the place affected and the cause of the affection. I say that the cause of palpitation is a thick and vaporous *pneuma*, which does not have any outlet, and also that it is necessary for the *pneuma* to be collected in a certain cavity which is not small at all, if the part is about to have a perceptible dilatation. This is all summing up. Because of the speed of the motion – of the increase and decrease – if you want to prove your point, you need to consider a cause that is pneumatic in substance. For what else than *pneuma* can be collected and emptied so easily? In fact, as Hippocrates has taught us, the elements that constitute a man are *solids*, *fluids* and *airs*. He reminds us of these concepts when he talks of ‘things that contain’, ‘things that are contained’, and ‘things that rush in’. He calls the *solids* the ‘things that contain’, for they surround and shelter the moist; then, *fluids* as the ‘things which are contained’, since they are surrounded by the solids; finally, *airs* the ‘things which rush in’, since air reaches every part of the body in an instant of time, easily and unhindered. Therefore, a swift emptying or a filling, an expanding or a contracting, a falling or a rising, and any other motion, can be done by nothing else than *pneuma*. Thus, the cause of palpitations: the substance is *pneuma*, and the nature of the substance is moisture and thickness, as I said a little while ago, when I named ‘thick’ and ‘vaporous’. For, if it was ethereal, both rare and clear, it would never fill nor empty the parts, passing through them unhindered. But the *pneuma* that is thicker than the pores of the bodies in which it is collected, which is covered inside them – if the body should have any cavity – would fill this, and raise and expand what is surrounding. However, if the body should have no cavity, the *pneuma* being collected between two bodies, would separate one body from the other, making then a new cavity for itself. This second kind mentioned often causes palpitation in the skin, since the skin does not get any cavity by itself; rather, in this case, the *pneuma* collects
between the skin and the underlying bodies. The kind of palpitation first mentioned most often arises in the muscles. In fact, in these there are many small cavities.

Praxagoras, however, attributed the pulse to the arteries, just as he considered palpitation, tremor, and spasm affections of the arteries. Pulse – he says – is according to nature; palpitation, tremor, and spasms differ from one another in magnitude, and are all motions contrary to nature. That he was mistaken in assigning palpititation to the arteries alone, it is not difficult to prove wrong. In fact, it is often possible to see the skin and the muscles clearly palpitating, although there is no artery there, or if one happens to be present, it is so small that one can clearly discern that such a dilatation is not in accordance with the size of the artery. Whether some assign correctly palpititation to the muscular parts alone seems to me more worthy of examination. I do indeed think that I have found the artery clearly exhibiting something like spasm as well as like palpititation, as others who are expert on the pulse agree. But there is too much to say about this subject, and it has been already treated in my works on the pulse.

Palpitations seem often to occur visibly to many men in their skin alone, whenever a vaporous pneuma, having been produced in one of its parts, is checked and delayed on its exit. Thus, if vaporous pneuma is in excess either in the muscles or in any other part of the body, as a consequence of that, it produces palpititation. Since the pneuma is thick and misty, or cloudy, or gassy – or whatever you would like to call it – it is the cause of palpititation; and, for this reason, among the different age-groups, those who are colder are easily affected by palpititation. Also it occurs in bodies that are, by nature, colder: cold regions, the winter season, a lazy life spent in abundance and drunkenness, cold and gassy food, and generally everything that chills the body; the opposites of these are immediately putting a stop to palpitations. For warm things rarefy the pneuma, and make bodies fine and soft. On the other hand, cool things thicken, contract, and
force the pores to close; and they also thicken, make the *pneuma* solid and turbid. It is, therefore, readily retained, unable to evaporate, both because of its own thickness and because of the denseness of the body surrounding it. Nevertheless, warm things, on the contrary to cold, diffuse, loose and open the pores of the body, thin out the *pneuma* itself, and readily stir it into motion, and thus make the exit easy for it. For this reason, the ancient physicians found out as remedies for palpitations anything that can thin and warm the body – like those made by spurge (*Euphorbia resinifera*), pellitory (*Anacyclus Pyrethrum*), limnesia, sulfur, and pepper – and any compound drugs of similar quality. They also recommend hot spring water especially that impregnated with alkaline, sulfur, and asphalt. But they also make use of seawater, warming it, and, if the seawater is not available, salt-water. In addition, they give warm drugs to drink, especially those made of castoreum (*castor fiber*); this is a good drug not only to be drunk, but also to be applied externally, as it can heat and at the same time make things thin and completely dry.

**Tremor Happens Not for Cold nor for Just One Cause, but Many**

The origin of all palpitations is cold, while the cause of tremor is not only one, and cold is not one of them. Rather, the disposition that causes tremor is a weakness of the capacity that moves the body, and the nature of the cause that can lead into this condition is not only one. Weakness happens in motions either (*a*) because of lack of nourishment – as in cholera, excessive humors of the bowels, violent bleeding, and in those who are fasting – or (*b*) if the vital tone is lost – as in weakness of the stomach and of the heart – or (*c*) when a too much violent chill takes over, or (*d*) if the size of a burden is such to weigh down the capacity. Whence, there is not one sort of remedy for those who tremble, as for those palpitating.
However (c), if they should tremble for a chill, for them warm is a remedy. Thus, many of all who travelling in winter and then seized by a strong, icy cold, arrived at home half-dead and trembling, did easily get rid of such affection by heating up. Similarly, we might cure with these remedies those shivering and trembling because of attacks of chills, due to fevers. But (b), if someone, weakened, became tremorous, as when there is a disturbance in the stomach and in the heart, warming him up is such a bad thing to do; for, on the contrary, in these cases it is necessary that the skin becomes astringed, by administering only such things that cool, contract, and draw together the pores, not those that warm, loosen, and make them open. And (a), of tremors happen for lack of nourishment – as in those fasting or purging excessively – there is no need of explanation, for it is clear to all that these people need nourishment.

On the other hand (d), purges are the remedies in all those men who are trembling because their capacity to move has been weighed down by an excess of humors. Just as Hippocrates instructs, when he says: “A female slave of Stymarges, who did not have blood coming when she gave birth to her daughter, the cervix of her womb was prolapsed, and she had pain in the hip-joint and the leg, was bled at the ankle, and was relieved, and definitely tremors possessed completely her body. But it is necessary to arrive at the cause of it as well as its reason.” He mentions a woman who after childbirth was not purged of what is called ‘cleaning off of the childbirth’, and so she became tremorous. “I treated this case,” he says, “by cutting the vein at the ankle, and yet tremors were possessing completely her body.” What else is he implying here, except that no one else would have cut the vein? In fact, tremor has been believed to be a cold disease, yet the blood is warm. Certainly, no one would have dared to purge blood, in an affection which requires warm. “But I,” he says, “dared to do it.” And he also teaches the reason why. But it is necessary to arrive at the cause and at the reason for the cause. “I
understood,” he says, “both the disorder and the cause of the disorder. The disorder was an excess of blood, while its cause was the displacement of the womb towards the hip-joint, because of such displacement the woman was not purged of the blood. Wherefore, the blood needed to be purged, because it had not been yet, but, wandering in the body, it was like a burden to the constitution of the woman. Hence, he discovered that excess of blood was the cause of the tremor, while the reason for the cause was an affection of the womb. Then, since the excess of blood required a purge and, on the other hand, the part of the body affected indicated where it was necessary to purge, putting these two things together, he had phlebotomy done at the ankle: “phlebotomy”, because he wanted to withdraw blood, “at the ankle”, for the womb was affected.

It is, in my opinion, completely clear that it is necessary to open a vein when the blood is in excess – for the blood is contained in the vein – but, it is clear that it is necessary to cut at the ankle or behind the knee, when the womb is affected. But you could not follow this argumentation, unless I should first teach you, through a dissection, the communications of the veins. In fact, one vein connects with one part of the body and another with another part, and you should always purge along interconnecting veins. Thus, if you should cut veins that in no way connect with the affected part, you will not heal the sick part, and you always harm the healthy one. Therefore, it always appears necessary that the person who is about to cure well, understands the cause of the affection. About the cause of trembling, enough has been said.

Not Only One Place Is Affected by Tremors

There is not necessarily one affected place in tremors, and here I found fault with Praxagoras and Herophilus – with the former for saying that tremor is an affection of the arteries, and with Herophilus for being so eager to show that this kind of disorder is always associated with the nerves. Praxagoras is far from the truth; but Herophilus has mistaken, when he attributed to the organs an affection that is actually of the motion capacity. He understood
correctly that the nerves, not the arteries, serve as a ‘rower’ in the voluntary movements. But since the body of the nerves is not itself the cause of movement, but it is only the instrument, and since the cause of movement is the motion capacity, which moves through the nerves, I find fault with him here, for not having distinguished faculty from the instrument. In fact, if he had made such a distinction, he would have immediately acknowledged that a body function will be compromised not only because of affections of the instruments, but also of body’s faculties. Thus, in dead men, neither the nerves nor muscles experienced anything such as Herophilus and Praxagoras think they experience; yet every motion has left them at the very same time with the soul, and muscles and nerves are instruments of the soul. Accordingly, motion does not come from the muscle or nerve, but from the soul. For, pipe-playing is not an activity of the pipes, nor lyre-playing of the lyre; pipe-playing is an activity of the piper, with the pipes as instruments, and lyre-playing that of the lyric poet, the lyre being the instrument. Often the music of the pipe or of the lyre is ruined because of the craftsmen of these activities, and sometimes because of the damage to the instruments which they use. Similarly, the craftsman and artificer of voluntary motion in animal life is the faculty governing the animal, while the instruments are the nerves and the muscles. Therefore, lack of motion and incorrect motions are either due to an affection of the instruments or of the capacity using these instruments. Hence, palpitations, spasms, and paralyses are injuries of the instruments, while tremors are affections of the weakened capacity.

**Tremor Distinguished from Rigor**

6. Tremor has been clearly distinguished from palpitation. And you may distinguish tremor from rigor as follows. It is first necessary to consider what rigor is. In fact, this seems to be among those things very well-known, but it is difficult to define just as much – not only for the reason that it is not easy to find the cause or the disposition of the body resulting from this cause, but, first of all the reasons, because people seem to me to be mistaken in the very
description of the concept. For, if you should so simply call rigor a chill, as some have stated, the error is evident, since many are violently chilled, yet they do not suffer rigor. But if you should call it a violent chill, this would not be true either; for example, those shivering in the stomach or in the heart, have been violently chilled, yet they do not suffer rigor. The definition of rigor as a chill with tremor, because of which many physicians are mistaken, owned the origin of its deceptions in the shaking and agitation associated with violent rigor. It is clearly confuted by the fact that it is not a characteristic of all those who suffer rigor, but only of those who suffer it violently; and to those to whom it does happen, it is not tremor the affection that arises, but something like shock and agitation. In fact, tremor, as we have explained, does not appear without choosing deliberately to move a part of the body, while agitation, accompanying violent rigors, is so violent and falls forcibly upon the body that it is impossible to stay at rest, even if one strenuously opposes. Moreover, tremor is an affection of one body part, while rigor is of the whole body.

Hence, it even occurs to me to marvel at Plato, when he considers tremor the same as rigor. For, if those who call rigor a chill with tremor are wrong, how could he, thinking that to tremble is the same as to suffer rigor, tell the truth? In addition to all those things we defined as absurd, this is also in contradiction with him: some people tremble without feeling any cold – for it is impossible to suffer rigor and not to appear being chilled. That is why, then, even all those who said that rigor is a feeling of cold, do not seem to me to go any further into understanding the affection. In fact, you certainly would not say that having been chilled is the same as perceiving cold. Body parts that have slacked away, those numb and mostly insensible, and those without any sense, have all been chilled; and whatever is tremulous, frenzy-stricken, or epileptic, as well as whatever is gassy, watery, or like an inflation, or swollen, are all cold. However, none
of these parts perceives coldness in itself, hence it would not suffer rigor. And if any part did perceive it, it would straightway suffer rigor. Therefore, because of these considerations, I say that Plato did not understand correctly, saying that rigor and tremor are the same thing: for rigor is not an affection of only one part, like tremor, nor is there perception of coldness in those who tremble, such as in those suffering from rigor. Furthermore, the movement in the latter is entirely involuntary, with no desire to move the body parts, while it does not exist in the tremorous without the impulse to move.

Perhaps one might concede to Plato to err in subtle medical matters, although he has carefully examined the origin of almost all the other diseases in the body. However, marveling at Athenaeus of Attalia is worthy, for, although he lived much later than Plato, he not only follows Plato in these theories about the cause of rigor, but he also appears to be confused, like him, on the concept of rigor. In fact he did not determine the concept of rigor and tremor, but in his work about rigor, he says as follows: “To this fighting and shaking we give the names of ‘trembling’ and ‘shivering’; while this affection as a whole, as well as the cause thereof, is termed ‘cold’ as – he says – even Plato says.” In fact, this physician has handed down the very words of Plato. The complete passage is the following: “When liquids with larger particles, which surround the body, [enter into it they drive out the smaller particles but as they] cannot pass into their room they compress the moisture within us, so that in place of non-uniformity and motion they produce immobility and density, as a result of the uniformity and compression. But that which is being contracted contrary to nature fights, and, in accordance with its nature, thrusts itself away in the contrary direction. And to this fighting and shaking we give the names of ‘trembling’ and ‘shivering’; while this affection as a whole, as well as the cause thereof, is termed ‘cold’.”
Definition of Rigor

Therefore, it has been clearly demonstrated that rigor is not the same as tremor, is also absolutely not the same as chill, and certainly not the same as a violent chill. Let us examine what has been said a little before – that rigor is truly a chill, at least a perceptible one – if ever it has been stated correctly. In fact, some think rigor to be not a perceptible chill, but rather a painful one. For example, many healthy people claim to be very chilled – some, because of their desire for cold, by spending deliberately too much time in cold water, others doing it for necessity – but they do not suffer rigor immediately, just as someone after bathing and then throwing himself into cold water, would not. For, he would not suffer rigor unless he stays a long time, although he clearly perceives the quality of cold. Hence, if rigor were really a perceptible chill, all these men would suffer rigor immediately, as long as they perceive cold. But they do not suffer rigor, reasonably; for not all the people have a chill with pain, but some of them, who especially in summer, not bearing the stifling heat, throw themselves into cold water, take such delight in being chilled that they stay in the water until, if you touch them, they would seem cold as ice.

By defining rigor as a painful chill, are we saying all about it, or is still something missing? Perhaps not all rigors must be defined in this way. In sick people, to suffer rigor does not seem to be the same as to shiver or to be chilled. We often say that paroxysmal attacks happen in a person with rigor, in another with shiver, in another with chill only – and in the works of all physicians there is the same usage of words. Thus, whenever a person is chilled without shock and agitation, he does not suffer rigor; rather, if the condition is truly to be called rigor, it is necessary that an irregular and involuntary motion is added to it. Without this, they call it chill – if the affection does not even move the skin irregularly. If, however, it should agitate the skin and shake it by some attacks, but not stir up the whole body, they name the
condition a shiver, so that such shivering is an affection of the skin alone, just as rigor is of the whole body.

In the case of the healthy, we mean something different by ‘suffering rigor’, extending it to any kind of painful chill. If rigor should arise because of sickness, it is not enough to say this only; rather it is necessary to add that the whole body is disturbed. Those who did not believe in this definition, some of them saying that rigor is a chill with tremors, did not explain in a clear way. No one ought to call it tremor, but a certain involuntary shock, or agitation, or jolt, or they have to find out another similar name. In fact, the name ‘tremor’ has been given to a particular affection. In truth, those defining the unhealthy rigor as a chill, seem to refer to nothing else than to what happens to the healthy people. Yet, in short, the kind of rigor that physicians talk about in all their works, is shown to be defined by these men I just mentioned about. We call something unhealthy whenever the body has got this kind of disposition, not from any violent external cause, but from itself. And this is, I believe, what Hippocrates meant, when he said: “A sufferer from ardent fever is cured by the supervening of rigor.” Therefore, you will not produce rigor by pouring cold water on the feverish, but whenever it arises from the very disposition of the body. This too has been explained in the same way: “Loss of understanding in conjunction with rigors is a bad sign; also bad is forgetfulness”, “When rigors occur in fevers on the sixth day the crisis is difficult”, “Rigors in women tend to begin in the loins and pass through the back <to the head>. In men too they begin more often in the back of the body than in the front”. In all these cases not the rigor which happens in the healthy, but that which occurs to the unhealthy would be the one discussed: that is, a painful chill with a certain irregular shock and agitation of the all body.
Rigor is a Particular Condition of the Natural Heat

Since we have understood what rigor is, let us next see what is the cause that produces this affection, which antecedent causes it most often follows, and then to which dispositions it happens – on behalf of its all possible origins. That rigor is an affection of the natural heat of the body is agreed by almost all. However, the following discussion requires someone who is a careful listener and has a very good mind. For I said that rigor is an affection of the natural heat, so that no one may think that I am speaking of heat from outside, and that I am speaking falsely of Erasistratus, Praxagoras, Phylotimos, Asclepiades, and countless others who all think that the heat of the body is not innate, but acquired from outside. In fact, how could they speak of an affection of the innate heat, when, to begin with, they do not acknowledge that the heat is innate? But, as we said, not all agree that the heat is innate, contriving for it, instead, an external origin, one contriving one origin, another contriving another one, in a different way. On one thing alone they all agree: that is, in each animal there is a certain natural heat, and this is imagined to be in a proper amount. Indeed, they say that rigor and shivering and all the chills happen in respect to this heat. Asclepiades, for example, treated the topic very artistically, by saying that not only heat, but nothing else is an innate capacity, and every fever is always created by some obstructions of particles in the pores, distinguishing then among fevers by the magnitude of the pores; he also demonstrates from which conditions rigor must follow and from which it does not. And I am sure that – if I did not believe the subject to be longer than its advantage, and besides, I think that it is not fair for Asclepiades alone to review his teachings and ignore all those of the others, or if I were instead to attempt to mention everybody – I would fall into an endless long discussion; then, after considering all the opinions, one after another, showing from what cause each opinion has got a persuasive origin, and what is especially deceptive and where they go wrong, I would come, in this way, to my views. But let us delay it to another time. In fact, I do
not approve Athenaeus, who says something about Asclepiades, Heraclides of Pontus, and Strato the natural philosopher, but mentions nothing of the others, although he could have spoken not only of their opinions about rigor, but of many other views no less notable and plausible.

Therefore, assuming that the first part of the subject in question has been agreed upon – that rigor is an affection of the natural heat in each animal – let us see how it originates. The argument will proceed from Hippocratic doctrines. We do not agree on masses and pores as elements of the body, nor do we declare that the heat comes from motion or friction or some other cause; rather, we suppose the whole body breathing and flowing together, the heat not acquired nor coming after the generation of an animal, but itself first and primal and innate. This is nothing other than the nature and soul of life, so that you would not be wrong thinking heat to be a self-moving and constantly moving substance. These views have been argued in a separated work, and you may learn about them elsewhere. For now, one must inquire the continuity of the argument. Seeing that the innate heat is in constant motion, it moves not merely inward or outward, rather one motion of the heat continually succeeds another one. In fact, the inward movement alone would quickly end in immobility; on the other hand, the outward one would scatter and, thus, the heat would be destroyed by this. “Kindling in measures and going out in measures,” as Heraclitus said; it thus remains constantly in motion. Hence, it kindles in its convergence downwards, reaching for the sustenance; it is quenched, when it is raised up and dispersed in all directions. But it has gained a motion upward and outward and, as one might say, an unfolding from its own source, because it is hot by nature; it also has a motion inward and downward, that is to say, towards its own source, because it shares a small, but not insignificant, amount of cold; in fact, it is comprised of hot and cold. According to this first argumentation about heat, it is self-moved, and it especially needs this quality for its functions; nonetheless,
cold provides a big advantage to the heat. For heat is disposed by nature to rise to the heights and to bring along its nourishment; if cold did not prevent this, it would proceed to the greatest heights. But cold does prevent heat from moving in this way, so that it does not scatter and perish. In fact, there is a danger that heat, because of its natural lightness and its tendency to move upwards, would leave the bodies. But the cold pours over, hinders and reduces the violence of this excessive motion.

Hence let us return to what we assumed from the beginning, proving that rigor is a certain affection of the innate heat. That an animal is healthy whenever it remains within the natural limits of its *krasis* does not need to be explained; in other words, as Hippocrates said, whenever hot and cold are in the proper *krasis*. If, however, one should predominate over the other, the animal must suffer a kind of disease similar to the nature of the dominating cause. Hence, *phlegmone*, *erysipelas*, herpes, anthrax, fever, redness, and all feverish affections occur whenever the faculty of the heat predominates. On the other hand, spasm, *tetanos*, palpitation, *narke*, paralysis, epilepsy, and paraplegia happen when cold is dominant. Rigor is also one of such affections, being not simply a chill, but a perceptible chill; whence it is necessary to add ‘sudden’ as well. Further, it is necessary for the chill to be vigorous and forcible, in order that the definition be clear and true: rigor is a sudden, violent chill of the innate heat. “Whereas,” as Plato said, “an affection that is mild and gradual is imperceptible.” If it is perceptible, then it is necessary for it to move greatly and tremble suddenly. Hence, there should be an imperceptible inward-chilling that happens over a long time, little by little, as well as one which arises swiftly and powerfully and is absolutely perceptible. Such an affection would not escape one’s notice.

Such a perceptible affection is not a whole painful kind of chill – sometimes it is even quite pleasant. In fact, to quote Plato again: “when an affection, which is against nature and
violent, occurs within us suddenly, it is painful, whereas the return back to the natural condition, when intense, is pleasant.” Therefore, ‘sudden’ is common to both, pleasant and painful, because of which, evidently, this affection must be connected. Furthermore, a return to the natural state is not merely perceived, but is pleasant, while abandoning the natural state is painful. Whence the chill is one and the same in amount; but at one time it pleases, at another it gives pain. If it should come upon an overheated body, it is entirely pleasant. For the body suffering immoderately from heat is soothed by the entrance of the chill leaving it, and it is pleased since it is soothed. If, however, you should suddenly chill the body in its own constitution, you would be in distress, for the body will suffer from the unbalanced krasis. In fact, as Hippocrates said, “pains occur to those changed or corrupted in nature.” Hence it is not only necessary for the chill to be sudden and vigorous in order that rigor arises, but also a violent affection must be present in the body – which is, in other words, unnatural – so that rigor is a sudden chill that leads to an unnatural state of the body. And if one should speak the truth, especially in regard to the origin of the affection, it seems to me necessary to defend this idea in the present argumentation: that is, in rigor there occurs a sudden and violent chill of the innate heat. For example, the heat is chilled both when it dissipates, as the tonos that is along with the body begins to fail, and when the heat lacks the nourishment from which it was kindled; but neither of these two conditions affecting the heat causes rigor, or else everybody would suffer rigor when dying. And so, loss of heat is in a way common to all who die; yet they do not suffer rigor; for I am not saying simply that it is necessary for the heat to be chilled, but that it does suddenly and violently; that is, the heat itself, while remaining strong, disabled neither in the substance nor in the tonos, is distressed by an external cause. Consider with me fire, which may be (a) sometimes extinguished by a lack of the external material from which it was kindled; (b) sometimes it may be withered away in the
brilliant sun; (c) on the other hand, it may be quenched by much water or (d) smothered when too much wood has piled on. These are the four things that quench the fire, each one of them in a different way: (b) the tonos of the fire, withered in the sun, is dispersed, dissipated by the violence of the surrounding force, for the strength of the sun’s rays is stronger and more enduring than fire. Whenever, for lack of material, it is no longer kindled (a), it is extinguished since its substance is lost. For what is kindled continually, it disperses in the outward motion; however, the fire, while tending inwards for the sake of nourishment, and next lacking what nourishes it, stretches out for a second time, now rather weakly. A fire oppressed by a quantity of material (d) and deprived of air, is stifled. It is not necessary to discuss the damage by water (c); for the battle between fire and large quantities of pure moisture is so vigorous that even if you apply oil to the flame suddenly, a hissing noise and some agitation must occur, the fire displaying its own violence with what seems to be its own voice. Acknowledge, then, rigor to be such an affection of the natural heat (as in example c, about what water does towards fire). In fact, you will not find that rigor arises whenever the warmth is wasted away, undernourished because of lack of material (a), nor whenever it is oppressed by excess of material (b), nor whenever, becoming weak, it diminishes (d); rather, it occurs whenever, although strong and able to extend itself, next it is hindered. For this very reason confusion happens in the body, a twofold combined motion arising here, as in those who tremble, but in a different manner. In fact, there the mixed motion arose due to the weakness of the capacity moving the body, to the extent that the movement raising a body part lacked the tonos, a body party always slipping downwards. At this moment, when the natural motion of the heat is forcibly stopped, rigors happen. Seeing that neither its substance nor its tonos is lost, the heat tries to extend and carry itself to all of the body. However, hindered and forcibly pushed into the depths of the body, it
falls back to its own source. Not being capable of remaining there – in truth to rest is death for a substance that always moves – gathering itself and becoming like a spiral, it does not extend itself evenly in a path of no resistance, but rather, using a violent motion, as it were springing out from the midst of the starting-line, it sometimes opposes those parts which are opposed to its motion forwards, eager to push them away, and to make the way clear for itself. Colliding against them, it is necessarily held in its rapid, whizzing motion, and the whole body shakes at the impact. The chief result of this is that the heat having become vaporous, in colliding with what opposes it, it rebounds back inward, suffering something like a blow and for the second time comes back to its source; thence set in motion again, it attacks more violently, again rebounds with this impact; and this often happens in succession, as long as the distressing causes remain.

Because of this, the affection is painful, considering that the body is distressed by blows, and the motion, urging on against the two motions just described, moves the animal irregularly. In fact, in its natural state our inborn heat enjoys smooth and unhindered pathways, drawing itself together in an appropriate and regular motion, then unfolding. In rigor the motions are neither converging nor unfolding, but you might more accurately say that when going inwards (I will use not my own words but those of the ancients), it rushes down, is compressed forcibly, is repulsed, and runs together; on the other hand, when carried outwards, it breaks out, is shaken thoroughly, attacks, and leaps out. Moreover, these are also the terms of the ancients, which were all appropriately given, and which describe the affection in question as clearly as possible. I say that the disturbance of each element in the body, its shaking and agitation, and every irregular, disordered, involuntary motion, in relation to rigor, is produced by irregular, vigorous, and violent impacts and shocks of the innate heat when becoming vaporous. Because of this, the
body becomes warm again more in rigors than when it was in its natural state, and sweat also pours out. And in fact, whenever the heat, after many impacts, has broken through completely what has been causing distress, and finally it breaths again, the body necessarily is heated for three causes: first, often the heat, shut off from exhalation, is gathered into the depths; second, the heat that is now all outside has thinned out vehemently; and third, because of the impacts, blows, and violent motions, the heat is naturally kindled. By rubbing wood or stone you will sometimes produce fire. Since the innate heat is hot by nature, will it not – if it happens to move it violently – be kindled much more? Yet, this is clearly to be seen in natural motions, as men running and wrestling and being rubbed, and those moved in any other way, are warmed no less than if someone were heated by the summer sun or by the fire. Often the heat on its way up from the depths, as if boiling, suddenly pours forth something of its moisture; and this we call sweat. In rigor, therefore, it is painful not to warm up after being chilled; as expected, the heat has been overcome in the fight. It is overcome when conquered by the force of the afflicting cause, or when it happens itself to be weaker. Thus, for example, “speechlessness⁴ subsequent to rigor and not to be warmed again is bad.” Moreover, teaching us each of the dispositions in which rigors become fatal, he will later say: “In a person who is febrile and wearied, strabismus of the eyes followed by a chill is a fatal sign.” This kind of rigor is born of a strong cause. But another kind is fatal because of the weakness of the capacity: “If rigor attacks a sufferer from a continued fever, while the body is already weak, it is a fatal sign.”⁵ But more is said about these topics elsewhere.

⁴ VII 626,5–6 K.: “To be cooled subsequent to chills and not be warmed again is bad”; cf. Hipp. Prorrh. I 65.

⁵ Littré’s view, that Galen’s distinction between ἐμπίπτῃ and ἐπιπέσῃ and refers to the tenses rather than to the prefixes ἐμ- and ἐπ-, is probably right. Cf. p. 147, ft. 3.
Does Rigor Appear Because of a Cold or a Warm Cause?

7. Now we shall consider whether people correctly attribute rigor to a cold cause. That the affection is cold is clear; but whether the agent causing it is also cold seems to me worthy of investigation. As a matter of fact, rigor is, more than anything else, a sign of a tertian fever. The paroxysms attack with vigorous rigors, and yet not even a madman would say that such a fever arises from a cold humor. In truth, it is a bilious remittent fever in genus, lacking the continuity of the other kind of fever, so much as the heat of the fever, like a flame and burning hot, is intermittent. Insatiable thirst, desire for chill, vomiting pure bile, and relenting with vomiting, how are they not all clearly from an excess of heat? How, then, do patients suffer rigor in tertian fevers? How does rigor supervene in continued ardent fevers, if they are not intermittent but attack with continuous burning, and mark the crisis of the fever? In fact, Hippocrates says: “A sufferer from ardent fever is cured by the supervening of a rigor.” Moreover, a bitter and warm drug applied to a wound will first cause pain; next, it causes a shivering and then rigor on top of shivering; we have in fact known many to suffer rigor and fever from wounds that have been irritated by bitter drugs. But it is also necessary that rigor and shivering are present together with a phlegmone on the point of abscess. I would have reminded you also of many other dispositions, in which rigor clearly is caused by bitter rather than by a cold humor, were I not hesitant to lengthen the discussion. Let us not therefore force the matter and associate rigor with cold alone, since even a terrifying tale or spectacle sometimes brings on shivering and rigor.

Not only Hippocrates, but also Plato recognized this. In discussing the diseases arising from yellow bile, indeed, he mentioned rigor too. Therefore, while it occurs to me to marvel at later physicians for many other reasons, I marvel not least at their words concerning rigor. In fact, how is it not strange that – while Plato, though not a physician, did not know that rigor sometimes arises because of bile, and earnestly sought the cause – they completely lack this
knowledge, so that they do not even know that rigor arises both because of bile and because of any sort of bitter humor?

But it is difficult to discover the reason why an affection that is cold should be caused by a humor that is bitter and warm – or perhaps it is not, if even Plato had no doubt about it. Thus, it would be much better, even if it is really difficult, not to attempt to refute an argument which appears to be evident, but to acknowledge the ignorance of its cause. To confute what is evident would be like if we agree that we do not see, simply because we do not know how to see. Therefore, it is most assuredly true that rigor can arise from bitter and warm humor no less than from cold and freezing humor. Then, we must see if all it takes to cause rigor is for the cold or the bitter to be in excess. Let us next establish that, despite what many people think, rigor arises neither simply from excessive cold humor. As far as the cold is concerned, I have demonstrated this plainly above, referring to all conditions of edema, numbness, paralysis, and dropsy; I shall now demonstrate it to you in the case of the warm and the bitter. In fact, those with kakochymia, the jaundiced, the sharply feverish, and those suffering ardent fever would then all suffer rigor.

Other Factors in the Production of Rigor

Hence, not only is it necessary for a cold or bitter humor to be in excess for the appearance of rigor, in each of them appears some special circumstance. This might be the habit of a person – for those who love the truth must not hesitate to follow their discussion to their conclusion – either the quantity of the excess, or the quality of the humor, or some place of the body in which it is necessary for this to be collected. And there would be a big difference whether it is static or mobile, and how it moves. Moreover, even Plato, looking at these very same matters, said: “As the fibrin, then, has this property, the bile, which is naturally formed of old blood and dissolved again into blood from flesh, penetrates the blood gradually at first, while it is hot and moist, and is congealed by this property of the fibrin; and as it becomes congealed
and forcibly chilled it causes internal cold and shivering. But when the bile flows in with more volume, it overpowers the fibrin by the heat it contains, and shakes it into disorder by its boiling up.” In this passage, Plato has attempted to describe everything that is necessary to know in every kind of illness. Indeed, he spoke of the form of humor, naming it ‘bile’; he also indicated the quality, which is ‘hot’ and ‘liquid’; and the reason for the appearance of this sort of bile, which he said arises from melting flesh. But he also added the place into which it flows when he made it clear that the entering bile is congealed by the fibrin contained in the blood. The genesis of the affection has also been included in this passage, where he says that chill and tremor arise, calling the perception of the cold in rigors ‘chill’ and irregular shock and agitation ‘tremor’ – in which respect we say not only Plato, but many other physicians as well have gone wrong; the motion arising in tremor has been distinguished above by us from that of rigor. Then – he says – whenever the bile enters the blood in an increased flow and overcomes the fibrin, it heats the body to the extent that it can and it alters the fibrin, just as the bile itself was altered by the fibrin, immediately before. It is not opportune now to investigate whether what Plato said is true, because I have the intention to explain and give a judgement on what is said in the Timaeus in another work. Yet, that he omitted nothing of what should be said about rigor is clear from his words. In fact, he named both the humor from which rigor derived, and the place into which it flows and the form of motion, and in addition the manner in which the body is chilled, and then heated.

Therefore, we shall examine the views of Plato in our commentary of the medical teachings in the Timaeus; now, however, we are putting forward our opinion, explaining what

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6 In this passage, Galen, citing Tim. 85d, points out a mistake made by Plato. The commentary on the medical doctrines of the Timaeus is presented with the formula ὑπομνήματα, namely a continuous commentary on a text and subdivided into lemmata.
was said a little above according to the teaching of Hippocrates. Sometimes shivering alone supervenes in association with hot drugs, but often rigor does as well. Just as in ardent and tertian fevers, when yellow bile moves not in the hollows of the vessels, but through the flesh, the rigor arises either because of the greater production of this humor in the flesh, or because of a natural purgation through them. Ardent fevers differ from tertian fevers in this alone, that the ardent fevers have the bile in the vessels, while in tertian fevers the bile is outside the vessels, being carried through the sensitive body parts. In fact, in its motion through them, it causes pain because of its bitterness and it brings distress to the body. Accordingly, it happens that two motions occur in this condition: first, the blood inclines into the depths of the body, and its outer parts are consequently chilled; second, the very parts of the body containing the bile push it from one part to the next by the faculty of ejection, which expels foreign material until the bile, driven away from all parts of the body, is secreted through sweat, vomit, or through the bowels. This also happens to those who have suffered from indigestion, or those with an unhealthy state of the humors, or those who come into the summer sun or the bath, or those exercising. Such people at once begin to shiver, and some of them suffer rigor too. Indeed, it is not only necessary that the cause in us is something mordant, but also something that moves in violent motion, if it is to bring about rigor. And it happens to be common to both kinds of causes, how much cold and how much heat there is in the capacities to move the body painfully.

And because of this, rigor appears together with quartan and tertian fevers, even though they arise from humors opposite in quality. In fact the melancholic humor is cold, while the humor of the yellow bile is warm. I did not say it is necessary that they be simply in excess in order to bring about shivering and rigor, but that they must also move rather vigorously through the perceptible body parts. In this instance, the blood tends towards the depths of the body and
the viscera, and with the blood obviously the warmth as well, while both the skin and the extreme parts of the legs and hands become cold and bloodless, because they are most distant from the viscera. If it ever happens that the innate heat is quenched in the depths, either because it is stifled by not being dispersed as vapor towards the external parts, or because it is completely overcome by cold causes, the animal dies. However, if the innate heat ever converges in the depths, and, gathering strength, holds out against the violent causes, in this respect it acts like as if it becomes an instrument of the secretory faculty of the foreign material, which is present in every part of the body. In fact, this faculty, already designed by nature to expel things that cause pain by itself, accomplishes this duty much more in respect of the heat moving up from the depths, which by the force of its motion helps in expelling the painful elements along whatever path is easier for it. Then, it often expels the harmful things through the skin as well as through vomiting and the bowels.

Rigor is readily caused not only by yellow or black bile, but also by very cold phlegm. Praxagoras calls this one humor vitreous. But such rigor is not vigorous, even though it sometimes persists for several days in succession; when patients are at rest and do not move at all, the phlegm is at rest. Yet, it immediately follows those who are moved, in accordance with the measure of the movement: more vigorously with the stronger and violent motions, more scantily with the weak ones. I have seen this symptom appearing in women more than men, especially to women who live a very inactive life and who take baths after meals. I also saw it happen to a certain youth among our schoolmates in Alexandria, when we first came ashore at the beginning of autumn. For several days in succession he ate many soft, fresh date palms, before and after the bath; many of them were not perfectly ripe. It first struck him when he began to shiver violently after exercising and bathing, because of which, thinking he would have a
fever, he laid down and stayed at rest, covering himself with blankets. Since he was without fever when the night had passed, he got up at dawn for the usual things; but the shivering recurred, so again he lay down and was quiet until the hour for the bath. As he stood up again to go to the bath, the shivering arose more strongly, and the symptom was rigor, yet a small one. Then, thinking that he would be completely feverish, he kept himself quiet still longer. When, testing himself through the whole day and the following night, he found himself shivering after moderate motions, and suffering rigor if ever he was moving more intensely, he took my advice as to what was to be done. By mentioning a similar case that happened to a woman in my part of Asia, I made my companion less fearful, and I persuaded him to use warming foods, drinks and drugs, which would cut the thickness of the humors; in this way, he recovered. Afterwards, I gave, to begin with, to those suffering similarly the drug made from three peppers; next, my drug made from catmint, and then the compound from Cyrenaic juice and castoreum, which is also very beneficial for quartan cycles, and especially whenever patients are chilled by vigorous rigor.

Do not be surprised, however, to find it written in the ancient physicians that fever necessarily follows upon rigors without icy cold, which starts from the same disposition in the body. In truth, nothing such as this happened to the ancients, who neither took so many baths after meals nor led a lazy life. Today both of these are frequent, and they produce the kind of rigor called *anekthermantos*, a new and strange symptom, owning to our new way of life. In all those suffering in this way, there arises sensation either of tension or of weight in the right abdomen where the liver lies, obviously because the veins at this place are blocked by the thickness of the humors. Just as the patients have a feeling of weight and tension in the viscera, so too they perceive a rigor which differs from that in quartan and tertian fevers. For, they say that rigor in quartans is for them just like the one they experience whenever they travel in
extreme cold. But in tertian as well as in quartan fevers, they often feel prickled in the flesh, just as if they were being stung by fine sharp darts. I have had myself no experience of rigor in quartan fevers, but did experience of the other type, having been feverish in my youth four times with a tertian fever, and once with ardent. Hence, I can bear witness to the quality of rigor mentioned above in such affections. Those who have experienced rigor in quartan fevers say it extends right to the bones, whenever it is vigorous, being like those rigors which arise from a very cold environment. And I can add this to the tertian and to the ardent fevers, something not found in quartans: the majority thirst and feel warm in their viscera at the very time they suffer rigor, neither of which condition happens in those suffering rigor in quartan fever.

Spasm

8. Since we have said enough about rigor, it would be left to discuss spasm. The discussion will be neither long nor obscure, if one keeps in mind what has been said until now. I will now begin with a reminder of what I explained in my work On Movement of Muscles. Since all the voluntary motions are accomplished through the muscles, whenever the muscles, dragged up to their source, draw on along with themselves each of the body parts to which they are attached. When an affection arises producing tension in the muscles, a motion that appears natural, but is actually involuntary, follows: this affection is called spasm. The muscle is stretched and drawn towards its own source, just as the limb to which the muscle is attached is drawn toward the muscle. This is common to both the healthy and to the spastic but is involuntary only in the spastic. Furthermore, if we should ever find for how many reasons the sinews are extended, our discussion would come to an end. In fact, it is not possible to find anything outside the body more like a sinew than those chords we see daily stretched by the craftsmen in lyres and citharas, whenever they are going to use the instruments, but slackened whenever they are finished and put them away. Actually they break in very immoderate
temperature of the environment, becoming soaked in wet and damp climates, while being strongly dried out in dry and northern ones. Hence, because of this, they slacken the strings when they put the instruments away, especially whenever the atmosphere is such as I have said; in fact, in either way, they break if kept stretched. But consider that, in my opinion, the sinews and the tendons in the body of an animal, whether distended by excessive moisture or dried out by drying causes, are brought in such a tension as that in which is the voluntary motion with reference to healthy people. But consider also that it is possible for one of the parts in the body, severely affected either because of an inflamed tumor or because of some other cause, to draw the attached sinews along with itself. If you consider all these dispositions, you will find for which reasons the spasm appears. Indeed, inflamed tumors of the sinewy parts, especially whenever they spring at the sum of the sinews or nearby, stretch and pull the continuous sinews, just as the craftsmen stretch the chords out of an instrument. And if the sinews should be stretched, swollen by an excess of humors, in this circumstance an affection arises nearly equal to that in which the chords are strongly stretched because of the moisture of air. The opposite appears to happen in malignant ardent fevers and severe phrenitis; just as thongs which dry out by lying close to a fire are drawn together and tightened, in the same way spasms arise from the exceeding dryness, caused by diseases, which strongly dries out the sinews. This happens in ardent fevers due to dryness alone; on the other hand, the symptom is also present in phrenitis due to an inflammation of the origin of the sinews.

As regards this affection, you already know that – as it is granted by common consent – one form is forward-pulling and so is called emprosthotonos, one backward-pulling (opisthotonos), and another is tetanos. Whenever the members are stretched forward, the spasm is called emprosthotonos (forward-pulling); whenever backwards, opisthotonos (backward-
pulling); whenever with equal force in both directions, *tetanos* (convulsive tension). You cannot heal spasms caused by dryness, for these patients will die first, without allowing you to think of a medication for them. You will cure, though, those spasms which arise from imbalance of the humors or from inflammation, by draining the excessive humor or by treating the tumor with its proper remedies, which you have learned in my work *Therapeutics*. 
A-1 Vaticanus gr. 1845 (=V), folios 171v and 171f
A-2 Parisinus gr. 2270 (=R), folios 123v and 124r
A-3 Marcianus Venetus app. cl. V 9, folios 123v and 124r
A-4 Marcianus Venetus app. cl. V 5, folio 422r
A-5 Parisinus gr. 2271 (=S), folios 107v and 108r
A-6 Vaticanus gr. 285 (=T), folios 109v and 110r
A-7 Parisinus gr. 2269 (=Q), folios 241v and 242r (with lacunae)
APPENDIX B
TERMINOLOGY

Basic Definitions

What follows is a series of key terms, whose definitions I will consider very briefly for a better understanding of Galen’s classification and causation of discordant movements (πλημμελεῖς κινήσεις). These are: υγιεία (health) and νόσος/νόσημα (disease); πάθος/πάθημα (affection) and σύμπτωμα (symptom); διάθεσις (condition) and κατασκευή (constitution); δύναμις (capacity) and ἐνέργεια (activity).\(^1\) The aim of these definitions is to clarify Galen’s own usage. In effect, in the opening two books of Method of Medicine (Methodus medendi) as well as in his four treatises on the classification and causation of diseases and symptoms (De morborum et symptomatum differentiis et causis libri VI), Galen himself devoted considerable space to the definition of such terms.

υγιεία (health): two definitions of health are offered by Galen in his “On the differentiae of diseases”: “All men believe they are healthy when they have the functions of the body faultlessly directed to serving the vital actions. … But also, to be healthy is not ‘to function’, but ‘to be able to function’, and we are able to function from the constitution in accordance to nature.”\(^2\) Therefore, health is something that positively exists, it is just not the absence of disease. However, understanding of this definition depends on the definitions of the constituent terms: ‘function (ἐνέργεια), ‘constitution’ (κατασκευή) and ‘in accordance with nature’ (κατὰ φύσιν). Furthermore, health is an eukrasia of the four primary elemental qualities from which the body is composed (i.e. hot, cold, moist, and dry).\(^3\)

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1 I refer specifically to two previous studies: (i) I. Johnston (2006), p. 21–64, and (ii) I. Johnston–G. H. R. Horsley (2011), p. lxxviii–xciv. They provide a very detailed analysis of the same key terms that are described here.

2 Gal. De diff. morb.: VI 836,6–837 K.

νόσος/νόσημα (disease): for Galen, disease is a specific entity as is health, and the former may be defined as the opposite of the latter: that is, disease is either some constitution contrary to nature or a cause of damaged function. And, certainly, disease is an imbalance of the four qualities.4

πάθος/πάθημα (affection): in Urmson’s modern definition, relating particularly to Aristotle’s Metaphysics,5 an affection is “what happens to anything that undergoes, suffers or experiences anything”.6 In this sense an affection is not necessarily pathological. Galen’s usage is essentially in accord with this, which leads him into certain difficulties in differentiating this term from health (ὑγεία) and disease (νόσος/νόσημα). Nor is the distinction clear between affection and condition (διάθεσις), although it might be said that the former is a change in progress while the latter is an established change.

σύμπτωμα (symptom): at the beginning of De symptomatum differentiis (On the Differentiae of Symptoms), Galen writes: “Every condition of the body that departs from what is in accordance with nature, is, then, either a disease, a cause of disease or a symptom of disease, which some doctors call epiphenomenon.”7 Galen states unequivocally that the specific characteristic of a symptom is to be contrary to nature. This suggests a closer correspondence with modern usage, and is in fact how the term is also used in Methodus Medendi. In effect, a

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4 Gal. De diff. morb.: VI 837–838 K.
5 Arist. Metaph. V, XXI,1022 b,15–21: “Affections” mean (a) In one sense, a quality in virtue of which alteration is possible; e.g. whiteness and blackness, sweetness and bitterness, heaviness and lightness, etc. (b) The actualizations of these qualities; i.e. the alterations already realized, (c) More particularly, hurtful alterations and motions, and especially hurts which cause suffering, (d) Extreme cases of misfortune and suffering are called “affections”. Cf. H. Treddenick (1933), p. 272–273.
6 J. O. Urmson (1990), p. 126
7 Gal. De sympt. diff. VII 42,6–43,1 K.
definition might be that a symptom is a condition contrary to nature that does not adversely affect function.\(^8\)

**diάθεσις** (*condition*): a modern English definition of the term ‘diathesis’, very definitely in current medical use, is as follows: a permanent (hereditary or acquired) condition of the body which renders it liable to certain special diseases or affections; a constitutional predisposition or tendency.\(^9\) This would serve for Galen’s use and might favor simply transliterating the term, which is a key element of other definitions. I have, however, chosen to translate it as ‘condition’. One of the statements by Galen on the term is: “Each thing that exists is in some sense in a *condition*, whenever it is healthy, diseased, or neither. The term ‘condition’ is derived in some way from ‘to be in a certain condition’, having been brought to this usage not only by ancient philosophers but also by other Greeks. Therefore, ‘condition’ is a term common to all things, whether they be healthy, diseased or neither.”\(^10\)

**κατασκευή** (*constitution*): concerning this term, I have opted for ‘constitution’ to make the distinction from διάθεσις, although ‘condition’ would serve for both. Thus, he writes in *Methodus Medendi*: “If health is some condition or constitution in accordance with nature, so disease will necessarily be some condition or constitution contrary to nature.”\(^11\)

**δύναμις** (*capacity*): this term is variously translated as ‘faculty’, ‘capacity’, ‘potentiality’ and ‘potency’. It is a term of considerable importance in a number of philosophical and medical

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\(^8\) Cf. Gal. Meth. med. I: X 64,10–65,3 K.

\(^9\) Oxford English Dictionary


\(^11\) Gal. Meth. med. I: X 52 K.; *cf.* X 70 K.
works prior to Galen.\textsuperscript{12} Galen, in \textit{De facultatibus naturalibus}, has the following statement about \donna: “Now, of course, I mean by an effect (\er) that which has already come into existence and has been completed by the \textit{activity} (\ene) of these faculties – for example, blood, flesh, or nerve. And \textit{function} is the name I give to the active change or \textit{motion}, and the \textit{cause} of this I call a \textit{faculty} (\donna).”\textsuperscript{13} He also writes in his work on “The faculties of the Soul Follow the Mixtures of the Body”: “And yet many of the philosophers… have an indistinctly conceived notion of ‘capacity’. For they seem to me to imagine capacities as if they were some object inhabiting the substances, in the same way that we inhabit our houses, not realizing that, of everything that comes about there is an effective cause, conceived according to its relation to something; and there is an appellation, specifically and in itself, of this cause as a thing of a certain kind, but the capacity of what comes about is in the state related to what comes about from it; and therefore we say that the substance has many capacities as functions.”\textsuperscript{14} In \textit{De tremore}, the term means mostly “the capacity that supports and moves the body” (p. 57,9); “the faculty that uses the instruments (\emph{i.e.} nerves and muscles)” for voluntary motions (p. 71,14–15).

\textit{\ene} (\textit{function}): this term is taken to represent the functional expression of the capacity (\donna). LSJ lists one meaning as ‘physiological function’, with reference to a passage in Galen’s \textit{De sanitate tuenda} VI 21 K. It is clearly the modern concept of the term ‘function’ that applies to what Galen intended for \ene. However, Galen makes sometimes no difference between the two terms \ene and \er. In fact, in \textit{Methodus Medendi}, he writes: “Let us select the eye, for there is agreement in this case by all men, not only doctors but also


\textsuperscript{13} Gal. De fac. nat. I: II 7 K.

\textsuperscript{14} Gal. Quod animi mores corp. temp. sequ.: IV 769 K
anyone at all, that its action is to see. Whenever I say action (ἐργον) or function (ἐνέργεια) in the
course of the argument makes no difference, at least for the moment.\textsuperscript{15}

**Transliterated Terms (*Indicates Terms Still in Use)**

\textit{anekthermantos (ἀνεκθέρμαντος): ‘not warm’ in relation to the kind of rigors}

\textit{emprosthotonos (ἐμπροσθότονος): drawn forwards and stiffened (spasm)}

\textit{kakochymia (κακοχυμία): any unhealthy state of the four humors}

\textit{krasis (κράσις): the basic meaning is ‘blending’ or ‘mixing’. In Galen’s physiology and pathophysiology this has a specific application to the four elemental qualities. Sometimes I opted for its English translation ‘temperament’ (of the body or mind).}

\textit{melancholic* (μελαγχολικός): full of black bile or melancholic, the consequence of which are depression of the spirits and sadness.}

\textit{opisthotonos (ὀπισθότονος): drawn backwards (spasm)}

\textit{pneuma (πνεῦμα): in Galen’s system there were three forms of pneuma, one associated with each of the three “systems” described in Methodus Medendi XII 839–840 K.: the psychic pneuma (ψυχικός πνεῦμα), the vital pneuma (ζωτικός πνεῦμα) and the physical pneuma (φυσικός πνεῦμα). In De tremore, Galen mentions the term πνεῦμα alone several times, meaning only the physical kind, which is considered the cause of palpitation.}

\textit{tetanos (τέτανος): convulsive tension, tetanus}

\textit{tonos (τόνος): tension, power of contracting muscles; in general, force, intensity}

**General Terms in De Tremore and Their English Translation**

\textit{ἀγγεῖον, τὸ, vessel}

\textit{αἷμα, τὸ blood}

\textit{αἴσθησις, ἡ sense perception}

\textit{ἀνατομή, ἡ, dissection}

\textit{ἀρρωστία, ἡ, weakness in relation to capacity}

\textit{ἀρτηρία, ἡ, windpipe; artery, as distinct from a vein}

\textit{ἀρχή, ἡ, source}

\textsuperscript{15} De san. tuenda: VI 21 K.
ἀφορμή, ἡ, origin (of an illness); generally, starting-point, origin, occasion or pretext

βάθος, τὸ, depths, deep part of the animal body

βλάβη, ἡ, damage, harm in relation to function (ἐνέργεια) or organ (ὄργανον)

βλέφαρον, τὸ, eyelids

γαστήρ, ἡ, belly

δέρμα, τὸ, skin

δημιουργός, ὁ, demiurge, as the craftsman and artificer of voluntary motion in animal life

διαφορά, ἡ, a common term meaning difference; when used with the specific meaning the term carries in logic and taxonomy, is rendered differentia

ἐπίκτητος, οὖν, acquired in relation to θερμός; the sense of Galen’s use is well exemplified by Aristotle in Generation of Animals I 721b30, where the distinction is made between congenital (σύμφυτον) and acquired (ἐπίκτητος).

ἐρριψις, ἡ prostration

ἐξάπλωσις, ἡ unfolding movement, opposite to σύννεψις

(ἐμφύτων) θερμός, ὁ innate heat; this is a feature of all animal bodies while they are living. In sanguineous bodies its source is in the heart, from which is distributed to the other parts of the body.

ζῶον, τὸ living being, animal

ἰς, ἡ the fibrous vessels in the muscles; fibrin

ἰσχύς, ἡ strength of the body

καρδία, ἡ heart

κοιλία, ἡ (1) belly, abdomen; (2) socket of a bone; (3) ventricles (of heart)

κοιλότης, ἡ a hollow

κώλον, τὸ limb

λύσις, ἡ dissolution, relief from a disease

μόριον, τὸ constituent part, member (oppose to μέρος, a mere part); used in plural to indicate parts of the body

μῦς, ὁ muscle of the body
νεῦρον, τὸ (1) *nerve*; (2) *sinews* (in plural)

ὁργανόν, τὸ the basic meaning of the term is *instrument*. In application to the structures of the body, it then comes to mean *what carries out a function*, or it is the instrument by which a function is carried out

ὅρμη, ἡ *impulse* (to do a thing)

ὀστέον, τὸ *bone*

ὀφθαλμός, ὁ *eye*

ὀφρύς, ἡ *eyebrow*

πληγή, ἡ *blow, stroke*

πρόφασις, ἡ it seems to be used simply as an alternative word for αἰτία, *cause*; LSJ gives its medical use as *external exciting cause*, but in Galen it carries no addition or different connotation than cause

πόρος, ὁ *pore, channel*; in Galen’s usage this term generally applies to *channels that are macroscopic and visible*, such as the bile ducts or urethra.

προαίρεσις, ἡ *will*

σπλάγχον, τὸ mostly in plural σπλάγχα, *inward parts, viscera*

σάρξ, ἡ *flesh*

σφυγμός, ὁ *pulsation*

σύννευσις, ἡ *bending, opposite to ἐξάπλωσις*

ϕλεβοτομία, ἡ *blood-letting*

ϕλέψ, ἡ *blood-vessel, whether vein or artery*

ϕύσις, ἡ *nature*, whose main relevance in *De tremore* is the usage in the terms κατὰ ψύσιν (*in accord with nature*) and παρὰ ψύσιν (*contrary to nature*), key elements in his definitions of ‘health’ and ‘disease’ respectively

χόνδρος, ὁ *cartilage*

χυμός, ὁ apart from the occasional use in the general sense of *juice* and *flavor*, this term is used to indicate the *four basic humors of the body*.

ψυχή, ἡ *soul*
Diseases and Symptoms\textsuperscript{16}

αἵμορραγία, ἡ haemorrhage

ἁνθραξ, ὁ carbuncle, malignant pustule (according to some, small-pox)

ἄφωνια, ἡ speechlessness

βρασμός, ὁ shivering as if from cold

ἐκλυσίς, ἡ feebleness, faintness

ἐπιληψία, ἡ epilepsy

ἐρύσίπελας, τὸ erysipelas

ίκτερικός, ἦ, ὄν jaundiced

καρδιακός, ἦ, ὄν of the heart (καρδία)

καῦσος, ὁ bilious remittent fever

καυσώδης, ες = καυματώδης, feverish

κλόνος, ὁ agitation in physiological sense, of wind in the bowels; of the pulse; of the body generally, shaking, agitation

οἴδημα, τὸ swelling, tumour

οἰδηματώδης, ες swollen

νάρκη, ἡ numbness, deadness, caused by palsy, frost, fright

ναρκώδης, ες numb, torpid

παλμός, ὁ palpitation, twitching

παράλυσις, ἡ disabling of the nerves, paralysis

παράλυτος, ἦ, ὄν paralysed

παραπληγία, ἡ I on. for παραπληξία, hemiplegia

παροξύσμος, ὁ severe fit of a disease, paroxysm

\textsuperscript{16} In addition to the LSJ, I have also used the Greek-English dictionary of medical terms in Galen by Durling (1995).
πυρετώδης, ες feverish

ῥέμα, τὸ humor or discharge from the body, flux, rheum

σεισμός, ὁ shock, agitation

σπασμός, ὁ spasm, convulsion

στομαχικός, ὁ, ὁν of the stomach (στόμα)

τριταιός (πυρετός), ὁ tertian fever or ague

τρόμος, ὁ tremor

ὑδαρώδης, ες see ὑδερώδης

ὑδαρώδης, ες of a dropsical nature

ὑδρωψ, ὁ dropsy

φλεγμονή, ἡ inflamed tumor

φλογώδης, ες of the effect of inflammation, fiery-red

φρίκη, ἡ shuddering, shivering

χολέρα, ἡ cholera, a disease in which the humors of the body (χολή, χολαί) are violently discharged by vomiting and stool

**Medications (Φάρμακα)**

ἀσφαλτος, ὁ asphalt, bitumen

ἀσφαλτώδης, ες full of or like asphalt

ἐυφόρβιον, τὸ spurge, Euphorbia resinifera

θείον, τὸ brimstone

θειώδης, ες sulphurous

λιμνησία, ἡ = ἀδάρκη, salt efflorescence on the herbage of marshes

νίτρον, τὸ sodium carbonate

νιτρώδης, ες alkaline, of mineral springs

πέπερι, τὸ pepper, Piper nigrum

πύρεθρον, τὸ pellitory, Anacyclus Pyrethrum
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Sara Agnelli was born in Cantù, a small city in the Province of Como, Italy. She went to the Classical Lyceum “Alessandro Volta of Como”, where Sara first became aware of her fascination with Greek and Latin. She has been dedicated to Classical studies ever since. She received her B.A. degree in Classical Philology (2006) and her M.Phil. in Philology, Literatures and Cultures in Antiquity (2009) from the Catholic University of Milan. In the spring of 2016 she achieved her Ph.D. from the University of Florida. Her current research interests lie in the area of Greek paleography, textual criticism and the history of Ancient medicine. She has received various scholarships and awards during her master and doctoral studies, which supported her field research, especially in Rome. In 2015, she was a visiting scholar at the American Academy in Rome.