The Spread of Rhythm in Life Science and Medicine (1st – 2nd century AD) – part 3

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Sommaire

Previous chapter

Pulse Rhythm as Part of a Mind-Body Identity Theory? – Galen

Let us turn now to the philosophical correlates of this change in the theory of rhythm. To get a clearer picture we need first to come back to the use of its musical counterpart—the concept of harmony—in philosophy (for the next paragraphs, I am using Pigeaud, 1978). The comparison of the soul with musical harmony, which most probably originates in Heraclitus (frg. 51) and Pythagoras, is exposed by Simmias in *Phaedo* as follows: since the soul resembles the harmony of the lyre, it is invisible and divine ; but once the lyre has been destroyed, the harmony vanishes ; therefore it is most probable that when the body dies, the soul too vanishes. This view is strongly refuted by Socrates-Plato on the ground that the soul is immortal (*Phaedo*, 85e) and in turn by Aristotle who advocates the soul as Form of the body (*De anima*, 1.4, 407b and 2.1, 412a).

Strikingly, it seems that the metaphor of the soul as harmony was first used by Materialist thinkers and rejected by Idealists as well as Aristotelians. As a matter of fact, according to Cicero (106-43 BC), when Aristoxenus developed it further, it was on a clear materialist basis.

> One very old [among the definitions of the soul], held by Aristoxenus, a philosopher as well as a musician, considers the soul as a kind of tension of the body itself *[ipsius corporis intentionem* – *intentio* probably for *ἔντασις]*, analogous to what in song and instrumental music is called harmony: answering to the nature and conformation of the whole body, vibrations of different kinds are produced just as sounds are in vocal music *[sic ex corporis totius natura et figura uarios motus cieri tamquam in cantu sonos]*. (Cicero, *Tusculanes*, 1, 10, 19, my trans.)

Lactantius (ca. 250-ca. 325 AD), who was a fierce opponent of materialism but a good observer, is even more precise concerning the play of this bodily harmony.

> What about Aristoxenus? For him, just as the tension of the strings of a lyre produces a system of

> harmonious sounds *[sed sicut in fidibus ex intentione neruorum effici concordem sonum atque cantum]* that the musicians call harmony *[quem musici harmoniam uocant]*, so consciousness *[uis sentiendi,* lit. power to perceive*]* results from the conformation of the viscera in the body and the respective strength of the members *[ita in corporibus ex conpage uiscerum ac uigore membrorum uim sentiendi exsistere]*. (Lactantius, *Institutiones Divinae*, 7, 13, quoted by Pigeaud, 1978, p. 264, my trans.)

From these pieces of evidence, it appears that Aristoxenus held the soul to be located in the body, precisely in the brains (Pseudo-Galen, 19.315) or at the basis of the brains *(circa cerebri fundamentum)* (Tertullianus, *De anima*, 15, 5). It was nothing, as Lactantius put it, but a *uis sentiendi* or a sensation resulting "from the [harmonious] conformation of the viscera in the body and the respective strength of the members," in other words from the dynamic state of the organs.

What happened to rhythm, during this metaphorical translation of the concept of harmony, is much less well documented and need further inquiry. Yet, one wonders if Herophilus' transfer of musical rhythm into physiology and medicine did not trigger, on the philosophical level, a kind of parallel analogy: if the soul resulted from the "harmony" of the organs, could not the organs, at least the heart and the arteries, give their "rhythm" to the soul as well?

Although we do not have direct evidence concerning Herophilus, it seems most likely that he found in Aristoxenus' theory of rhythm the same incentive to think materialistically about the soul as in his theory of harmony. Consequently, the soul may well have been for him a "sensation" resulting from the "concord" of the organs as much as from the "rhythm" of their activity.

This hypothesis seems to be validated by certain features of Galen's conception of the relationship between body and soul. This subject has been much debated and the picture is far to be completely clear, but some points in it are quite suggestive (for the next paragraphs I am using Singer, 2016).

For a long time, Galen has been considered as a proponent of a mind-body identity theory, which as far as we are concerned implied that the variation of the pulse rhythm was related, in some ways, to that of the soul. Singer recognizes that for Galen "mental capacities [were] physically conditioned." Maybe for the first time in the West, "he [explored] the subject in an empirically and physiologically informed manner." (Singer, 2016)

Galen's theory is indeed heavily influenced by Herophilus' and Erasistratus' major medical discoveries concerning both the organs and the channels through which they operate.

> This crucially included the discovery of the nervous system, as well as some detailed knowledge and theorization of the anatomy and functions of the brain (all, of course, quite unknown to Plato, with whose theory Galen attempts to harmonize them). Galen's conception of brain, heart and liver as "sources" *(arkhai)* of the three Platonic parts of the soul is inextricably linked with his anatomical understanding of the three sets of channels (nerves, arteries, veins) through which they operate. (Singer, 2016)

The philosophical Platonic tripartition of the soul is now translated into a physiological triad. Reason, spirit, and desire are located “in, respectively, the brain, the heart and the liver.”

> The three parts—rational *(logistikón)*, spirited *(thumoeidês)*, desiderative *(epithumêtikón)*—correspond to and are located in, respectively, the brain, the heart and the liver. These are the central organs in Galen’s physiology, responsible respectively for: rational thought, perception and voluntary motion; involuntary motions (especially pulse and respiration) necessary to the maintenance of life; and blood-production and nutrition. (Singer, 2016)

Each one of these psychic entities presupposes a corporeal counterpart. For instance, the *hêgemonikón* – leading part, command center of the soul—which is equated by Galen with Plato’s *logistikón* – rational—is responsible for intellectual activity and memory, for voluntary motion and for perception. But each one of the latter is also to be understood in terms of brain and/or nerve function.

> The strongest case for a mind-body identity theory in Galen, however, is provided by the discussion of the relationship between rational soul and physical features of the brain. The central aim of that work is to demonstrate the extent of the influence of the body, specifically bodily mixture, on the soul; this Galen does with examples from medicine (e.g., mental derangements with physical causes) as well as everyday experience (drunkenness, effects of physical environment). How, he asks, could a soul which is not corporeal be affected by such physical factors, and indeed be caused to leave the body as a result of certain physical conditions? In a number of passages, he suggests not just the dependence of the soul on bodily mixture, but the identity of the two. (Singer, 2016)

Similarly, the fact that the *thumoeidês*, which encompasses a range of emotional reactions related to anger, indignation, shame, pride, anxiety, fear, is located in the heart, is shown by a number of examples, both from everyday experience and from traditional thought, in which the pulse plays an important role. (Singer, 2016)

Singer recalls that Galen exemplifies and expounds this view at length in his refutation of Chrysippus. Such relationships between physical states and mental ones are also explored in a range of medical texts too. Galen makes interestingly precise attempts at identifying physical correlates for a range of psychological or emotional states, in terms of the precise actions and states of heart or blood. Relevant here too are the medical discussions in which it is clearly implied that certain types of physical state—e.g., excess of melancholic humors—are causative, if not constitutive, of certain mental states.

In order to unite his theories about the soul, Galen renovates the old theory of the *pneûma*, which he elaborates further to explain how the soul operates within its assigned organs, and how these organs, in turn, interact together. In Galen’s new physiology, the body is the framework of intertwined flows, of which some are flowing continuously and other rhythmically. He distinguishes the psychic *pneûma (πνεύμα ψυχικόν – pneûma psukhikón)*, which is produced in the brain and flows through the nervous system; the physical *pneûma (πνεῦμα φυςικόν – pneûma phusikón)* which

is produced in the liver and brings blood and nutrition to the body through the veins; and the vital *pneûma (πνεῦμα ζωτικόν – pneûma zôtikón)*, which is in turn produced in the heart and flows rhythmically in the arteries.

In short, the very tripartition of the soul between three organs, the attention paid to the physiological flows that link them with the body, and the correlations between a range of physical and psychological or emotional states, seems to suggest a "mind-body identity theory."

> It is tempting, in view of the correlations that Galen explores, both between the functioning of the rational soul and states of the brain, and between emotional disturbances and states or activities of the heart and blood, to see him as advancing either some form of dual aspect theory or, indeed, a mind-body identity theory. (Singer, 2016)

However we are warned that Galen's conception of the relation between body and mind is far from monolithic. It actually constitutes a "complex" theory—in the modern sense of a system of interacting parts endowed with internal tension—basically because it is trying to harmonize Plato's view on the soul, and the Idealist ethics which is based upon it, with more recent anatomical and physiological discoveries, which on the contrary have more or less Physicalist implications.

Concurrently with the Hellenistic medicine of Herophilus and Erasistratus, Galen's theory is heavily influenced by his Platonic and Aristotelian philosophical background. This may account for the fact that Galen's theory is not completely "clear and consistent" (Singer, 2016), especially concerning the respective roles of the three psychic organs—heart, liver, and brain.

Galen refutes the contemporary Stoic view of the *hêgemonikón* as located in the heart, as against the Platonic-Galenic view of its location in the brain. This leads him to hold "a unitary view of the soul and its 'command center.'" Yet concurrently, he maintains that the "physical location of the other two Platonic soul-parts, spirited and desiderative (respectively, heart and liver)" still plays an important role. But, he is not able to make the same close connection between the liver and the heart and their psychological functions as he is for the brain. "The texts in question are unclear on the precise nature of the causal (or identity) relationship." (Singer, 2016)

From all available evidence, one may conclude that, on the philosophical level, Galen does not advocate any longer a firm materialist position as his predecessors, and therefore a direct correlation between heart, pulse rhythm and soul dynamic. In medical and physiological contexts, Galen seems to hold an "interactionist" view of the relation between body and mind, i.e. of two separate entities that are at the same time inseparable, firstly, because the *psukhê* is distributed between three bodily organs; secondly, because it operates through the intertwined flows of various kinds of *pneûma*, some of which move rhythmically; thirdly, because there is plenty of evidence of their constant interaction. But as far as the essence of the soul/mind is concerned, he is more of an agnostic. He maintains "the identity of the *mortal* parts [sc. the non rational parts as those located in liver and heart] of the soul with bodily mixtures," but he leaves open "the Platonic possibility that the (rational) soul is a non-bodily substance" and therefore immortal. (Singer, 2016)

> A consideration of all the relevant evidence, however, leads to a less clear-cut picture. The apparently clearest identity [of mind and body] statements come in dialectical contexts; it is at least arguable that Galen is here asserting the identity position not as his own but as the correct *Aristotelian* conclusion, on the basis of their equation of soul with form. Other passages, meanwhile, clearly affirm the identity of the *mortal* parts of the soul with bodily mixtures. Now, this certainly includes the non-rational parts; but, within this same text, Galen leaves open the Platonic possibility that the (rational) soul is a non-bodily substance. Such indeterminacy is consistent with his explicit statements of ignorance on this very question, the "substance of the soul". Other relevant evidence is the lack of clarity, in the medical texts mentioned above, as to the causal relation between mental events and physical correlates; and that some kind of interactionist picture seems implied by statements about the mutually beneficial relationship of soul and body and of their respective training. (Singer, 2016)

In other words, Galen is certainly the most important heir and transmitter of the Hellenistic medicine and its broad materialist orientation, but he is also one of the most powerful agent of its re-Platonization. He certainly not professes himself to be an Idealist but the space he provides to significant Platonic views is sufficient to allow a stronger return in the next centuries. While he suggests that the rhythm of the heart and of the arteries are correlated with the state of the soul, he limits it to its "spirited part." Moreover, his explanations of their interaction are much less clear than those he gives for its "rational part" located in the brain. Finally, since he maintains the possibility of an immortal soul, at least of a part of it, it is no wonder that he sometimes opens the possibility to think of the "pulse rhythm" not any more in a methodological way designed for diagnosis purposes but as an essence or a reality *per se* replicating the periodic movements of the heavenly bodies.

> Although sometimes this permanent regularity [of the succession of the dilation and the contraction] goes astray and some irregular motion occurs, just as we can observe in planets or in wandering stars a circular regularity *[in circuitibus paritas]*, just like these very planets according to which we say "as orderly as the motion of the Planets," so is the pulse, which is like a going round *[περιόδους ἴσων – periódous ísôn]*. (Galen, *Synopsis librorum suum de pulsibus*, 6, 9.445, my trans.)

The Growing Naturalization of Pulse Rhythm from the 3rd cent. AD

From the 3rd century AD, there was a growing naturalization of the pulse rhythm theory. Ironically, what was only meant by Herophilus and even, at least partly, by Galen, on a Materialist basis, as a technical concept intended to regularize observation and help diagnosis, began to be considered as natural. Rhythm which was quite consciously borrowed from theory of poetry, music and dance, i.e. as a culturally defined category, began to be taken as rooted in nature. According to this trend of thought, the arteries would move according to natural musical or metric rhythms. There would naturally be music and poetry in our body and this music would naturally be related with the cosmic music of the spheres.

In his treatise on time and divisions of time *De die natali*, Censorinus (first half of the 3rd century AD)

revisits Herophilus to claim that “the pulsations of the veins move in musical rhythms.” If Pythagoras could put himself to sleep by playing cithara and Asclepiades of Bithynia (124-ca. 40 BC) restore the minds of delirious people with music, this is because there is musical rhythm “in our veins” and harmony “in the movement of both the body and the soul.” The conclusion is clearly Platonic: since each individual has music in him, he must be linked somehow with the music of the cosmos. “Then doubtless music *[musica]* is not alien to the days of our birth.”

> [This is why Pythagoras, who wished that his soul should be always imbued with the sentiment of divinity, had, it is said, the habit of playing the cithara before abandoning himself to sleep.] And the physician Asclepiades restored the minds of people suffering from phrenitis [delirium]—minds agitated by disease—to their own nature through musical harmony *[per symphonian]*. But Herophilus, who practiced the same art, pretended that the pulsations of the [veins] *[venarum pulsus]* move in musical rhythms *[rhythmis musicis ait moveri]*. If, therefore, there is harmony in the movement of both the body and the soul *[si et in corporis et in animi motu est harmonia]*, then doubtless music *[musica]* is not alien to the days of our birth. (Censorinus, *De die natali*, 12, 4-5, trans. von Staden, my mod.)

Similarly, in his commentary on Martianus Capella (ca. 360-ca. 328) the neo-Platonic Latin prose writer, Remigius of Auxerre (ca. 841 – 908), a Benedictine monk during the Carolingian period, praises Herophilus for having examined “the rhythms of the veins.”

> Herophilus used to examine the bloodvessels of the ill through a comparison of their rhythms *[aegrorum venas rhythmorum]*. (Martianus Capella, *De nuptiis Philologiae et Mercurii*, 9.926, trans. von Staden)

There is evidence that this Platonic trend may also have developed branches very early among Persian and Arab physicians such as al-Razi – Rhazes (865-925), Ibn Sina – Avicenna (980-1037), Ibn Zuhr – Avenzoar (1094-1162), and Ibn al-Nafis, (1213-1288), who were eventually followed by the Unani medicine that was practiced in Mughal India and Muslim cultures in South Asia (beg. of 16th cent. – mid-19th cent.).

This trend in Islamic medicine should be one day researched thoroughly and naturally confronted with other evidence showing the development of empiricist views and even some anti-metaphysical stands. But we know that Avicenna, who was, as a physician, strongly influenced by Galen and, as a philosopher, by neo-Platonism, explicitly compared pulse rhythms to musical rhythms in his famous *Qānūn fī al-Ṭibb – Canon of Medecine*. The pulse embodied the intimate correspondance between microcosm and macrocosm. By virtue of its rhythmic quality, numerical proportions, and circular regularity, it was inherently musical (Farage, 2008, p. 24).

> You should know that there is in the pulse a musical nature *[quod in pulsu reperitur natura musice]*, for as the art of music is realized *[ars musice completur]* [in the melody] according to the relation between them as to high pitch and low *[per adiunctionem sonorum secundum proportionem comitantem eos inter acuitatem et gravitatem]*, and in the [rhythmical] recurrence

> of time-intervals between the striking *[per circulos casuum et temporum qui sunt inter eorum percussiones]*, so it is with the pulse *[sic est dispositio pulsus]*: its temporal relation *[proportio suorum temporum]* in respect of [speed, regularity, weakness and quantity] *[in velocitate et spissitudine et debilitate et in quantitate]* is a [proportional, sc. rhythmical] relation *[est sicut proportio adiunctionis eius]*. (Avicenna, *Liber canonis*, Lugduni, opera Jacobi Myt, 1522, lib. I, Fen 2, Doctr. 3, Dict. 2, Sum. 1, trans. Leofranc Holford-Strevens, my mod.)

Since the translation of the *Canon* into Latin by Gerard of Cremona (ca. 1114-ca. 1187), Avicenna provided what may be the first list to become generally available in the Latin West of the five particular musical proportions said to be involved in the pulse: (2/1), (3/2), (4/3), (5/4) and (5/2). These proportions were selected from and adapted to the numerical proportions suggested by Galen with the intention, which was not that of Galen, of forming a musical series (Siraisi, 1975, p. 699).

In the West, according to Nancy Siraisi, the belief that music is inherent in the beating of the pulse "was widely held throughout the Middle Ages" (Siraisi, 1975, p. 689). She provides an impressive list of Western medieval music theorists who asserted "the inherence of music in bodily parts and functions, usually the virtues and humors and/or pulse": Aurelian of Réôme (fl. c. 840-850); Remigius of Auxerre (ca. 841-908); Honorius of Autun (1080-1154); Hugh of St. Victor (ca. 1096-1141); Richard of St. Victor (d. 1173); Jerome of Moravia (d. af. 1271); Bartholomeus Anglicus (ca. 1203-1272); Iacobus de Ispania (d. af. 1330) (Siraisi, 1975, p. 689, n. 1).

> Numerous brief but explicit statements of this belief, and of the associated ideas that music is present in other bodily rhythms and or in the virtues and humors can be called from the writings on music and music theorists and encyclopedists. For such writers, the idea of the musicality of pulse was, of course, one specific expression of the more general notion that musical harmonies inhere in the body and soul of man. (Siraisi, 1975, p. 689)

Siraisi also shows an extraordinary surge of interest for "the music of pulse" in Northern Italy between the 13th and 15th centuries in a milieu of physicians and university professors. She studies thoroughly the various contributions of Pietro d'Abano (ca. 1257 – 1316), Gentile da Foligno (d. 1348), Jacopo da Forli (ca. 1360 – 1414), Ugo of Siena (d. 1439), and Pietro Vermiglioli (fl. 1480).

She notices that passages on pulse rhythm in Galen's works and in Avicenna's *Canon* were repeatedly discussed and elaborated further by these physicians.

> Each of the authors named devoted between one and five folio pages to the discussion of the music of pulse, and all of them formally endorsed the concept, although with varying degrees of qualification. Their opinions ranged from the apparent enthusiasm for the harmonies of the universe and the music of pulse displayed in the lengthy and learned exposition of musical theory provided by Pietro d'Abano to the disinterest and probable skepticism evident in the much briefer account by Gentile da Foligno. (Siraisi, 1975, p. 691)

In the *Conciliator differentiarum philosophorum et medicorum – Conciliator of the Differences between Philosophers and Physicians*, Pietro d'Abano gave "the most extended and perhaps the mosts influential treatment of the subject" (Siraisi, 1975, p. 691). He was a professor of medicine, philosophy, and astrology at the University of Padua. His contribution opened a two centuries-long debate among Italian physicians while fixing its main outlines.

First, d'Abano provides the readers with a few practical definitions of consonance and dissonance and an account of the mathematical proportions used in music, but he pays particular heed to large Idealist definitions of music borrowed from Augustine (354-430 AD), Boethius (ca. 480-524 AD) and Isidore of Seville (ca. 560-636 AD).

Second, regarding rhythm in particular, although, reenacting some of Galen's own reflections, he voices a debate on the right manner to measure it—is the diastole to be compared to diastole or systole to systole or diastole to systole? Should the stroke be compared to the rest immediately following it? Or is diastole plus rest to be compared to systole plus rest?—the proportions between durations are held to be, as in Avicenna, distributed according a fixed mathematical and musical scale: (2/1), (3/2), (4/3), (5/4) and (5/2).

Third, due to the Idealist foundations of the medieval musical theory but also to the development of the new polyphonic practices of the *ars nova*, there is a contamination of the concept of rhythm by that of harmony.

At the end of Antiquity, as we will see, Boethius (ca. 480-524 AD) already claimed that "the whole union of our body and soul is by means of music. For the disposition of the body itself contains it; even so is the heartbeat *[pulsus cordis]* set in motion […] The condition of our soul and of our body seems in a certain way to be composed according to identical proportions" (*De institutione musica*, 1.1). Presumably, the pulse fell into the category of *musica humana*, the function of which was to "mix the disembodied life of reason with the body," to join the rational and irrational parts of the soul, and to "mingle together the elements of the body" (quot. and trans. Siraisi, 1975, p. 703). Rhythm itself was overlooked in favor of harmony, i.e. proper concordance of magnitudes and multitudes. Similarly Cassiodorus (ca. 485-ca. 585 AD) declared that "the science of music is diffused through all the acts of our life for this reason: if, in the first place, we do the will of the Creator […] Indeed, whatever we say or whatever is inwardly moved by the pulsing of the veins is proved to be associated through musical rhythms with the power of harmony *[per musicos rithmos armoniae virtutibus probatur esse sociatum]*" (quot. and trans. Siraisi, 1975, p. 702).

But, at the end of the Middle Ages, due probably to the joint teaching of music and medicine in the Italian universities, this association of rhythm and harmony is brought a step further. The pulse itself, like the different voices of a group of singers, is deemed either "harmonious" or "dissonant," and d'Abano uses indifferently such expressions as *consonantia pulsualis* or *proportiones pulsuales* (Pennuto, 2017, p. 63). The way is open for an increasing confusion between rhythm and harmony, the former being now considered as totally substitutable with the latter to the extent of their common proportional nature.

According to Gentile da Foligno (d. 1348), while variation of "speed and slowness" of the pulse remains analogous to variation of "proportion of sounds which has to do with the measuring of times

of motion and rest," i.e. what was properly called rhythm, its variation in "strength and weakness" are compared to variation in pitch of sounds, "according to high and low," i.e. harmony.

> A double proportion is attended to in musical sounds. One is that of the sounds themselves, because, that is, some are high and others are low. The other is the proportion of times. […] And in the same way it should be understood that two kinds of proportion are found in pulse. One, that is, which corresponds to the proportion of sounds properly so called, that is, according to high and low. The proportion in pulse that corresponds to this is that between strength and weakness. […] Similarly, in the second place, the proportion in pulse which is read according to speed and slowness corresponds to the proportion of sounds which has to do with the measuring of times of motion and rest. (quot. and trans. by Siraisi, 1975, p. 693)

But for Jacopo da Forli (ca. 1360-1414), "speed and denseness in pulse [themselves] are in some way like highness in tone. For the high tone moves the hearing quickly, but the low tone slowly. So the rapid pulse quickly impresses itself upon the touch" (quot. and trans. by Siraisi, 1975, p. 694). And one century later, quoting Avicenna, the Bolognese physician Giovanni Garzoni (1419-1505) similarly explains that the melodic proportions of the sounds as to high and low pitch match those *in pulsu* between the strength and weakness of the beat (Letterio, 1999, p. 249).

Finally, like in Boethius, body rhythm and harmony are related to those of the cosmos. D'Abano, who concurrently teaches medicine and astrology, claims that the movements in a sound human body are not only circular, repetitive and harmonious as those of the planets—"he names as parts of *musica humana*, the union of soul and body by mathematical harmonies; breathing; and, of course, pulse itself" (Siraisi, 1975, p. 704)—but that they are also directly influenced by them. Naturally there are some discussion among his followers about the way this influence may happen but whatever their personal philosophical opinion—the followers of Plato starting from the heavenly spheres and Ideas, i.e. from *musica mundana*; the followers of Aristotle starting from the sublunar world and the sensible phenomena, i.e. from *musica instrumentis* then renamed *musica organica*—all agree on a model of the human body whose physiology is playing, singing, or beating a natural music.

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Between the 3rd century BC and the 1st century AD, Herophilus' pulse lore was discussed and sometimes rejected, but it was also the subject of new practical inquiry and theoretical elaboration, especially in the Pneumatic school of medicine with the works of physicians such as Agathinus and his pupil Archigenes. In this context, rhythm became a basic concept for medical semiology.

The 2nd century AD was a period of extraordinary efflorescence, due mainly to the work of Galen, but also to such authors as Marcellinus, Pseudo-Rufus of Ephesus, Pseudo-Soranus, and Pseudo-Galen. Elaborating further the concepts produced by their predecessors, these physicians laid the foundation of a sophisticated theory of pulse rhythm. They refined Herophilus' fundamental contribution, transformed it into a kind of medical canon, and ensured its extraordinary spread in the West—and beyond.

But Galen is also partly responsible for the twist in the medical research, which made it, at least to a certain extent, abandon its Empiricist and Materialist foundations in favor of more Idealist ones. The Platonic concept of rhythm which had been acclimated in medicine initially out of practical reasons, began as soon as the 3rd century AD to be considered, concurrently with harmony, as naturally and really existing in the body, and therefore as replicating or expressing in it the "music of the cosmos." As we shall see in the next chapter, this trend anticipated the development of a larger Platonic movement in the 3rd and the 4th centuries AD

Eventually, the Galenic legacy has been as long as rich. Galen's medical works and those of other authors that were attributed to him were regarded as authoritative until well into the Modern Times. They heavily influenced medieval Islamic medicine and became the mainstay of the medieval physician's university curriculum. During the Renaissance, they were translated from Greek into Latin and were still commonly studied in medical schools until the 18th century. They largely spread the Herophilean pulse rhythm theory—most ot the time in its re-Platonized version but not always—all over Islamic and Western scientific culture.

Next chapter