

Introduction

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The majority of the contributions to this volume were first presented at a conference held on October 23–25, 2013 at the Freie Universität Berlin, organized by project C02 of the research centre SFB 980 “Episteme in Motion.”¹ This research centre investigates processes of knowledge transfer in pre-modern European and non-European cultures, building upon the hypothesis that transfers of knowledge take place continuously even when such knowledge is apparently stable. These processes are often subcutaneous, and frequently take place over a long period of time; they both create differentiations within the transmitted information and integrate new data. Processes of knowledge transfer do indeed involve an attempt to fix knowledge, to pass it on, and to codify it, but this movement also entails discarding previously established knowledge. As a consequence, every transfer of knowledge entails a negative aspect, that is, the loss of notions or, in some cases, the loss of entire bodies of knowledge.

This background is especially illuminating in the case of the Pythagorean tradition. The teachings and doctrines attributed to Pythagoras show in a paradigmatic way how knowledge undergoes transfers and modifications even when it is commonly considered to be stable. In fact, within Pythagoreanism the transfer of knowledge takes place in at least three ways: a) bodies of knowledge are passed on, fixed, codified, or discarded within the different epochs and contexts of Pythagoreanism; b) the transfer of knowledge takes place between a variety of textual genres and diverse argumentative contexts, which in turn influence and transform this knowledge; c) the transfer of Pythagorean knowledge occurs between different social circumstances, institutional conditions, and geographical areas – all of which are factors that manage to generate ever-new forms of knowledge, which depend on the practical and theoretical environments.

Such modes of knowledge transfer can be observed in Pythagoreanism from the very start. Immediately after his death, the name of Pythagoras was used to legitimize and authorize various forms and strands of knowledge, including religious, philosophical, and scientific doctrines. In the Classical period, Plato took over important aspects of Pythagoreanism, as did the Old Academy with its

1 A detailed conference report (in German) can be found online: http://www.sfb-episteme.de/Listen_Read_Watch/berichte/Pythagoras-Tagung_Renger/index.html (accessed 01.01.2016). The present volume also contains contributions that were not delivered at the Berlin conference.

mathematical doctrines. In the Hellenistic period, a rich pseudepigraphic tradition ascribed to Pythagoras himself or to his pupils made it even more difficult to distinguish the original teachings of Pythagoras from the doctrines of the Pythagoreans and from the doctrines attributed to them by non-Pythagoreans. In our main source on Pythagoras, the *Vitae* of the imperial age, his life and teaching were systematically idealized through embellishing anecdotes. It is difficult, if not altogether impossible, to determine who Pythagoras really was, and what kind of knowledge he produced and transmitted. Nonetheless, both in ancient and modern times this vacuum has invited various attempts to fill the gap. In literature, art, religion, philosophy, and science two juxtaposed understandings have come to the fore: on the one hand, Pythagoras is seen as a religious leader, and on the other as a philosopher and scientist.² Already in antiquity these understandings led to very different approaches to Pythagorean knowledge, yielding a variety of interpretations that are still debated in contemporary scholarship. Accordingly, in the last century two approaches to Pythagorean knowledge became dominant: on one side we find the study of its shamanic and religious aspects, which were traced back to the legend of Pythagoras himself,³ and, on the other, the analysis of its philosophic and scientific aspects, which often entailed the attempt to minimize or even negate the irrational elements of proto-Pythagoreanism.⁴ It should be noted that in ancient Pythagoreanism both these forms of knowledge were characterized by a radical claim to truth – that is, they were both considered to be epistemic bodies of knowledge, albeit of different kinds.

Various attempts have been made to connect and harmonize these bodies of Pythagorean knowledge. The seminal works by Burnet, Cornford, and Guthrie presented Pythagoras as both a religious leader and a scientist.⁵ Yet, given that such reconstructions invariably contained contradictory aspects, in more recent years we have seen a trend towards isolating these two bodies of knowledge and analysing them singly.⁶ The result has been that the manifold kinds of Pythagorean knowledge have often been studied separately, and the contexts of their origin, transmission, and dogmatization have retreated into the background.

The goal of the present collection is to reverse this trend. The volume addresses the question whether and to what extent the practical knowledge of Pythagorean agents transmitted in the *akousmata* and *symbola* – with the ascetic and “superstitious” aspects presented by institutionalized precepts and rules of life – is related to more doctrinal fields of knowledge such as religion and science.⁷ This

2 For an overview of the history of Pythagoras’ reception, see Renger / Ißler 2013.

3 See especially Dodds 1951, Burkert 1962/1972, and Kingsley 1995 and 2010.

4 This approach was championed in the past by Zeller 1886. See, most recently, Zhmud 2012.

5 Burnet 1908, Cornford 1922/1923, and Guthrie 1962.

6 See the works by Carl Huffman, especially 1993 and 2005.

7 It is, for example, a well-known fact that the doctrine of the migration of the soul exerted great influence both on the Pythagorean “rules of life” and on more abstract theories about the nature of the cosmos. See e. g. von Fritz 1963, 242.

aim should not conceal the fact that substantial tensions arose within the Pythagorean community quite early on, eventually leading to a split between those who took Pythagorean knowledge literally and ritualistically (the *akousmatikoi*, who were dealing with the mere “fact,” the *hoti*), and those who interpreted it from a rational viewpoint (the *mathematikoi*, who were concerned with the “reason for the fact,” the *dioti*).⁸ These tensions imply that the different strands of Pythagorean knowledge underwent multiple changes from the outset. The teachings of Pythagorean leaders were interpreted differently depending on the level of initiation of the followers. This led to multifarious transformations, transmissions, and eventually also institutionalizations of Pythagorean knowledge: already in the fourth century BC rationalistic and dogmatic interpretations of the same doctrines and prescriptions were found side by side, resulting in a lack of clarity as to their authenticity. This trend was taken further in Late Antiquity, when scientific tenets and acousmatic rules formed an inextricable complex, as the biographical tradition on renowned Pythagorean leaders and actors unequivocally attests.

Considering these difficulties, this volume aims to reconcile aspects of Pythagorean knowledge which in modern scholarship are often considered to be heterogeneous if not altogether incompatible. The attempt is to show how and to what extent the religious and scientific bodies of Pythagorean knowledge are mutually intertwined. In this respect, an important part is played not only by the “original” literature on Pythagoras and proto-Pythagoreanism (Aristoxenus of Tarentum, Dicaearchus of Messene, Heraclides Ponticus, and Timaeus of Tauromenium), but also by the later *Vitae* (by Diogenes Laertius, Porphyry, and Iamblichus), whose biographical information is also useful for understanding the earliest phase of Pythagoreanism. The volume tackles the transfer of knowledge within Pythagoreanism from Early Antiquity to Early Modernity but also, within this process, grapples with the connections between the different strands of this knowledge, that is, between the epistemic doctrines of Pythagorean science and religion and the practical wisdom extant in the tradition of *akousmata* (e. g. rules related to way of life, moral precepts and taboos concerning the community of goods, and the involvement of women in politics and intellectual life).

Yet, how should one define these diverse fields of knowledge? Or, to formulate the question more sharply, where is the line to be drawn between what is epistemic and what is not epistemic in Pythagorean knowledge? *Is there*, in fact, such a limit? Modern scholarship has given no definite answer to these questions, and even in antiquity there is no consensus as to which doctrines, beliefs, and life practices constitute the distinctive, feature of Pythagoreanism and which do not. There even seems to be, from ancient to modern times, a general disagreement

8 On this split see Burkert 1972, 192–193; Kahn 2001, 15; Huffman 2006; Riedweg 2007², 139–142, and, most recently, Horky 2013, 4–35 (who identifies the *mathematikoi* with Aristotle’s *kaloumenoi*).

about what exactly Pythagorean knowledge is. This difficulty is directly related to the problems that arise from the textual evidence we have on Pythagoreanism.

To take one example: It is striking that a major source such as Aristotle gives very different accounts of Pythagoreanism. In his extant writings he dwells mostly on its epistemic aspects, whereas in his lost two-book treatise on the Pythagoreans he seems to have presented, in addition to these aspects, what we would call the pseudo-epistemic, or even non-epistemic, features of Pythagorean knowledge.⁹ This ambivalence is paradigmatic for the Pythagorean question, and therefore deserves closer attention.

In his extant writings on the Pythagoreans, and especially in book Alpha of his *Metaphysics*, Aristotle's aim is to provide a survey of his predecessors, the focus of which is not to take into account *all kinds* of human wisdom, but only those which fall into what he calls *episteme*, that is, a knowledge based on scientific principles. In light of these principles, the *aitiai*, Aristotle determines which of his predecessors should be considered a philosopher or not, and which doctrines should be included in or excluded from his enquiry. This methodological stance is very important for understanding Aristotle's account in book Alpha, as it makes clear that he is concerned not with Pythagoreanism as such nor with Pythagoreanism as a whole, but rather with a specific aspect of it, namely its scientific doctrines as they apply to cosmology, arithmetic, and geometry.

In the fragments of Aristotle's lost treatises on Pythagoreanism we get a somewhat different picture. Here, in addition to doxographical accounts of scientific doctrines, we learn important details about Pythagoras as a miracle-worker and about his school's life practices and ritual prescriptions, which hark back to the tradition of *akousmata*. These legends and rules form a conglomerate that is often at odds with common sense, and therefore difficult to understand from a strictly epistemic point of view.

Thus, in Aristotle – certainly one of the most thorough and important sources on Pythagoreanism – we come face to face with two different kinds of knowledge: on the one hand, epistemic accounts related to the Pythagorean sciences of cosmology, arithmetic, and geometry; and on the other hand, the pseudo-epistemic material which is often (but not always) linked to the religious aspects of Pythagoreanism.

Yet, what is the *connection* between these two kinds of knowledge? Is there, indeed, any connection? These questions go well beyond Aristotle, insofar as they concern the Pythagorean question as such. Moreover, they broach issues that have been much debated in modern scholarship, issues that are of central interest in this volume. First, there is a problem of *continuity*, since we must clarify how different kinds of Pythagorean knowledge evolved over time, were transferred from certain practical and theoretical contexts to other contexts, and thus

9 On Aristotle's account of the epistemic and non-epistemic aspects of Pythagorean number theory see most recently Primavesi 2014, who draws upon Alexander of Aphrodisias' report of Aristotle's lost monograph.

were transformed themselves while remaining connected to their founder and ancestor Pythagoras. Second, there is also a problem of *complexity*, since we are faced with strands of knowledge that are not only highly heterogeneous but also related to disciplines and methodological approaches very different from each other. This means that we cannot explore specific aspects of Pythagoreanism by isolating them from the context to which they belong. As Walter Burkert stated in his widely celebrated book, in order to understand such contexts we must “look for the causes which brought transformation to the picture of Pythagoras.”¹⁰ Such an enquiry requires a “many-sided approach,” in which one does not study one topic or discipline at a time, but rather looks for the multidisciplinary and complex inter-relations between different issues and methodologies. The evidence we have on the epistemic and pseudo-epistemic strands of Pythagorean knowledge suggests that even a basic question such as the identification of what is Pythagorean and what is not, including the question of which texts or actors should or should not be associated with the Pythagorean tradition, must involve the issue of how Pythagoreanism underwent transfers and changes through the centuries while remaining sufficiently stable to be clearly identifiable as a whole.

One aim of the present volume is to explore the connections between the different forms of Pythagorean knowledge as well as among its multifarious transformations and refractions from antiquity to modernity. Looking for such connections entails examining an entire set of questions, some of which constitute major issues in Pythagorean scholarship. For example, what is the link between Pythagoras and his followers? Or between Early Pythagoreanism up to 350 BC and the Neo-Pythagoreanism of the imperial age? Or between the religious and the scientific aspects of Pythagoreanism? Or between the different ways to deal with Pythagorean knowledge, with the “knowing-that” (the *hoti*) of the *akousmatikoi* and the “knowing why” (the *dioti*) of the *mathematikoi*?

To be sure, most of these questions have been addressed since antiquity, and will probably remain unresolved in the long run. Nonetheless, the multidisciplinary and diachronic structure of this volume paves the way to gaining at least a better understanding of them. Its sections are dedicated to topics of Pythagorean knowledge such as Orphism, metempsychosis, way of life, dietetics and medicine, number and harmony, and philosophy. This interdisciplinary approach is coupled with a diachronic perspective that encompasses the earliest extant texts on Pythagoreanism, Aristotle, Neoplatonism, the Christian and Arabic Middle Ages, the Renaissance, and the Early Modern period.¹¹

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¹⁰ Burkert 1972, 11.

¹¹ This diachronic approach will hopefully contribute to an expanded understanding of the Pythagorean tradition, following the example of a recent treatment of Thales and the Milesians, on whom Georg Wöhrlé has provided a collection of textual evidence reaching down to the fourteenth century AD (Wöhrlé 2014).

The book is divided into thematic sections, each of which focuses on the diachronic and synchronic transfer processes of Pythagorean beliefs and tenets in a specific area of knowledge. The first section of the book deals with religious issues related to the connections between Orphism and Pythagoreanism. **Alberto Bernabé** focuses on Pythagorean eschatology and distinguishes between Orphic and Pythagorean beliefs in the afterlife. He evaluates Orphic testimonies about eschatology and shows how these were transferred into religious doctrines of Pythagoreanism held in different times and places. He then analyses how these eschatological beliefs can be harmonized with the Pythagorean doctrines of metempsychosis. **Francesc Casadesús** deals with the famous fr. 129 of Heraclitus. He also shows that Pythagoras, and Pythagoreanism, drew on various doctrinal elements of Orphism, such as deploying music as a means to influence other people, the capacity to communicate with animals, and the ability to travel to Hades. Pythagoreanism may also have absorbed the notions of the immortality and transmigration of souls from other religious doctrines, including Orphism, presenting them as its own. Such appropriation could appear to be fraudulent, which leads Casadesús to the conclusion that there are sufficient grounds to argue that Heraclitus' criticism of Pythagoras was not unfounded. **Luc Brisson** analyses the myth reported by Iamblichus on Pythagoras' initiation into the Orphic Mysteries through the intermediary of Aglaophamus, showing how this tale was taken up and refined by later Neoplatonists, thereby undergoing significant changes. This applies in particular to the Neoplatonists of the School of Athens, who interpreted philosophy as an ascent to the divine in which Pythagoras played the role of the initiate. Brisson concludes that Iamblichus portrayed Pythagoras in this way in order to explain why at the Neoplatonic School of Athens metaphysics and theology became indistinguishable.

A major issue for understanding the connections between Orphism and Pythagoreanism is metempsychosis, a doctrine to which the next series of papers is devoted. **Richard McKirahan's** paper deals with Philolaus' doctrine of the soul. McKirahan shows that by rejecting the doctrine of metempsychosis and the numerology of earlier Pythagorean thought, Philolaus comprehended existing things as products of limiters and the unlimited (B 1, 2, 6), and as a generalization of number according to which the world and its constituents are intelligible, whereby their being depends on numerical essences. The passage of Plato's *Phaedo* in which Socrates holds a discussion with Simmias and Cebes (86b6–7) provides hints for claiming that Philolaus regarded the soul as a *harmonia*. Pythagoras was the first archaic thinker to whom the doctrine of the transmigration of the soul was ascribed; **Sylvana Chrysakopoulou** brings together several Platonic passages that allude to the pre-incarnate state of the soul, and to the vision of truth encountered by the soul before entering the body. Chrysakopoulou shows that Plato's *theoria* has forerunners in Parmenides and in Pythagorean eschatology. Various passages of Plato's dialogues display an "initiate" who is prompted to become the messenger of a beauty that is imperceptible to all other mortals in this

world. Such beauty is a cosmic music (*Resp.* 615a) which reflects the Pythagorean music of the spheres: the three Fates in the myth of Er, who are responsible for the souls' incarnation, are also the singers of a cosmic symphony on the Pythagorean model. **Gabriele Cornelli** also aims to analyse the tradition behind the theory of the immortality of the soul and metempsychosis. The testimonies of Xenophanes, Heraclitus, Ion, and Empedocles suggest that metempsychosis is a proto-Pythagorean theory. This suggestion is made most explicit by Aristotle, who uses the term *mythoi* to refer to the Pythagorean doctrines of the soul. In fact, as Cornelli points out, the Aristotelian lexicon reveals proto-Pythagoreanism as the source for doctrines on the immortality of the soul and its transmigration. The paper by **Bernd Roling** delves into the reception of Pythagoreanism in the Middle Ages. Roling shows that although metempsychosis became the focus of the Pythagorean doctrines known in the Middle Ages, the French theologian William of Auvergne (early thirteenth century) was the first to present a systematic refutation of the Pythagorean transmigration of souls. William's refutation would remain authoritative in later periods (e. g. in Albertus Magnus' *Historia animalium* and in Thomas of Aquinas's *Commentary on the Sententiae*), when Christian eschatology and classic hylomorphism had to defend themselves against the theory of the transmigration of souls.

A crucial issue in Pythagoreanism is the *tropos tou biou*, the "way of life" that characterized those who adopted the Pythagorean lifestyle, to which the next group of papers is dedicated. The Greek West, with its Pythagorean communities in the Classical age, plays a key role for understanding the historical context of the Pythagorean way of life. In his paper, **Maurizio Giangiulio** relies on evidence from Aristoxenus and Timaeus. Both had a profound knowledge of Pythagoreanism: to Aristoxenus we owe the paradigm of a "philosophical" life through social practices and styles of life; to Timaeus the first reflections on the saying *koina ta philon* ("friends hold all things in common") and on Pythagorean identity. Aristoxenus, however, took a polemical stance against Pythagoreanism by contrasting Pythagoras himself with the vegetarians of the same period, thus de-ritualizing the way of life he had been teaching; Timaeus, in contrast, had no knowledge of Pythagoreanism from the inside, and was not involved in the same polemic as Aristoxenus, but his contribution to understanding the Pythagorean *hetairiai* can be compared to that of Aristoxenus. **Claudia Montepaone** and **Marcello Catarzi** analyse the role of the Pythagorean way of life by focusing on Timycha of Sparta and Theano of Croton, whose paradigmatic behaviours can be understood as motivated by an acousmatic background. Both Timycha and Theano are described as models of virtue: the difference between the two is that while Theano teaches, essentially delivering precepts, Timycha enacts them. **Jan Bremmer** discusses the tradition of late antique biographies in connection with the lifestyle of the early Christian monks. A close analysis of parallels between these monks and the Pythagoreans enables Bremmer to conclude that such a lifestyle, as portrayed in Athanasius' *Life of Antony*, was profoundly influenced by Neopythagoreanism.

This influence is also evident in the Christian collection of the *Sentences of Sextus*. **Iaria Ramelli** shows to what extent this corpus contains Pythagorean ideas, and how Sextus' Christianized Pythagoreanism came to exert an indirect influence upon the spirituality of Christendom. In fact, the *Sentences of Sextus*, which probably date to the late second century AD, are a collection of primarily moral sayings inspired by Pythagorean ethics. Ramelli demonstrates how the Pythagorean substratum of the *Sentences* is adapted to a Christian milieu through careful reworking, and argues that the shift from philosophical to Christian asceticism is the most remarkable feature of this collection. Thus, the *Sentences* provide an interesting instance of the transformation of Pythagorean *askesis*. Porphyry's *Letter to Marcella* also contains a large number of *sententiae*. **Irini Fotini Viltanioti** claims that Porphyry drew these sayings from a prior collection of Pythagorean maxims, in order to present an exemplum of the proper Pagan-Pythagorean way of philosophical life to readers who were in danger of being attracted to Christianity. By resituating the Pythagorean moral sentences in their traditional context, Porphyry intended to prevent (Neo)Pythagorean moral wisdom from transferring to Christian circles. It seems however that Porphyry lost the battle, insofar as Sextus' "Christianized Pythagoreanism" came to exercise an indirect influence upon the spirituality of Christendom and, especially, upon the Greek Byzantine monastic tradition. **Luca Arcari** deals with another reception of Pythagoreanism in early Christianity: the *Cohortatio ad Graecos*, a work included in Justin Martyr's *corpus* and recently attributed to the Monarchian Bishop Marcellus of Ancyra. Arcari points out that in a passage dedicated to Pythagoras we have a construction of Pythagorean monotheism for Christian apologetic purposes. It seems that, by doing so, the author of the *Cohortatio* aimed to defend the so-called Monarchianism that developed around the period of Arian crisis. For Arcari, the re-invention of a Pythagorean religion constitutes a Christian apologetic discourse that is strictly linked to the invention of an Orphic monotheism, which is in turn seminal for the formation of Christian monotheism. A different understanding of Pythagorean *askesis* can be found in **Dirk Baltzly**'s paper, which deals with Proclus' *Timaeus* commentary. Here, a proper way of life derives from a correct reading of Plato's book, which is likely to transform souls through its reception. Baltzly argues that a text such as the *Timaeus* – apparently about things as concrete as the planetary order – should instead be thought of as symbolically revealing relations among higher causes. For Proclus' audience it provided the basis for a keener awareness of the unity of all things, and a sense of separation from visible bodies in the heavens, a separation that metaphorically becomes "the vast indifference of heaven." Pythagorean-Socratic *askesis* is limited to the ethical milieu, and therefore unlikely to transform the recipient into someone who has a "scientific" attitude towards nature. The Pythagorean way of life continued to be a core issue in the Early Modern period. In her paper, **Ada Palmer** shows that from the early fifteenth to the dawn of the seventeenth century, scholars with diverse backgrounds, nations, confessions, and intended audiences produced strikingly

similar depictions of a pious, virtuous, and above all monastic Pythagoras. Palmer shows that this way of depicting the ancient sage was apologetic, in the writers' own defence: humanists were presenting their own role models, the archetypes whom they wanted to embody and succeed; these figures also stood for activities and creations for which they needed to attract funding from patrons. This is evident in the work of Giovanni Aurispa (1376–1459), Marsilio Ficino (1433–1499), Francesco Filelfo (1398–1481), Raffaele Maffei (1451–1522), Filippo Beroaldo the Elder (1453–1505), Johannes Reuchlin (1455–1522), Michael Neander (1525–1595), and Johannes Arcerius Theodoretus (1538–1604). All of these humanists provided biographical sketches in which they emphasized the sacredness of their forefather Pythagoras. A major step in the discussion of the influence of the Pythagorean way of life on Christianity was taken by Richard Reitzenstein in 1914 (*Des Athanasius Werk über das Leben des Antonius*). Building upon Reitzenstein's work, **Jan Bremmer** deals in particular with the relationship between Pythagoreanism and Athanasius' *Life of Antony* as well as the origin of this discovery in modern scholarship. Bremmer shows that from the point of view of Athanasius, *askesis* was more important than martyrdom. For this reason, Antony is represented as recognizably Pythagorean, despite many differences. Certainly, Athanasius appropriated and transformed Pythagorean themes: his *Life* represents both an attempt to use pagan knowledge, the influence of which was paramount in Late Antiquity, and a desire to create connections between the lifestyle of the earliest Christian monks and those pagan traditions that displayed similarities to it.

Next we have a set of chapters which show that, even in fields of knowledge such as science and philosophy, an important role was played by *askesis* and way of life. It is clear, for instance, that throughout antiquity Pythagorean discipline exerted a strong influence on medicine. Dietetics as a specific therapeutic and preventive approach to health, however, did not develop before the middle of the fifth century BC. **Stavros Kouloumentas** focuses on medicine in a broad sense, as an intellectual field in which several thinkers propounded theories concerning the human body, well-being, and other interrelated topics, even though they were not physicians. Kouloumentas maintains that unlike other Presocratics, the Pythagoreans were not motivated by a "proto-scientific" interest in exploring microcosmic structures or healing individuals, but rather were inspired by moral and religious beliefs, since they adopted a lifestyle tightly governed by prohibitions and obligations. In his paper, **Andrew Barker** concentrates on reports of the fifth century BC onwards about the periods of human gestation. Ancient medical writers often discuss the theory that children born seven months after conception are viable while those born at eight months are not – a theory that entails some of the *akousmata* and ritual injunctions recorded by Iamblichus, which probably originated at a much earlier date. This suggests that the purpose of the Pythagorean reflections on periods of gestation may have been to provide this pseudo-epistemic knowledge with a theoretical foundation. **Hynek Bartoš** demonstrates that the medical discussion of dietetics, as attested by Hippocratic

authors and their contemporaries, influenced the reports about earlier Pythagorean tradition rather than the other way round. Indeed, the Hippocratic *Regimen* presents strong echoes of Pythagorean ideas such as the concept of harmony, *mimesis*, or the transmigration theory, which makes a transfer of knowledge from the Hippocratic School into Pythagoreanism more than likely. As Bartoš shows, the idea that health depends on due proportion between food and exercise, as attested in the *Regimen*, is identified by Iamblichus (*Vit. Pyth.* 29, § 163–164) as constituting a Pythagorean contribution to the field of dietetics.

The following section contains two papers on Pythagorean music. **Antonietta Provenza** maintains that among the Pythagoreans the use of paeans for healing and calming both rage and anger shows that catharsis was meant as a “purification” from every kind of excess. Thanks to this purification, strands of knowledge such as religion, medicine, and ethics were blended together to provide a harmonious order within individuals. Music and musical education also played a political role, since both were intended to foster social order. That said, as **Emidio Spinelli** shows in his paper, the importance of music in Pythagoreanism should not be overestimated. Commenting upon a passage of Sextus Empiricus’ *Against the Musicians* (= *M* 6), Spinelli points out that Pythagoras’ praise of the cathartic function of music does not entail a defence of its irrational elements. In other words, the role of music should not interfere with philosophical pursuits, which give primacy to a complete way of life through which one can attain inner balance and individual happiness.

Next we have papers addressing Pythagorean numerology and harmony. **Leonid Zhmud**’s paper tackles the twofold character of Pythagorean knowledge about numbers: on the one hand arithmology, which deals with pure mathematical properties; and on the other, numerology, which identifies number with concepts (i. e. *kairos* = seven, justice = four, etc.). Zhmud points out that the Pythagoreans did not attach particular significance to the number ten. In fact, the doctrine that forms the basis of Greek arithmology, that is, that the decad embraces the entire nature of numbers, was not Pythagorean, but rather Platonic. **Eugene Afonasin** shows how Clement of Alexandria occupies an intermediate position between the Neopythagorean biographical tradition and the literary practice which preceded the Neoplatonic synthesis. In his *Stromateis*, *akousmata* represent a first step toward virtue and wisdom: the highest possible knowledge (*gnosis*) must be gained through the mysteries of *Logos*.

A remarkable transfer of Pythagorean knowledge on number can be traced in the Arabic tradition. **Anna Izdebska** analyses two Arabic descriptions of a Pythagorean metaphysics of numbers, one contained in the *Ikhwān al-Ṣafāʾ* (*Brethren of Purity*) and one found in the works of al-Shahrastānī. According to the *Ikhwān* – an esoteric Ismaili fraternity of anonymous philosophers who were active in Basra and Baghdad around the ninth or tenth century – an analogy occurs between the nature of beings and the nature of numbers. Numbers do not constitute the principle of reality, since the Creator is the cause of all that exists. The Pythagoreans went beyond this level, and claimed that every number, small

and large, even or odd, integer or fraction, is composed from the One, which is the origin and the source of number. Abū l-Faṭḥ Muḥammad al-Shahrastānī, a Persian theologian who lived during the eleventh and twelfth centuries, provides a vision of Pythagorean number strongly informed by Islamic theology. Drawing from Neoplatonic Pythagorean authors, he derives different notions of oneness (*hen* or *monas*), which he identifies with the Intellect.

The connection between mathematical and ethical order is a peculiar trait of Pythagoreanism right up to the Early Modern period. Even in the “perfect” churches of the Renaissance, as **Christiane L. Joost-Gaugier** shows in her paper, the concept of universal order incorporated a moral reform that opposed war and other forms of depravity. It urged frugality, restraint, communal friendship, sharing property, and the practice of piety and justice. Earthly behaviour therefore reflected universal order, and enabled humankind to approximate God. **Wilhelm Schmidt-Biggemann** deals with Johannes Reuchlin’s *De Arte Cabalistica*, a work which bears evident traces of Pythagorean number theory. In particular, the second book of *De Arte Cabalistica* is explicitly Pythagorean, aiming to prove that Pythagoras, the first Greek philosopher, adopted Kabbalistic teachings. According to Reuchlin, the main teachings of the Pythagoreans were the theory of *possesst* and the world of numbers. For Reuchlin, *possesst* is the indefinite One. It entails the order of the spiritual world, which, in turn, is represented by numbers. **Samuel Galson**’s paper also deals with the influence of Pythagorean number theory on modern philosophy. Religious and scientific strains of knowledge are intertwined in Leibniz’s lifelong engagement with Pythagoras. In fact, as Galson shows, Leibniz associated Pythagoras with the investigation of symbolic systems, the system of pre-established harmony, and monadology. Moreover, Leibniz maintained that Pythagoras’ doctrine of immortality was based upon mathematical principles, but that in order to communicate it to a wider audience he “enveloped” it in the myth of metempsychosis.

We proceed, finally, to a set of papers devoted to transfers of ancient Pythagorean knowledge in Medieval and Early Modern contexts. A remarkable example is the presence of Pythagorean doctrines in the Caucasian philosophy of the Middle Ages. **Tengiz Iremadze** explores David the Invincible’s *Definitions of Philosophy* (sixth century AD) and Joane Petritzi’s commentaries on Proclus’ *Elements of Theology* (twelfth century AD). In these thinkers Pythagorean doctrines such as arithmology crop up, eventually becoming the subject of Christian reception and transformation. The influence of Pythagoreanism is especially evident in Petritzi, who considered the first principle of cosmos, and in particular the One, as a source of general philosophical concepts and definitions. The Arab reception of various Pythagorean strands of knowledge is the subject of **Beate La Sala**’s paper on Ibn Sīna (Avicenna) and Al-Ghazālī. Both of them adapted Pythagoreanism and transferred it into their own systems of thought. In his *Mishkat al-Anwar*, Al-Ghazālī employs Pythagoras’ ten categories with their opposites, while Ibn Sīna provides a rather critical depiction of Pythagorean mathematics, criticizing its

concept of number in relation to the idea of unity. La Sala shows that this critical attitude can be understood as common ground between Al-Ghazālī and Ibn Sīna, whose approach to Pythagoreanism is both approving and critical.

Denis Robichaud treats Marsilio Ficino's involvement with Pythagoreanism. As Robichaud points out, Pythagoreanism is much more central to Ficino's philosophical development than has hitherto been noted: not only Ficino's *De secta Pythagorica*, but also his *prisca theologia*, seems to be influenced by Pythagoreanism. Ficino's exposition of Plato's divided line is particularly interesting in this regard, as Ficino presents Plato as a follower of a Pythagorean doctrine. Modern scholarship would characterize this doctrine as Neoplatonic, but Robichaud shows that Ficino's interpretation draws on Pythagorean pseudepigrapha quoted by Iamblichus, namely Archytas and Brotinus. The paper of **Hanns-Peter Neumann** focuses on the formation of Pythagoreanism in the Early Modern period. Neumann shows that the term "Pythagoreanism" was coined by the French scholar Michel Mourgues (1642–1713), who in his *Plan Théologique du Pythagorisme* (1712) and the unpublished *Plan Philosophique du Pythagorisme* referred to the Pythagorean concepts that had the greatest impact on Plato, Aristotle, and the Middle and Neoplatonists. Contemporary with Mourgues, scholars such as Thomas Stanley, Ismael Boulliau, Newton, Leibniz, Ralph Cudworth, and others contributed to the transfer and re-adaptation of Pythagorean knowledge. Consequently, Neumann concludes, there were different ways of defining "Pythagoreanism", depending on which aspect of Pythagorean knowledge was to be used in argument.

The volume is rounded off by an appendix of texts on the Pythagorean way of life. **Emily Cottrell** provides a reconstruction of Porphyry's *Life of Pythagoras* according to al-Mubashshir ibn Fātik and Ibn Abī Uṣaybi'a, two Arab scholars of the eleventh century. In the introduction to the English translation of the text, Cottrell deals extensively with the sources of Ibn Abī Uṣaybi'a, namely: Ṣā'id al-Andalusī, Porphyry, al-Mubashshir ibn Fātik, and Plutarch.¹² Cottrell shows that the portrait of Pythagoras in the Arabic *Life of Pythagoras* is consistent with Porphyry's agenda. Pythagoras is depicted as a true successor of the Seven Sages, an initiate of Eleusis, and a disciple of Zoroaster. **Ada Palmer** presents two sixteenth-century accounts of the life of Pythagoras: the entry on Pythagoras from the *Commentarii Urbani* of Raffaele Maffei (1451–1522), and Michael Neander's (1525–1595) dedicatory letter for an edition of the *Golden Verses* accompanied by poems of Phocylides. As Palmer points out, Neander had Maffei's *Commentarii Urbani* on his desk when he wrote the dedicatory letter. The treatments are closely linked, since Neander took Maffei as his model and neither was composed as an independent work.

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12 A new edition and translation of the *Generations of the Physicians* by Ibn Abī Uṣaybi'a is underway by a team led by Emilie Savage-Smith, Simon Swain, and Geert-Jan van Gelder (see <http://krc2.orient.ox.ac.uk/alhom/index.php/en/>). It was not used by the author as it was not completed by the time of publication.

The thematic sections described above outline the many diachronic and synchronic transfer processes that take place within specific areas of Pythagorean knowledge. Such transfer processes have far-reaching consequences which cannot be limited to single, strictly defined bodies of knowledge. Orphism, metempsychosis, way of life, dietetics and medicine, music, number and harmony, late refractions of Pythagorean beliefs and tenets – these issues can by no means be separated from each other. On the contrary, they are vitally interconnected. Most of the contributions to this volume show quite clearly the interrelationships of all of these topics. Indeed, the present collection aims to enhance the study of the many links, transfers, and mutual interactions among the different forms of Pythagorean knowledge that have emerged throughout history, from Archaic Greece to Early Modern times.

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