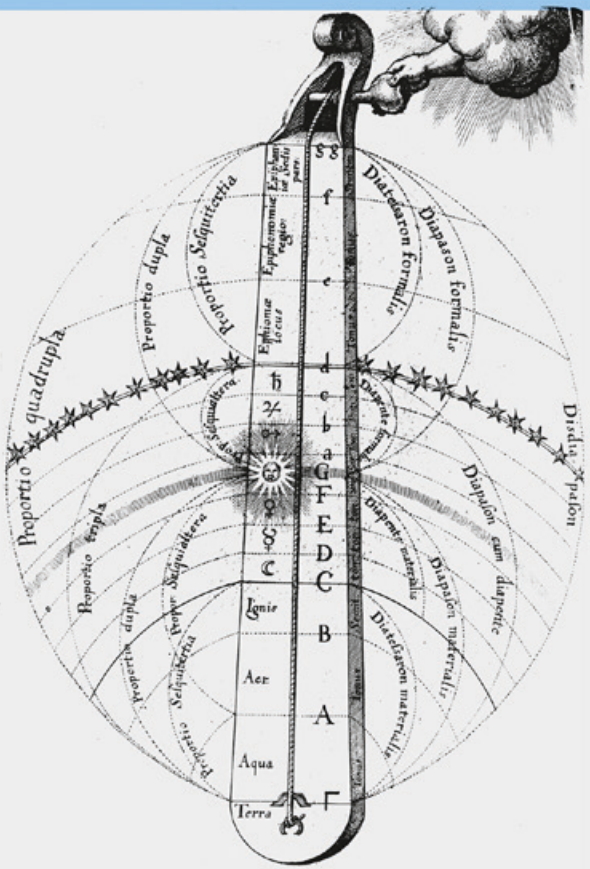
HARMONY OF THE SPHERES

Ancient and Recent Perspectives



sound studies

Edited by Ken Parry & Dean Rickles

BLOOMSBURY

Harmony of the Spheres

Harmony of the Spheres

Ancient and Recent Perspectives

Edited by
Ken Parry and Dean Rickles

BLOOMSBURY ACADEMIC
NEW YORK • LONDON • OXFORD • NEW DELHI • SYDNEY

BLOOMSBURY ACADEMIC
Bloomsbury Publishing Inc, 1359 Broadway, New York, NY 10018, USA
Bloomsbury Publishing Plc, 50 Bedford Square, London, WC1B 3DP, UK
Bloomsbury Publishing Ireland, 29 Earlsfort Terrace, Dublin 2, D02 AY28, Ireland

BLOOMSBURY, BLOOMSBURY ACADEMIC and the Diana logo are trademarks of Bloomsbury Publishing Plc

First published in the United States of America 2026

Cover design: Louise Dugdale
Cover photograph: © Print Collector/Getty Images

Library of Congress Control Number: 2026930649

ISBN: HB: 979-8-7651-5734-3
ePDF: 979-8-7651-5736-7
eBook: 979-8-7651-5737-4

Typeset by Newgen KnowledgeWorks Pvt. Ltd., Chennai, India

For product safety related questions contact productsafety@bloomsbury.com.

To find out more about our authors and books visit www.bloomsbury.com and sign up for our newsletters.

Contents

Figures

Acknowledgements

The inspiration for this volume came from a workshop organized by the editors in Canberra in January 2023. Most of the original papers are included together with several additional ones. We would like to thank everyone for their contribution and to acknowledge the Ngunnawal and Ngambri First Nations people on whose unceded land the workshop was held. We would also like to thank the John Templeton Foundation for funding the project [Grant ID 62106].

List of Contributors

Eva Anagnostou-Laoutides is Associate Professor of Classics and Ancient History at Macquarie University, Australia, and Australian Research Council Future Fellow (2017–23) on *The History of Inebriation from Plato to the Latin Middle Ages* (FT160100453). She has published on tropes and metaphors used to legitimize political power in the Hellenistic and the Augustan period. She has recently contributed to and edited two volumes in conjunction with Ken Parry, *Eastern Christianity and Late Antique Philosophy* (2020), and *Later Platonists and Their Heirs among Christians, Jews, and Muslims* (2023).

Eran Asoulin works in the fields of linguistics, philosophy and cognitive science, with a focus on the study of language and mind. His band (Bud Petal) has released five albums and is currently signed to the music label Hospital Hill. Bud Petal has played at the Sydney Fringe Festival several times, at the Melbourne Fringe Festival twice, at the Adelaide Fringe Festival, at the Canberra anti-Folk Festival, as well as countless shows in small and large venues across Australia. Eran is a documentary photographer, and recently published a book called *The Sydney Chronicles*, with one of his documentary photos a finalist in the Australian Life photography competition sponsored by the City of Sydney.

Harald Atmanspacher is Emeritus Professor of philosophy at ETH Zurich, Switzerland. As a theoretical physicist with more than three decades of experience in interdisciplinary research, he is known for his work on complex dynamical systems, non-reductive approaches in the philosophy of science, foundational questions of quantum theory, and non-commutative structures in physics and cognition. He is one of the principal architects of a systematic and coherent account of mind–matter relations called dual-aspect monism. Among his recent publications are *Dual-Aspect Monism and the Deep Structure of Meaning* (with Dean Rickles 2022); 'Quantum Approaches to Consciousness', in the *Stanford Encyclopedia of Philosophy* (2020; *Reproducibility: Principles, Problems, Practices, Prospects* [with Sabine Maasen] 2016).

Anna Corrias is a Lecturer in Liberal Arts at Ralston College, Savannah, Georgia. Her research interests lie in Renaissance philosophy, the transmission of classical texts, and the history of Platonic scholarship. Her publications include the monograph *The Renaissance of Plotinus: The Soul and Human Nature in Marsilio Ficino's Commentary on the Enneads* (2020), and the edited volume *Harmony and Contrast: Plato and Aristotle in the Early Modern Period* (2022).

Kim Cunio is Head of the New Zealand School of Music, Victoria University of Wellington, New Zealand, and was Head of the School of Music at the Australian

National University, Australia (2019–23). He is a composer, performer and researcher interested in old and new music. His compositions have been played at the Whitehouse, United Nations and festivals in many countries. Commissioning organizations include the Sydney 2000 Olympics, Art Gallery of NSW, National Gallery of Victoria, Melbourne International Arts Festival, and the Foundation for Universal Sacred Music (USA). Recent projects include a series of albums with the Gyuto Monks of Tibet; a project setting the sounds of space with the British Antarctic Survey, and a series of new works combining Western music and acoustic ecology. He publishes regularly and writes about music for the deans and directors of the Creative Arts and the Crawford Centre for Public Policy at the Australian National University. He has a regular segment on ABC Radio discussing music and the larger world and hosts a half hour TV show on Indian television for the Awakening Channel.

Madeleine Easton is an Australian violinist and an established performer on the international stage. She has appeared as both soloist and concertmaster, and director of the world's most respected ensembles, such as the Orquesta Sinfonica de Madrid, the Gulbenkian Foundation Orchestra of Lisbon, The English Baroque Soloists, the Australian Brandenburg Orchestra, The Orchestra of the Age of Enlightenment, The Gabrieli Consort, the Melbourne Symphony Orchestra, and The Australian World Orchestra. In 2017 Madeleine founded the 'Bach Akademie Australia', now a mainstay on the Australian music scene, regularly achieving five-star reviews.

Duane Hamacher is Associate Professor and Director of the Cultural & Indigenous Astronomy Program in the School of Physics at the University of Melbourne, Australia. His work examines humanity's connection to the stars and our presence in space in terms of science, history, culture and society, with a focus on Australian Indigenous Astronomy. He earned a degree in physics from the University of Missouri, a masters in astrophysics from the University of New South Wales, and a PhD in Indigenous Studies from Macquarie University with a thesis on Aboriginal Astronomy. He was a recipient of an Australian Research Council DECRA Fellowship, where he researched the astronomical knowledge and traditions of the eastern Torres Strait islanders. He held positions at UNSW and Monash University before taking his role at Melbourne in 2019, then spent a year at Heidelberg University in Germany as a CAPAS Fellow in the Kate Hamburger Centre for Apocalyptic and Post-Apocalyptic Studies.

Murray Lee is a Professor in Criminology at the University of Sydney Law School, Australia. His research interests focus broadly on representations of crime and criminalization. His current research involves the criminology of popular music. Murray is author of *Inventing Fear of Crime: Criminology and the Politics of Anxiety* (2007), and co-author of *Policing and Media: Public Relations, Simulations and Communications* (2013).

Nigel P. Meredith is a research scientist in the Space Weather and Atmosphere team at the British Antarctic Survey, UK. He investigates fundamental problems in radiation belt physics with relevance to space weather hazards. He develops global plasma wave

models, essential for the operation of radiation belt models in the UK, Europe and the United States. He is also interested in extreme space weather and has applied extreme value analysis to determine the 1 in 100 year space weather event levels for low, medium, geosynchronous and high earth orbit to help assess the impact of extreme events on the satellite fleet. He also enjoys exploring the use of scientific data as art and is the science lead in a multidisciplinary art–science collaboration inspired by the 'sounds of space'. He was recently awarded the 2025 Chapman Medal from the Royal Astronomical Society for his transformative surveys of plasma waves and wave-particle interactions in the earth's radiation belts, his analysis of extreme space weather events, and his contribution to public outreach through the Sounds of Space Project.

Malek Mohammadi Nejad Charghouyeh is an interdisciplinary scholar and musician who brings his practical knowledge of ancient Iranian architectural restoration, through a master's degree from Tehran Azadi University, into dialogue with his studies of music, poetry and philosophy. He is a setar player and composer, whose first CD, *Karavankosh*, was published in 2022 with Anna McDonald. He is currently studying for a PhD at the ANU School of Music.

Rachel Morgain is a Senior Research Fellow and Deputy Director of the Melbourne Biodiversity Institute in the School of Social and Political Sciences at the University of Melbourne, Australia. She is an interdisciplinary researcher and practitioner who focuses on interweaving knowledge systems and the cultural, social, political and structural dimensions of how we care for living worlds. She studies how cultural systems shape our connections with the diversity of all living things, through art, religion, popular culture, social movements, and political and economic systems. Through the Melbourne Biodiversity Institute, she builds interdisciplinary cross-sector partnerships to solve the complex challenges of biodiversity loss. She has co-managed the Conservation Futures Project, building an integrated knowledge system to support culturally sensitive participatory place-based knowledge sharing, story-weaving and planning. She earned an honours degree in astrophysics from Melbourne, then completed an honours degree in Gender and Cultural Studies, followed by a PhD in anthropology, at the Australian National University, Australia.

Ken Parry is Honorary Senior Research Fellow, Department of History and Archaeology, Macquarie University, Australia. He was President of the Australasian Association for Byzantine Studies (2014–2019), and publishes in the fields of Late Antiquity, Byzantine Studies, and Eastern Christianity. He is the author of *Depicting the Word: Byzantine Iconophile Thought of the Eighth and Ninth Centuries* (1996); editor of *The Blackwell Dictionary of Eastern Christianity* (1999), *The Blackwell Companion to Eastern Christianity* (2007), and *The Wiley Blackwell Companion to Patristics* (2015). He has contributed to *The Cambridge Intellectual History of Byzantium* (2017), *Brill's Companion to Byzantine Iconoclasm* (2021), and *Brill's Companion to Byzantine Philosophy* (forthcoming).

Georgia Pike-Rowney is a researcher, museum curator, and arts practitioner focussed on both historical and contemporary uses of the arts in education, health and wellbeing. She splits her time as the Friends' Lecturer in Classics and Curator of the Classics Museum at the Australian National University (ANU), and her creative arts outreach practice. Prior to her role in the Classics Museum, Georgia was Convenor of the Music Engagement Program (MEP) at the ANU School of Music from 2011-2018, and a researcher in the ANU College of Health and Medicine from 2018-2022. She is the Co-Founder of The Cordialis Foundation, an Australian charity extending the original mission of the MEP, empowering all individuals to actively engage in the arts for individual and communal wellbeing.

Goetz Richter is associate professor at the Sydney University's Conservatorium of Music, Australia, where he teaches violin performance, pedagogy, philosophy of music and supervises HDR students. Recent publications include 'Musical Performance as Poetic Thinking' (in *Heidegger and Music*, ed. Rentmeester and Warren, 2022) and 'Serious Play: Towards a philosophical understanding of interpretative musical performance' in *Gadamer and Music* (2024).

Dean Rickles is Professor of History and Philosophy of Modern Physics at the University of Sydney, Australia, where he is also co-director of the University's interdisciplinary Centre of Time. Recent books include: *Quantum Gravity and Computation: Information, Pregeometry, and Digital Physics* (co-edited with Xerxes Arsiwalla and Hatem Elshatlawy, forthcoming), *Philosophy of Mind for Psychonauts* (forthcoming), *Varieties of Nothingness* (co-edited with Leslie Stein, 2024), *Dual-Aspect Monism and the Deep Structure of Meaning* (co-authored with Harald Atmanspacher, 2022) and *Life is Short* (2022).

Diana Scarborough is an artist creating multidisciplinary works that intersects art, technology, history and the environment based in Cambridge, UK. Referencing scale and time, data, ecology and the invisible sciences, her time-based collaborative practice reveals a bias towards process, visualization and performance. Working directly with scientists she is able to understand the context of their research trajectory and outcomes with true understanding as she is also an engineer. Processes and implications of space weather, nanoparticle activity, historical developments of technology with social-economic implications all feature in works that highlight the unseen, the forgotten or global concerns transformed by a curiosity-led art lens.

Gerhard Wiesenfeldt is a Lecturer in the History and Philosophy of Science at the University of Melbourne, Australia. He researches the relationship between academic and practical knowledge in the physical and mathematical sciences – including astronomy – in early modern Europe and has published extensively on the history of early modern science and philosophy in Germany and the Dutch Republic. After reading physics, philosophy and history of science at the University of Hamburg, he completed a PhD in the history of science at Hamburg with a thesis on Experimental Natural Philosophy at the University of Leiden from 1675 to 1715. He held a Scaliger Fellowship at the University of Leiden, research positions at the Institute for the

History of Science, Mathematics and Engineering at the University of Hamburg and the Max Planck Institute for the History of Science, and a lectureship at the Friedrich Schiller University Jena before taking his current position in 2007.

Angé Weinrabe is an entrepreneur and academic whose research focuses on different ways to advance home healthcare technologies that benefit end users of all ages and cultures, in both clinical and non-clinical settings. She completed her BA Adv. Hons., MPhil (Med) and PhD (Science) at the University of Sydney, and was awarded the Postgraduate Research Prize for Outstanding Academic Achievement (2024), and the University of Sydney's Research Commercialisation Award (2023) developing MedTech mainly across Asia. She is author of *The Influence of Culture-as-Interaction on Addiction – Changing Scripts* (upcoming – co-authored with Dominic Murphy).

Editors' Introduction

Ken Parry and Dean Rickles

There is something suspicious about music, gentlemen. I insist that she is, by her nature, ambiguous. I shall not be going too far in saying at once that she is politically suspect.
Herr Settembrini, in *The Magic Mountain,* Thomas Mann[1]

The idea of the Harmony of the Spheres is an old and venerable one, finding isomorphism between the orderly nature of the cosmos and of music, with each reflecting the other. In the oldest recorded texts, the cosmos was said to have been brought into being with sound. However, as the chapters in this book reveal, how this basic correspondence is spelled out can vary greatly. The idea itself has mutated and evolved, changing its garments much over time and space and as it encounters new cultural influences. In the contemporary context, we find that it takes more of the flavour of a *discordance* in which the outer world reflects inner tensions, far from the lyre of Orpheus that represented the peace of Elysium. This persistence of theme through variations, however, only serves to underline the perennial nature of the concept of the Harmony of Spheres, and can even suggest routes down which we might ease such discord. This book intends to provide a timely review and reassessment of this concept that seems to hold within it some very deep truths about our world and our own place within it.

To modern ears, of course, the Harmony of Spheres can easily sound like an out-of-date, or even mythological concept. Yet to the ancients it was a core feature of reality, and still remains so to some indigenous peoples, and those more on what might be considered as the esoteric margins. It seems to reach back into our deep past to something primordial. The first book (16–1) of Diodorus of Sicily (written sometime between 60 and 30 BC) mentions that the Egyptians attributed something like the idea of Harmony of Spheres to Thoth – to whom are also attributed the gifts of writing, science, art and more – showing that the idea is very old indeed, preceding Pythagoras, to whom the concept is usually attributed.[2] Hathor, together with *The Seven*

[1] *Der Zauberberg* (S. Fischer Verlag, Alfred A. Knopf, 1924). Editors' translation.

[2] Of course, Pythagoras is said, by Iamblichus, to have been taught by Egyptian priests – in addition to receiving other teachings from the Chaldeans, Orphics and the Eleusinian rites. See *Vita Pythagorae* (85, 14–18), as cited in D. O'Meara, *Pythagoras Revived* (Oxford: Clarendon Press, 1991, p. 94).

Hathors,[3] were closely associated with music (and its close companion, dance) highlighting its deep cosmic importance for the Egyptians. The *Hymn of the Seven Hathors* in the Temple of Dendera in fact contains the line 'The sky and its stars make music to you', with the seven Hathors, like the seven celestial objects then known, possibly corresponding to tones of the diatonic scale – Pythagoras's own approach involved the interplanetary distances modelled as tones and half tones, resulting in the *diapason* (i.e. the octave), though the specific planetary correspondence might have been a later contribution.

Anna Corrias (Chapter 3) describes how Marsilio Ficino extended this 'music ↔ heavens' correspondence to a broader range of astrological notions (conjunctions, oppositions, etc.), showing how even this more complex structural harmony is still preserved above and below (in music). In this way, as Corrias shows, Ficino brings together the Pythagorean ideas with later Platonic and Neoplatonic ideas.

Ken Parry (Chapter 1) also describes the early development of Pythagoras's ideas, drawing in a broad range of figures in his historical survey of the concept of Harmony of Spheres in the Eastern Roman Empire from late antiquity through the early Islamic period. He traces how Pythagoras's ideas about cosmic harmony were reshaped during the first millennium CE in Christian, Jewish and Muslim contexts. Neoplatonists continued to develop their understanding of the theory in relation to cosmology and music, but only Pythagoras himself was said to hear celestial sounds. The Greek and Syriac patristic traditions were inclined to reject it as incompatible with biblical teaching, although the application of number symbolism continued. Church music and singing came to embody the idea of heavenly harmony. The theory was endorsed in the Jewish tradition by Philo of Alexandria but dismissed by later Jewish thinkers like Maimonides. However, it was embraced by the early Muslim scholar al-Kindī, who took over the Neoplatonic position and applied it to musical theory in the Islamic world. He links music with ethics much in the way Plato does. It was not until late in the Byzantine world that ancient theories of harmonics were once again discussed and investigated. Fascination with the Pythagorean theory of planetary harmony is clearly shown by its transmission across geographical, linguistic and religious boundaries.

Returning to the Egyptian system, we note that the idea of order and disorder (resulting in overall balance) is grounded in Ma'at (justice, goodness) and Isfet (chaos, evil) respectively, with the important concept of *Kingship* tantamount to a composer tasked with achieving harmony by the judicious balancing of the duality of the various opposing forces. Some interpreted the isomorphism in a far more literal sense, with Athanasius Kircher, in his *Musurgia Universalis*[4] depicting the universe as a kind of organ played by God to generate the symphony of reality, with the laws of proportion

[3] The Seven Hathor's were a kind of soul group (connected to the Pleiades cluster) aligned with the cosmic mother goddess Hathor as archetypal projections of sorts. Their role was to dispense healing and joy in the afterlife.

[4] *Musurgia Universalis, sive Ars Magna Consoni et Dissoni* ('The Universal Musical Art, or the Great Art of Consonance and Dissonance', Rome, Ludovico Grignani, 1650).

flowing down from the divine into the earthly structures, including the proportions of the human body as a microcosm, and also in the running of human affairs.[5]

This link to moral order and virtue is never far from the surface in discussions of the Harmony of Spheres, with harmoniousness itself figuring high in the list of virtues. Consider this passage from Elizabeth Myers[6] (discussing the Utopian, theosophist Katherine Tingley's 'Children's Department' at Point Loma):

> They should be taught to think of themselves as notes in a great song composed of myriads of notes all blending together and making harmony, and that when each child is unselfish and cheerful, a perfect note is struck. But selfishness introduces disharmony and makes the music discordant.

Yet it is clear from Kircher's perspective, that God does not shy away from the addition of discord. The tension in music gives it its emotional resonance. Harmony is not mere concord, and a world made in this way might well quickly stagnate, and a child moulded as described would simply not be a *human* child, with a mixture of both earthly and divine. Dean Rickles (Chapter 13) describes the curious balancing act that must be achieved by both music and the world, so that neither too much discord (disorder) nor too much concord (order) results, yet in which both are required (Harald Atmanspacher also touches on this issue in Chapter 12). This seems to be the challenge faced by a continuing reality, as the Egyptians well recognized, thus reaffirming the cosmic analogy between music and the world. Part of this balancing act is also to balance the eternal, atemporal aspects of music (which makes it indestructible and capable of being performed infinitely many times) with its temporal manifestation, which reveals another aspect of the Harmony of Spheres, and the correspondence between cosmic and earthly. Anna Corrias (Chapter 3) describes a similar vision in her discussion of Ficino, albeit in the context of providence (i.e. concerning the 'divine plan') and fate (i.e. concerning the unfolding of that plan on earth, in 'temporal reality'). Here the Harmony of the Spheres is then understood to be an expression of providence's design (in its enfolded state) with the Fates unfolding this atemporal order (divine harmony) into earthly events.

Malek Mohammadi Nejad Charghouyeh (Chapter 11) finds exactly such a role for music, as filling the gap between atemporal and temporal, divine and earthy, or, as he puts it: 'being and becoming'. Music must be unfolded in time, yet there is a timeless seed that unfolds that itself stands outside of that unfolding. Focusing specifically on Persian music, he argues that music is an 'idea sphere' (*alem'e mesal*) based on lived cultural experience that is connected to a range of material fabrications (e.g. architectural

[5] We find a similar statement in the *Hexameron* of St Basil the Great, speaking of God as 'the supreme artisan taking possession of the substance of the universe, forming the different parts in one perfect accord, and making a harmonious symphony result from the whole' (Basil the Great, *Hexaemeron,* from Homelies: I, II, V, VI, VIII, IX, Translated by Blomfield Jackson, *From Nicene and Post-Nicene Fathers*, Second Series, Vol. 8. Edited by Philip Schaff and Henry Wace (Buffalo, NY: Christian Literature Publishing Co., 1895, p. 377).

[6] Cited in Christopher M. Sheer, 'Katherine Tingley in Lomaland' (in M. Roth and L. George, eds., *Explorations in Music and Esotericism*, University of Rochester Press, 2023, p. 213).

geometry) which also attempt to embody what is divine by the embodiment of sacred geometrical principles. The long history of Persian music, with its roots in the Zoroastrian and Mithraic traditions, finds full expression in the mystical writings of Suhrawardi whose philosophy of illumination embodies the celestial origins of music. Music continues to play an essential role in the imaginal realm of Sufism.

Madeleine Easton (Chapter 8) finds a similar appearance of the Harmony of Spheres concept through Bach's music, which also stands as an approximate reflection of principles of cosmic harmony and divine order. Bach himself consciously worked philosophical and theological ideas into his music, with the link between the earthly and divine realms very much in mind. The mathematical basis of Bach's music, in which he utilizes symmetry principles (inversions, reflections and so on), as well as the Golden ratio and Fibonacci sequence, reveals how the spiritual aspects of life (encoded in the deeper mathematical principles) can be brought down into our experience (and the Book of Nature), so that we can come closer through music. Of course, the genius of Bach was to transcend any sort of mechanical incorporation of mathematics into music in order for us to come into the presence of the divine.

The notion of music as *bridge* between realms (higher and lower, above and below, heaven and earth), is part and parcel of the basic concept of Harmony of Spheres. The art–science collaboration of Kim Cunio, Nigel Meredith and Diana Scarborough (Chapter 9) was an attempt to create music from the natural 'sounds of space', by hybridizing these natural sounds into musical compositions, thus mixing heavenly and earthly in a concrete manner that results in a kind of narrowing of the two ends of the bridge. Scientific technology allows us to encounter the acoustics of the cosmos in ways that are new and exciting, and which in future may give us a better understanding of what ancient and indigenous cultures have long been telling us – that we are not just citizens of planet earth but participants of the universe.

Eva Anagnostou-Laoutides (Chapter 2) also draws on the notion of music as the bridge between the divine and terrestrial as providing a *path of spiritual awakening*. Both music and mathematics (describing the immortal forms) possess this ability to aid us in awakening and can be used to train us in methods to do so, also leading to ethical development as training for the soul. She traces this idea from the basic idea of Pythagoras, through to Plato and Neoplatonic thinkers, and then to St Augustine and other early Christian philosophers who worked the idea into their theological accounts, even treating Jesus' incarnation in terms of musical harmony – in this case, the most perfect 2:1 ratio of the octave. Much as Plato described the perfect Republic in musical terms, so St Augustine describes the heavenly city as a perfect harmony between God and the souls.

Murray Lee (Chapter 4) focuses on the aforementioned, undeniable aspect of music, of discord and disharmony, connecting it to his work in criminology and socio-political order, coining a new term 'musicriminology', to describe music's power as a socially disruptive force. As harmony is linked to social order, so disharmony is linked to dissent. Yet this need not be construed as a negative factor, as Plato might have, for example. Rather, it provides a backbone for social resistance and can be associated with the galvanization of entire social movements. It is sometimes necessary to disrupt

an entrenched order. The dissonances expressed in certain forms of music can act as mirrors, reflecting particular forms of marginalization and can serve as social critique. Indeed, this can be so significant as to lead regimes to ban certain kinds of music as too disruptive (which is of course the intent). Eva Anagnostou-Laoutides (Chapter 2) describes the historical precedent of this in Plato's *Republic*, in which the socio-political effects of music were well understood. For example, Plato favoured particular modes (Dorian and Phrygian) precisely because of their ethical qualities, while finding other modes (Ionian and Lydian) 'effeminate', having no place in the social order. Given its power, music was assigned a critical position in civic education, promoting (if used correctly) *sōphrosynē* (or moderation). Indeed, the Republic itself is represented much like a harmonious piece of music, with the acknowledgement that the 'wrong' music can lead to disharmony and dissent much as Murray Lee describes.

It seems that wherever there is discussion of order and number, connections to music are close at hand, as an example of a *projection* or *constellation* of these archetypes. And since the same archetype informs the cosmos, with its mathematical laws, we must *expect* an isomorphism. As the Pythagorean Philolaos of Croton put it:

> Number, fitting all things into the soul through sense-perception, makes them recognizable and comparable with one another … You may see the nature of Number and its power at work not only in supernatural and divine existences but also in all human activities and words everywhere, both throughout all technical production and also in music.[7]

Music, like mathematics, stands at a level that is precognitive, preverbal. It is *universal* in this sense, despite some cultural differences in receptivity. This deeper level that music can access can link to the body, as a somatic phenomenon, without conceptual mediation. Pythagoras of course argued that music had direct effects on the body, and its health and well-being. Indeed, in esoteric thought there is also the idea that the lyre is representative of the perfected human. This makes sense, of course, if the task is to copy the spiritual in the earthly albeit imperfectly. The more perfect the mapping, the healthier the system, bodies included. Angé Weinrabe and Eran Asoulin (Chapter 6) adopt a concrete approach to this link, exploring how sound frequency can directly affect human consciousness, especially through its connection to emotional regulation. Some of the latest neurobiological research is presented on the therapeutic uses of music, tracing the new ideas through traditional practices that aimed to bypass our awareness to gain entry to deeper bodily processes that can be used for healing various maladies. By the same token, and referring back to Murray Lee's chapter, such 'frequency medicine' can be used for good, but can also lead to negative outcomes which should be an object of further investigation.

Modern physics, while on the surface a long way from such ideas, tells a not dissimilar story. Here, according to quantum field theory, all things are in motion, ever

[7] In *Ancilla to the Pre-Socratic Philosophers*, by Kathleen Freeman (Harvard University Press, 1948, p. 76).

oscillating, and since sound is a kind of vibration, we have the Harmony of Spheres built in from the ground up. There is a rhythm to the processes in nature, from the planetary orbits down to the periodicity of atoms. The periodicity is an invariance. This rhythm seems to push through into the social world too, manifesting as historical cycles. Our bodies likewise are in some sense built from cycles, themselves linked to the external cycles. Duane Hamacher, Gerhard Wiesenfeldt and Rachel Morgain (Chapter 10) consider the harmony that results from an entrainment with the natural cycles of time in the seasons and celestial bodies, and discuss how certain indigenous knowledge of the correspondence between the cosmic cycles and earthly events is encoded into their music and dance (somewhat akin to Sufi whirling, which Weinrabe and Asoulin also discuss, and also the notion that souls are like dancers who move to the cosmic music described by Corrias in Chapter 3). This correspondence can become quite specific, as in Venus's synodic cycle, which is mirrored in the Banumbirr or Morning Star ceremony of the Yolngu people of Arnhem Land.

Goetz Richter (Chapter 5) argues for a view of music that goes far deeper than a historical, cultural product, and traces it to fundamental forms of consciousness. Any appearance within a historical, cultural context has its roots as a phenomenon of consciousness so that any value human beings and communities derive from it ultimately must go back there too. Hence, the call is to go back *to the music itself,* which is to go back to consciousness instead of agendas and ideologies. The question to be asked is, what sort of thing is 'music', or is it rather, a 'no-thing', meaning that it cannot be objectified and made into subject matter. Humans as *homo musicus* respond to the temporal form music takes, grasping hold of something that is abstract, transient and embodied at the same time. Its ambivalence may therefore veer to the demonic. The application of artificial intelligence (AI) to music is just that – artificial – without consciousness and all the elements of creativity that drive music makers to manifest music from the imaginative matrix of themselves.

The chapter by Harald Atmanspacher (Chapter 12) ultimately ends up in something not so far from Richter's goal, though getting there through a consideration of alchemy and hermeticism (which are, of course, themselves attempts to understand the bridge between heaven and earth and the bringing down of the divine into matter). This is based around a seventeenth-century controversy between astronomer Johannes Kepler and Paracelsian physician and occultist Robert Fludd. He contrasts Kepler's *trinitarian* scientific world-view with Fludd's *quaternarian* hermetic perspective, as two organizing principles for understanding reality. This debate is then connected to the twentieth-century collaboration between physicist Wolfgang Pauli and psychologist Carl Jung, exploring how Pauli and Jung developed a 'dual-aspect monism' that adds a psychophysically neutral domain to mind and matter. This neutral domain is one of archetypal patterns, somewhat akin to the providence of Ficino, and unfolds into the dualistic tensions between masculine and feminine, good and evil, and mind and matter, which enable us to have presentations of the deeper, archetypal realm in concrete forms (tantamount to the unfolding of fate, for Ficino).

Georgia Pike-Rowney (Chapter 7) focuses on the *discipline* of music and musicianship in the context of music education. The historical trend has been to

push music into a realm of experts with a focus on technical skill rather than deeper musical feeling (the ineffable component described by Weinrabe and Asoulin), which creates barriers to participation. This is very much in parallel with the more general world-view steeped in mechanistic materialism, which the present book seeks to chip away at, often looking back to pre-materialistic ideas to go forward. As Pike-Rowney argues, humans are innately linked to music (deeply so, given Richter's account), and so they possess a natural music-making ability that is being blocked by the overly rigid disciplinary practices of our current era. By softening music education, and perhaps looking to alternative practices, musical engagement will increase. Children often manifest a natural capacity for music that can be stifled later by social and cultural expectations that inform educational norms.

***

Our current paradigm of scientific materialism appears to be reaching its end, and as it does so there is a seeking for *what is next*. This, as so often happens, is a question pointing to the past as much to the future, with ancient wisdom resurfacing looking for its latest expression. Let this book, then, help us re-evaluate the links between humans and the cosmos, because there is a tendency to dismiss anything going beyond the idea that humans are nothing more than an accident born from cosmic coincidences. This is perhaps nowhere better expressed than by physics Nobel laureate Steven Weinberg:

> It is almost irresistible for humans to believe that we have some special relation to the universe, that human life is not just a more-or-less farcical outcome of a chain of accidents reaching back to the first three minutes, but that we were somehow built in from the beginning … It is hard to realize that this all [i.e., life on Earth] is just a tiny part of an overwhelmingly hostile universe. It is even harder to realize that this present universe has evolved from an unspeakably unfamiliar early condition, and faces a future extinction of endless cold or intolerable heat. The more the universe seems comprehensible, the more it also seems pointless.[8]

The result of this is an inevitable loss of connection to the cosmos, well described by Rémi Brague:

> For us, there is no longer any connection between cosmology and ethics, no longer any relationship between what we know of the structure of the physical universe and the way man thinks about himself and feels what he is and what he ought to be. Such is the common opinion of the modern era, which institutes such an extreme separation between the two realms that the question of their relationship is no longer even raised. This fact has been formulated in various ways, for example by saying that man has 'lost the world', or that he is 'alienated' from it.[9]

[8] *The First Three Minutes*, Basic Books, 1993, p. 154.
[9] *The Wisdom of the World,* University of Chicago Press, 2003, p. 216.

This volume is an attempt to remember the thread that weaves the story of humans into that of the cosmos, with music standing as a shining example capable of restoring the breach between us.

K. Parry and D. P. Rickles, June 2025

Part 1

Early, Medieval and Renaissance

1

The Harmony of the Spheres in late antiquity and the early medieval period in the East

Ken Parry

Philosophy is the greatest kind of music.

Plato, *Phaedo* 61A

Introduction

With this quotation from Plato making speculative thought a kind of music-making, we begin our study of the Harmony of the Spheres, focusing on the eastern part of the Roman Empire in late antiquity through to the early Islamic period. The reception of the idea in the Latin West (Hicks 2014, 2022) has received more coverage than in the Greek East. The time frame under discussion is a good place to start, however, because it is during this period – roughly the first five hundred years of the Common Era – that we learn most about Pythagoras's life and purported philosophy. This may seem surprising given that Pythagoras was a pre-Socratic philosopher who is thought to have lived in the sixth century BCE, but the emergence of what we call 'Pythagoreanism', or more strictly 'Neopythagoreanism', is better documented in the early centuries of the Common Era. Pythagoras was recast and promoted as the ideal philosopher as well as a teacher of the mysteries, this latter attribute being emphasized to bolster the status of pagan holy men, often as rivals to contemporary Christian saints (Baltussen 2020; Martínez 2022).

What was written about Pythagoras during late antiquity laid the foundations for the rediscovery of the Harmony of the Spheres in the Carolingian and Italian renaissances of the ninth and fifteenth centuries. The situation in Byzantium was somewhat different and still requires a detailed study (Kaimakis 2001; O'Meara 2007),[1] and although it contributed in its own way to each of these European renaissances, the modern distinction between astrology and astronomy is not always detectable (Caudano 2020). In general, we can say that there was a continuing interest among

[1] See the 'Pythagoras Byzantinus' project directed by Constantine Macris, Eudoxia Delli and Dominic O'Meara, sponsored by the Academy of Athens and CNRS Paris, from which a publication is forthcoming. https://academyofathens.dotsoft.gr/en/research/centers/philosophy/projects

Neoplatonic philosophers and followers of the Abrahamic faiths in the figure of Pythagoras and the various theories associated with his name.

For a general overview of the *Rezeptionsgeschichte* of the Harmony of the Spheres we are still reliant on Joscelyn Godwin's book published in 1993, entitled *The Harmony of the Spheres: A Sourcebook of the Pythagorean Tradition in Music*. Godwin's book focuses mainly on the Western tradition in the classical to renaissance periods, and the early modern period through to such figures as Kepler and Newton. Further studies of Western sources have been published since then (Kendall 2022), but I draw attention to Godwin's subtitle because of the reference to the Pythagorean tradition. This is the usual attribution given to the idea of the Harmony of the Spheres, but it is far from clear that it was the invention of Pythagoras himself or that it was exclusively Pythagorean, however we might understand that term. Behind Godwin's anthology lies the idea of the 'perennial philosophy', a form of comparative religion that universalizes texts from different traditions popularized in the late nineteenth century by the theosophists, and then by Aldous Huxley in his 1945 book with that title, who mistakenly thought the term was coined by Leibniz.

In fact, the term derives from the tenth-century Muslim historian and philosopher Miskawayh (Bosworth 2017), who refers to it in Persian as the 'eternal philosophy' (*Jāvīdān khirad*), the title of one of his books, which was translated into Arabic as *Kitāb al-hikma al-khālida*, and then into Latin as *philosophia perennis*. The Latin term comes from a volume published with that title in 1540 by the Italian humanist Agostino Steuco, which was part of a wider enterprise to promote the *prisca theologica* or venerable theology, supposedly underlying all religious traditions. The principle itself goes back to the Neoplatonists of late antiquity who attempted to bring Aristotle into harmony with Plato (Hadot 2015). For example, the Neoplatonist Olympiodorus in the sixth century exemplifies this principle in his commentary on Plato's *Gorgias*:

> Concerning Aristotle, we must point out that in the first place he in no way disagrees with Plato, except in appearance. In the second place, even if he does disagree, that is because he has benefited from Plato. (*in Gorgiam* 41, 9, Jackson et al., 267)

For the Neoplatonists any discrepancies between the two philosophers were only apparent and could be resolved in the interest of the Greek philosophical heritage, a process that began with Antiochus of Ascalon in the first century BCE (Karamanolis 2006: 44–84).

Pythagoras is a somewhat mythical figure in the history of Western philosophy who is said to have left nothing in writing and to have relied, like Socrates, on spoken communication for his ideas. Plato suggests that the so-called 'Socratic method' was dependent on the dialectics of the living voice, which may have contributed to Plato's own fashioning of philosophy in dialogue form. Much is made in the Pythagorean tradition of expounding Pythagoras's teaching by confining it to within the community, which was divided into the hearers (ἀκουσματικοί), those who were given the oral teaching, and the learners (μαθηματικοί), those who engaged in scientific study, with

the latter holding property in common and being bound to silence for five years. It is not clear what the period of silence was meant to achieve, apart from avoiding loquaciousness and maintaining modesty in speech, but it might have involved training to listen to cosmic sound, perhaps through a meditational technique, not unlike the apophatic visionary exercise centred on a sphere mentioned by Plotinus (*Enn*. 5.8.9, Gerson, 619).

Looking at the history of Pythagoreanism, we encounter a startling array of ideas and theories. The problem for Pythagoras is that we are dependent upon apocryphal and hagiographical writings about his life and teachings. Over time he became all things to all people, being burdened with a range of roles and opinions that frankly belong more to the world of fantasy than to philosophy. He has even been credited with being the first to use the term 'love of wisdom' (φιλοσοφία) and is often referred to as the first philosopher. Traditionally he is honoured with authoring the *Golden Verses* (*Aurea Carmina*), a series of moral exhortations made popular by the Neoplatonist Hierocles of Alexandria in the fifth century (*Commentary on the Golden Verses*, Schibli, 165–325). He was known as 'the long-haired one from Samos' who became a legendary figure in the ancient world and has remained so ever since, evidently possessing many New Age credentials.

Pythagoras is said to have been the son of the god Hermes in a previous life, perhaps because Hermes was the messenger of the gods who crossed the boundary between the human and divine, although his name derives from Pythios, an epithet of Apollo. The name Hermes was given to a body of late antique literature known as the *Corpus Hermeticum*, an amalgam of Greek and Egyptian wisdom written at different times and attributed to different sages (Copenhaver 1991). The collection comprises works on philosophy and the occult sciences, and is attributed to Hermes Trismegistus, the Thrice-Great Hermes, who is made a contemporary of Moses, in which the figure of Pythagoras appears as a prophet and soothsayer. Pythagoras himself is said to have travelled to Egypt to learn the arcane wisdom of the Egyptians. The *Hermetica* is referred to by Christian, Jewish and Muslim authors, and circulated widely in different languages in the Roman, Byzantine (Magdalino and Mavroudi 2006) and Sassanian empires. The corpus received an early translation into Arabic in the eighth century (Bladel 2009).

We have mentioned that it became common to present Pythagoras in a largely unhistorical fashion as a semi-divine figure with a golden thigh, who was responsible for all that was noteworthy in Greek philosophy, including many of Plato's and Aristotle's ideas. When it comes to the Harmony of the Spheres it is not mentioned, as far as I am aware, in the fragments of Philolaos of Croton, a Pythagorean of the next generation and a contemporary of Socrates (Huffman 1993: 279–83). However, he does link mathematics with music and cosmology, and it is of interest that he removes the earth from the centre of the cosmos, replacing it with a central invisible fire around which the earth, sun and planets orbit (*Fragment* 11, Guthrie, 170).

The apocryphal story of Pythagoras hearing the blacksmiths hammering on their anvils in the foundry is first found in our period. Iamblichus in his *On the Pythagorean Life* details the experiments Pythagoras undertook to prove his musical theory based