

## COSMOS IN THE ANCIENT WORLD

How did the ancient Greeks and Romans conceptualise order? This book answers that question by analysing the formative concept of *kosmos* ('order', 'arrangement', 'ornament') in ancient literature, philosophy, science, art and religion. This concept encouraged the Greeks and Romans to develop theories to explain core aspects of human life, including nature, beauty, society, politics, the individual and what lies beyond human experience. Hence, Greek *kosmos*, and its Latin correlate *mundus*, are subjects of profound reflection by a wide range of important ancient figures, including philosophers (Parmenides, Empedocles, the Pythagoreans, Democritus, Plato, Aristotle, the Stoics, Lucretius, Cicero, Seneca, Plotinus), poets and playwrights (Sophocles, Euripides, Aristophanes, Plautus, Marcus Argentarius, Nonnus), intellectuals (Gorgias, Protagoras, Varro) and religious exegetes (Philo, the Gospel writers, Paul). By revealing *kosmos* in its many ancient manifestations, this book asks us to rethink our own sense of 'order' and to reflect on our place within a broader cosmic history.

PHILLIP SIDNEY HORKY is Associate Professor of Ancient Philosophy at Durham University. In addition to his monograph *Plato and Pythagoreanism* (2013; paperback, with corrections, 2016), he has published articles and book chapters on topics in ancient philosophy ranging from metaphysics and cosmology to political theory and ethics. While continuing his research on Pythagoreanism in the Hellenistic and Post-Hellenistic worlds (in *Pythagorean Philosophy, 250 BCE–200 CE: An Introduction and Collection of Sources in Translation*, forthcoming with Cambridge University Press), he is also writing a monograph on pre-Aristotelian theories of language and ontology, provisionally titled *Prelude to the Categories*.

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# COSMOS IN THE ANCIENT WORLD

EDITED BY

PHILLIP SIDNEY HORKY

*University of Durham*



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*Roberto, magistro meo.*

*Qui strepitus circa comitum! Quantum instar  
in ipso!  
Sed nox atra caput tristi circumvolat umbra.*  
Virgil, *Aeneid* 6.865–6

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Mundus est universitas rerum, in quo omnia sunt et extra quem  
nihil, qui graece dicitur κόσμος.

Lucius Ampelius, *Liber Memorialis* 1.1  
(third century CE?)

That as the greater world is called Cosmus, from the beauty  
thereof the inequality of the Centre thereof contributing much to  
the beauty and delightsomenesse of it: so in this Map or little  
world of beauty in the face, the inequality affords the prospect and  
delight.

John Bulwer, *Anthropometamorphosis:  
man transform'd* (1653: 242)

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## *Acknowledgements*

Contributions to this volume are the product of a research seminar undertaken in the Department of Classics and Ancient History at Durham University from September 2012 to September 2013, under the auspices of the Centre for the Study of the Ancient Mediterranean and Near East, and culminating in a conference titled ‘Ancient Cosmos: Concord among Worlds’, on 20–22 September 2013. Participants in the research project over that productive year included Ahmed Alwishah, Carol Attack, Nicolò Benzi, Gábor Betegh, George Boys-Stones, Luc Brisson, Sarah Broadie, David Creese, Jackie Feke, Robert Germany, Phillip Horky, Donald Lavigne, Arnaud Macé, Grant Nelsestuen, Helen van Noorden, Pauliina Remes, Christopher Rowe, Malcolm Schofield, Gilles Sauron, Will Shearin, Edmund Thomas and Marijn Visscher. Papers commissioned for the volume specifically are those by Carol Attack, Renaud Gagné, Monte Ransome Johnson, Victoria Wohl, and the second chapter by Phillip Horky. It was during the Durham sessions of 2013 that the seeds of this volume were sown, but the contributions recorded here are only a shadow of the rich and, in many cases, surprising results of dialogue that continued throughout the year and beyond. In addition to the topics treated here, we glimpsed flashes of cosmic chaos reflected in the literary characters of Thersites and Silenus; sought to unravel the cosmological theory of Socrates’ enigmatic teacher in Athens, Archelaus; moved to the plectral harmonies that fascinated Ptolemy and inspired his take on cosmic first principles; observed in our collective mind’s eye the harmonic proportions upon which monumental ancient buildings in South Italy were founded; advanced upon the Greek philosopher Xenophon’s and the Roman polymath Varro’s correlative theories of agronomy and cosmonomy; and imagined the flood of divine essence that, for the Islamic philosopher Avicenna, constituted the universe itself and guaranteed its identity and knowability. Such topics express the range that was covered in the research seminar and indicate many avenues

### Acknowledgements

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for further research on *kosmos* in the ancient and medieval worlds that remain, at this point, only partially disclosed.<sup>1</sup>

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This volume was initially conceived in Durham in early 2014; revised and further developed at the National Humanities Center in the Research Triangle, North Carolina, in late 2016; and completed in Durham in early 2018. For the academic year 2016–17, the editor was supported by a residential fellowship from the Rockefeller Foundation (at the NHC), a grant from the Wellcome Foundation (for the Life of Breath project, hosted by Durham's Centre for Medical Humanities) and institutional leave granted by the Faculty of Arts and Humanities at Durham University. The editor received excellent support from the staff at the NHC, especially the librarians Brooke Andrade, Sarah Harris and Joe Milillo, and expert administration from Lois Whittington and Robert D. Newman, the NHC's Director. Lest anyone think musical harmony be separated from the words recorded here, the soundtrack for the editing and arrangement of this work included American Football, Art Blakey, Benny Goodman, Bon Iver, Eunoia, Grimes, Hum, Mastodon, S. Carey, the Shins and Sufjan Stevens. Specially reserved for preparing the indexes was John Coltrane. The cover art, *Floating Skies* by Etnik (2016), reflects the significance of cosmic expression in today's urban art scene; the editor kindly thanks the artist for the opportunity to use this sublime image of the world taking shape.

As always, the editor's greatest thanks go to Eliana, daughter of the sun, who provides life and love without pause or limit. For the Pythagoreans,

<sup>1</sup> The contribution on Archelaus has been published as Betegh 2016, and a version of the piece on Xenophon and Varro has been published as Nelsestuen 2017.

there is a fire in the heart of the *kosmos*; for him, it was, is and always will be her.

Just as this volume was approved for publication, one of its contributors, Robert Germany, passed away at the untimely age of forty-two years. Robert was a perpetual source of intellectual generation, expanding the boundaries of ideas into new shapes, with colours and hues that flickered with every passing word. He thought much on life, love, fate and the passage of time; on God, family, friends and strangers. His was a gaze fixed incessantly on the heavens. This volume is dedicated to his enduring memory.

Et cum tempus advenerit, quo se mundus renovaturus extinguat, viribus ista se caedent et sidera sideribus incurrent et omni flagrente materia uno igni quicquid nunc ex dispositio lucet ardebit. Nos quoque felices animae et aeterna sortitae, cum deo visum erit iterum ista moliri, labentibus cunctis et ipsae parva ruinae ingentis accessio in antiqua elementa vertemur. (Seneca, *To Marcia, On Consolation* 26.6–7)

## *An Historical Note on Κόσμος – Terminology*

The title and topic of the first chapter notwithstanding, the reader might wish to know when ancient Greek κόσμος was translated *into English* – in the notion of the ‘cosmos’. This presents an opportunity to reflect upon the life of this concept in the English-speaking world. The word κόσμος is anglicised for the first time in Middle English in a twelfth-century poem called *The Ormulum*, composed by a monk named Orm (or Orm) and dedicated to biblical exegesis.<sup>1</sup> There, in a commentary on the Gospel of John 3:16 (in the vulgate translation into Latin, *Sic Deus dilexit mundum, et filium suum unigenitum daret*),<sup>2</sup> we read,

& forr þatt manness sawle iss her  
 Wel þurh þe werelld tacnedd,  
 Forr baþe fallenn inntill an  
 Affterr Grickisshe spæche,  
 Forr werelld iss nemnedd Cossmós,  
 Swa summ þe Grickess kþenn,  
 Forr þatt itt iss wurrþlike shridd  
 Wiþþ sunne & mone & sterness,  
 Onn heffness whel all ummbetrin,  
 Þurh Godd tatt swillc itt wrohhte.      (*Ormulum*, 17,555–64)

Reconstruction of the poem’s contents is challenging, even for medievalists, but we can infer from the previous lines that the account here deals with the body and soul of man, both of which ‘fallenn intill an’ (fall into one). Orm explains that the ‘werelld’ (world) is called ‘Cossmós’ in the Greek language by ‘summ Grickess’ (certain Greeks), and he provides a description of the firmament as ‘wurrþlike shridd / Wiþþ sunne & mone & sterness’ (richly arrayed with sun, moon and stars) like a ‘whel

<sup>1</sup> Holt (1878). On the reception of the Greek concept κόσμος in English prior to 1850, also see Algeo 1998: 65. I thank Corinne Saunders and Helen Foxhall-Forbes for guidance with this text.

<sup>2</sup> The original Greek text reads οὕτως γὰρ ἡγάπησεν ὁ θεὸς τὸν κόσμον, ὥστε τὸν υἱὸν τὸν μονογενῆ ἔδωκεν . . .

all ummbetrin' (wheel all round). The author of the *Ormulum* apparently knew that *mundus* was the Latin term for Greek κόσμος, and Greek 'Cossmós' is taken to refer to English 'werelld' for the first time, although a lack of evidence showing similar adoptions from roughly 1200 to 1650 CE would be thought to indicate that Orm's coinage, as remarkable as it is, did not take hold.<sup>3</sup>

The term κόσμος once again makes its way into the English language in the seventeenth century, when it is transliterated from ancient Greek into English via a Latinisation to 'Cosmus'. This occurs in John Bulwer's *Anthropometamorphosis: Man Transform'd; or the Artificiall Changeling* (first edition 1650; second edition 1653; third edition 1654), a curious work that blends medical observations, especially the physiognomy of the face, with cultural anthropology:<sup>4</sup>

That as the greater world is called Cosmus, from the beauty thereof the inequality of the Centre thereof contributing much to the beauty and delightsomenesse of it: so in this Map or little world of beauty in the face, the inequality affords the prospect and delight. (Bulwer 1653: 242)

Bulwer expressly employs an argument by analogy: just as the asymmetry of the Cosmus is indicative of its beauty, so too the minor imperfections of the human face afford pleasure and joy. As interesting as these texts are, neither Orm's appeal to the Cossmós nor Bulwer's employment of Cosmus would have any traceable lasting effect on the English language.

Quite by the way, the transliteration of κόσμος most commonly recognised today, as 'cosmos', was popularised through two English translations of Alexander von Humboldt's influential five-volume work *Kosmos: Entwurf einer physischen Weltbeschreibung* (vol. 1 published in German in 1845). The first translation of this work into English, in 1845, by A. Prichard, and published by Hippolyte Baillière Publisher in London, was superseded by the authoritative version published in 1849 by Henry G. Bohn in London and translated by E. C. Otté. Both versions of Humboldt's compendium of natural philosophy anglicised *kosmos* to 'cosmos', effectively creating the expression of a concept that would have a lasting legacy in the English-speaking world. With the Greek notion of

<sup>3</sup> Orm refers to 'Cossmós' twice (at lines 17,559 and 17,592) and even, in relation to this, to the 'Mycrocossmós', the human being, which, as Orm explains, 'þatt nemmedd iss / Affterr Ennglisshe spæche / Þe little werelld' (ll. 17,593–7).

<sup>4</sup> Bulwer, a physician and author of five works that dealt with subjects like hand gesturing among the deaf, non-verbal facial communication and comparative cultural anthropology, is comparatively poorly studied.



the κόσμος, Humboldt found the concept he needed for his unique systematic contribution to the history of natural science:

By uniting, under one point of view, both the phenomena of our own globe and those presented in the regions of space, we embrace the limits of the science of the *Cosmos*,<sup>5</sup> and convert the physical history of the globe into the physical history of the universe; the one term being modelled upon that of the other. The science of the Cosmos is not, however, to be regarded as a mere encyclopaedic aggregation of the most important and general results that have been collected together from special branches of knowledge . . . In the work before us, partial facts will be considered only in relation to the whole. The higher the point of view the greater the necessity for a systematic mode of treating the subject in language at once animated and picturesque. (Humboldt 1849: 36, trans. Otté)

Humboldt, who is to be considered responsible for the modern conceptualisation and terminology of ‘cosmos’, constructed his own theory of nature in reference to ancient philosophers, and especially to the Pythagorean Philolaus of Croton (DK 44), by building upon philological work done especially by August Boeckh in his 1819 edition of Philolaus’ fragments.<sup>6</sup> In a representatively eclectic footnote, Humboldt traced the history of the trio of concepts indicated by Greek κόσμος – Latin *mundus*, German *Welt* – back to Homer and worked through the evidence from Plutarch, Aristotle, the pseudo-Aristotelian *On the Kosmos*, Ennius, Cicero, Greek inscriptions in the Roman Empire and Hesychius.<sup>7</sup> The notion of ‘cosmos’ remained present in the popular imagination from Humboldt forward, but it was significantly re-popularised with the 1978–79 television documentary *Carl Sagan’s Cosmos*, co-produced by the PBS affiliate KCET in Los Angeles and the BBC in the United Kingdom – where the editor of this volume first encountered this concept. It has remained a formative notion for his entire life. Hence, this volume is titled *Cosmos in the Ancient World* – a nod to Humboldt’s and Sagan’s inspiration for conceptualising systems of order in the universe, but also to the first appearance of this word in English, as *Cossmós*, in Orm’s elegant twelfth-century commentary on the verses of the Gospel of John.

For the purposes of consistency, this volume employs a strict transliteration, rather than a Latinisation, of κόσμος and words related to *kosmos* (e.g. *kosmoi*, *kosmioi*, *diakosmos*, *diakosmêsis*). This also follows for all Greek terms when they are transliterated (e.g. *koinônia*), although in the case of

<sup>5</sup> Italics original.    <sup>6</sup> Boeckh 1819.    <sup>7</sup> Humboldt 1849: 51–3.

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*An Historical Note on Κόσμος – Terminology*

proper names, this volume employs the Latinised form (e.g. Empedocles of Agrigentum rather than Empedoklēs of Akragas). It regularly refers to what in English is commonly understood to be ‘the cosmos’ with ‘the *kosmos*’, as differentiated from the more general conceptualisation of order or arrangement implied by the simple term ‘*kosmos*’.

## Abbreviations

This volume standardly employs abbreviations for ancient texts from the *Oxford Classical Dictionary*, 4th edn (2012). The citations of ancient texts in the Index Locorum at the end of the book are translated into English. Diels-Kranz's edition of the Presocratic fragments is cited according to the standard convention of using 'A' for biography, titles of works and testimonies; 'B' for fragments; and 'C' for imitation by later authors. In the process of preparing the manuscript, the impressive new nine-volume Loeb Classical Library edition of *Early Greek Philosophy*, edited and translated by André Laks and Glenn W. Most, appeared in publication, but it arrived too late to be consulted by the authors included in this volume.

The following list of abbreviations refers to standard collections of ancient materials (fragmentary, epigraphical, numismatic, papyrological, etc.) and other resource works.

Amato	Amato, E. (ed. and trans.) 2010. <i>Favorinos d'Arles: Oeuvres, Tome III, Fragments</i> . Paris: Les Belles Lettres.
Cardauns	Cardauns, B. (ed.) 1976. <i>M. Terentius Varro, Antiquitates Rerum Divinarum</i> , 3 vols. Mainz: Akademie der Wissenschaften und der Literatur Mainz Geistes- und Sozialwissenschaftliche Klasse.
Cèbe	Cèbe, J.-P. (ed.) 1972–99. <i>Varron: Satires Ménippées</i> , 13 vols. Rome: Publications de l'École Française de Rome.
DHR	Dareste, R., Haussoullier, B., and Reinach, T. (eds.) 1891–1904. <i>Recueil des inscriptions juridiques grecques</i> , 2 series. Paris: Ernest Leroux.
DK	Diels, H. and Kranz, W. (eds.) 1960. <i>Die Fragmente der Vorsokratiker</i> , 6th edn., 3 vols. Berlin: Weidmann.
FGrH	Jacoby, F. (ed.) 1923–. <i>Die Fragmente der griechischen Historiker</i> , 18 vols. Berlin: Weidmann.

- Düring Düring, I. (ed.) 1960. *Aristotle's Protrepticus*. Göttingen: Acta Universitatis Gothoburgensis.
- G.-M. Goldberg, S. and Manuwald, G. (trans.) 2018. *Ennius, Fragmentary Republican Latin, Volume II: Ennius, Dramatic Fragments, Minor Works*, Loeb Classical Library 537. Cambridge, MA: Harvard University Press.
- IC Guarducci, M. (ed.) 1935–50. *Inscriptiones Creticae*, 4 vols. Rome.
- IGR Cagnat, R., et al. (eds.) 1906–. *Inscriptiones Graecae ad res Romanas Pertinentes*. Paris: Ernest Leroux.
- FHS&G Fortenbaugh, W. W., Huby, P. M., Sharples, R. W. and Gutas, D. (eds.) 1993. *Theophrastus of Eresus: Sources for His Life, Writings, Thought and Influence*. Parts 1 and 2. Leiden: Brill.
- Fortenbaugh and Schütrumpf Fortenbaugh, W. W. and Schütrumpf, E. (eds.) 2000. *Demetrius of Phalerum: Text, Translation and Discussion*. New Brunswick, NJ: Transaction Publishers.
- G.-P. Gow, A. S. F. and Page, D. L. (eds.) 1968. *The Greek Anthology: the Garland of Philip and Some Contemporary Epigrams*, 3 vols. Cambridge: Cambridge University Press.
- IP Isnardi Parente, M. (ed. and trans.) 1980. *Speusippo: Frammenti*. Naples: Bibliopolis.
- IP<sup>2</sup> Isnardi Parente, M. and Dorandi, T. (eds. and trans.) 2012. *Senocrate e Ermodoro: Testimonianze e Frammenti*. Pisa: Scuola Normale Superiore.
- Jocelyn Jocelyn, H. D. (ed.) 1969. *The Tragedies of Ennius*. Cambridge: Cambridge University Press.
- Lfgre Thesaurus Linguae Graecae 1955–. *Lexicon des früh griechischen Epos*, 25 vols. Berlin: Vandenhoeck & Ruprecht.
- K.-A. Kassel, R. and Austin, C. (eds.) 1998–. *Poetae Comici Graeci*, 8 vols. Berlin: Walter de Gruyter.
- Kidd Edelstein, L. and Kidd, I. G. (eds. and trans.) 1972–88. *Posidonius*, 3 vols. Cambridge: Cambridge University Press.
- Koerner Koerner, R. (ed.) 1993. *Inschriftliche Gesetzestexte der frühen griechischen Polis*. Cologne: Böhlau-Verlag.

## List of Abbreviations

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- Lasserre Lasserre, F. 1966. *Die Fragmente des Eudoxos von Knidos*. Berlin: Walter de Gruyter.
- L&S Long, A. A. and Sedley, D. (eds. and trans.) 1987. *The Hellenistic Philosophers*, 2 vols. Cambridge: Cambridge University Press.
- LSJ Liddell, H. G., Scott, R., and Jones, H. S. 1996. *A Greek-English Lexicon*, 9th edn. Oxford: Oxford University Press.
- Merkelbach and West Merkelbach, R., and West M. L. (eds.) 1967. *Fragmenta Hesiodica*. Oxford: Oxford University Press.
- Mirhady Fortenbaugh, W. W., Schütrumpf, E., and Mirhady, D. C. (eds. and trans.) 2001. *Dicaearchus of Messana: The Sources, Text and Translation*. New Brunswick, NJ: Transaction Publishers.
- NRSV Coogan, M. D. (trans.) 2007. *The New Oxford Annotated Bible*, Augmented 3rd edn., New Revised Standard Version. Oxford: Oxford University Press.
- OLD Glare, P. G. W. 1968. *Oxford Latin Dictionary*. Oxford: Oxford University Press.
- P. Derv. Kouremenos, T., Parássoglou, G. M., and Tsantsanoglou, K. (eds. and trans.) 2006. *The Derveni Papyrus*. Florence: Olschki.
- Radt Radt, S. (ed.) 1977. *Tragicorum Graecorum Fragmenta*, vol. 4, *Sophocles*. Göttingen: Vandenhoeck & Ruprecht.
- Ribbeck Ribbeck, O. (ed.) 1898. *Scaenicae Romanorum Poesis Fragmenta: Comiorum Romanorum praeter Plautum et Terentium Fragmenta*, 3rd edn, vol. 2. Leipzig: Teubner.
- RO Rhodes, P. J. and Osborne, R. (eds.) 2007. *Greek Historical Inscriptions, 404–323 BC*, Rev. edn. Oxford: Oxford University Press.
- Rose<sup>3</sup> Rose, V. (ed.) 1886. *Aristotelis Fragmenta*. Leipzig: Teubner.
- Ross Ross, W. D. (ed.) 1955. *Aristotelis Fragmenta Selecta*. Oxford: Oxford University Press.
- RRC Crawford, M. H. (ed.) 1974. *Roman Republican Coinage*. Cambridge: Cambridge University Press.
- Schütrumpf Schütrumpf, E. (ed. and trans.) 2008. *Heraclides of Pontus: Texts and Translation*. New Brunswick, NJ: Transaction Publishers.

SEG	Chaniotis, A., et al. (eds.) 1923–. <i>Supplementum epigraphicum Graecum</i> . Leiden: Brill.
Skutsch	Skutsch, O. (ed. and trans.) 1985. <i>The Annales of Ennius</i> . Oxford: Oxford University Press.
Soubiran	Soubiran, J. (ed. and trans.) 2002. <i>Cicéron: Aratea, Fragments Poétiques</i> . Paris: Les Belles Lettres.
SVF	von Arnim, H. (ed.) 1903–21. <i>Stoicorum Veterum Fragmenta</i> , 4 vols. Leipzig: Teubner.
Thesleff	Thesleff, H. (ed.) 1965. <i>The Pythagorean Texts of the Hellenistic Period</i> . Åbo: Åbo Akademi.
VA	von Herrmann, F.-W. (ed.) 2000. <i>M. Heidegger, Gesamtausgabe</i> , vol. 7, 7 <i>Vorträge und Aufsätze: 1936–53</i> . Frankfurt am Main, Germany: Klostermann.
Wehrli	Wehrli, F. (ed.) 1967. <i>Die Schule des Aristoteles</i> , vol. 2, <i>Aristoxenos</i> , 2nd edn. Basel, Switzerland: Schwabe.
West	West, M. L. (ed.) 1989–92. <i>Iambi et elegi Graeci ante Alexandrum cantati</i> , 2 vols., rev. edn. Oxford: Oxford University Press.
Willetts	Willetts, R. F. (ed.) 1967. <i>The Law Code of Gortyn</i> . Berlin: Walter de Gruyter.