The Occult Sciences in Pre-modern Islamic Cultures

Edited by Nader El-Bizri
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Introduction

The present edited volume is based in part on papers that were delivered at an international conference, which was held at the American University of Beirut (AUB) on 5–6 December 2013 and was organized by the Orient-Institut Beirut (OIB) in association with the Center for Arab and Middle Eastern Studies (CAMES) at the American University of Beirut (AUB). The conference carried the title that has been retained for this present volume as: *The Occult Sciences in Premodern Islamic Cultures*. Not all the chapters that constitute the present volume were presented at the conference, and some of the papers that were delivered at the conference have not been included in this volume. It is therefore more prudent to think of this book as a collection of studies rather than as a strict proceedings volume. It is also evident that some of the chapters are expanded and adapted versions of the papers delivered at the conference.

In pre-modern Islamic cultures, a number of arts and practices that are associated with the occult sciences were seen as epistemic expansions of the field of scientific knowledge in its various branches. The sciences of the occult dealt with what was taken to be of the order of non-observable realities that were studied by pre-modern natural scientists. This included all phenomena that could not be explained on the basis of the four classical elements. The sciences of the occult were situated between natural philosophy and metaphysics, and at times blended with these in more direct forms – as was the case with *astronomia* (*ʿilm al-nujūm*), which combined mathematical astronomy with astrology, or the bent on arithmology and numerology that accompanied the sciences of arithmetic and number theory. An examination of these pre-modern forms of knowledge can itself further enrich our modern understanding of what constitutes the limits of science and its epistemological bearings in the deliberations of philosophy of science.

In pre-modern Islamic intellectual history, knowledge and techniques that were related to the invisible world (*ʿālam al-ghayb*) were usually identified either as *kihāna* or *siḥr*, the first referring to methods of divination and the second to the exercise of influence on supernatural powers. If they are subsumed into one broader category, they are referred to as *al-ʿulūm al-gharība*, the unusual sciences, or *al-ʿulūm al-khāfiyya*, the hidden sciences, or sometimes also as *al-ʿulūm al-sirriyya*, the secret sciences.[1] Such sciences included *ʿilm al-firāsa* (physiognomy), *qiyāfa* (tracking), *khīmiyāʾ* (alchemy), *ʿilm aḥkām al-nujūm* (astrology), *ruqya wa-taʿwīdh* (spells and incantations), *taʿbīr al-ruʾya* (oneiromancy), *siḥr* (magic), *ʿilm al-ṭalāsim* (the art of talismans), lettrism, or geomancy. These and other branches of pre-modern knowledge are investigated in the following chapters in terms of their

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[1] Emilie Savage-Smith, ed., *Magic and Divination in Early Islam*, Aldershot: Ashgate, 2004, xiii; see also the chapter of Matthew Melvin-Koushki in the present volume.

cealed behind what is made manifest through the natural and exact sciences. In a sense, the occult sciences were indicative of bodies of practice and speculation about aspects of reality that they could not account for through a narrow sense of naturalism. This ultimately meant that what is conceived as being supra-natural was veiled behind the apparent face of nature, and was not instead posited outside an enlarged picturing of what nature on the whole would have been.

Since there was no scientific access to this hidden reality at the time, knowledge of it was considered a marker for spiritual superiority, and equated at times with prophetic or messianic faculties. Skilfully deployed, such knowledge thus became a source of legitimacy and power. In the course of everyday life, the desire to decipher these veiled aspects of reality induced people to use ‘auxiliary means’ as embodied by the variegated divinatory methods that flourished in pre-modern Islamic cultures.

The following section presents synopses of this volume’s chapters, which are based on the abstracts submitted by the contributing authors, as mediated by our editorial interpretation of the chapters’ content and their thematic interconnections. Rather than imposing particular perspectives in analyzing the contents of the chapters, or placing them within the broader domain of studying the occult sciences, we aimed to let them speak for theirselves as scholarly studies within their own strands of inquiry in the field.

Synopses of the chapters

The first two chapters of the volume are devoted to the close relations between the natural and exact sciences on one hand and the “occult sciences” on the other. They both show the difficulties in demarking dividing lines between the natural and the supra-natural in pre-modern fields of inquiry and knowledge.

In “The Occult in Numbers: The Arithmology and Arithmetic of the *Ikhwān al-Ṣafāʾ*”, Nader El-Bizri deals with the significance of the onto-theological, mystical, and magical properties of numbers in connection with the being of beings. The chapter focusses on the learned and anonymous adepts of the fourth/tenth-century Iraqi fraternity of the Brethren of Purity (*Ikhwān al-Ṣafāʾ*) who gave a central structuring role to numbers in the symbolic order of their thinking. The ontological significance of numbers runs across the Brethren’s epistolary compendium and connects with remarks that are alchemical in character as well as being entangled with reflections on magic. A coherent arithmology emerges from the Brethren’s reflections on the arcana of numbers that surpassed the strictly technical aspects of the science of arithmetic (*ʿilm al-ʿadad*).

Emma Gannagé’s chapter, “Between Medicine and Natural Philosophy: Avicenna on Properties (*khawāṣṣ*) and Qualities (*kayfiyyāt*)”, is devoted to an analysis of the notion of a ‘specific property’ (*khāṣṣiyya*) and its reintegration in a rational and

and astronomical concepts with regard to comets as they spanned the ages from earliest recorded history to Islamic times. The contribution focuses on the role of ʿAlī b. Riḍwān as the author of a treatise on comets, and resolves a number of confusions that arose with regard to the authorship of this text, both in the European Renaissance as well as in modern scholarship.

In "Predictions of Natural Disasters in the Astro-meteorological *Malḥamah* Handbooks", Kristine Chalyan-Daffner sheds light on a specific genre of handbooks designed to predict natural calamities by observing and probing various astro-meteorological phenomena. These handbooks attributed the causation of natural disasters to the heavens, whereby natural terrestrial hazards were triggered in a causal chain from the supra-lunar spheres as origins. The author's contribution emphasizes the interrelation between this genre of literature and social needs as exemplified by predictions related to the Nile and its annual flood in the *malḥamah* handbooks from Mamlūk Egypt.

Based on number theory, geomancy can be considered the 'occult' counterpart of mathematics. In "Persianate Geomancy from Ṭūsī to the Millennium", Matthew Melvin-Koushki provides a lengthy preliminary survey of this rarely studied science. Its predictions resemble those of astrology and, incorporating many of the latter's correspondences, it was often considered a form of 'terrestrial astrology' that was practiced by court astrologers. From the late 14th/early 15th century onwards, it was also associated with lettrism, especially with letter magic and letter divination.

Lettrist speculations and letter magic are also at the core of two more contributions. In "The Occult Sciences in *Ḥurūfī* Discourse: Science of Letters, Alchemy and Astrology in the Works of Faḍlallāh Astarābādī", Orkhan Mir-Kasimov examines the relevance of some elements of the occult sciences in the mystical-messianic movement of the *Ḥurūfiyya*. As the name of this movement shows, lettrism and its association with the idea of universal and final hermeneutics was of utmost importance for its doctrine, which also incorporated astrological and alchemical ideas.

In "Lettrism and Magic in an Early Mughal Text: Muḥammad Ghawth's *Kitāb al-Jawāhir al-Khams*", Eva Orthmann explores the magical practices and concepts that were prevalent in the early Mughal Empire in India. Her study focuses on the practices of invocation and prayer related to astral magic, and examines the specific use of the so-called 'greatest names' for magic purposes. Founded on lettrist concepts, such invocations were considered to provide the praying person with supernatural powers, which were drawn upon by Mughal rulers.

In the final article of this volume, "Going Egyptian in Medieval Arabic Culture: The Knowledge of Occult Alphabets by Pseudo Ibn Waḥshiyya", Isabel Toral-Niehoff and Annette Sundermeyer examine the long list of magical alphabets at-

Notes on Contributors

Kristine Chalyan-Daffner was born in Yerevan, Armenia, where she did her university degree at Yerevan State Institute of Foreign Languages. Later, she studied Islamic Studies, English Philology and Public Law in Kiel and Heidelberg, Germany. After doing her Master's Degree at Heidelberg University, she received a scholarship from the German Research Foundation at Karl Jaspers Centre for Advanced Transcultural Studies of Heidelberg University. There she worked as a PhD member of the Junior Research Group "Cultures of Disaster". Within the framework of this project, she researched in Saint Petersburg, Cairo, Paris and London and has recently defended her doctoral thesis, titled *'Natural Disasters in Mamluk Egypt (1250-1517): Perceptions, Interpretations and Human Responses.'*

Nader El-Bizri is a Professor of Philosophy and Chair of the Civilization Studies Program at the American University of Beirut (AUB). He also serves as the Director of the Anis Makdisi Program in Literature at AUB, and as the Co-ordinator of the MA in Islamic Studies at the AUB Center for Arab and Middle Eastern Studies (CAMES). Prior to joining AUB, he was a Principal Lecturer at the University of Lincoln, and he previously taught for twelve years at the University of Cambridge. He also lectured at the University of Nottingham, the London Consortium and Harvard University, in addition to holding senior research affiliations at The Institute of Ismaili Studies in London and the Centre National de la Recherche Scientifique in Paris (CNRS). His areas of research are Arabic Sciences and Philosophy, Phenomenology and Architectural Humanities. He has published and lectured widely and internationally, and has received various awards and honors in recognition with his work.

Emma Gannagé is Associate Professor in the Department of Arabic and Islamic Studies at Georgetown University. She holds a PhD (1998) in Ancient and Medieval Philosophy from the University of Paris I – Sorbonne. She is also the editor of the *Mélanges de l'Université Saint-Joseph*. Her research interests focus mainly on the transmission and reception of Greek philosophy into Arabic, Arabic and Islamic philosophy, Arabic medicine and its relationship to philosophy, and Arabic manuscripts. Her publications include several articles and a monograph on *Alexander of Aphrodisias: On Coming-to-be and Passing-Away 2.2-5* (London 2005), as well as other edited books including *The Greek Strand in Medieval Islamic Political Thought*, with P. Crone, D. Gutas, M. Aouad and P. Schutrumpf, (Beirut 2004). Most recently she submitted a monograph-long article on al-Kindī's *On First Philosophy* for the forthcoming *Oxford Handbook on Islamic Philosophy*.

Antonella Ghersetti is Associate Professor of Arabic Language and Literature at Università Ca' Foscari, Venice. She holds a PhD in Semitic Studies (Semitic Linguistics) from the University of Florence. Her main fields of research

Matthew Melvin-Koushki (PhD Yale) is a Postdoctoral Research Associate at Princeton University (Near Eastern Studies) and Assistant Professor of History at the University of South Carolina. He specializes in early modern Islamicate intellectual, religious and cultural history, with a focus on the theory and practice of the occult sciences in Iran and the Persianate world. Winner of the Middle East Studies Association’s Malcolm H. Kerr Award, his 2012 dissertation examined the lettrist thought of Ṣā’in al-Dīn Turka Iṣfahānī, the foremost occult philosopher of early Timurid Iran.

Eva Orthmann has been Professor of Islamic Studies at Bonn University since 2007. She received her MA in Islamic and Iranian Studies from the University of Tübingen in 1995 and her PhD from Halle University in 2000. After being an assistant professor at the Oriental Institute at Zurich University she became a visiting research scholar at the department of Near Eastern Languages and Civilizations at Yale University. Her work focuses mainly on the history of astrology in the Islamic world as well as on Indo-Iranian studies.

George Saliba has been Professor of Arabic and Islamic Science at the Department of Middle Eastern, South Asian, and African Studies at Columbia University since 1979. He received his BSc in mathematics in 1963 and an MA in 1965 from the American University of Beirut. He further earned an MSc degree in Semitic languages and a doctorate in Islamic sciences from the University of California, Berkeley. He received several awards and honors and was also selected as a Distinguished Kluge Chair at the Library of Congress and as a Distinguished Carnegie Scholar. George Saliba is researching the development of scientific ideas from late antiquity until early modern times, with a special focus on the various planetary theories that were developed within the Islamic civilization and the impact of such theories on early European astronomy.

Annette Sundermeyer was trained in the domain of Arabic and African studies at Freie Universität Berlin and Humboldt-Universität zu Berlin. She is at present completing her PhD dissertation through the *Topoi* inter-university research cluster in Berlin, and participates in doctoral studies at the Berlin Graduate School of Ancient Studies. Her research focuses mainly on the reception of hieroglyphs in pre-modern Arabic perspectives.

Isabel Toral-Niehoff studied History and Arabic Studies in Tübingen (PhD 1997), Habilitation 2008 (FU Berlin). Her main publishing and research fields are: Arabia and the Near East in Late Antiquity; cultural identity; cultural transfer processes; Arabic occult sciences; literature in translation; and al-Andalus. Since 2012 she has been a Marie-Curie Fellow at the Institute for the Study of Muslim Cultures at the Aga Khan University in London.

The Occult in Numbers: The Arithmology and Arithmetic of the *Ikhwān al-Ṣafāʾ*

Nader El-Bizri

This chapter examines the arithmology of the anonymous adepts of the tenth-century CE (fourth-century *Hijrī*) Iraqi fraternity of the *Ikhwān al-Ṣafāʾ wa-Khillān al-Wafāʾ* (the brethren of purity and the friends of loyalty)[1] as it figured in their proto-encyclopaedic compendium, the *Rasāʾil Ikhwān al-Ṣafāʾ* (*Epistles of the Brethren of Purity*).[2] This line of inquiry will be situated in the context of the Platonist and Pythagorean traditions that influenced the *Ikhwān al-Ṣafāʾ*, while also assessing the epistemic significance of such legacies in terms of a modern consideration of number theory in the philosophy of arithmetic.[3] These investigations will be mainly focused on the treatment of arithmetic in the 'Epistle on numbers' (*Risāla fī al-ʿadad*, also known as: *al-arithmāṭīqī*)[4] of the *Ikhwān al-Ṣafāʾ*, which is the first in their compendium and opens the propaedeutical and mathematical sciences division (*al-ʿulūm al-riyāḍiyya al-taʿlīmiyya*).

The arithmological aspects in the thought of the *Ikhwān al-Ṣafāʾ* were linked to their meditations on what they construed as being esoteric powers in numbers that surpass the mere mathematical technicalities of the science of arithmetic. The twofold character of their treatment of numbers, arithmological and arithmetical, was onto-theological in scope, and it rested on an intricate interpretation of the an-

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[1] I discuss the ambiguities that still surround the identity of this coterie, the doctrinal affiliations of its members, and the chronology of its activities in the 'Prologue' of *The Ikhwān al-Ṣafāʾ and Their Rasāʾil: An Introduction*, Nader El-Bizri, ed., Oxford: Oxford University Press, 2008.

[2] *Ikhwān al-Ṣafāʾ*, *Rasāʾil Ikhwān al-Ṣafāʾ*, 4 vols., Beirut: Dār Ṣādir, 1957. Unless noted otherwise, hereinafter references to this compendium figure as: *Ikhwān al-Ṣafāʾ*, *Rasāʾil*, followed by the epistle and volume numbers, and then the pagination.

[3] I consider some contemporary philosophical aspects in epistemology in the final two sections of this chapter. My line of philosophical inquiry resonates with that undertaken elsewhere in this volume by Muhammad Ali Khalidi and Tarif Khalidi. However, I follow a distinct trajectory in modern philosophizing by focusing specifically on number theory in the philosophy of arithmetic rather than dealing with the philosophy of science in general epistemic terms.

[4] The references to the epistles *on arithmetic and geometry* of the *Ikhwān al-Ṣafāʾ* will be taken from: *Epistles of the Brethren of Purity: On Arithmetic and Geometry*. Arabic Edition and English Translation of Epistles 1–2, Nader El-Bizri, ed. and transl., Oxford: Oxford University Press, 2012; hereinafter to be referred to as: *On Arithmetic and Geometry*. See also the related commentary in: Nader El-Bizri, "Epistolary Prolegomena: On Arithmetic and Geometry", in: El-Bizri, *The Ikhwān al-Ṣafāʾ and Their Rasāʾil*, 180–213.

Arithmetic and geometry assist in developing demonstrative reasoning that leads to the study of logic. As the *Ikhwān al-Ṣafāʾ* noted in *Epistle 14*: "the one who desires to study logic should first practice geometrical demonstration",[11] for the reason that the latter method is less complex, given that its examples are usually perceivable by the sense of sight and can be imagined.[12]

II

In order to contextualize the account of the *Ikhwān al-Ṣafāʾ* on numbers, we need to situate their views within the context of inherited Platonist and Pythagorean traditions. To begin with, we consider Plotinus' *Ennead* VI.6 which, in the endeavour to grasp the ultimate reality in the intelligible realm, imparted an ontological significance to numbers. Plotinus' reflections focused on eidetic form-numbers[13], without exploring their symbolic order in arithmology. The ideal (*ideai*) numbers (covering the sequence from the unit 1 to number 10) were taken to be a real eternal essence, or akin to the thoughts of the Godhead (*dêmiourgos*, or *theós*) as held by Nicomachus (*Introductio Arithmetica* I.4.2, I.6.1).

Two principal themes of inquiry emerge from Plotinus' *Ennead* VI.6. The first focuses on infinite (*apeiria*) numbers (*Ennead* VI.6, chs. 1–4, 17–18), whilst the second ponders the status of numbers in the intelligible (*noêto* [*Ennead* VI.6, chs. 4–16]). Plotinus wondered if an innumerable multiplicity (*plêthos*) falls away from the One, and whether in being infinite is "evil". Plotinus reflected herein on the noetic reality of how numbers happen to be in the intelligible, and he did not proceed in this regard in the manner of the Pythagoreans by way of arithmology, but equally, he did not present initiatory accounts of the technical aspects of arithmetic as a distinct science from logic.

Though the *Ikhwān al-Ṣafāʾ* were leaning toward a Plotinian approach in ontological thinking (namely in thinking about the question of being *qua* existence), they remained closer to the Pythagoreans in dealing with number-mysticism and

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[11] *Epistles of the Brethren of Purity. On Logic: An Arabic Critical Edition and Annotated English Translation of Epistles 10–14*, Carmela Baffioni, ed. and transl., Oxford: Oxford University Press, 2010, Epistle 14, esp. 146–147.

[12] The *Ikhwān al-Ṣafāʾ* appealed herein to Euclid's *Elements Book I* propositions 32 and 47. Proposition 32 in Book I of Euclid's *Elements* states that: "in any triangle, if one of the sides be produced, the interior angle is equal to the two interior and opposite angles and the three interior angles of the triangle are equal to two right angles". As for Proposition 47 in Book I of Euclid's *Elements*, it reads as follows: "in right-angled triangles, the square on the side subtending the right angle is equal to the squares on the sides containing the right angle". Proposition 47 is commonly associated with what is known as Pythagoras' theorem regarding the square on the hypotenuse. This theorem is known in populist expressions as "the theorem of the nymph [or bride]" (*theorem tês numphês*) or "the two-horned" (*dhū-l-qarnayn*), on account of its geometric shape in the course of demonstration. See Euclid, *The Thirteen Books*, vol. 1, 417f.

[13] The notion of 'form' is understood herein in its Platonic sense as *eidós*.