

## An Eleventh-Century Egyptian Guide to the Universe

# Islamic Philosophy, Theology and Science

Texts and Studies

*Edited by*  
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# An Eleventh-Century Egyptian Guide to the Universe

*The Book of Curiosities*

*Edited and Translated by*

Yossef Rapoport and  
Emilie Savage-Smith



BRILL

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2014

*Cover illustration:* Oxford, Bodleian Library, MS Arab. c. 90, fols. 23b–24a; reproduced with permission of the Bodleian Library.

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In 2008 al-Mahdi Eid al-Rawadieh submitted to the University of Jordan a master's thesis consisting

of an edition of the text based on the Bodleian copy (then available through the website) and a later copy now in Damascus; the thesis was subsequently published in Beirut in 2011 and has proved useful to us at many points which will be noted. Mr al-Rawadieh has generously shared his research with us at various stages, and we would like to acknowledge his scholarship and dedication, which in many ways complemented our efforts here. Dr Lutfallah Gari first drew our attention to the Damascus manuscript, and subsequently to his own publication regarding the dating of the *Book of Curiosities*.

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Finally, for over a decade our families have heard far more than they probably wished of puzzling place-names, unidentifiable star-names, maps of unusual shapes, comets that portend doom, and curious stories of exotic lands. Without their support we could not have brought this project to its conclusion.

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Emilie Savage-Smith, Oxford

## INTRODUCTION

In June of 2002, the Bodleian Library, University of Oxford, acquired a highly illustrated manuscript of a hitherto unknown Arabic cosmographical treatise. This newly discovered manuscript contained a remarkable series of early maps and astronomical diagrams, most of which are unparalleled in any Greek, Latin or Arabic material known to be preserved today. No less importantly, both the illustrations and the text preserve material gathered from Muslim astronomers, historians, scholars, and travellers of the ninth to eleventh centuries, whose works are now either lost or preserved only in fragments. The manuscript, now assigned the shelfmark MS Arab. c. 90, is here reproduced in facsimile, accompanied by an edition of the Arabic text and an annotated English translation.

The manuscript is a copy, probably made in Egypt in the late twelfth or early thirteenth century, of an anonymous work compiled in Egypt between AD 1020 and 1050. The rhyming title of the volume, *Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn*, loosely translates as *The Book of Curiosities of the Sciences and Marvels for the Eyes*. For convenience, the treatise is referred to simply as *The Book of Curiosities*.

The treatise preserved in this early, highly illustrated, manuscript was essentially unknown to scholars prior to its being offered for sale at auction in London on 10 October 2000 (Christie's, *Islamic Art & Manuscripts*, lot 41), even though later it was discovered that eight other copies of all or portions of the text (lacking most of the illustrations) were preserved in manuscripts of the sixteenth to nineteenth century that had lain unnoticed in other libraries. At auction the manuscript was purchased by Sam Fogg, a well-known London dealer in rare books and manuscripts. Not long thereafter he offered it to the Bodleian Library at a price well under the true market value. In June of 2002, following an extensive fund-raising effort, the Bodleian library celebrated the acquisition of this remarkable Arabic manuscript.

The treatise now designated as Bodleian Library MS Arab. c. 90 is divided into two parts (*maqālahs*): The first part or book, on celestial matters, is composed of ten chapters, and begins with a description of the heavens and their influence upon events on Earth. It contains a number of unique illustrations

and rare texts, including an illustrated discourse on comets and several pages depicting various prominent stars nearby the 'lunar mansions', which are star-groups near the ecliptic whose risings and settings were traditionally used to predict rain and other meteorological events. The author's interest throughout the book is primarily astrological and divinatory, and no mathematical astronomy is presented.

The second book, on the Earth, is divided into twenty-five chapters. According to the author, this second book is largely dependent upon the *Geography* of Ptolemy. In general, however, our author's interest is descriptive and historical rather than mathematical. Along with geographical and historical texts, the manuscript contains two world maps, one rectangular and one circular. The author then follows with maps of the great seas known to him, which were the Indian Ocean, the Mediterranean and the Caspian. The author was particularly interested in depicting the shores of the Mediterranean, of which he probably had first-hand knowledge. Besides the detailed schematic map of the coasts and islands of the Mediterranean, the treatise also contains unique maps of Sicily and Cyprus as well as the strategic ports of al-Mahdiyyah in North Africa and Tinnis in Egypt. The book also includes five river-maps (the Nile, the Euphrates, the Tigris, the Oxus, and the Indus). The concluding five chapters describe 'curiosities' such as monstrous animals and wondrous plants.

In 2007 an electronic high-quality reproduction of the Bodleian manuscript and its illustrations, linked by mouse-overs to a modern Arabic edition (without full use of other copies) and a preliminary English translation was made available at [www.bodleian.ox.ac.uk/bookofcuriosities](http://www.bodleian.ox.ac.uk/bookofcuriosities). The remarkable significance of the treatise for the history of Islamic cartography and cosmology in particular, and for the history of pre-modern cartography in general, has been recognized in several publications on specific maps and diagrams in the manuscript.<sup>1</sup> The study of

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<sup>1</sup> See, amongst others, Johns & Savage-Smith 2003; Rapoport & Savage-Smith 2004; Edson & Savage-Smith 2004; Parry 2004; Barber 2005; Horden & Purcell 2006; Galician 2007; Bloom 2007; Rapoport & Savage-Smith 2008; Kahlaoui 2008; Kahlaoui 2008a;

some aspects of this treatise is still on-going, especially with regard to its contribution to the history of astrology and astronomy; its place in the geographical and *mirabilia* traditions; and its impact on our knowledge of the Fatimid caliphate and of maritime travel in the medieval Islamic world.

Our purpose here is to present a full edition of the treatise, taking into account all the later manuscript copies. In addition, we provide here an English annotated translation and a facsimile reproduction of the entire manuscript. The aim is to allow readers to examine the treatise as a whole in a way that is not possible in an online edition, and to consult an authoritative edition and translation that reflects our decade-long study of the Bodleian manuscript and other copies. We open with the facsimile of the early Bodleian copy, followed by the edition, employing all the copies, of the entire Arabic text and all the map-and diagram-labels. Following this, we present an extensively annotated translation of the text and the labels, concluding with an extended glossary of star-names and thematic indexes.

In the following pages of this Introduction, we list and compare the known copies of the treatise, establish the authorship and date of the treatise and its component parts, and explain our editorial conventions. A full, comprehensive study of the contents of the treatise in the context of eleventh-century Fatimid society and learning must await a separate publication. But we hope this edition will greatly enhance future research on the significance of this remarkable treatise for the history of cartography, science, and Islamic civilisation.

## I. THE COPIES

**MS A**—Oxford, Bodleian Library, *MS Arab. c. 90*

*Date:* The copy is unsigned and undated. The appearance of the paper, ink, and script suggests a possible dating of the end of the twelfth century.

*Contents:* It is an incomplete copy, missing part of the penultimate chapter and all of the last one in Book Two. At the end of the volume, in the gutter, are narrow remnants of two folios that have been cut from the volume, corresponding

to the missing final chapters (part of 2.24 and all of 2.25). The eighth and ninth chapters of Book Two are missing from the text, as they are in all other copies.

*Attribution and title:* The author is not given. The title appears in the text on fol. 1b<sub>11</sub> as well as on the title page (fol. 1a) as *Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn*. Beneath the title, a later owner has noted: 'To the author of this treatise there belongs another book whose title is *Muḥīṭ* (Comprehensive) (...); it is stated thus in the entry for the island of Sardinia'.

*Physical description:* 48 leaves (folios 1a–48b) plus torn gutter strips from two missing leaves. Dimensions 32.4 × 24.5 cm (text area 29.1 × 22.6 cm on folios without maps); 27 lines per page.

*Paper:* The lightly glossed, biscuit-brown paper is sturdy, rather soft, and relatively opaque. The paper has thick, slightly curved, horizontal laid lines, and there are rib shadows, but no chain lines or watermarks are visible. The thickness of the paper varies between 0.17 and 0.20 mm and measures 3 on the Sharp Scale of Opaqueness; the laid lines are 6–7 wires/cm, with the space between lines less than the width of one line. The paper appears to have been made using a grass mould—a method used in Egypt and Greater Syria in the twelfth and thirteenth centuries (greater precision is not possible).<sup>2</sup> The paper has some damp-staining, foxing, and wormholes, and there is considerable soiling and grime near the edges of the pages, which have been trimmed from their original size with the loss in places of text and marginalia. Numerous repairs had been made to the paper at various times. Conservation of the manuscript at the Bodleian was carried out by Alison McKay and Sabina Pugh in its conservation laboratories. Multiple layers of old repairs had accumulated on the leaves, causing particular stiffness in the spine area. Sympathetic new repairs replaced the old ones to reveal text and images, but some were left in place as they were considered to be part of the cultural history of the manuscript.

*Script:* The text area has been frame-ruled. The text is written in a medium-large Naskh script in dense black ink, with headings in warm-red ink.

Kaplony 2008; Rapoport 2008; Savage-Smith 2009; Savage-Smith 2010; Savage-Smith 2010a; Rapoport 2011; Savage-Smith 2011a; Rapoport 2012.

<sup>2</sup> For similar Islamic papers, see Loveday 2001; and we thank Helen Loveday for examining and discussing with us the paper in this particular manuscript.

Many diacritical dots are missing. A *sin* is often distinguished from a *shīn* by a small háček; less frequently, a háček distinguishes the undotted (*al-muḥmalah*) letters *rā'* or *ṣad* from the dotted forms. A háček occasionally is placed over a duc-tus that ought to have had two dots beneath indicating a *yā'* in a medial position. A *tā' marbūṭah* is often ligatured to a preceding *rā'* or *dāl* or *dhāl*; a final letter *ʿayn* is occasionally ligatured to the first letter of the following word. A *tā' marbūṭah* is very seldom dotted. A small break occurs before a medial or final *ṭā'*, where the copyist lifted the pen when an unbroken connection with the preceding letter would have been expected. Text stops are indicated by a dot enclosed in a circle or by the symbol  $\blacktriangleright$  (= *intahá*). There are some catchwords. The illustrations are labelled in a similar but smaller hand. Both hands are closer in many of their characteristics to those of copyists known to have worked in Greater Syria at the end of the twelfth century or early thirteenth century than to the hands of securely dated and located products of the fourteenth century.<sup>3</sup>

*Illustrations:* In Book One, there is an opening diagram (double-page) immediately following the introduction, a single-page diagram at the end of 1.1, and a half-page diagram in 1.10. There are also comet illustrations in 1.6 and 1.7 and diagrams of lunar mansions in 1.9. In Book Two, there are seventeen maps or diagrams in chapters 2.1, 2.5, 2.7, 2.10, 2.11, 2.12, 2.13, 2.14, 2.15, 2.16, 2.17 (two), 2.18 (five). The maps in Book Two use a standard set of colours to convey the topographical features, with green for salty seas and lakes, and blue for fresh-water lakes and rivers. The mountains are usually reddish-brown, and town walls, where depicted, are darker brown-purple. Red dots represent cities, towns, villages, and anchorage points. The map of al-Mahdiyah has a multi-coloured depiction of the twin palaces of the city,

and the diagram of the sources of the Nile depicts a large crocodile. The circular world map (at the end of 2.5) employs a slightly different palette and is the only map in the volume to employ copper greens.

Some illustrations, such as those depicting comets or small islands, have traces of gold or silver sprinklings, while other areas in the maps may have been over-painted or coated in a shiny lacquer-like material that is now cracked and crazed. A preliminary analysis of the pigments was conducted by Dr Sandra Grantham, a consultant paper conservator, using optical microscopy in the conservation workshop of the Bodleian Library. A full analysis using Raman Spectroscopy was subsequently carried out by Dr Tracey Chaplin at the Christopher Ingold Laboratories, University College London.<sup>4</sup> Further examination of the pigments was carried out by Sabina Pugh in the conservation workshop of the Bodleian Library, who used optical microscopy to try to determine which pigments belonged to the original paint layer, and which were over-painting or re-touching. Six pigments were identified in the illustrations: cinnabar (red), orpiment (yellow), lazurite (blue), indigo, carbon-based black and basic lead carbonate (a 'lead white'). Four further pigments could not be identified: a golden material, a green pigment, the purple pigment used to depict city walls, and the blue component of the dark green pigment mixture on certain folios. No evidence of modern inks or pigments was revealed. The results of the scientific analyses are completely consistent with the suggested origin and age of the manuscript.

*Binding:* When acquired by the Bodleian Library, the volume was contained in an Ottoman binding of, possibly, eighteenth- or nineteenth-century date; the binding was too small for the manuscript and in extremely poor condition. The first folio of the manuscript has staining that indicates an earlier binding included an envelope flap. At present, the volume is dis-bound with the binding removed and stored separately; it remains dis-bound to allow for easier exhibition.

*Provenance:* The title page also has two impressions of an undated Ottoman (?) stamp reading: Sa'dī ibn 'Īsá *al-faqīr al-mutawakkil 'alá Allāh al-kabīr*.

<sup>3</sup> For example, the script and paper are similar to a treatise by the Egyptian scholar al-Dimyāṭī preserved in a copy (Oxford, Bodleian Library, MS Marsh 592) completed 12 Jumādā II 592 (13 May 1196) which displays many of the same orthographic features, including picking up the pen before writing the *ṭā'* (fol. 98a<sub>17</sub>); for sample pages, see Edson & Savage-Smith 2004, 19 fig. 7, and King 2004, 758, fig. 2.7. Other similarities of script and paper can be observed in Gotha, Forschungsbibliothek Gotha, MS orient. A 1521, dated 569/1173; Leiden, MS Or. 3101, copied 569/1173; Bodleian, MS Huntington 202, copied in Syria in Sha'ban 592/July 1196; and Bodleian MS Marsh 379, fols. 2a–87b, made between 560/1165 and 610/1213 (for the latter two examples, see Savage-Smith 2011, 322–3 and plates xviii–xx).

<sup>4</sup> The results of the Raman spectroscopic analysis have been published in Chaplin, Clark et al. 2006.

There are also two undated owners' signatures, the upper signature reading: 'In the book collection of the one in need of God, Muṣṭafá, known as Köprü-zade, may God forgive him', and the lower one reading: 'Amongst the property of Yaḥyá ibn Muḥammad al-Mallāḥ (the sailer?, the salt-miner?)'. Between the two signatures there is also one completely defaced owner's note. In Chapter Five of Book Two, there are two half-page paintings (a *wāqwāq*-tree and an inhabited scrolling vine) added by a later owner, probably in the fourteenth or fifteenth century.

*Editions/printings:* In 2007 an electronic high-quality reproduction of the manuscript and its illustrations, linked by mouse-overs to a modern Arabic edition (without full use of other copies) and a preliminary English translation was made available at [www.bodley.ox.ac.uk/bookofcuriosities](http://www.bodley.ox.ac.uk/bookofcuriosities). The bibliographic citation is Emilie Savage-Smith and Yossef Rapoport (eds.), *The Book of Curiosities: A critical edition*. World-Wide-Web publication. ([www.bodley.ox.ac.uk/bookofcuriosities](http://www.bodley.ox.ac.uk/bookofcuriosities)) (March 2007).

*Catalogue descriptions:* none

MS D—*Damascus, Maktabat al-Assad al-Waṭanīyah, MS 16501*

*Date:* The copy was completed on the last Sunday in the first ten days of Rabī' I of the year 972 [= 9 Rabī' I 972 = 15 October 1564] by Abū Bakr ibn Fakhr al-Dīn ibn Ḥamzah ibn *al-shaykh* Muḥammad *min qaryat Mu'arat Ikhwān* (from the village of Mu'arat Ikhwān).<sup>5</sup> The colophon is given on fol. 210b<sub>11-15</sub>.

*Contents:* It is an incomplete copy. Compared to MS A, this manuscript lacks many of the illustrations, maps and diagrams, while adding textual material from other sources. Book One lacks the opening diagram (though it has the surrounding text). Also missing from Book One is the entire fourth chapter, the start of the fifth chapter, and portions of the ninth and tenth chapters. In the body of the ninth chapter of Book One, material is taken from Ibn Qutaybah's *Kitāb al-Anwā'*; the first three entries of the ninth chapter as given in other copies are written here in the margins.

In Book Two, the second, seventh and eleventh chapters, which contain only maps and no text, are missing. The eighth and ninth chapters of Book Two are also missing, as in all manuscripts. In 2.15, there are nine additional entries for mythical islands, interspersed between the entries for Indian Ocean islands found in MS A. The manuscript also contains three additional long books (*maqālahs*): on horses (*fī al-khayl*) in five chapters (*faṣls*), of which the final one is missing; on camels (*fī nūq*) in nineteen *faṣls*; and on hunting and game (*fī ṣayd wa-al-qanaṣ*) in twenty-one *faṣls*.

*Attribution and title:* The author is not given. The title is given in the text on fol. 2a<sub>4-5</sub> as *Gharā'ib al-funūn wa-mulaḥ al-'uyūn*. On fol. 1a, a later hand has written *Kitāb Gharā'ib al-funūn wa-mulaḥ al-'uyūn wa-fīhi min kull 'ilm wa-ṣinf 'ilm* (وفيه من كل علم وصنف علم).

*Physical description:* 201 leaves (folios 1a–201b). The size of the leaves is not known, but there are 13–15 lines per page. The nature of the paper is unknown.

*Script:* The text is carefully written in a clear, medium-large Naskh script. The text area has been frame-ruled. There are text stops and end-of-line fillers of three dots in a triangular formation. There are catchwords, and most of the marginalia appear to be in the hand of the copyist. For the opening folio, see *Gharā'ib* 2011, 1:89. For other examples of folios from the manuscript, see figs. 0.6, 0.8 and 0.14–0.19.

*Illustrations:* In Book One, there is a single-page diagram at the end of 1.1; constellation figures formed of lines of dots have been added to the text of 1.3. In 1.6 and 1.7 there are illustrations of comets, and in 1.9 diagrams of lunar mansions. At the end of 2.1 there is a crude rectangular sketch (repeated twice) aligning the cardinal directions with zodiacal signs. Chapter 2.10 has two empty rectangular frames with the title of the chapter ('The tenth chapter on the Western Sea—i.e., the Syrian Sea—and its harbours and islands and anchorages') written at the edge, and in 2.17 there are several empty circles, suggestive of the lake diagrams in the earlier Bodleian Library MS Arab. c. 90. The city of al-Mahdiyyah (2.13), the island of Cyprus (2.15), and the rivers Nile, Tigris, and Oxus are represented by crude, unlabelled sketches whose general significance is recognizable only when compared to the equivalent maps

<sup>5</sup> The name as written here is possibly a variant of Ma'arrat al-Nu'mān (معرّة النعمان), a well-known town in northern Syria. Al-Mahdi Eid al-Rawadih identifies Mu'arat Ikhwān with the village of Martaḥwān, in the environs of Aleppo (Yāqūt 1866, 4:487), but without evidence (*Gharā'ib* 2011, 1:29 nt. 1 and 2:689 nt. 8).

in the earlier Bodleian Library MS Arab. c. 90. See figs. 0.6, 0.8, 0.11, 0.12, and 0.14–0.19 for examples.

*Binding:* unknown.

*Provenance:* The manuscript was formerly kept in Aleppo as al-Maktabah al-Waqfiyah, MS 957. On the title page (fol. 1a) there are several owners' notes, for the most part illegible or defaced, and one prominent seven-line study note dated 980/1572–3, written by the copyist of the manuscript eight years after completing this copy. The note indicates that this manuscript was the basis for another copy prepared by the same copyist, but one that contained only the first book on the heavens. The note reads:

نظر في هذا الكتاب كاتبه الفقير الاق اسمه من اوله الى آخره وكتب منه  
المقالة الاولة بكالها وداعى لملكه ولمن كان سبب  
في ايصاله اليه بطول البقا وعلو الارتقا  
وذلك في شهر شوال المبارك  
من شهور سنة  
ثمانين وتسعايه

There are also three impressions of a small octagonal owner's stamp (not legible). On folios 1b and 201b there are impressions of a large round stamp reading: من الكتب التي وقفت . . . زاده  
اجرا محمود بن احمد للجامع كبير اموي حلب

*Editions/printings:* The text of this manuscript has been edited by al-Mahdi Eid al-Rawadieh.<sup>6</sup> For the purposes of our present edition, we have made use of scans of the Damascus manuscript itself and on occasion present a different reading.

*Catalogue descriptions:* none.

MS B—Oxford, Bodleian Library, MS Bodl. Or. 68,  
item 6

*Date:* The copy was transcribed by *al-faqīr* Maṣṣūr *bi-ism* Shammās (the ordained deacon) in November of AD 1571. The date is given as the month of Tishrīn II 1882, using the Alexandrian (or Seleucid) calendar, which began 1 October 312 BC. The volume in which this item is bound contains nine treatises in either Arabic or Karshūnī (the Syriac script used by the Christians of Syria and Mesopotamia for writing Arabic), all of them apparently copied in Syria. See fig. 0.1 for the colophon in the manuscript.

The folio following this item in the manuscript (fol. 145b) has an eleven-line note in Karshūnī, presenting a carefully written lineage of the copyist:

كُتِبَ سِنْسِلَةٌ [= سِلْسِلَةٌ] أَجْدَادِنَا الْمَرْحُومِينَ . أَوَّلُ ذَلِكَ  
سِتُّ أُخُوَّةٌ بَاقِينَ وَأَخٌ مُتَّبِعٌ [كَذَا] وَثَلَاثُ أَبْنَاءِ بَرَكَةِ اللَّهِ  
وَنَحْنُ أَسَامِينَا أَوَّلُ ذَلِكَ بَكَرْنَا أَخِي عَسَافَ وَأَخِي مَنْصُورَ  
الْمُتَّبِعِ وَأَخِي سِتُّ لِأَخُوَّةٍ [كَذَا] وَأَنَا الْمَسْكِينُ كَاتِبُ الْأَحْرَفِ  
مَنْصُورَ لِأَنَّ لِمَا خَلَقَ [كَذَا] أَخِي وَمَاتَ غَيْثَانَا (حَمْدُهُ)  
سُمِّيَتْ بِاسْمِهِ مَنْصُورَ وَأَخِي مَسْعُودَ وَأَخِي رُومِيَّةَ وَأَخِي نَاصِرَ  
وَأَخِي سَيِّدَةَ وَأَخِي فَرَجَ اللَّهُ وَأَخِي عَطَالَةَ وَأَبُونَا اسْمُهُ شَدِياقَ  
رَزَقَ اللَّهُ وَلَهُ أَرْبَعُ إِخْوَةٍ وَخَمْسُ بَنَاتٍ وَجَدِّي أَبُو أَبِي اسْمُهُ  
خُورِي (حَمْدُهُ) يُوْحَنَّاكَانَ رَجُلٌ قَدِيسٌ اللَّهُ يُنْبِئُ رُوحَهُ وَجَدَ  
أَبِي اسْمُهُ خُورِي نُوحَ وَقَبْلَ جَدِّي خُورِي نُوحَ اسْمُهُ شَمَّاسُ  
إِبْرَاهِيمَ وَقَبْلَهُ شَمَّاسُ صَدَقَهُ .

*Contents:* It is an incomplete copy of Book One. As in MS D, it lacks the opening diagram (though it has the surrounding text), the entire fourth, and the opening part of the fifth chapter. It also lacks the final chapters of Book One, that is the eighth, ninth and tenth chapters. Of Book Two, it has only a partial copy of the first and third chapters. Chapter three of Book Two contains additional material on each of the climes that is not found in the other manuscripts.

*Attribution and title:* The author is not given. The title is given (in Syriac script) in the text on fol. 109b<sub>8</sub> as *Kitāb Gharā'ib al-funūn wa-mulāḥ al-'uyūn*; see fig. 0.2.

*Physical description:* 46 leaves (folios 109b–144a). Dimensions 21.2 × 15.3 (text area 17.4 × c.12.2) cm; 21–24 lines per page.

*Paper:* The stiff, biscuit paper has little evidence of sizing and has turned darker near the edges of the volume. It has a thickness of 0.17–0.19 mm and an opaqueness factor of 4, with thin, straight, vertical laid lines, single chain lines, and watermarks (an anchor in a circle (?) and a star over a crescent moon). There is some foxing and damp-staining.

*Script:* There is no trace of frame-ruling and the spacing of lines is irregular. The text is written in a large Arabic and Karshūnī script using dark-brown ink with prominent words formed with a broader pen-stroke; text-breaks or headings are indicated by four small dots. There are catchwords, but no marginalia are found in this portion of the volume. There is an illuminated heading in black ink and red opaque watercolours at the opening of the text (fol. 109b); see fig. 0.2.

<sup>6</sup> *Gharā'ib* 2011, 1:95–512 and 2:513–689.



