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The alchemical symbols in the manuscripts of “The Mirror of Wonders” (*Mir’āt al-‘ajā’ib*)

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Abstract: “The Mirror of Wonders” (*Mir’āt al-‘ajā’ib*) is an illustrated Arabic treatise about a mysterious mirror that displays different alchemical symbols. This work of unsettled authorship, which was composed between the 12th and 16th centuries, has got a rich manuscript tradition with more than 45 extant copies dating from the 16th to the 20th centuries, including translations into Turkish and Persian and various short versions of the text. They prove the remarkable popularity of “The Mirror of Wonders” throughout the Islamicate world, even in modern times. Most manuscripts contain a coloured illustration of the mirror and its symbols, with a large scope of variation in their visual design. The nine alchemical symbols of the mirror are: 1. The two figures embracing each other (*al-shakhṣān al-mu‘taniqān*); 2. The black circle (*al-dā’ira al-sawdā’*); 3. The palm of the hand (*al-kaff*); 4. The black raven (*al-ghurāb al-aswad*); 5. The eagle (*al-‘uqāb*); 6. The sun (*al-shams*); 7. The snake (*al-thu‘bān*); 8. The nine crabs (*al-saraṭānāt al-tis‘a*) with the dog descending into the water (*al-kalb al-nāzil fī l-mā’*) and 9. The nine circles (*al-dawā’ir al-tis‘a*). This paper presents the manuscript tradition of *Mir’āt al-‘ajā’ib* and analyses the diverging imagery of the symbols and their meanings in the different manuscripts.

Keywords: alchemical symbols, *al-Risāla al-Baḥriyya*, Arabic alchemy, Ibn al-Muhtār, manuscript illustrations

1 Introduction

One night, an alchemist has the following dream: he is wandering in the desert, when suddenly a storm arises. He seeks shelter in a monastery where he meets an ascetic monk whom he would like to ask about the art of alchemy. The monk gives him a key and tells him to open a door behind which he would find what he

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seeks.¹ As the alchemist opens the door, he faces a room with the image of an extraordinary mirror, displaying “wondrous images and curious pictures” (*tamāthīl ‘ajība wa-ṣuwar gharība*)². He studies them closely. Then he awakes from his dream and decides to write down what he has seen.

This is the opening story of *Mir’āt al-‘ajā’ib* (“The Mirror of Wonders”), an alchemical treatise whose authorship is uncertain. In the following section there are nine chapters dedicated to the nine symbols of the mirror and their meanings. Based on manuscript and textual evidence, this work was written between the 12th and the late 16th centuries. The earliest dated manuscript is from 992/1584.³ However, a somewhat earlier dating of *Mir’āt al-‘ajā’ib* seems probable since there was already a Turkish version available in 994/1585.⁴ The lifetime of the alchemist Ibn Arfa‘ Ra’s (fl. 12th and/or 13th cent.), whose poetry is cited in this work, serves as a *terminus post quem*.⁵ *Mir’āt al-‘ajā’ib* was very popular in wide parts the Islamic world, since there are not only Arabic, but also Turkish and Persian versions of the text.⁶ It was mostly read and copied in the Islamic East, as almost all extant manuscripts are written in Naskhī or Nasta‘līq style.⁷ The dated manuscripts were copied from the 16th to the 20th centuries and define a period of about 400 years for the reception history of “The Mirror of Wonders”.

In most secondary sources and manuscript catalogues, the authorship of *Mir’āt al-‘ajā’ib* is ascribed to Abū ‘Abd Allāh Muḥammad Ibn al-Muhtār (or: al-

1 Interestingly, the monk seems to be endowed with telepathic abilities, since he is able to perceive the as yet unspoken wish of the alchemist: *qultu fī nafsī* (“I said to myself”) [...], *wa-idhā bi-l-rāhib qad uṭli‘a ‘alā mā anā ṭālib* (“Then, it was revealed to the monk what I sought”), see MS Çorum, Hasan Paşa, 1234, f. 3r (I will take this manuscript as a reference, as it is the earliest dated copy of the unabridged Arabic version of the text).

2 MS Çorum, Hasan Paşa, 1234, f. 3v. The idea of mirrors providing answers to the quests of seekers is also present in Ps.-al-Mas‘ūdī’s *Akhbār al-zamān*, where it is said of an post-diluvian Egyptian king named Quṭṭawīm that, in some of his cities, he installed a mirror in which one could see “everything one is enquiring about” (*yarā l-insān fihā jamī‘ mā yas’al ‘anhu*) ([Ps.-]al-Mas‘ūdī 1938: 157; cf. Ullmann 1992: 59).

3 MS Oxford, Bodleian, Greaves 14.

4 MS Hamburg, Staats- und Universitätsbibliothek, Cod. orient. 310, cf. ch. 2.

5 Cf. Turāb ‘Alī et al. 1933: IV; for details on the lifetime of Ibn Arfa‘ Ra’s, see Forster/Müller 2020: 394–396.

6 It seems probable that the Turkish translation was completed earlier than the Persian translation, since the earliest dated Turkish copy of *Mir’āt al-‘ajā’ib* was written in 994/1585, while the Persian manuscripts date from the 19th century.

7 The only manuscripts written in Maghribī style are MS Rabat, Ḥasaniyya, 1122, copied in the late 19th century for the Moroccan Sultan al-Ḥasan I (cf. note 64) and the undated MS Istanbul, Süleymaniye, Laleli, 2772.

Mihtār), presumably due to Ḥājji Khalifa’s (d. 1068/1657) account in his entry on this treatise in *Kashf al-ẓunūn*.⁸ In his general entry on alchemy, however, he provides contrary information, as he refers to Ibn Sīnā as the author of *Mir’āt al-‘ajā’ib*.⁹ Although this ascription is certainly wrong, since Ibn Sīnā (d. 428/1037) lived before Ibn Arfa‘ Ra’s, it shows that Ḥājji Khalifa himself was not completely sure about the identity of the author of *Mir’āt al-‘ajā’ib*. As for Ibn al-Muhtār, nothing is known about the life and works of an alchemist by this name. There is a religious scholar from Damascus named Abū ‘Abd Allāh Muḥammad Ibn al-Muhtār or al-Mihtār, who lived from 637/1240 to 715/1316.¹⁰ Yet, none of the biographical sources indicate any relation of this scholar to alchemy or to “The Mirror of Wonders”. In the manuscripts of *Mir’āt al-‘ajā’ib*, the name of Ibn al-Muhtār is virtually absent, its only known sources being MS Cairo, Dār al-kutub, Ṭabī‘iyyāt 190, MS Çorum, Hasan Paşa, 1234 (dated 1020/1612) and MS Princeton, University, 293 (c. 19th cent.). In all three manuscripts, the name is given unvocalized on the title pages for the author of *Mir’āt al-‘ajā’ib*. However, at least in the manuscripts from Cairo and Princeton, this information has been added by a later hand, while the copyist of the Cairo manuscript indicates a different name for the author (see below). In the Çorum manuscript, the name ends in *nūn*: “Abū ‘Abd Allāh Muḥammad Ibn al-Muhtān (or: al-Mihtān)”.¹¹ Considering these sources, the evidence for Ibn al-Muhtār’s authorship seems rather fragile.

While most manuscripts of *Mir’āt al-‘ajā’ib* do not indicate any author, some undated copies from Cairo identify the author as “al-Ghazālī”. One of them gives his full name as Aḥmad b. Abī Ḥāmid al-Ghazālī in the introduction of *Mir’āt al-‘ajā’ib*.¹² This could refer to a son of the famous theologian and mystic Abū Ḥāmid Muḥammad al-Ghazālī (d. 505/1111) or to his Sufi brother (d. 520/1126).¹³ Other Arabic

⁸ Cf., for example, Ḥājji Khalifa 1943, II: 1648–1649; al-Ṭihirānī 1983, XX: 278, No. 2963 and Ullmann 1972: 224; 245. Brockelmann (1937: 428) offers a different hypothesis for the authorship of *Mir’āt al-‘ajā’ib* by listing it among the writings of Jābir b. Ḥayyān.

⁹ Ḥājji Khalifa 1943, II: 1533; cf. Ullmann 1972: 245.

¹⁰ Muḥammad b. Yūsuf b. Muḥammad b. al-Muhtār (or: al-Mihtār), Nāṣir al-Dīn Abū ‘Abd Allāh Ibn al-Shaykh Majd al-Dīn al-Miṣrī *thumma* al-Dimashqī al-Shāfi‘ī (al-Ṣafadī 2000, V: 174; cf. al-Dhahabī 1990: 592–593; al-Taḳī al-Fāsī 1997, I: 481–482; Ibn Ḥajar 1931, IV: 313). His father Yūsuf (d. 685/1287) was a hadith scholar at the Damascene Dār al-Ḥadīth al-Ashrafiyya (Ibn al-‘Imād 1991, VII: 687–688).

¹¹ Whether the name in the Çorum manuscript was also added by a later hand, is difficult to determine.

¹² MS Cairo, Dār al-kutub, Ṭabī‘iyyāt Taymūr, 145, p. 2. Other manuscripts that give the name of al-Ghazālī on their title pages are MSS Cairo, Dār al-kutub, Ṭal‘at, 179; Cairo, Dār al-kutub, Ṭabī‘iyyāt 190 and Karachi, University, 19987 (the latter being a direct copy of MS Cairo, Dār al-kutub, Ṭabī‘iyyāt 190).

¹³ Cf. Montgomery Watt 1965: 1038; Ritter 1965: 1041. The brother of the theologian al-Ghazālī is called Aḥmad b. Muḥammad. If their father had the *kunya* Abū Ḥāmid as well, the manuscripts probably refer to this Sufi as the author of *Mir’āt al-‘ajā’ib*.

texts on alchemy have been ascribed to Abū Ḥāmid al-Ghazālī himself, but the historian Ibn Khaldūn (d. 808/1406) dismisses these attributions as inauthentic.¹⁴

In two manuscripts, the authorship of *Mir'āt al-'ajā'ib* is ascribed to al-Mu'allif al-jadīd, a sobriquet of the Ottoman alchemist 'Alī Bek al-Iznīqī, also known as 'Alī Çelebī, who, it is estimated, was alive sometime between the 15th and early 17th centuries.¹⁵ One of these manuscripts, however, is quite recent (late 19th cent.). The other, although estimated to be from the 17th century, is a Turkish version that is probably not very close to the original version of *Mir'āt al-'ajā'ib*, since its symbols are not displayed in a mirror, but in several small illustrations in the margin of the text.¹⁶

One other manuscript attributes the authorship of the text to Dhū l-Nūn al-Ikḥmīmī al-Miṣrī (d. 245/859).¹⁷ Dhū l-Nūn is among the alchemists whose sayings are cited in *Mir'āt al-'ajā'ib*, but he is clearly not the author of the text, as he lived well before other alchemists such as Ibn Umayl and Ibn Arfa' Ra's whose writings are cited as well.¹⁸

There is another alchemical treatise entitled *al-Risāla al-Baḥriyya* (“The Epistle of the Sea”), which was most probably written by the author of *Mir'āt al-'ajā'ib* (cf. section 4.9). None of the manuscripts of this work, however, contain any name of its author that could help elucidate the question of the authorship of “The Mirror of Wonders”.

The title of *Mir'āt al-'ajā'ib* has several variants among the manuscripts. These concern the heading at the beginning or on the title pages as well as the title given within the introduction of the text. For the title in the heading and on the title pages, some manuscripts add different extensions to *Mir'āt al-'ajā'ib* (“The Mirror of Wonders”):¹⁹

| <i>Title extension</i> | <i>Translation</i> | <i>Manuscript</i> ²⁰ | <i>Date</i> |
|---|---------------------------------------|--|-------------|
| + <i>fī 'ilm al-gharā'ib</i> | + “on the Science of Curiosities” | Hamburg, SUB, Cod. orient. 310, f. 26v | 994/1585 |
| + <i>fī l-ṣan'a al-ilāhiyya wa-l-gharā'ib</i> | + “on the Divine Art and Curiosities” | Çorum, Hasan Paşa, 1234, f. 1r | 1020/1612 |

¹⁴ Ibn Khaldūn 2004, II: 311; cf. Ullmann 1972: 227, note 5.

¹⁵ MSS Rabat, Ḥasaniyya, 1122, f. 1r/v and Riyadh, King Faisal, 12359, p. 247. For the lifetime of al-Mu'allif al-jadīd and a detailed discussion of the corpus of alchemical writings attributed to him, see Artun 2013: 117; 119–156; cf. note 64 and Ullmann 1972: 242.

¹⁶ Cf. note 72.

¹⁷ MS Rabat, Ḥasaniyya, 1228, f. 1r; cf. al-Khaṭṭābī 1986: 92.

¹⁸ For information on Dhū l-Nūn as an alchemist, see Ullmann 1972: 196–197.

¹⁹ In most manuscripts, the word *kitāb* (“book”) precedes the title. Only in MSS Çorum, Hasan Paşa, 1234, Riyadh, King Faisal, 12359 and Tehran, Dānishgāh, 1087, the text is called *risāla* (“epistle”).

²⁰ For more details on the manuscripts, see section 2.

| | | | |
|---|--|---|-------------------------|
| + <i>wa-ghāyat kull ṭālib fī fann al-ṣan‘a</i> | + “and the Goal of every Seeker on the Discipline of the Art” | Oxford, HSM, Stapleton 1, f. 122v | 1089/1678 |
| + <i>wa-l-gharā’ib</i> | + “and Curiosities” | Istanbul, Millet, Hekimoğlu Ali Paşa 543, f. 1v Damascus, Majma‘, 941, f. 1v | 1113/1702 ? |
| + <i>fī ‘ilm al-ṣan‘a</i> | + “on the Science of the Art” | Tehran, Dānishgāh, 3103, f. 1v | 1258/1842-3 |
| + <i>dar ‘ilm-i ṣinā‘at-i ilāhiyya</i> | + “on the Science of the Divine Art” | Tehran, Dānishgāh, 1087, f. 12v (Persian) | 1289/1872-3 |
| + <i>wa-l-ṣuwar wa-mā shtamalāt ‘alayhī min al-gharā’ib</i> | + “and Images and the Curiosities it contains” | Rabat, Ḥasaniyya, 1122, f. 1r/v | 1290/1873– 1311/1894 |
| + <i>fī l-ṣan‘a al-ilāhiyya</i> | + “on the Divine Art” | Baghdad, Awqāf, 24242 ²¹ Cairo, Dār al-kutub, Ṭal‘at, 179, f. 19r | ? ? |
| + <i>wa-ghāyat kull ṭālib fī l-ḥikma al-ilāhiyya wa-l-asrār al-rabbāniyya</i> | + “and the Goal of every Seeker on the Divine Wisdom and the Numinous Secrets” | Bursa, İnebey, Genel 813, f. 1r | ? |

As for the title in the introduction, most manuscripts give the reading: *wa-sammaytuhā Mir’āt al-‘ajā’ib fa-l-yatanabbih kull ṭālib* – “I named it ‘The Mirror of Wonders’, so that every seeker may awaken”.²² Thus, the title is here considered to be *Mir’āt al-‘ajā’ib*, without any extension. Two rather early

²¹ Cf. al-Jubūrī 1974: 448.

²² See for example MS Cairo, Dār al-kutub, Ṭabī‘iyyāt 190, p. 3.

manuscripts from Oxford and Bursa, however, give *(wa-)ghāyat kull tālib* – “(and) the Goal of Every Seeker” – instead of *fa-l-yatanabbih kull ṭālib*, making this an extension to the title in accordance with the heading on their title pages.²³ One Qom manuscript has *tanbīh* instead of *fa-l-yatanabbih*, making the title “The Mirror of Wonders and the Awakening of Every Seeker”.²⁴ In one Rabat manuscript, we find a corrupted reading of the title with the word ذات instead of امرأة. This manuscript gives the title *Kitāb Dhāt al-‘ajā’ib mubīna* [or: *mubayyana*] *li-kull ṭālib* – “The Wondrous One which is [made] Clear to Every Seeker” on the title page as well as within the text, with the word مبينة being probably a corruption of فليتبته.²⁵ In the colophon of a London manuscript, the text is called *al-Mir’āt al-‘ajība* (“The Wondrous Mirror”), while the same manuscript’s introduction provides the title *Mir’āt al-‘ajā’ib*.²⁶

In the text of *Mir’āt al-‘ajā’ib*, the author cites various earlier alchemists as well as the Qur’ān²⁷, and sayings of the Prophet²⁸. The alchemists include Pythagoras²⁹, Aristotle (*Kitāb Nu’ūt al-aḥjār*)³⁰, Democritus³¹, Hermes (*Risāla*)³², Bulūqūṭūs³³, Zosimos (*al-Risāla ilā Tiyūsāniyya*)³⁴, Secundus³⁵, Marqūnus³⁶, Āras (*Muṣḥaf al-ḥayāt*)³⁷, Mary³⁸, Maryānus³⁹, Khālīd b. Yazīd⁴⁰, Dhū l-Nūn al-Miṣrī⁴¹, Jābir b.

23 MSS Oxford, HSM, Stapleton, 1, f. 125a, and Bursa, İnebey, Genel 813, f. 2v.

24 MS Qom, Gulpāyigānī, 34/64–6694, not foliated.

25 MS Rabat, Ḥasaniyya, 1228, ff. 1r and 2v.

26 MS London, Institute of Ismaili Studies, 788, ff. 16v; 26r.

27 Sūrat al-Furqān (Q 25:54) and Sūrat al-Raḥmān (Q 55:15) (MS Çorum, Hasan Paşa, 1234, f. 6r).

28 *Al-dunyā mazra‘at al-ākḥira* – “This world is the plantation of the otherworld” and *ista‘īnū ‘alā umūrikum bi-l-kitmān* – “Make use of secrecy for your affairs” (MS Çorum, Hasan Paşa, 1234, ff. 15v and 16r). Both seem to be uncanonical hadiths, since they are not listed in Wensinck 1936–1988.

29 Cf. Ullmann 1972: 152–153.

30 Cf. Ullmann 1972: 157–158. Ullmann does not list this title. Maybe it is identical to the *Kitāb al-Aḥjār* (ed. Ruska 1912).

31 Cf. Ullmann 1972: 159–160.

32 Cf. Ullmann 1972: 165–170. It is unclear which of the works attributed to Hermes is referred to in *Mir’āt al-‘ajā’ib* as *Risāla*.

33 In some manuscripts, this name is given as Balqūs. This alchemist might be identical to one of the orators in the *Turba philosophorum*, whose name includes the variant “Balcus” in the Latin version of the *Turba* (cf. Lacaze 2018: 599–600).

34 Cf. Ullmann 1972: 160–163. The collection of Zosimos’ letters to Theosebeia is commonly entitled *Muṣḥaf al-ṣuwar* (“The Book of the Images”).

35 Cf. Ullmann 1972: 164–165.

36 Cf. Ullmann 1972: 179–180.

37 Cf. Ullmann 1972: 190–191.

38 Cf. Ullmann 1972: 181–183.

39 Cf. Ullmann 1972: 191.

40 Cf. Ullmann 1972: 192–195.

41 Cf. Ullmann 1972: 196–197.

Ḥayyān (*Kitāb Ḥayāt al-nufūs*; *Kitāb al-Riyāḍ*; *Kitāb al-Sirr al-maknūn*; *Muhaj al-nufūs*)⁴², Armiyānūs⁴³, Ibn Umayl (*Kitāb al-Mā’ al-waraqī wa-l-arḍ al-najmiyya*)⁴⁴, ‘Abd al-‘Azīz b. Tammām⁴⁵, ‘Abd al-Karīm al-Mukhtafī⁴⁶ and Ibn Arfa‘ Ra’s (*Shudhūr al-dhahab*)⁴⁷.

2 The manuscripts

“The Mirror of Wonders” has been transmitted in different forms: besides the Arabic original, there are at least three Arabic short versions of unknown authorship, as well as Turkish and Persian translations of the original text, and a Persian translation of one of the short versions. One manuscript, which is listed here among the short versions, only has an illustration of the mirror with annotations extracted from the text of *Mir’āt al-‘ajā’ib*. Except for three copies which were not available to me, all manuscripts have been taken into account for this study. The copies with illustrations of the mirror have been given *sigla* to ease their discussion in Sections 3 and 4.

2.1 *Mir’āt al-‘ajā’ib* (“The Mirror of Wonders”)

a) Arabic

| | <i>Date</i> | <i>Illustration</i> | <i>Siglum</i> |
|--|-------------|---------------------|---------------|
| 1. Baghdad, Maktabat al-Awqāf al-‘amma, 24242; 18 ff. ⁴⁸ | ? | ? | |

⁴² Cf. Forster 2019: 91–97; Ullmann 1972: 198–208. *Kitāb al-Riyāḍ* (Kraus 1942, I: 117–118 no. 960 and 962); *Kitāb Ḥayāt al-nufūs* (Kraus 1942, I: 127, no. 996). The *Kitāb al-Sirr al-maknūn* (Kraus 1942, I: 93–94, no. 389–391) and the *Kitāb Muhaj al-nufūs* (Kraus 1942, I: 90, no. 371) are part of the collection of the “Books of the Balances” (*Kutub al-mawāzīn*).

⁴³ Cf. Ullmann 1972: 217.

⁴⁴ Ed. Turāb ‘Alī et al. 1933: 1–104; cf. Ullmann 1972: 217–220.

⁴⁵ Cf. Ullmann 1972: 220.

⁴⁶ Cf. Ullmann 1972: 244–245.

⁴⁷ Ed. Dolgusheva (forthcoming); ed. Ghazzālī 2018; cf. Forster/Müller 2020: 375–376; Ullmann 1972: 231–232.

⁴⁸ This manuscript was purchased by a certain ‘Alī Alūsī in Istanbul (*Qusṭanṭīniyya*) (cf. al-Jubūrī 1974: 448; Dirāyatī 2018, XIV: 356–357). The Awqāf Library has been destroyed during the war in 2003 and most of its manuscripts have been lost (Al-Tikritī 2007: 734–735). This manuscript was not available to me.

- | | | | | |
|----|---|-----------|-----|-----------|
| 2. | Berlin, Staatsbibliothek Preußischer Kulturbesitz, Orientabt., Ms. or. oct. 2651, ff. 135b–159b ⁴⁹ | 1304/1887 | – | |
| 3. | Bursa, İnebey Yazma Eser Kütüphanesi, Genel 813, ff. 1r–18r Microfilm: Cairo, Institute of Arabic Manuscripts, al-Kīmiyā' wa-l-ṭabī'iyāt 144, pp. 1–36 Microfilm: Utah, University Library, Martin Levey microfilm collection of Arabic scientific manuscripts, reel 5, title 1 | ? | + | Bu |
| 4. | Cairo, Dār al-kutub al-Miṣriyya, Ṭabī'iyāt Taymūr 145, pp. 1–33 ⁵⁰ Digital copy: Dubai, Juma al-Majid Center, 303946 | ? | + | C1 |
| 5. | Cairo, Dār al-kutub al-Miṣriyya, Ṭabī'iyāt 190, pp. 1–25 Digital copy: Dubai, Juma al-Majid Center, 369030 Microfilms: Cairo, Institute of Arabic Manuscripts, al-Kīmiyā' wa-l-ṭabī'iyāt 158 and 880 | ? | + | C2 |
| 6. | Cairo, Dār al-kutub al-Miṣriyya, Ṭal'at 179, ff. 19v–30r Digital copy: Dubai, Juma al-Majid Center, 368871 | ? | + | C3 |
| 7. | Çorum, Hasan Paşa İl Halk Kütüphanesi, 1234, ff. 1v–20v ⁵¹ | 1020/1612 | (+) | Ço |

49 This alchemical multiple text manuscript was copied in 1304/1887 in the Anatolian town of Çankırı (*baldat Kangharī*) by al-Ḥājj Qāsim Fahmī Ibn al-Ḥājj Ḥusayn (...) al-Siyāhī, who had settled down in Mosul (*min mutawaṭṭinīn Mawṣil al-ḥadbā'*), as declared in the colophon of a previous text (f. 81r). He also annotated this copy of *Mir'āt al-'ajā'ib* with marginal glosses in Arabic and Turkish. Cf. https://orient-mss.kohd.adw-goe.de/receive/KOHDArabicMSBook_islamhs_00003128?XSL.Style=print [accessed: 28 April 2021].

50 This manuscript contains the original version of the explanation of the symbols. The introduction however is shortened and contains only the description of the dream, entitled *Tarjamat awwal al-kitāb fī sabab waḍ' al-mir'āt*, like in the short version 2.2.2 (cf. note 80).

51 This manuscript is dated 1 Dhū l-Ḥijja 1020 AH (4 February 1612). The copyist calls himself al-Ḥājj Muḥammad (**Ço**, f. 20v). The illustration of the mirror is unfinished, only showing two outlines of the round mirror and the triangle of the first symbol, all drawn in red ink (**Ço**, f. 3r).

| | | | | |
|-----|---|-------------|----------|-----------|
| 8. | Damascus, Maktabat Majma‘ al-lughā al-‘arabiyya, 941, ff. 1v–50r ⁵² Digital copy: Dubai, Juma al-Majid Center, 667779 Digital copy: Mecca, Umm al-Qurā University, Maktabat al-Malik ‘Abd al-‘Azīz, 21400-1 | ? | probably | |
| 9. | Damascus, Maktabat al-Asad, 19005, ff. 53v–78r ⁵³ | ? | ? | |
| 10. | Hyderabad, Oriental Manuscripts Library and Research Institute, Kimiyā’ 935, ff. 152v– 167r ⁵⁴ | ? | + | Hy |
| 11. | Istanbul, Millet Genel Kütüphanesi, Hekimoğlu Ali Paşa 543, ff. 1v–57r | 1113/1702 | + | Is |
| 12. | Istanbul, Süleymaniye Kütüphanesi, Laleli 2772, ff. 62r–80r ⁵⁵ | ? | – | |
| 13. | Karachi, University Library, 19987; 43 pp. ⁵⁶ Digital copy: Dubai, Juma al-Majid Center, 528459 | 1344/1925-6 | + | Ka |
| 14. | London, British Library, Add 7722, ff. 96v–106v ⁵⁷ | 1211/1796-7 | + (2) | L1 |

52 This water-stained manuscript seems rather old. The copyist left large margins and framed the text in red and, on the first two pages, also in gold. Between ff. 4 and 5 there is a folio missing that was removed before the foliation of the manuscript, since the text and the catchword on ff. 4v and 5r do not match. This is exactly at the point in the text where the illustration would have been inserted. Therefore, it seems probable that this manuscript contained an illustration as well, and that it has been removed on purpose. See <https://dorar.uqu.edu.sa/uquui/handle/20.500.12248/114613?locale=ar> [accessed: 28 April 2021] for a partial digital copy of this manuscript.

53 This manuscript was not available to me. It does not seem to come from the collection of the Zāhiriyya Library, since it is not mentioned in the catalogue by al-Ṣabbāgh (1980).

54 This text was originally part of a larger manuscript. It has been rebound in the current codex 935 with 18 ff.

55 In addition to this original version of the “Mirror” on ff. 62r–80r, this manuscript also contains a short version of *Mir’āt al-‘ajā’ib* (cf. 2.2.3). Between ff. 61 and 62, there is at least one folio missing which contained the beginning of the text.

56 The text and illustration in this manuscript have been copied from **C2** (cf. **Ka**, p. 43).

57 This manuscript was copied in Baghdad (**L1**, f. 106v). In addition to two illustrations of the mirror, it contains a drawing of a triangle with a square inside of it. The sides of the triangle are labelled as *nafs* (“soul”), *rūḥ* (“spirit”), and *jasad* (“body”), and the sides of the square as the four humours *dam* (“blood”), *balgham* (“phlegm”), *sawdā’* (“black bile”), and *ṣafrā’* (“yellow bile”). Inside of the square is written *makān al-mir’āt* (“the location of the

- | | | | | |
|-----|--|--------------------|-----|-----------|
| 15. | London, Institute of Ismaili Studies, 788, ff. 16r–26r ⁵⁸ | late 18th cent. | (+) | L2 |
| 16. | Mashhad, Kitābkhāna-yi Āstān-i Quds-i Raḍawī, 10722, ff. 23v–33r | ? | + | Mh |
| 17. | Mecca, Umm al-Qurā University, Maktabat al- Malik ‘Abd al-‘Azīz, 1590, ff. 1v–18v ⁵⁹ | 1296/1879 | + | Mc |
| 18. | Oxford, History of Science Museum, Stapleton 1, ff. 122v–145v ⁶⁰ | 1089/1678 | + | O1 |
| 19. | Princeton, University Library, Islamic manuscripts, New Series 293, ff. 1v–19v ⁶¹ | 19th cent. | + | Pr |
| 20. | Qom, Kitābkhāna-yi Āyatullāh-i Gulpāyigāni, 34/64–6694, 7 ff. (not foliated) ⁶² | 1272/1855-6 | – | |

mirror”). This illustration seems to refer to a passage of the text of *Mir’āt al-‘ajā’ib*, next to which it is located in the margin. In this passage, the narrator describes what he has seen after having opened the door with the monk’s key: *fa-ra’aytu makānan murabba‘ al-‘umrān muthallath al-bunyān [...] wa-fī ṣadr dhālika l-makān ṣūrat mir’āt* (**L1**, f. 98v) – “I saw a place which was squarely built and triangularly constructed [...], and in the foremost part of this place was the image of a mirror”. The same illustration is also present in **L2** (see note 58).

58 In this manuscript, the text of *Mir’āt al-‘ajā’ib* was copied as if it was part of Ibn Umayl’s *Kitāb al-Mā’ al-waraqī* (ff. 8r–16r). It begins on f. 16r without a *basmala* or any other indication that would mark the end of the *Kitāb al-Mā’ al-waraqī* and the beginning of *Mir’āt al-‘ajā’ib*. The text starts in the middle of the introduction (*wa-hādhā l-sirr mimmā ...*). The dating is an estimate by Gacek (1985, II: 103). The manuscript does not have an illustration of the mirror, but of one of its symbols only: the nine crabs are drawn between the lines of the text, just as in **R1** (cf. note 72; Figure 5). Besides this, there are three other illustrations in the margins: two pencil-drawings of alchemical apparatuses (ff. 20r; 25r), and a drawing of a triangle with a square inside of it, with the same labels as in **L1**, except for *makān al-mir’āt* (f. 16v; see note 57).

59 See <https://dorar.uqu.edu.sa/uquui/handle/20.500.12248/101680?locale=ar> [accessed: 28 April 2021] for a partial digital copy. The illustration of this manuscript has been drawn with a pencil.

60 Cf. Anonymous s.d.: 59. This manuscript was purchased around 1900 in Lucknow, India, and owned by Henry E. Stapleton. Besides “The Mirror of Wonders”, it contains Ibn Umayl’s *Kitāb al-Mā’ al-waraqī* and his *Qaṣīda al-Nūniyya* (Turāb ‘Alī et al. 1933: IV).

61 The dating is an estimate by Mach/Ormsby (1987: 168). The coloured illustration is drawn on a different paper and has been glued into the manuscript at a later date, possibly covering an older illustration (**Pr**, f. 3r).

62 The beginning of the text with the introduction and the description of the dream is missing in this manuscript.

- | | | | | |
|-----|---|--|---|-----------|
| 21. | Qom, Majma‘-i Dhakhā‘ir-i Islāmī, 3591, pp. 1–13 ⁶³ Digital copy: Dubai, Juma al-Majid Center, 384862 | 20th cent. | + | Qm |
| 22. | Rabat, al-Khizāna al-Ḥasaniyya, 1122, ff. 1r–27r ⁶⁴ | between 1290/1873 and 1311/1894 | + | H1 |
| 23. | Rabat, al-Khizāna al-Ḥasaniyya, 1228; 17 ff. ⁶⁵ | ? | – | |
| 24. | Rabat, al-Khizāna al-Ḥasaniyya, 1487, ff. 184v–207v ⁶⁶ | early 17th cent. (?) | + | H2 |

63 This copy was written in a modern ruled notebook from a stationery shop owned by a Ḥājj Muḥammad Riḍā and located at Darvāza-yi Dawlat Square in Isfahan, according to a label on the inner book cover. The illustration of the mirror has obviously been copied from the more elaborate **T1** or a related manuscript, since it seeks to imitate its design and colouring.

64 This manuscript was copied by al-Sibā‘ī, one of the scribes of the Moroccan Sultan al-Ḥasan I (r. 1290/1873–1311/1894), who was famous for his profound interest in alchemy and occult sciences (cf. **H1**, initial flyleaf verso; al-Khaṭṭābī 1986: 10; Braun/Forster 2021). The copyist ascribes the authorship of *Mir’āt al-‘ajā’ib* to al-Mu‘allif al-jaḍīd, the “New Author”, i.e. ‘Alī Bek al-Iznīqī (cf. section 1). In the note on the initial flyleaf, another copy of the text is mentioned. It is said to have been written in Mashriqī script with the text beginning on f. 184. This would correspond to **H2**. The illustrations of the mirror and the text of *Mir’āt al-‘ajā’ib* in both copies are virtually identical. Therefore, **H2** clearly served as al-Sibā‘ī’s main source when copying this manuscript. This premise is borne out by the illustrations: both show a rather simply coloured design in black and red, which conforms perfectly to the rest of the text in **H2**, where only black and red inks are used. **H1**, however, is richly decorated with the additional colours of gold, green, and blue which would have certainly been used in the illustration as well, if this were an authentic illustration by al-Sibā‘ī. In **H2**, the text is entitled *Kitāb Mir’āt al-‘ajā’ib li-l-mu‘allif* “The Book of the Mirror of Wonders by the author”. This title might have made al-Sibā‘ī conjecture the author of this text to be al-Mu‘allif al-jaḍīd.

65 In this manuscript, the text is erroneously entitled *Kitāb Dhāt al-‘ajā’ib* and attributed to Dhū l-Nūn al-Ikḥmīmī al-Miṣrī (cf. section 1). At the end, an alchemical citation by ‘Alī b. Abi Ṭālib has been added to the text. This manuscript was probably brought to the Khizāna al-Ḥasaniyya from Egypt as it is written in Naskhī script and has an Egyptian binding (cf. al-Khaṭṭābī 1986: 93).

66 This manuscript was part of the mobile library (*al-maktaba al-mutanaqqila*) of Sultan al-Ḥasan I. During his travels, he took his private books with him in boxes that were transported on camels. This manuscript was kept in box no. 2 (**H1**, initial flyleaf verso; cf. Semlali 2015: 309; note 64). The note in **H1** is somewhat confusing, since it states that **H1** is part of the book collection (*khizāna*) of Sultan al-Manṣūr (r. 986/1578–1012/1603), while attributing it at the same time to the copyist al-Sibā‘ī who worked for Sultan al-Ḥasan I. Since the layout, writing style and colour design of **H1** clearly mark this manuscript as

25. Tehran, Kitābkhāna-yi markazī-yi Dānishgāh, 1258/1842-3 –
3103, ff. 1v–12v⁶⁷
26. Tehran, Kitābkhāna-yi Millī-yi Malik, 3341, 1326/1908-9 + **T1**
pp. 196–231
Digital copy: Dubai, Juma al-Majid Center,
311388

b) Turkish⁶⁸

| | <i>Date</i> | <i>Illustration</i> | <i>Siglum</i> |
|--|------------------|---------------------|---------------|
| 1. Hamburg, Staats- und Universitätsbibliothek, Cod. orient. 310, ff. 26v–47r ⁶⁹ | 994/1585 | + | Ha |
| 2. Konya, Mevlana Müzesi, Cilt 714, No. 2794, ff. 3v–10v, <i>in margine</i> ⁷⁰ | 1087/1676 (?) | – | |
| 3. London, British Library, Or 9678, ff. 89v–104v ⁷¹ | 17th cent. | – | |

one of the alchemical books copied for al-Ḥasan I in the late 19th century (cf. for example the very similar MS Rabat, Ḥasaniyya, 978, dated to 1308/1890, which contains Ibn Arfa' Ra's's commentary on his work *Shudhūr al-dhahab*), it is possible that the writer of this note mixed up **H1** and **H2**, meaning that **H2** would have been part of the book collection of al-Manṣūr. As **H2** is written in Naskhī and not in Maghribī style, it might have been among the numerous books that were purchased for al-Manṣūr in the Mashriq in the late 16th or early 17th century (cf. Binebine 2003: 91).

67 In this manuscript, there is a space left blank for the illustration which, however, has not been executed.

68 The Turkish manuscripts of *Mir'āt al-'ajā'ib* might contain different versions of the text. Since I do not read Turkish, I could not investigate this.

69 This manuscript was copied in Istanbul (Qusṭanṭīniyya) on 4 Muḥarram 994 AH (26 December 1585) (**Ha**, f. 25v; cf. Karolewski/Köse 2016: 281). I wish to thank Julia Bray for indicating this manuscript to me.

70 This might also be a Turkish commentary on the “Mirror”. On the title page of this manuscript, the text is called *Mir'āt al-'ajā'ib Sharḥ Ashraf Ūghlū* (“Commentary on ‘The Mirror of Wonders’ by Eşrefoğlu”, cf. Gölpınarlı 1972: 66). According to the list on the title page, this Eşrefoğlu also commented on other alchemical treatises in this multiple text manuscript.

71 This manuscript was acquired by the British Museum from one Abdel Ghani Shehab on 10 April 1926 (see final fly leaf). It seems to be a short version of the text. The dating is an estimate, see Stocks 2001: 349.

- | | | | | |
|----|---|------------|-------|-----------|
| 4. | Riyadh, King Faisal Center for Research and Islamic Studies, 12359, pp. 247–254 ⁷² | 17th cent. | (+) | R1 |
| 5. | Riyadh, King Saud University Library, 6826, ff. 1a; 9v–18v ⁷³ Digital copy: Dubai, Juma al-Majid Center, 607156 | 18th cent. | + (2) | R2 |
| 6. | Tashkent, Abu Rayhon Beruniy nomidagi Sharqshunoslik Instituti, 10028, ff. 640r–642r ⁷⁴ | 19th cent. | – | |
| 7. | Tavşanlı, Zeytinoğlu İlçe Halk Kütüphanesi, 298, ff. 35r–52r | ? | – | |

c) Persian

| | | <i>Date</i> | <i>Illustration</i> | <i>Siglum</i> |
|----|--|-------------|---------------------|---------------|
| 1. | Tehran, Kitābkhāna-yi markazī-yi Dānishgāh, 1207, ff. 2v–21r | ? | + (2) | T2 |
| 2. | Tehran, Kitābkhāna-yi markazī-yi Dānishgāh, 2053, pp. 1–42 ⁷⁵ | 19th cent. | + | T3 |

72 In this Turkish translation of *Mir’āt al-‘ajā’ib*, there are short passages from the Arabic original inserted for the explanation of the symbols, thus providing a bilingual version for certain parts of the text (cf. also note 73). The dating is an estimate from the catalogue record of the King Faisal Center (personal communications with the King Faisal Center, 15 September 2019). This manuscript does not have an illustration of the mirror, but several small illustrations of the symbols distributed in the margins and between the lines of the text (cf. also note 58). However, not all symbols are depicted: the raven is missing and the drawing of the two persons looks rather rudimentary, as if it was added by a later hand.

73 In this Turkish manuscript, there are short Arabic excerpts of the text of *Mir’āt al-‘ajā’ib* inserted in both illustrations of the mirror. With regard to this bilingual aspect, it resembles **R1** (cf. note 72). The dating is an estimate from the record on the website of the library of King Saud University (consulted on 14 September 2019, currently unavailable).

74 This manuscript was not available to me. The dating is an estimate, see Vildanova 1998: 199.

75 The dating is an estimate, see Dirāyatī 2013, XXVIII: 946.

2.2 Anonymous short versions

2.2.1 *Şūrat mirāya li-aḥad al-ḥukamā' al-falāsifa fī l-'ilm al-ilāhī* (“Image of a Mirror by One of the Wise Philosophers on the Divine Science”)⁷⁶

| | | <i>Date</i> | <i>Illustration</i> | <i>Siglum</i> |
|----|--|-------------|---------------------|---------------|
| 1. | Cairo, Dār al-kutub al-Miṣriyya, 28, ff. 39r–40r Digital copy: Dubai, Juma al-Majid Center, 369001 | ? | + | C4 |
| 2. | Dublin, Chester Beatty Library, Ar. 5433, f. 24r/v (fragment, end is missing) ⁷⁷ Digital copy: Dubai, Juma al-Majid Center, 230530 | 16th cent. | + | Du |
| 3. | Gotha, Forschungsbibliothek, Ms. orient. A. 1261, ff. 43r–44r | ? | + | Go |
| 4. | London, British Library, Add 25724, ff. 39r/v; 42r ⁷⁸ | ? | + | L3 |
| 5. | Riyadh, King Saud University Library, 3167, ff. 37r–38r ⁷⁹ Digital copy: Dubai, Juma al-Majid Center, 592132 | 16th cent. | + | R3 |

⁷⁶ This short version is part of a collection of illustrated alchemical texts by an anonymous compiler. It also contains excerpts from Abū l-Qāsim Muḥammad b. Aḥmad al-'Irāqī al-Simāwī's *al-Aqālīm al-sab'a*, from Zosimos' *Muṣḥaf al-ṣuwar* and from (Ps.-)Hermes' *Kitāb al-Milāṭīs*, amongst others. As can be seen in the title, the compiler did not know the author of the “Mirror”. This short version of *Mir'āt al-'ajā'ib* lacks the introduction and the description of the dream. It only contains extremely short excerpts from the explanations of the symbols. Apart from the MSS listed here, there are other MSS of this collection that do not contain this short version of the “Mirror of Wonders”, because the respective folia have been lost (MS Dublin, Chester Beatty Library, Ar. 5642), or because they end before the beginning of the text of the “Mirror”, since they only contain the first half of the collection (MSS Cairo, Dār al-kutub al-Miṣriyya, 603 and Cairo, Dār al-kutub al-Miṣriyya, Ṭal'at 214. Digital copies: Dubai, Juma al-Majid Center, 369245 and 303937).

⁷⁷ The dating is an estimate printed on a leaf preceding this manuscript in the microfilm of the Chester Beatty Library.

⁷⁸ This manuscript seems to be copied from **R3** or a related manuscript because the distribution of the text on the folia is the same. In the text of the “Mirror”, there are two folia of al-Simāwī's *al-Aqālīm al-sab'a* erroneously inserted after the illustration.

⁷⁹ The dating is an estimate from the record on the website of the library of the King Saud University (consulted on 14 September 2019, currently unavailable).

2.2.2 *Mir’āt al-‘ajā’ib wa-sharḥ al-ashkāl al-muṣawwara fī l-mir’āt + Tarjamat awwal al-kitāb fī sabab waḍ‘ al-mir’āt* (“The Mirror of Wonders and the Explanation of the Figures Depicted in the Mirror” + “Introduction of the Beginning of the Book on the Cause of the Presentation of the Mirror”⁸⁰

a) Arabic

| | <i>Date</i> | <i>Illustration</i> | <i>Siglum</i> |
|---|-------------|---------------------|---------------|
| 1. Cairo, Dār al-kutub al-Miṣriyya, 16, ff. 6r–6v, 3r–4v, 7r–14v ⁸¹ Digital copy: Dubai, Juma al-Majid Center, 369008 and 369020 | ? | + | C5 |
| 2. Islamabad, al-Jāmi‘a al-Islāmiyya, Maktabat Ḥamīdullāh, 3757 (not foliated; short fragment) ⁸² Digital copy: Dubai, Juma al-Majid Center, 664538 | ? | – | |
| 3. Mashhad, Kitābkhāna-yi Āstān-i Quds-i Raḍawī, 10739, ff. 81r–82r | 1226/1811-2 | – | |
| 4. Tehran, Kitābkhāna-yi Millī-yi Īrān, 1871, ff. 220r–222v; 223v | 1083/1672-3 | – | |

b) Persian

| | <i>Date</i> | <i>Illustration</i> |
|--|-------------|---------------------|
| 1. Tehran, Kitābkhāna-yi markazī-yi Dānishgāh, 1087, ff. 12v–16v | 1289/1872-3 | – |

⁸⁰ This short version of *Mir’āt al-‘ajā’ib* starts directly with the explanation of the nine symbols. While the introduction is missing in this version, the description of the dream has been added subsequently under an own title: *Tarjamat awwal al-kitāb fī sabab waḍ‘ al-mir’āt*. With the exception of the fragment from Islamabad, the manuscripts of this short version all contain another text by the author of “The Mirror of Wonders” as well, *al-Risāla al-baḥriyya* – “The Epistle of the Sea” (cf. section 4.9). The manuscripts from Mashhad and Tehran have this text between the explanation of the symbols and the description of the dream of *Mir’āt al-‘ajā’ib*. **C5** starts with *al-Risāla al-baḥriyya*, followed by *Tarjamat awwal al-kitāb* and the explanation of the symbols as a separate text. **C1** (2.1 a, no. 3) also begins with the description of the dream under the title *Tarjamat awwal al-kitāb fī sabab waḍ‘ al-mir’āt*. However, this manuscript contains the original long version of the explanation of the symbols and has therefore been listed in 2.1 (cf. note 50).

⁸¹ A folio has been misplaced before this manuscript was foliated. The illustration of the mirror is barely visible on the microfilm copy and could therefore not be properly analysed.

⁸² This is a short fragment of one page with the beginning of *Tarjamat awwal al-kitāb fī sabab waḍ‘ al-mir’āt*.

2.2.3 *Mir'āt al-'ajā'ib fī l-ṣan'a al-sharīfa* (“The Mirror of Wonders on the Noble Art”)⁸³

| | Date | Illustration |
|--|------------|--------------|
| 1. Istanbul, Süleymaniye Kütüphanesi, Laleli 2772, ff. 47v–49r ⁸⁴ | 18th cent. | – |

2.2.4 [Annotated illustration of the mirror]

| | Date | Illustration | Siglum |
|--|----------|--------------|-----------|
| 1. Oxford, Bodleian Library, Greaves 14, f. 3v ⁸⁵ | 992/1584 | + | O2 |

3 The images of the mirror

The image of the circular mirror appears as an integral part of the work *Mir'āt al-'ajā'ib*, since it figures in almost all the manuscripts of the original version of the text, whether as sophisticated coloured illumination or as simple drawing.⁸⁶ While this is also the case with the manuscripts of the short version 2.2.1, the short versions 2.2.2 and 2.2.3 forgo the illustration except for one manuscript. Some manuscripts of *Mir'āt al-'ajā'ib* even have two illustrations.⁸⁷ Special cases are **R1**

83 This short version is only extant in one manuscript. It describes itself as an “esteemed, brief book in Arabic language” (*kitāb mu'tabar 'alā lisān [sic] al-'arabī 'alā wajh al-ikhtiṣār*, f. 47v) and consists of short excerpts on the meaning of the symbols no. 1, 2, 3, 7, 4, 8, and 6. The introduction and the description of the dream are missing. This version shares some characteristics with at least one of the Turkish manuscripts of the mirror (**R1**). Sezgin (1971: 269) lists this short version of *Mir'āt al-'ajā'ib* among the works of Jābir b. Ḥayyān.

84 The dating is an estimate by Sezgin (1971: 269).

85 In this manuscript, the illustration of the mirror precedes *Lawāmi' al-afkār al-muḍī'a fī Sharḥ al-Mā' al-waraqī wa-l-arḍ al-najmiyya*, a comment by al-Jildakī on Ibn Umayl's *Kitāb al-Mā' al-waraqī*.

86 The round shape of the mirror in the illustrations is not surprising, since most mirrors in the medieval Islamic world were circular (Ullmann 1992: 31). Circular metal mirrors or plaques engraved with talismanic designs, such as zodiacal symbols and magic squares, were used in the Twelver Shi'i community of Safavid Iran or Mughal India (Savage-Smith 1997: 124–131).

87 While in **T2** these are two almost identical drawings in black ink (ff. 4r and 16v), **L1** and **R2** both have an illustration in black ink as well as a coloured illustration (**L1**, ff. 97v and 98r; **R2**, ff. 1r and 9v). In **L1**, the coloured illustration is more elaborate and drawn on a smaller sheet that was probably inserted into the manuscript at a later date. The outlines of both illustrations of **R2** are mostly identical.

and **L2**, where there are no illustrations of the mirror itself, but small illustrations of the symbols in the margins and between the lines of text.⁸⁸ In total, there are 33 illustrations in 30 manuscripts that were available for this analysis.

The comparison of the images of the mirror has shown that certain illustrations share the same characteristics, thereby forming specific groups in the transmission history of the image of the mirror. Three groups that cover 18 illustrations of the mirror turned out particularly distinctive in the consistency of their design:

| <i>Group</i> | <i>Manuscripts</i> | <i>Earliest date</i> |
|--------------|-----------------------------------|-------------------------------|
| A | C4, Du, Go, L3, R3 | 16th cent. |
| B | C1, C2, H1, H2, Ka, Mc | 16th–17th cent. (?) |
| C | L1 (2), Qm, T1, T2 (2), T3 | late 18th cent. (1211/1796–7) |

Group **A** encompasses all manuscripts of the short version 2.2.1 (*Ṣūrat mirāya li-aḥad al-ḥukamā' al-falāsifa fī l-'ilm al-ilāhī*). Their illustrations of the mirror are extremely similar and show only minor divergences. They also follow the style of the other illustrations in the untitled alchemical collection of which this short version of *Mir'āt al-'ajā'ib* is a part.⁸⁹ It seems probable, therefore, that these images of the mirror are based on an illustration that was conceived at the time of the initial compilation of this anonymous collection.

Group **B** seems to originate in Egypt, since there are two Cairene manuscripts with the characteristics of this group. Also **H2** as probably the earliest datable manuscript of this group had been brought to Morocco from the Islamic East and served as a source for **H1** in the late 19th century.⁹⁰ **Ka**, which is today kept in Pakistan, was copied from the Cairene **C2** in 1344/1926. Another late 19th-century copy of this group is kept in Mecca (**Mc**). The illustrations of this group have keywords written next to the items in the mirror in order to identify them.⁹¹

Group **C** includes all illustrated manuscripts of *Mir'āt al-'ajā'ib* that are kept in Iranian libraries, except for **Mh**. Only the oldest dated manuscript of this group, **L1**, is not kept in Iran. It was copied in late 18th-century Baghdad. Like the Iranian manuscripts however, it is written in Nasta'liq style.

⁸⁸ Cf. notes 58 and 72.

⁸⁹ Cf. note 80.

⁹⁰ Cf. note 66.

⁹¹ For the symbols, these are: 1. *dhakar wa-unthā* ("male and female"), 2. *sawād awwal* (first blackness), 3. *kaff* ("palm of the hand"), 4. *ghurāb* ("raven"), 5. *uqāb* ("eagle"), 6. *shams* ("sun"), 7. *tinnīn / thu'bān* ("dragon" / "snake"), 8. *tasāqī* ("waterings") and *kalb* ("dog"). The ninth symbol of the nine circles does not have a keyword. There are two more items in the mirror, a full moon and a crescent moon which are marked as *qamar* and *hilāl*, respectively (cf. 4.2 and 4.7).



Figure 1: O2. MS Oxford, Bodleian, Greaves 14, f. 3v, dated 992/1584.
© The Bodleian Library, University of Oxford.

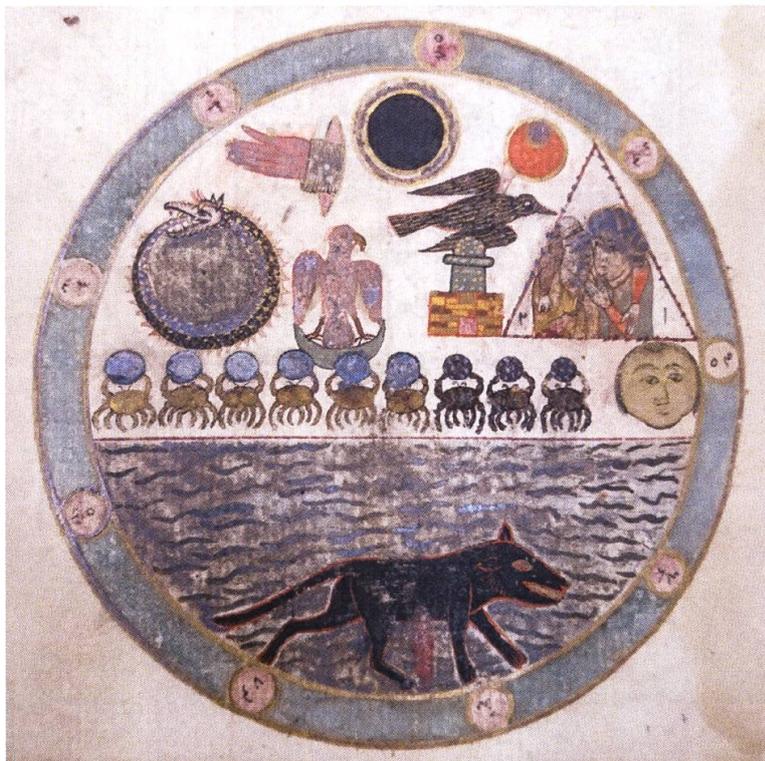


Figure 2: Ha. MS Hamburg, SUB, Cod. orient. 310, f. 28r (Turkish), dated 994/1585.
© Staats- und Universitätsbibliothek Hamburg.



Figure 3: R3 (group A). MS Riyadh, King Saud, 3167, f. 37v, probably 16th cent.
© King Saud University Library, Riyadh.

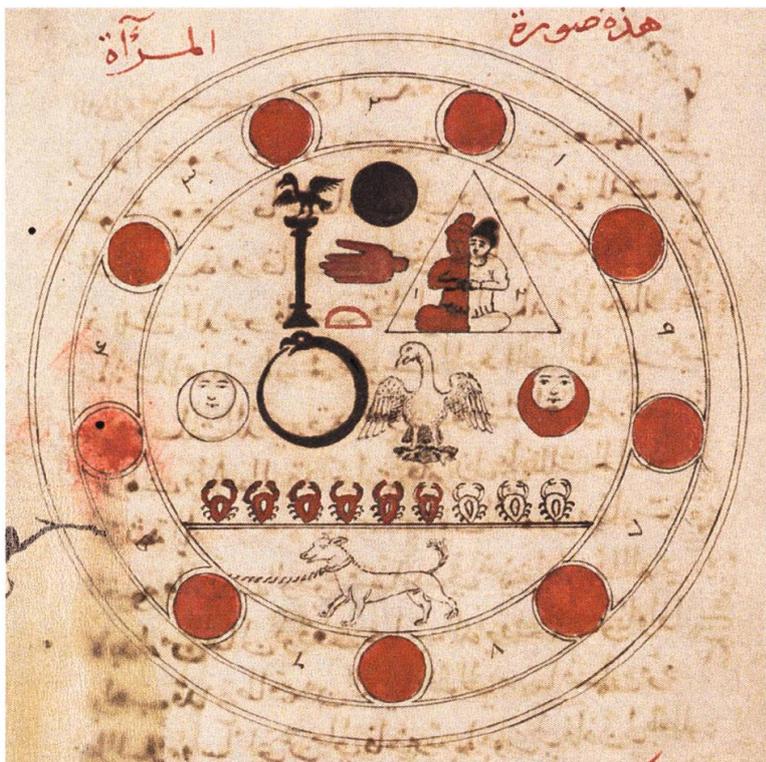


Figure 4: O1. MS Oxford, HSM, Stapleton 1, f. 124v, dated 1089/1678.
© History of Science Museum, University of Oxford.



Figure 5: R1. MS Riyadh, King Faisal, 12359, p. 251 (eagle), p. 252 (sun), p. 253 (snake; crescent), p. 254 (crabs; dog; nine circles), (Turkish), probably 17th cent.
 © King Faisal Center for Research and Islamic Studies, Riyadh.

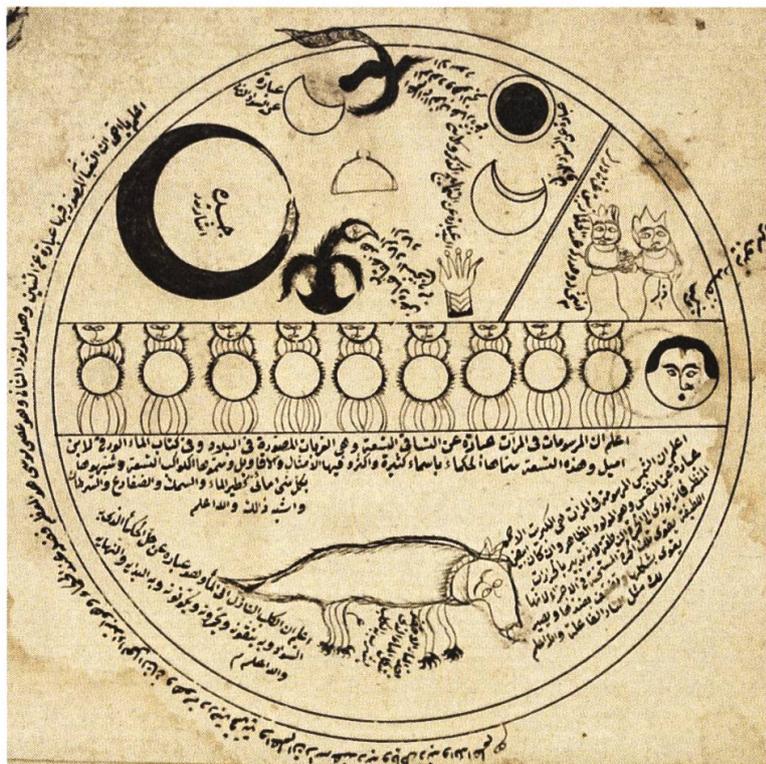


Figure 6: R2. MS Riyadh, King Saud, 6826, f. 1r (Turkish), probably 18th cent.
 © King Saud University Library, Riyadh.

The remaining illustrations from manuscripts that are not included in these groups show stronger individual features and characteristics in their design of the mirror and its symbols, although among these, also **Is** and **Pr** share significant parallels.

This section presents a selection of eight illustrations of the “Mirror of Wonders” in a mostly chronological order (see Figures 1–8). For the three major groups described above, the illustrations of **R3 (A)**, **H1 (B)** and **T3 (C)** have been chosen as representatives.

4 The nine symbols

This section summarises the interpretation of the symbols of the mirror as given in the text of *Mir’āt al-‘ajā’ib* and compares the visual rendering of the symbols in the different illustrations.

4.1 The two figures embracing each other (*al-shakhṣān al-mu’taniqān*)

The first symbol is two figures embracing each other. They represent the male and the female (*al-dhakar wa-l-unthā*). The female is the spirit (*rūḥ*) which is cold and moist, and the male is the soul (*nafs*) which is hot and dry.⁹² Within the alchemical process, they undergo the “first mixture” (*al-mizāj al-awwal*). Spirit and soul are mixed with a foreign substance, called *gharīb*, as a result of which they become united in one body (*jasad*). This process is symbolised by a triangle (*tathlith al-shakl*). The text of *Mir’āt al-‘ajā’ib* also refers to “two letters” (*ḥarfān*) that should be situated “next to the two figures”. They express the so-called “balance” or *mizān*: The fire has got one unit of weight (*wazn*) and the water two units. Hence, the number 1 (or the letter *alif*) would be attributed to the male, which has the property of heat, and the number 2 (or the letter *bā’*) to the female, which has the property of moisture. According to the author of *Mir’āt al-‘ajā’ib*, the symbol of the two figures corresponds to the symbol of the two entangled birds (*al-ṭā’irān al-murtabiṭān*) in Ibn Umayl’s *Kitāb al-Mā’ al-waraqī wa-l-arḍ al-najmiyya* (“The

⁹² The same identification of the “male” as “soul” and the “female” as “spirit” is given by Ibn Arfa’ Ra’s in his *Kitāb Ḥall mushkilāt al-Shudhūr*. In this commentary on *Shudhūr al-dhahab*, both terms serve also as codenames for other substances, the “male” being a synonym for, inter alia, “blood”, “fire”, “sun” and “sulphur” and the “female” for “earth”, “moon” and “mercury” (cf. Müller in Ibn Arfa’ Ra’s, forthcoming; on the “female” and the “male” in the context of the sulphur-mercury-theory, see also Artun 2013: 78).

Silvery Water and the Starry Earth”).⁹³ These birds are also depicted in **O2** on the folio following the illustration of the “Mirror of Wonders”.⁹⁴

In the illustrations of *Mir’āt al-‘ajā’ib*, the symbol of the two figures is located in the upper part of the mirror on the right-hand side, in some cases also in the upper centre.⁹⁵ Most illustrations show the figures surrounded by the triangle which is mentioned in the text.⁹⁶ In the manuscripts from Iran, however, the triangle is missing and the figures are depicted unframed.⁹⁷ In group **A**, the triangle has been replaced by a kind of pavilion with two columns to the sides and a domed roof with floral ornaments. The absence of the triangle in group **A** can be explained by the fact that the short version 2.2.1 of *Mir’āt al-‘ajā’ib* does not contain the sentence where the triangle is mentioned. Likewise, the indication of the letters has been cut from this version of the text, so that any letters or numbers next to the figures are missing in the illustrations of group **A**. This is also the case in **C1**, **Is**, **P1**, group **B** and two illustrations of group **C** (**T2**, **T3**). In almost all illustrations with letters or numbers, where the gender of the figures is identifiable, the number 1 or letter *alif* is attributed to the male and the 2 or *bā’* to the female (**Ha**, **Mh**, **R2**, group **C**), in accordance with the description in the text of *Mir’āt al-‘ajā’ib*. Only in **O2**, the figure in the golden garment associated with the letter *bā’* seems to have a moustache, which would identify him as male – unlike the other figure in a blue garment. This might be an error of the illuminator who was not aware of the attribution of the numbers in the text, since this manuscript does not contain the author’s explanations relating thereto.⁹⁸ In **O1**, the gender of the figures cannot be determined from their shape. However, the figure with the number 1 is coloured in red, like the male figures in other illustrations (**Mh**, **Pr**). While some illustrations opt for a neutral and indistinct rendering of both figures (**C3**, **Hy**, groups **A** and **B**), it is noticeable that the male figure often appears on the right side and the female on the left (**Ha**, **Mh**, **Pr**, **R2**), except for **O1**, **O2** and group **C**. In **Is** and **Pr**, a child in a red garment is depicted next to the couple within the triangle. It might symbolise the result of the union of the male and the female, or perhaps the *gharīb* mentioned

⁹³ MS Çorum, Hasan Paşa, 1234, f. 4r–6r. The illustration of the entangled birds is extant in an Istanbul manuscript of the *Kitāb al-Mā’ al-waraqī* (MS Istanbul, Topkapı, A. 2075, ff. 2v–3r, reproduced in Berlekamp 2003: 36).

⁹⁴ MS Oxford, Bodleian, Greaves, 14, f. 4v.

⁹⁵ The latter concerns **Bu** as well as the manuscripts of group **C**.

⁹⁶ In **Bu** and **Ço**, the symbol is incomplete, since there is only an empty triangle.

⁹⁷ This includes **Mh** the manuscripts of group **C**.

⁹⁸ Note also the similar colour scheme of the figures’ garments in **Ha**, where the male is clad in blue and the female in yellow. In **Is**, however, the male wears a golden garment with red vesture underneath, part of which is visible at his chest, while the female wears a grey garment (this colour is probably meant to be silver) with white vesture underneath.

by the author of *Mir'āt al-'ajā'ib*. Likewise, **Hy** seems to have a third item next to the figures inside the triangle. The figures themselves appear in very diverse renderings. Several manuscripts present them as a king and a queen with colourful garments and crowns on their heads (**Is**, **O2**, **Pr**, **R2**, group **A**), while in group **C**, they are naked and bareheaded. Other illustrations show the figures with different headwear, like turbans (**Ha**), caps (**Ka**, **Mh**) and what could either be a headwear or tied up hair (**H1**, **H2**, **O1**). It is noteworthy that in **H1**, **H2**, and **Mc**, the figures are not embracing or touching each other, in contrast to the name of this symbol. In the coloured illustration of **R2**, it seems that a later hand struck out the arms of the figures touching each other with black lines, as if to interrupt their contact.⁹⁹

4.2 The black circle (*al-dā'ira al-sawdā'*)

The second symbol is the black circle. It is a black body that results from the marriage of the male and the female. The black circle has several codenames, like “magnesia” (*maghnīsiyā*), “copper’s lead” (*ābār al-nuḥās*) “Saturn” (*zuḥal*), “black rock” (*al-ṣakhr al-aswad*), “Indian stone” (*al-ḥajar al-hindī*) or “burned copper” (*al-nuḥās al-muḥraq*).¹⁰⁰

The symbol of the black circle is mostly located in the upper centre of the mirror, to the left of the two figures.¹⁰¹ However, the manuscripts of group **C** have it in the central part of the mirror, next to the snake. In group **B**, as well as in **O2**, the keyword *sawād awwal* “first blackness” is written next to the circle. This is a stage of the alchemical process which precedes the “second blackness”, corresponding to the seventh symbol of the snake (cf. 4.7). **O2** has a second black circle, located above the snake, with a smaller golden circle inside of it. This might illustrate a process mentioned by the author of *Mir'āt al-'ajā'ib* in the description of this symbol, according to which the copper turns into gold when its darkness recedes.¹⁰² In **Ha** and group **A**, there is a similarly shaped, second (semi-)circle in red, which might also be a crescent. In **Is**, **O1**, and **Pr**, this shape appears as a combination of a full and a crescent moon, related to the “second blackness” in the seventh symbol (cf. 4.7).

⁹⁹ Similarly, the drawings of the raven, the eagle and the dog have been struck out in this illustration, in what seems to be an attempt at censorship. Images of “creatures possessing *rūḥ*” are proscribed in Hadith literature and some Hadiths recommend the “partial erasure of the depicted figure” (Flood 2019: 35).

¹⁰⁰ MS Çorum, Hasan Paşa, 1234, f. 6r. In the *Kitāb Ḥall mushkilāt al-Shudhūr* by Ibn Arfa' Ra's, similar synonyms are given for *maghnīsiyā*, inter alia *nuḥās* “copper”, *raṣāṣ* “lead”, *zuḥal* “Saturn” and *ḥajar* “stone” (cf. Müller in Ibn Arfa' Ra's, forthcoming).

¹⁰¹ In **Bu**, it is on the right-hand side of the central section, and in **Hy** on the upper left side.

¹⁰² MS Çorum, Hasan Paşa, 1234, f. 7v.

4.3 The palm of the hand (*al-kaff*)

The third symbol is the palm of the hand. This symbol marks the stage when the so-called “three waterings” (*al-tasāqī al-thalātha*) – also known as “saltings” (*al-tamālīḥ*) – enter the male and the female. As a result, the three waterings together with the male and the female become a five-fingered palm. The author of *Mir’āt al-‘ajā’ib* cites from the *Kitāb al-Mā’ al-waraqī* in which Ibn Umayl writes that if one finger of the palm is missing, “the gazelle’s blood” (*dam al-ghazāl*), i.e. “the red sulphur” (*al-kibrīt al-aḥmar*) or the dye (*ṣibgh*), would consequently be missing.¹⁰³ The short Arabic versions of *Mir’āt al-‘ajā’ib* show corrupted readings for “the three waterings”: while 2.2.2 omits the “waterings” and has “three saltings” (*al-thalātha al-tamālīḥ*), 2.2.1 has either النشا (“starch”), النشار (“the sawyer”) or النشادر (“ammonia”) and 2.2.3 النساء (“the women”).¹⁰⁴ All of these seem to be misreadings of التساقى (“the waterings”). At least one of the Turkish manuscripts shares the reading of 2.2.3 النساء “the women”.¹⁰⁵

The symbol of the palm of the hand is located in the upper part of the mirror, mostly towards the centre. Only the manuscripts of group **C** locate it clearly on the right-hand side and **Bu** and **Mh** on the left-hand side. The symbol itself appears quite uniform as the palm of a hand with five fingers. It is either colourless or coloured in red, black, beige or grey.¹⁰⁶ In two of the older manuscripts of group **A** from the 16th century, the black palm has a red thumb or red colour next to the thumb.¹⁰⁷ This might refer to the citation from the *Kitāb al-Mā’ al-waraqī* which is also extant in the otherwise extremely shortened version 2.2.1 whose illustrations form group **A**. Both of **O2** and **Ha** have a blue sleeve attached to the palm of the hand, a feature that cannot be found in the other manuscripts.

¹⁰³ MS Çorum, Hasan Paşa, 1234, f. 8r; cf. Turāb ‘Alī et al. 1933: 11; 13.

¹⁰⁴ Cf. for 2.2.1: **Du**, f. 24a and **L3**, f. 39a (*nashā*); **Go**, f. 43a (*nash[sh]ār*); **R3**, p. 83 (*nushādīr*; the *dāl* and the *rā’* have been added in the margin); in the microfilm of **C4**, this part of the text is illegible; for 2.2.2: MS Tehran, Kitābkhāna-yi Millī-yi Īrān, 1871, f. 221r; and for 2.2.3: MS Istanbul, Süleymaniye, Laleli, 2772, f. 48r.

¹⁰⁵ **R1**, p. 249.

¹⁰⁶ Colourless: **Bu**, **C2**, **C3**, **Hy**, **Ka**, **R1**, **R2**, **T2**; red: **Ha**, **Is**, **O1**, **Pr**, group **C** with exception of **T2**; beige: **O2**; black: **H2**, group **A**; grey: **Mh**.

¹⁰⁷ **Du**, **R3**.

4.4 The black raven (*al-ghurāb al-aswad*)

The fourth symbol is the black raven. It stands for the “newborn child” (*al-mawlūd*) or the “black sea” (*al-baḥr al-aswad*). The author of *Mir’āt al-‘ajā’ib* cites two verses that are attributed to Khālid b. Yazīd:¹⁰⁸

فَيَعْلُوهَا سَوَادٌ مِثْلَ جَبْرِ لَهُ فِي عُنُقِ أَجْمَعِهَا رُكُودٌ

Above them rises blackness like ink
That stagnates at the neck of them all.

فَذَاكَ هُوَ الْغُرَابُ كَذَا دَعْوُهُ يَصِيحُ وَتَحْتَ رِجْلَيْهِ عُمُودٌ

This is the raven, as they called it,
It screams with a column under its feet.

Thus, the raven seems to be a black substance that rises noisily to the top of a vessel during the alchemical process, while having something underneath it that is here called a column.

The symbol of the raven is located in the upper or central part of the mirror, mostly towards the centre. Only **C3**, **Is**, **O1**, and **Pr** have it next to the left margin. Since it is called the “black” raven, almost all illustrations colour it in black,¹⁰⁹ except for the oldest dated manuscript **O2** where the raven is not black, but golden. About half of the illustrations – including those in the older manuscripts – show the raven in a dynamic state with spread wings, while the remaining ones depict it with closed wings.¹¹⁰ In **Is**, **O1**, **Pr**, group **A**, and some manuscripts of group **B**¹¹¹, the beak of the raven is open, as if to illustrate its screaming as mentioned in the second verse. The “column”, which is supposed to be under the feet of the raven, comes in a variety of designs. The most remarkable occurs in **Ha**, where it is depicted as what seems to be a glass vessel on an alchemical furnace made of bricks. Several illustrations show the column as an elongated object, in some cases

¹⁰⁸ MS Bursa, İnebey, Genel, 813, f. 8r. These verses are cited from the Bursa manuscript, because they show a metric irregularity in the Çorum manuscript. The manuscripts of the short version 2.2.1, as well as MSS Çorum, Hasan Paşa, 1234 and Cairo, Dār al-kutub, Ṭabī‘iyyāt Taymūr, 145, quote “someone” (*shakḥs*) instead of “Khālid b. Yazīd” as the author of these verses. Both verses are part of a longer poem which has been transmitted in various manuscripts with poetry ascribed to Khālid b. Yazīd (Dapsens 2021). I wish to thank Marion Dapsens for this information.

¹⁰⁹ In **Hy**, the black outlines of the raven are not filled, but this may be due to the abstract style of this illustration.

¹¹⁰ Spread wings: **Ha**, **Is**, **O1**, **O2**, **Pr**, **R2**, and group **A**; folded wings: **Bu**, **Hy**, **Mh** and groups **B** and **C**; only one wing spread: **C3**.

¹¹¹ **C2**, **Ḥ1**, and **Ḥ2**.

composed of multiple sections that could be an abstract rendering of an aludel.¹¹² In many illustrations, the column is smaller than the raven. These include those of group **A**, where it appears as a small red arch. Group **C** also has relatively short grey columns that are similar to glass flasks, while **Mh** has a propeller-shaped black column with three arms. Some illustrations of group **B** show the column as a small inverted red triangle. In **H1** and **H2**, this triangle must have merged with the eighth symbol of the nine crabs, situated below the raven in these illustrations. The “crabs” are depicted there as tiny semi-circles with indefinable black dots on the inside. In both manuscripts, there are ten of them instead of nine, whereas a support item for the raven is missing (cf. 4.8). **Mc** has only nine crabs, but no support item for the raven. Likewise, there is no column discernible in either of the illustrations of **R2**.

4.5 The eagle (*al-‘uqāb*)

The fifth symbol is the eagle. It represents “the ash extracted from the ash” (*al-ramād al-mustakhraj min al-ramād*), also known as “ammonia” (*nushādir*), “crown of victory” (*iklīl al-ghalaba*) or the “leaven of gold” (*khamīr al-dhahab*) which was mentioned, according to the author of *Mir’āt al-‘ajā’ib*, by Jābir b. Ḥayyān.¹¹³ It is the “most sublime and noble salt” (*ajall al-amlāḥ wa-ashrafuhā*) that pulls the blackness out of the depths of the bodies to their outside and washes them. The author of the “Mirror” states that there should be an “ashen figure” (*shakl ramādī*) under the eagle which is its nest. It symbolises the sediment (*thufl* or *zibl*) that remains at the bottom of the alchemists’ vessel.¹¹⁴

In most manuscripts, the eagle is located in the very centre of the mirror, sometimes slightly towards the upper part. Only the copies of group **C** have it on the upper left-hand side and **Bu** and **Mh** on the middle left-hand side. The eagle is mostly coloured in grey or white – doubtlessly because of its symbolisation of ash, but also in order to distinguish it from the other bird in the mirror, the black raven. Only **R2** and some manuscripts of group **B** colour the eagle in black, while some illustrations add more colours to it with blue and golden spots and blue-green wings (**O2**), blue spots on a reddish body (**Ha**) and green wings on a red body (**R1**). In **Is**, the eagle is light brown, with its right wing coloured in gold and its left wing

¹¹² **O2** (golden); **C3**, **Is**, **O1**, **Pr** (black); **Bu**, **Hy** (not filled).

¹¹³ According to Siggel (1951: 45), the “eagle” is a codename not only for ammonia, but also for the elixir.

¹¹⁴ MS Çorum, Hasan Paşa, 1234, f. 11r–12r.

coloured in grey (which is probably meant to be silver).¹¹⁵ While the older illustrations depict it from the front with its wings spread, many other manuscripts present it from a side-on perspective with closed wings.¹¹⁶ The nest of the eagle appears in a variety of designs: several illustrations depict it in the shape of a crescent moon lying on its side, upon which the eagle stands.¹¹⁷ In others, it resembles a flat bowl.¹¹⁸ The illustrations of group **B** display the nest as a small, mostly red-coloured, triangular or flat support under the feet of the eagle. In **Mh**, the eagle is placed on a high column, like the raven in other illustrations,¹¹⁹ while in **O1**, the nest appears as a dark undefined area under the eagle. In group **C**, the nest is not depicted.

4.6 The sun (*al-shams*)

The sixth symbol is the sun. It is a symbol of the soul (*nafs*) and is also known as “red sulphur” (*al-kibrīt al-aḥmar*) and “manifest newborn” (*al-mawlūd al-ẓāhir*).¹²⁰ According to the author of *Mir’āt al-‘ajā’ib*, it might appear white on the outside, but on the inside it is red.¹²¹

This symbol is located in the central section of the right-hand side of the mirror. Only the manuscripts from Iran have it on the left-hand side.¹²² The sun is mostly depicted as a circle filled in gold, red, or yellow.¹²³ Some illustrations,

115 The same colour scheme for the wings of a bird appears in an untitled Arabic alchemical treatise by Ḥasan Aghā Sardār (17th cent.). When describing a city he saw in a dream, he mentions a column on which stands a bird whose spreaded wings are pointed to the west and to the east. The western wing is of pure silver and the eastern wing of pure gold (MS Dublin, Chester Beatty Library, Ar. 4025, f. 136v).

116 Frontal perspective in **Ha**, **Is**, **Mh**, **O1**, **O2**, **Pr**, **R1**, **R2**, and group **A**, side-on perspective in **Bu**, **C3**, and groups **B** and **C**. In **Hy**, the eagle is not recognisable.

117 In **O2** and **Ha**, this crescent is green, in **R1** red and in **R2**, and group **A** black.

118 **C3** and **Bu** (in the latter with a lid above the bowl, in which the eagle sits). In **Hy**, **Is**, and **Pr**, there is a semi circle to represent a bowl-shaped nest.

119 Cf. section 4.5.

120 Similar codenames for the “sun” are to be found in Ibn Arfa’ Ra’s’s *Kitāb Ḥall mushkilāt al-Shudhūr*, inter alia *nafs* “soul” and *kibrīt* “sulphur” (cf. Müller in Ibn Arfa’ Ra’s, forthcoming).

121 MS Çorum, Hasan Paşa, 1234, f. 12r.

122 This includes the manuscripts of group **C** as well as **Mh**. In **Bu**, it is on the right-hand side, but in the upper part of the mirror.

123 **O2** (golden with blue outline), **Ha** (golden), **Is** (golden with red and green details in the sunbeams) group **A** (yellow), group **C** and most manuscripts of group **B** (red). In **Bu**, **Mc**, **Mh**, **R1**, and **R2**, the circle is not filled with colour, but for **Bu** this might be due to the unfinished state of this illustration (cf. note 96).

especially those from Iran, have sunbeams added to the outside of the circle.¹²⁴ The sun is mostly shown with a face, and in two manuscripts with the Turkish translation of *Mir’āt al-‘ajā’ib*, it also has black hair (**Ha** and **R2**).¹²⁵ In **O1**, the sun has a unique design, with an unfilled (white) circle with a face inside a bigger circle, and the crescent-shaped space between the circles filled in red. This might refer to the author’s description of the white and red colours of the sun. Similarly, the white face of the sun is shown as an unfilled circle surrounded by a red outline in **R1**.

4.7 The snake (*al-thu’bān*)

The seventh symbol is the snake. It is also known as “dragon” (*tinnīn*), “second blackness” (*al-sawād al-thānī*), “human of the philosophers” (*insān al-falāsifa*) and “Moses’ staff” (*‘aṣā Mūsā*). Within the alchemical process, the stage of the snake marks the beginning of the “second work” (*al-‘amal al-thānī*) which – according to the author of *Mir’āt al-‘ajā’ib* – is also known as the “lunar stage” (*al-daraja al-qamariyya*). During this stage, the crescent (*hilāl*) becomes complete, i.e. a full moon. The author qualifies this chapter of *Mir’āt al-‘ajā’ib* as the “noblest chapter” (*ashraf al-fuṣūl*).¹²⁶

The symbol of the snake is mostly located in the central section of the mirror, towards the left (**C3**, **Hy**, **O1**, **O2**, **Pr**, group **B**) or in the centre (**Bu**, **Mh**, group **C**). Some illustrations place it more in the upper region on the left (**Ha**, **R2**, group **A**). The shape of the snake corresponds in most manuscripts to the ancient symbol of the ouroboros, the snake that eats its own tail.¹²⁷ This is also what is written next to it in **O2**: *hādhā [sic] ṣūrat al-thu’bān ya’kul [sic] dhanabahū* – “This is the image of the snake that eats its tail.” However, the snake is depicted here with a dragon’s head and two “ears”. This is likewise the case in **Ha**. In most illustrations of group **B** the keyword written next to this symbol is not *thu’bān* (“snake”), but *tinnīn* (“dragon”).¹²⁸ The snakes in **Hy** and group **C** do not take the circular shape of the ouroboros, but a sinuous line and a serpentine body with two loops, respectively. In group **A**, floral decoration has been added to the snake. **R1** also shows ornamentation around the snake, which could be small plants or green stars. The colour of the snake is mostly black (**Hy**, **Mc**, **O1**, **Pr**, **R1**, **R2**, group **A**) or red (group **C**, most manuscripts of group **B**), only **O2** and **Ha** show it in blue and gold, and **Is** and **Mh** in grey. Since this symbol marks the “lunar stage” within the alchemical

¹²⁴ This includes **Mh** and group **C**, as well as **C3** and **R2** where there are tiny sunbeams on the outline of the circle. In **Hy**, **Is**, and **Pr**, the sunbeams are inside the circle.

¹²⁵ Illustrations of the sun without a face are found in group **B** as well as **Bu**, **C3**, **Hy**, and **Mh**.

¹²⁶ MS Çorum, Hasan Paşa, 1234, f. 16r–18v.

¹²⁷ Cf. Käppel 2002: 1053.

¹²⁸ Only **C1** has the keyword *thu’bān*.

process, several illustrations have a drawing of a crescent (**Hy**, **R1**, **R2**,¹²⁹ group **A**) or a full moon (group **C**) or both (**Is**, **O1**, **Pr**,¹³⁰ most manuscripts of group **B**¹³¹) next to the snake (cf. 4.2).¹³² The depictions of the full moon are often placed symmetrically opposite to the sun (**Is**, **O1**, **Pr**, group **C**).

4.8 The nine crabs (*al-saraṭānāt al-tis‘a*) + the dog descending into the water (*al-kalb al-nāzil fī l-mā*)

The first part of the eighth symbol is the nine crabs. They represent the nine waterings (*tasāqī*), which have many codenames – especially names related to water, like “fish” (*samak*), “frogs” (*ḍafādi‘*) and “crabs” (*saraṭānāt*) – but also “the seven planets” (*al-kawākib al-sab‘a*). *Tasqiya* is the action of moistening the earth with water and this symbol refers to a liquid that gets divided into nine parts. Of these, three parts belong to the moon and six to the sun. The author of *Mir‘āt al-‘ajā‘ib* explains that the nine crabs of the mirror correspond to the ravens (*ghurbān*) that are depicted in an illustration of Ibn Umayl’s *Kitāb al-Mā’ al-waraqī*.¹³³

The nine crabs are mostly located in the lower part of the mirror, on a horizontal line. **Ha** and **R2**, however, have them in the middle.¹³⁴ Some illustrations show the division between the parts belonging to the moon and the sun in a divergent colouring of the crabs (**Ha**, **Is**, **O1**, **Pr**, **R1**), the three crabs on the right side being those which belong to the moon, coloured in black, brown, blue or white, and the remaining six belonging to the sun, coloured in red or gold. In **L2**, each of the six crabs to the left is labelled with the keyword *shams* (“sun”). In two manuscripts of group **B**, the division of the crabs is expressed by the raven’s “column”, which is between them (**C2**, **Ka**). The illustrations of **Ḥ1** and **Ḥ2** which belong to the same group, however, show ten “crabs”, since at one point in the transmission, a copyist must have misinterpreted the column of the raven as a tenth crab (cf. 4.4).

¹²⁹ Next to the crescent in **R2**, there is an explanation that it symbolises the “second blackness” (*‘ibāra ‘an al-sawād al-thānī*).

¹³⁰ The figure in **Is**, **O1**, and **Pr** includes a crescent shape inside the full moon.

¹³¹ Most manuscripts of group **B** have an unfilled circle, labelled *qamar* (“moon”), in addition to a crescent, labelled *hilāl* (“crescent”). Only in **Mc**, the crescent is missing and the full moon is filled with black lines.

¹³² The mirror of **Bu** also has a crescent and an unfilled circle which in all likelihood represents the full moon. However, they are not located close to the snake. **O2**, similarly, has a crescent which is not in proximity to the snake either.

¹³³ MS Çorum, Hasan Paşa, 1234, f. 18v. The illustration of the ravens is extant in an Istanbul manuscript of the *Kitāb al-Mā’ al-waraqī* (MS Istanbul, Topkapı, A. 2075, ff. 2v–3r, reproduced in Berlekamp 2003: 36).

¹³⁴ In the incomplete illustration **Bu**, the crabs are missing.

In **C3**, there is a different division with five crabs on the inside, and four on the outside of a triangle which may have been a mistake, if the triangle was intended to include six crabs. In most illustrations of the mirror, the crabs do not hold anything (**C3**, **Is**, **L2**, **Mh**, **O1**, **Pr**, groups **B** and **C**).¹³⁵ Yet, especially in older manuscripts, they are holding nine round objects, which are golden or yellow (**O2**, **R2**) or blue (**Ha**). In the illustrations of group **A**, the symbol of the crabs has evolved into nine female human figures in red garments at the centre of the mirror, holding nine round golden objects, like the crabs in the other manuscripts. In the short version 2.2.1, where these illustrations appear, this symbol is called “the nine images that are similar to women” (*al-tis‘a šuwar al-mutashabbiha bi-l-nisā’*) instead of “the nine crabs” (*al-saraṭānāt al-tis‘a*).¹³⁶ Perhaps this textual evolution was due to the same corruption as in the case of the third symbol, where تساقى was misread as نساء in the short version 2.2.3 (cf. 4.3). In **Go**, there are only seven women, instead of nine, possibly in reference to the codename of the “seven planets” mentioned by the author. Apart from the illustrations of the short version 2.2.1 (group **A**), the two illustrations of **R2**¹³⁷ also display this symbol with hybrid features that can be interpreted both as women and as crabs. In the uncoloured illustration, the nine figures seem to be the women holding round objects, since they have faces in the upper circles and the vertical lines resemble the folds of the garments in group **A**. In the coloured illustration, however, the faces are no longer recognisable and the round objects – as well as the vertical lines attached to them – have been coloured in red to identify them as the bodies of the crabs. Both illustrations have short excerpts of the Arabic text of *Mir’āt al-‘ajā’ib* next to the symbols, which confirm this visual impression: while the excerpt in the coloured drawing is about “the illustrated crabs” (*al-saraṭānāt al-marsūma*), in accordance with the long version of the text,¹³⁸ the excerpt of the uncoloured illustration has “the illustrated [women]” (*al-marsūmāt*) instead.

The second part of the eighth symbol is “the dog descending into the water” (*al-kalb al-nāzil fī l-mā’*). According to the author of *Mir’āt al-‘ajā’ib*, it represents the liquid called “vinegar of the wise” (*khall al-ḥukamā’*).¹³⁹

In almost all illustrations, the dog is located at the bottom of the mirror, being separated from the other symbols by the horizontal line which represents the water

¹³⁵ In **Hy**, this is difficult to determine, as the crabs appear in a very abstract way as nine black dots with indefinable lines around them.

¹³⁶ MSS London, British Library, Add 25724, f. 42r, and Gotha, Forschungsbibliothek, Ms. orient. A. 1261, f. 44r. MS Riyadh, KSU, 3167, f. 38r has بالنساء.

¹³⁷ Cf. note 87.

¹³⁸ Cf. MS Çorum, Hasan Paşa, 1234, f. 18v.

¹³⁹ MS Çorum, Hasan Paşa, 1234, f. 19v.

and upon which the crabs sit.¹⁴⁰ In group **C**, there are additional horizontal divisions above the crabs, and between the upper and central sections, forming four compartments for the symbols inside the circular mirror.¹⁴¹ The dog's colouring varies between the manuscripts, either black (**Ha**, groups **A** and **B**), white or grey (**Mh**, **O1**, **Pr**, **R2**, group **C**), or brown (**Is**, **O2**). In **Is**, **O1**, and **Pr**, it also has a lead. In some illustrations, the water surrounding the dog is coloured green (**O2**, **R2**), or blue with waves (**Ha**, **Is**, **Pr**). In group **A**, floral decoration has been added to the dog.

4.9 The nine circles (*al-dawā'ir al-tis'a*)

As for the ninth symbol, the author of *Mir'āt al-'ajā'ib* writes:

The one who has deciphered [the symbol of] the nine circles has succeeded in the Art. So if you, my brother, would like to know about these circles, you should consult my epistle called *al-Risāla al-Baḥriyya* ["Epistle of the Sea"]. There, I have mentioned this clearly and without need of explanation.¹⁴²

In this last chapter, the author seizes the opportunity to promote another work of his, creating a certain suspense and leaving the reader with the wish to find out about the meaning of the last symbol in the "Epistle of the Sea". The short *Risāla al-Baḥriyya* is extant in at least 15 Arabic manuscripts, where it is mostly copied directly after *Mir'āt al-'ajā'ib*.¹⁴³ It has also been translated into Turkish and

140 The only illustration without this line is **Hy**.

141 These compartments contain the following symbols (from top to bottom and right to left): 1. palm of the hand, two figures, raven, eagle; 2. full moon, black circle, snake, sun; 3. crabs; 4. dog.

142 Translated from MS Çorum, Hasan Paşa, 1234, f. 19v.

143 MSS Berlin, Staatsbibliothek Preußischer Kulturbesitz, Orientabt., Ms. or. oct. 2651, ff. 159v–162r; Bursa, İnebey Yazma Eser Kütüphanesi, Genel 813, ff. 18r–20r (Microfilms: Cairo, Institute of Arabic Manuscripts, al-Kimiyā' wa-l-ṭabī'iyāt 144; Utah, University Library, Martin Levey microfilm collection of Arabic scientific manuscripts, reel 5, title 2); Cairo, Dār al-kutub al-Miṣriyya, 16, ff. 1v–2v, 5r–6r (In this manuscript, *al-Risāla al-Baḥriyya* is copied right before *Mir'āt al-'ajā'ib*. Digital copy: Dubai, Juma al-Majid Center, 369008 and 369020); Cairo, Dār al-kutub al-Miṣriyya, Ṭabī'iyāt Taymūr 145, pp. 33–41 (Digital copy: Dubai, Juma al-Majid Center, 303947); Cairo, Dār al-kutub al-Miṣriyya, Ṭabī'iyāt 190, pp. 26–28 (Digital copy: Dubai, Juma al-Majid Center, 369031); Cairo, Dār al-kutub al-Miṣriyya, Kimiyā' wa-ṭabī'a, Ṭal'at 223, ff. 38v–39v (It remains unclear whether this manuscript contains a copy of *Mir'āt al-'ajā'ib* as well. Digital copy: Dubai, Juma al-Majid Center, 303924); Damascus, Majma' al-lughā al-'arabiyya, 941, ff. 52v–57v (Digital copies: Dubai, Juma al-Majid Center, 667783 and Mecca, Umm al-Qurā University, Maktabat al-Malik 'Abd al-'Azīz, 21400-2); Hyderabad, Oriental Manuscripts Library and Research Institute, Kimiyā' 935, ff. 167r–168r; Istanbul, Süleymaniye Kütüphanesi, Laleli 2772, ff. 80r–82r; Mashhad, Kitābkhāna-yi Āstān-i Quds-i Raḍawī, 10,739, ff. 81v–82r (dated 1226/1811-2); Mecca,

Persian.¹⁴⁴ While in most manuscripts, the treatise is called *al-Risāla al-Baḥriyya fī l-ṣan‘a* (or: *fī l-ḥikma*) *al-ilāhiyya* – “The Epistle of the Sea on the Divine Art (or: Wisdom)”, one manuscript gives a title that relates directly to “The Mirror of Wonders”: *al-Risāla al-Baḥriyya fī ḥall al-dawā’ir al-tis‘a al-marsūma fī l-Mir’āt* – “The Epistle of the Sea on the Explanation of the Nine Circles drawn in the Mirror”¹⁴⁵. Like in most manuscripts of *Mir’āt al-‘ajā’ib*, there is no name of the author to be found in the copies of *al-Risāla al-Baḥriyya*.

The text of *al-Risāla al-Baḥriyya* is the description of a dream which the narrator has one night when “wondering about the secret of nature”: he is sitting on the highest mountain in Persia, when a young man appears and tells him about a sea full of wonders and secrets. Later, the young man who is a sailor, mentions an island with a mysterious dome (*qubba muṭalsama*). The narrator asks him to show him the dome and joins him on his ship. As they approach the island, they are thirsty, and so the sailor orders the people on the ship to get fresh water from the island. The narrator is joined by a group of seven people, “like the Exalted One said: seven, and the eighth of them is their dog”¹⁴⁶. They all carry a vessel in their hands, which they fill with water. Then, the narrator goes to the dome, where he meets an old man, who opens its door for him. The dome contains more doors and the old man guides him through all of them. The narrator sees a snake that forms a circle and turns white by casting its black skin. It explains to him that God saved it from the darkness and that it is the human of the philosophers (*insān al-ḥukamā*). In the end, the narrator finds a book with an alchemical recipe: “Take *alif* [= 1] part of cold egg white, mix it with *ṣād* [= 18] parts of hot egg yolk and spread raw egg shell over it. This should happen at the trine (*tathlith*)

Umm al-Qurā University, Maktabat al-Malik ‘Abd al-‘Azīz, 1590, ff. 19r–20v; Princeton, University Library, Islamic manuscripts, New Series 293, ff. 19v–21v (Mach and Ormsby (1987: 218) date this manuscript to the 13th century AH. They identify the author of the text as Muḥammad Amīn ‘Ārif al-Qurashī Kirīdī al-Miṣrī (fl. 1276/1859), while the existence of an earlier copy from Tehran (1083/1672-3), as well as the Turkish version in a Hamburg manuscript (994/1585) disprove this assumption.); Rabat, al-Khizāna al-Ḥasaniyya, 1487, ff. 208r–210v; Tehran, Kitābkhāna-yi Millī-yi Malik, 3341, pp. 237–243 (dated 1326/1908-9. In this manuscript, there is another short text inserted between the “Mirror” and the “Epistle of the Sea”. Digital copy: Dubai, Juma al-Majid Center, 311389); Tehran, Kitābkhāna-yi Millī-yi Īrān, 1871, ff. 222v–223v (dated 1083/1672-3; I use this manuscript as reference, since it has the oldest dated Arabic text of *al-Risāla al-Baḥriyya*).

144 Turkish: MSS Hamburg, Staats- und Universitätsbibliothek, Cod. orient. 310, ff. 47v–51r (dated 994/1585), and Tavşanlı, Zeytinoğlu İlçe Halk Kütüphanesi, 298, ff. 52r–54v. Persian: MS Tehran, Kitābkhāna-yi markazī-yi Dānishgāh, 1087, ff. 16v–? (dated 1289/1872-3).

145 MS Rabat, Ḥasaniyya, 1487, f. 208r.

146 This is a Qur’anic citation from the story of the companions of the cave in *Sūrat al-Kahf* (Q 18:22): [...] *sab‘atun wa-thāminuhum kalbuhum* [...].

of Jupiter.” After reading this, the narrator awakes from his sleep, not knowing whether he experienced “the truth or confused dreams”¹⁴⁷.

Contrary to the author’s assertion in the ninth chapter of *Mir’āt al-‘ajā’ib*, the nine circles are not explicitly mentioned in *al-Risāla al-Baḥriyya*. One can only assume that the seven people plus the narrator plus the dog form a group of nine, each holding a vessel in their hands, which might be the circles.¹⁴⁸ The passage of the group carrying vessels of water shows strong parallels to the image of the nine or seven women in the illustrations of group **A** for the eighth symbol of *Mir’āt al-‘ajā’ib*. While the conception of these people as “women” in the short version 2.2.1 may be due to a textual corruption (cf. 4.8), the idea of human figures carrying circles or vessels in these illustrations may have been inspired by the text of *al-Risāla al-Baḥriyya*. Since not only the short version 2.2.1 but also the *Risāla* are documented in relatively old manuscripts from the 16th century, this influence of the *Risāla* on the visual tradition of the “Mirror of Wonders” must have happened quite early.

In the illustrations of *Mir’āt al-‘ajā’ib*, the nine circles appear mostly arranged along a circular line that surrounds the mirror. In group **A**, however, these circles around the mirror are missing, although they are mentioned in the text of the short version 2.2.1. It seems that the illuminator identified the nine circles of the ninth symbol with the nine round items that the women of the eighth symbol are holding and saw no need to draw additional circles for this symbol. The nine circles around the mirror are also absent in both illustrations of **R2**, where the shape of the “crabs” shows features of the “women” (cf. 4.8).¹⁴⁹ This emphasises the connection between the eighth and ninth symbols in this tradition via the text of *al-Risāla al-Baḥriyya*. Likewise, the illustration of the ninth symbol in **R1** – where nine small circles are arranged symmetrically around a bigger circle – is linked to the eighth symbol of the nine crabs or “waterings” (*tasāqī*), because this circle is labelled the “circle of the waterings” (*dā’irat al-tasāqī*). **R1** also has another separate illustration of nine crabs for the eighth symbol. In most illustrations with the nine circles around the mirror, these circles are distributed evenly. Only group **B** and one illustration in **T2**¹⁵⁰ show a specific irregular distribution with one circle on the upper right-hand side and the remaining eight

¹⁴⁷ *fa-mā adrī a ḥaqq am aḍghāth aḥlām* (MS Tehran, Kitābkhāna-yi Millī-yi Īrān, 1871, f. 223v). This closing sentence might be a reference to *Mir’āt al-‘ajā’ib*, where the narrator awakes from his dream “knowing that it was the truth and no confused dream” (*wa-‘alamtu annahū ḥaqq lā aḍghāth aḥlām*; MS Çorum, Hasan Paşa, 1234, f. 3v).

¹⁴⁸ This calculation would only work if the holding of a vessel applied also to the dog. However, it is not clear in the text whether the dog is indeed part of the group or just mentioned in the Qur’ānic citation.

¹⁴⁹ The nine circles are also missing in **Bu**, where other symbols are incomplete as well (cf. note 96).

¹⁵⁰ **T2**, f. 16b.

circles arranged symmetrically around the opposite side. Except for **Mh**, **O2**, and group **C**, all illustrations with circles around the mirror have numbers added to this symbol.¹⁵¹ In **O1**, the numbers 1 to 9 are written next to the circles. Group **B** has the numbers 41 to 49 written inside the circles. Six illustrations show different number sequences that seem to follow a certain system:¹⁵²

| | | | | | | | | | |
|-------------------|----|----|----|----|----|----|-------|----|----|
| C3, Is, Pr | 44 | 54 | 64 | 47 | 49 | 45 | 34 | 24 | 57 |
| Ha | 44 | 54 | 64 | 47 | 48 | 45 | 43 | 23 | 58 |
| R1 | 44 | 94 | 64 | 47 | 49 | 45 | 43 | 23 | 57 |
| Hy | 44 | 45 | 46 | 42 | 49 | 45 | 43/34 | 32 | 57 |

Since most of the numbers cited start with a 4, it seems likely that the sequence of 41–49 in group **B** was created to simplify these sequences. In **Hy**, the numbers have replaced the circles, and the names of the planets Saturn (*zuḥal*), Mars (*mirriḥh*) and Jupiter (*[al-]mushtarī*) have been added to 45, 43/34 and 32. The meaning of these sequences remains enigmatic, for the numbers are neither mentioned in the text of *Mir’āt al-‘ajā’ib* nor in *al-Risāla al-Baḥriyya*.

5 Conclusion

As this analysis has shown, the visual design of the symbols of the “Mirror of Wonders” varies between the different manuscript illustrations, from minor divergences to complete modifications, as in case of the crabs and the women. The nine symbols of the mirror describe different stages of the alchemical process, probably in a chronological order. Further research in this field might be useful for a more in-depth identification of these stages and their context. The citations of other alchemists in *Mir’āt al-‘ajā’ib* reveal a close connection of the text to Ibn Umayl’s *Kitāb al-Mā’ al-waraqī*, and to the poetry of Khālid b. Yazīd. The author’s second treatise, *al-Risāla al-Baḥriyya*, can be considered a complementary text to the “Mirror”, as it purports to explain the ninth symbol and probably influenced the visual tradition of the eighth symbol. Finally, the numerous manuscripts from the 19th and 20th centuries prove the continuous interest for the “Mirror of Wonders” in different parts of the Islamic world well into modern times.

¹⁵¹ Instead of numbers, some illustrations of group **C** have floral decorations between the circles.

¹⁵² The numbers are cited starting mostly on the upper right-hand side, where the first symbol is located, turning clockwise.

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References

- Anonymous (s.d.): *Summary List of Manuscripts in the Museum of the History of Science, Oxford*. https://www.hsm.ox.ac.uk/sites/default/files/mhs/documents/media/summary_list_of_manuscripts_in_the_museum_of_the_history_of_science.pdf [accessed: 28 April 2021].
- Artun, Tuna (2013): *Hearts of Gold and Silver: Production of Alchemical Knowledge in the Early Modern Ottoman World*. PhD diss., Princeton University.
- Berlekamp, Persis (2003): “Painting as Persuasion: A Visual Defense of Alchemy in an Islamic Manuscript of the Mongol Period”. *Muqarnas*, vol. 20, 35–59.
- Binebine, Ahmed Chouqui (2003): *Tārīkh khazā’in al-kutub bi-l-Maghrib*. Transl. of: *Histoire des Bibliothèques au Maroc*. Marrakesh.
- Braun, Christopher / Forster, Regula (2021): “The Alchemist’s work: Ibn Arfa’ Ra’s and the reception of his collection of alchemical poems *Shudhūr al-dhahab*”. vol. 75, no. 2, 611–636.
- Brockelmann, Carl (1937): *Geschichte der arabischen Litteratur*. Suppl. I. Leiden.
- Dapsens, Marion (2021): “The alchemical work of Khālid b. Yazīd b. Mu’āwiya (d. c. 85/704)”. vol. 75, no. 2, 327–427.
- al-Dhahabī, Muḥammad b. Aḥmad (1990): *Mu’jam shuyūkh al-Dhahabī*. Ed. R. al-Suyūfī. Beirut.
- Dirāyatī, Muṣṭafā (2012–2015): *Fihristgān-i nuskhahā-i khaṭṭī-i Īrān (fankhā)* (Union Catalogue of Iran Manuscripts). 45 vols. Tehran.
- Dirāyatī, Muṣṭafā (2018): *Mu’jam al-makḥṭūāt al-irāqīyya* (The Union Catalogue of Iraq Manuscripts). 20 vols. Tehran.
- Dolgusheva, Svetlana (ed., forthcoming): *Edition, Übersetzung und Kommentar zu Ibn Arfa’ Ra’s’ Šudūr ad-dahab*.
- Flood, Finbarr B. (2019): “Iconoclasm”. In: *Encyclopaedia of Islam, Three*, ed. K. Fleet et al., Leiden, vol. III, 34–40.
- Forster, Regula (2019): “Jābir b. Ḥayyān”. In: *Encyclopaedia of Islam, Three*, ed. K. Fleet et al., Leiden, vol. III, 91–97.
- Forster, Regula / Müller, Juliane (2020), “The Identity, Life and Works of the Alchemist Ibn Arfa’ Ra’s (Identidad, vida y obra del alquimista Ibn Arfa’ Ra’s)”. *Al-Qanṭara*, vol. 41, no. 2, 373–408.
- Gacek, Adam (1984-85): *Catalogue of Arabic Manuscripts at the Library of The Institute of Ismaili Studies*. 2 vols. London.
- Ghazzali, Lahouari (ed., 2018): *Shudhūr al-dhahab. Dīwān Ibn Arfa’ Ra’s al-Jayyānī al-Andalusī*. Beirut.

- Gölpinarlı, Abdülbâki (1972): *Mevlânâ Müzesi yazmalar Kataloğu*, vol. III. Ankara.
- Ḥājjī Khalīfa, Muṣṭafā b. 'Abdallāh (1941–1943): *Kashf al-ẓunūn 'an asāmī l-kutub wa-l-funūn*. Ed. Ş. Yaltakaya / K. R. Bilge, 2 vols. Istanbul.
- Ibn Arfa' Ra's, 'Alī b. Mūsā al-Anṣārī al-Andalusī (forthcoming): *Kitāb Ḥall mushkilāt al-Shudhūr. Riwayāt Abī l-Qāsim Muḥammad b. 'Abd Allāh al-Anṣārī*. Ed. J. Müller. Beirut.
- Ibn Ḥajar al-'Asqalānī, Shihāb al-Dīn Aḥmad b. 'Alī (1929–1931): *al-Durar al-kāmīna fī a'yān al-mī'a al-thāmina*. 4 vols. Hyderabad.
- Ibn al-'Imād, 'Abd al-Ḥayy b. Aḥmad (1986–1995): *Shadharāt al-dhahab fī akhbār man dhahab*. Eds. 'A. and M. al-Arnā'ūṭ; 11 vols. Beirut.
- Ibn Khaldūn, 'Abd al-Raḥmān (2004): *Muqaddimat Ibn Khaldūn*. Ed. 'A. al-Darwīsh. 2 vols. Damascus.
- al-Jubūrī, 'Abdallāh (1974): *Fihris al-makhṭūṭāt al-'arabiyya fī Maktabat al-awqāf bi-Baghdād*, vol. IV. Baghdad.
- Käppel, Lutz (2002): “Uroboros”. In: *Der Neue Pauly: Enzyklopädie der Antike*, ed. H. Cancik, vol. XII, Stuttgart, 1053.
- Karolewski, Janina / Köse, Yavuz (eds., 2016): *Ausstellungskatalog „Wunder der erschaffenen Dinge: Osmanische Manuskripte aus Hamburger Sammlungen / “Wonders of Creation: Ottoman Manuscripts in Hamburg Collections” (= manuscript cultures 9)*. Hamburg.
- al-Khaṭṭābī, Muḥammad al-Arbī (ed., 1986): *Fahāris al-Khizāna al-Ḥasanīya bi-l-Qaṣr al-Malakī bi-l-Ribāṭ. Al-Mujallad al-Khāmīs. Al-Fihris al-waṣṭī li-makhṭūṭāt al-kīmiyā' wa-ta'bir al-ru'yā wa-l-'ulūm al-khaṭṭīya*. Casablanca.
- Kraus, Paul (1942-3): *Jābir ibn Ḥayyān. Contribution à l'histoire des idées scientifiques dans l'Islam*. 2 vols., Cairo.
- Lacaze, Grégoire (2018): *Turba philosophorum. Congrès pythagoricien sur l'art de Hermès. Édition critique, traduction et présentation*. Leiden/Boston.
- Mach, Rudolf / Ormsby, Eric (1987): *Handlist of Arabic Manuscripts (New Series) in the Princeton University Library*. Princeton.
- [Ps.-]al-Mas'ūdī, 'Alī b. Ḥusayn (1938): *Akhbār al-zamān*. Cairo.
- Montgomery Watt, William (1965): “al-Ghazālī, Abū Ḥāmid”. In: *Encyclopaedia of Islam, New Edition*, ed. C.E. Bosworth et al., vol. II, Leiden, 1038–1041.
- Ritter, Hellmut (1965): “al-Ghazālī, Aḥmad b. Muḥammad”. In: *Encyclopaedia of Islam, New Edition*, ed. C.E. Bosworth et al., II, Leiden, 1041–1042.
- Ruska, Julius (1912): *Das Steinbuch des Aristoteles. Mit literaturgeschichtlichen Untersuchungen nach der arabischen Handschrift der Bibliothèque Nationale herausgegeben und übersetzt*. Heidelberg.
- al-Ṣabbāgh, Muṣṭafā S. (1980): *Fihris makhṭūṭāt Dār al-kutub al-Ẓāhiriyya. Al-'ulūm wa-l-funūn al-mukhtalifa 'inda l-'Arab*. Damascus.
- al-Ṣafādī, Ṣalāh al-Dīn Khalīl b. Aybak (2000): *Kitāb al-Wāfi bi-l-wafayāt*. 29 vols. Beirut.
- Savage-Smith, Emilie (1997): “Magic and Islam”. In: *Science, Tools and Magic*, eds. F. Maddison / E. Savage-Smith, 2 vols., London/Oxford, I, 59–147.
- Semlali, Kacem A. S. (2015): *Historie de l'alchimie et des alchimistes au Maroc. Essai*. Rabat.
- Sezgin, Fuat (1971): *Geschichte des arabischen Schrifttums, IV: Alchimie–Chemie, Botanik–Agrikultur*. Leiden.
- Siggel, Alfred (1951): *Decknamen in der arabischen alchemistischen Literatur*. Berlin.
- Stocks, Peter (ed.) (2001): *Subject-guide to the Arabic manuscripts in the British Library*. London.
- al-Taqī al-Fāsī, Muḥammad b. Aḥmad (1997): *Dhayl al-taqyīd li-ma'rifat ruwāt al-sunan wa-l-masānīd*. Ed. M. Ş. al-Murād. 3 vols. Mecca.

- al-Ṭihṛānī, Āghā Buzurg (1983): *al-Dharīʿa ilā taṣānīf al-shīʿa*. 26 vols. Beirut.
- al-Tikriti, Nabil (2007): “‘Stuff happens’. A Brief Overview of the 2003 Destruction of Iraqi Manuscript Collections, Archives and Libraries”. *Library Trends* 55, 3, 730–745.
- Turāb ‘Alī, Muḥammad et al. (ed., 1933): “Three Arabic treatises on Alchemy by Muḥammad bin Umail (10th century A.D.)”. *Memoirs of the Asiatic Society of Bengal*, XII, 1. Calcutta.
- Ullmann, Manfred (1972): *Die Natur- und Geheimwissenschaften im Islam*. Leiden.
- Ullmann, Manfred (1992): *Das Motiv des Spiegels in der arabischen Literatur des Mittelalters*. Göttingen.
- Vildanova, A. B. (1998): *Sobranie vostočnykh rukopisej Akademii Nauk Respubliki Uzbekistan. Točnye i estestvennye nauki*. Tashkent.
- Wensinck, Arent J. et al. (1936-1988): *Concordance et indices de la tradition musulmane*. 8 vols. Leiden.

Online resources on Oriental manuscripts

- Cairo, Institute of Arabic Manuscripts: <http://196.218.25.162/cgi-bin/koha/opac-main.pl> [accessed: 28 April 2021].
- Dubai, Juma al-Majid Center: www.almajidcenter.org/search.php [accessed: 28 April 2021].
- Germany, “KOHD Digital”: <https://orient-mss.kohd.adw-goe.de> [accessed: 28 April 2021].
- Mecca, Umm al-Qurā University: <https://dorar.uqu.edu.sa/uquui/> [accessed: 28 April 2021].