ORGANIZING KNOWLEDGE

Encyclopaedic Activities in the
Pre-Eighteenth Century Islamic World

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CONTENTS

PREFACE

Pre-18th century Muslim cultures may be said to be 'book cultures'. There is little need here to stress the enormous expansion of writing and the accumulation of written compendia in Muslim contexts during the centuries that preceded the 18th century, and the deep influence it had on the making of a social order and the founding of structures of authority. In a novel which has greatly impressed the imagination in recent years, Orhan Pamuk's *My Name is Red* captured the spirit of a time, the ethos of large communities of artists, miniaturists, calligraphers, binders—professionals of bookmaking— who lived for centuries in an area stretching from Central Asia to the Atlantic Ocean. However, what he so strongly conveyed was only one, albeit significant, part of the story.

Miniaturists' workshops spread throughout these areas were probably the tip of an iceberg, encompassing large communities of scholars, copyists, painters, bookmakers, their apprentices, etc. Illuminations and illustrations were designed for relatively small circles of wealthy and powerful clients. However, those who handled and copied texts alone (absent of illuminations or illustrations) enjoyed unchallenged prestige in much wider circles, its men and women (for there were women too) the keepers and transmitters of what the community considered to be its most precious treasure. The vast corpus of knowledge thus transmitted encompassed not only the word of God and the hadith of His Prophet, but also exegesis works, commentaries, compendia of law, books on grammar, etc.; its accumulation over many centuries and across a vast geographic area was impressive not only in its quantity and variety but also its impact on collective consciousness. It defined, as much or more than any other institution, the ethos and worldview of one of the largest, and oldest, communities in the history of mankind. The views and conceptions which were disseminated through written literature were endowed with the authority of what was considered to be *'ilm* (Science). This literary corpus laid and sustained systems of authority, in terms of conception of the world, history and men, and at the level of norms which were formulated to rule individual and communities' lives.

AL-QAZWĪNĪ'S *'AJĀ'IB AL-MAKHLŪQĀT*:
AN ENCYCLOPÆDIA OF NATURAL HISTORY?

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This essay focuses on the text *'Ajā'ib al-makhlūqāt wa-gharā'ib al-mawjūdāt* ('The Wonders of Creation and the Peculiarities of Beings'), written in the second half of the 13th century by the Persian jurist Zakariyyā' al-Qazwīnī.[1] Within the present context of studies on *Encyclopædic Activities in the Pre-Eighteenth Century Muslim World*, we want to raise the question: can Qazwīnī's work be classified as an encyclopædia? So far, scholars of Islamic studies who worked on encyclopædias have largely ignored the *'Ajā'ib al-makhlūqāt*.[2] Neither do specialists on

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[1] For this study the oldest known manuscript of the *Kitāb 'Ajā'ib al-makhlūqāt wa-gharā'ib al-mawjūdāt* has been used as textual basis, because no satisfactory critical edition of this work exists. Today this manuscript is preserved at the Bayerische Staatsbibliothek, Munich, under the signature Cod. arab. 464. For further details about this manuscript, please refer to Syrinx von Hees, *Enzyklopädie als Spiegel des Weltbildes: Qazwīnīs Wunder der Schöpfung—eine Naturkunde des 13. Jahrhunderts* (Wiesbaden, 2002), pp. 91–96. This study, pp. 19–90, contains a detailed account of the life of Zakariyyā' al-Qazwīnī and his cultural background.

[2] Franz Rosenthal, *The Technique and Approach of Muslim Scholarship* (Rome, 1947), pp. 60–63: "Specialization and Encyclopedism"; Charles Pellat, 'Les Encyclopédies dans le Monde Arabe,' in: *Cahiers d'Histoire Mondiale 9* (1966), pp. 631–658; Régis Blachère, 'Quelques Réflexions sur les formes de l'encyclopédisme en Égypte et en Syrie du VIIIᵉ/XIVᵉ siècle a la fin du IXᵉ/XVᵉ siècle,' in: *Bulletin des Études Orientales, 23* (1970), pp. 7–19; Hilary Kilpatrick, 'A Genre in Classical Arabic Literature: The Adab Encyclopedia,' in: Robert Hillenbrand (ed.), *Proceedings of the 10th congress of the UEAI, Edinburgh 1980* (Edinburgh, 1982), pp. 34–42; Christel Hein, *Definition und Einteilung der Philosophie: von der spätantiken Einleitungsliteratur zur arabischen Enzyklopädie* (Frankfurt am Main, 1985); Charles Pellat, 'Mawsū'a, « encyclopædia », 1: in Arabic,' in: *EI²*, vol. 6 (1991), pp. 903–907; Mounira Chapoutot-Remadi, 'L'Encyclopédie arabe au Xᵉ siècle,' in: Annie Becq (ed.): *L'Encyclopédisme: actes du Colloque de Cæn, 12ᵉ–16ᵉ janvier 1987* (Paris, 1991), pp. 37–46; Chapoutot-Remadi, Mounira: 'Les encyclopédies arabes de la fin du Moyen Age,' in: Annie Becq (ed.): *L'Encyclopédisme. Actes du Colloque de Cæn, 12ᵉ–16ᵉ janvier 1987* (Paris, 1991), pp. 267–279; Gerhard Endress, 'Die wissenschaftliche Literatur, § 8.8.1.6: Enzyklopädie,' in: *GAP*, vol. 3 (Wiesbaden, 1992), pp. 57–61; Hilary Kilpatrick, 'Encyclopedias, medieval,' in: *EAL*, vol. 1 (1998), pp. 208f.; Hans Hinrich Biesterfeldt, 'Medieval Arabic Encyclopedias of Science and Philosophy,' in: Steven Harvey (ed.), *The Medieval Hebrew Encyclopedia of Science and Philosophy* (Dordrecht, 2000), pp. 77–98; id., 'Arabisch-Islamische

Zakariyyā' al-Qazwīnī consider his work as an encyclopædia. Some classify it as belonging to an independent literary genre, called cosmography;[3] while others describe it as belonging to the *'ajā'ib* genre.[4]

Enzyklopädien: Formen und Funktionen,' in: Christel Meier (ed.), *Die Enzyklopädie im Wandel vom Hochmittelalter bis zur Frühen Neuzeit* (München, 2002), pp. 43–83.— Among all these authors, Ch. Pellat in his *EI²* article (1991), p. 903f., is the only one who mentions Qazwīnī's work in his discussion of encyclopædias, albeit in passing: "... the *Kitāb al-hayawān* is far from being a zoological dictionary. ... It is quite different in the *'Adjā'ib al-makhlūqāt* of al-Qazwīnī (600–82/1202–83), which contains an alphabetical series of notices concerning animals in its section on the description of the universe dealing with terrestrial matters."

There are some exceptions of this general picture, as for example:

Francis E. Peters, *Aristotle and the Arabs: the Aristotelian Tradition in Islam* (New York, 1968), ch. V, pp. 104–120: 'The Diffusion of Aristotelianism, Encyclopedias', p. 118f.: "In the thirteenth century, the high-water mark of Arab encyclopedism, the genre, is represented by the Marvels of Creation of Zakariya ibn Muhammad al-Qazwīnī (d. A.D. 1283), a work which testifies to the degree of differentiation that has taken place in such encyclopedias during the intervening period"; Geert Jan van Gelder, 'Compleat Men, Women and Books: on Medieval Arabic Encyclopædism,' in: Peter Binkley (ed.): *Pre-Modern Encyclopædic Texts: Proceedings of the Second COMERS Congress, Groningen, 1–4 July 1996* (Leiden, 1997), pp. 241–259. He writes, p. 254f.: "Among the more general encyclopædias of the natural sciences is a work of cosmography entitled *The Wondrous Creations ('Ajā'ib al-makhlūqāt)* by Zakariyyā al-Qazwīnī (d. 1283). This is not a loose collection of facts and quotations but a systematic encyclopædia on the cosmos, arranged according to the chain of being from the highest heavens to earth, with its mineral, vegetable and animals realms"; Ulrich Marzolph, 'Mirabilia, « Weltwunder » und Gottes Kreatur: zur Weltsicht populärer Enzyklopädien des arabisch-islamischen Mittelalters,' in: Ingrid Tomkowiak (ed.): *Populäre Enzyklopädien: von der Auswahl, Ordnung und Vermittlung des Wissens* (Zürich, 2002), pp. 85–101, deals also with Qazwīnī's *'Ajā'ib al-makhlūqāt*, but does not discuss its encyclopædic character, instead is concerned with the meaning of wonder in connection with the author's world-view. Thus this article belongs more to the group of texts discussing *'ajā'ib* (see note 4), than to those just mentioned, discussing 'encyclopædia'.

³ Maria Kowalska, 'Bericht über die Funktion der arabischen kosmographischen Literatur des Mittelalters,' in: *Folia Orientalia 11* (1969), pp. 175–180; Alma Giese in the introduction, especially pp. 9–11, to her translation: *Al-Qazwīnī. Die Wunder des Himmels und der Erde* (Stuttgart, 1986); Bernd Radtke, 'Die älteste islamische Kosmographie: Muhammad-i Ṭūsīs 'Ajā'ib ul-makhlūqāt,' in: *Der Islam 64,2* (1987), pp. 278–288; Bernd Radtke, 'Persian Cosmography, Early Tafsir and Nestorian Exegesis,' in: Živa Vesel (ed.), *La science dans le Monde Iranien* (Teheran, 1998), pp. 323–335; Remke Kruk, Review of Hees (2002), in: *Bibliotheca Orientalis* 59, 5–6 (2002), is "not altogether happy" with my classification of Qazwīnī's work as an encyclopædia and states, p. 649: "In the case of Qazwīnī the matter seems to me fairly simple: he sets out to give a popular description of all the phenomena of the natural world, and the form he chooses is that of the cosmography."

⁴ For an evaluation of the concept of *'ajā'ib*-literature, see Syrinx von Hees, 'The Astonishing: a critique and re-reading of *'Ajā'ib*-Literature,' in: *MEL* 8,2 (2005), pp. 101–120. Carra de Vaux, Bernard: 'Introduction,' dated Novembre 1897, in: André Miquel (ed.), *L'Abrégé des Merveilles*, traduit de l'arabe et annoté par Carra de Vaux, préface d'André Miquel (Paris, 1984), p. 19f.; César E. Dubler, "Adjā'ib," in: *EI²*, vol. I (1960), p. 203; Tawfiq Fahd, 'Le Merveilleux dans la faune, la flore et les

In the following I want to prove that Qazwīnī's text is a full-fledged encyclopædia. This is of importance because it will allow us to appreciate and evaluate the work 'Ajā'ib al-makhlūqāt far more precisely than has so far been the case. At the same time, it will contribute to our understanding of encyclopædic writing.

I will follow the criteria for a definition of the literary genre 'encyclopædia' developed by recent medievalist research, as for example the studies of Christel Meier and Bernard Ribémont.[5] It is now well known that the word 'encyclopædia' is a relatively modern European coinage of the late 15th century, which became commonly used in the 18th century in France.[6] In medieval times, in Latin, English, French, German, Italian, Arabic and Persian literature, the term was not known. Nevertheless medieval Western literature has been examined in the light of the early modern concept of 'encyclopædia' and its criteria. A number of enlightening publications appeared as an outcome of this inquiry.[7] I will investigate whether these criteria apply to the text 'Ajā'ib al-makhlūqāt.

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minéraux,' in: Mohamed Arkoun (ed.), L'Étrange et le merveilleux dans l'Islam médiéval (Paris, 1978), p. 119; André Miquel in the introduction of his edition: L'Abrégé des Merveilles (v. supra), p. 13; Guy Ducatez, 'La Tuhfa al-albāb d'Abū Hāmid al-Andalusī al-Garnātī: traduction annotée,' in: REI, 53 (1985), p. 141; C. E. Bosworth, "Ajā'eb al-Makhlūqāt,' in: Encyclopaedia Iranica, vol. I (1985), p. 696f.; Lutz Richter-Bernburg, "Aja'ib literature', in: EAL, vol. 1, (1998), p. 65f.; Marzolph (2002), p. 94.

[5] Christel Meier, 'Grundzüge der mittelalterlichen Enzyklopädik: zu Inhalten, Formen und Funktionen einer problematischen Gattung,' in: Ludger Grenzmann, Karl Stackmann (eds.), Literatur und Laienbildung im Spätmittelalter und in der Reformationszeit. Symposion Wolfenbüttel 1981 (Stuttgart, 1984), pp. 467–503; Bernard Ribémont, 'On the Definition of an Encyclopædic Genre in the Middle Ages,' in: Peter Binkley (ed.), Pre-Modern Encyclopædic Texts: Proceedings of the Second COMERS Congress, Groningen, 1–4 July 1996 (Leiden, 1997), pp. 47–61.

[6] Robert L. Fowler, 'Encyclopædias: Definitions and Theoretical Problems,' in: Peter Binkley (ed.): Pre-Modern Encyclopædic Texts [as quoted supra, n. 5], pp. 3–29.

[7] Annie Becq (ed.), L'Encyclopédisme. Actes du Colloque de Cæn, 12–16 janvier 1987. (Paris, 1991); Michelangelo Picone, (ed.), L'Enciclopedismo Medievale (Ravenna, 1994); Franz M. Eybl, et al (ed.), Enzyklopädien der Frühen Neuzeit: Beiträge zu ihrer Erforschung (Tübingen, 1995); Peter Binkley (ed.), Pre-Modern Encyclopædic Texts. Proceedings of the Second COMERS Congress, Groningen, 1–4 July 1996 (Leiden, 1997); Steven Harvey, (ed.), The Medieval Hebrew Encyclopedia of Science and Philosophy (Dordrecht, 2000); Bernard Ribémont, Les Origines des encyclopédies médiévales: d'Isidore de Séville aux Carolingiens (Paris, 2001); id. La "Renaissance" du XIIe siècle et l'encyclopédisme (Paris, 2002); Christel Meier (ed.), Die Enzyklopädie im Wandel vom Hochmittelalter bis zur Frühen Neuzeit (München, 2002); Ingrid Tomkowiak (ed.), Populäre Enzyklopädien: von der Auswahl, Ordnung und Vermittlung des Wissens (Zürich, 2002).

First Criterion

An encyclopædia is an organised compendium of knowledge. The aim of its author is to present knowledge in accordance with its own systematics.[8] Qazwīnī's work matches this first criterion. *'Ajā'ib al-makhlūqāt* presents nature as God's creation in a hierarchical arrangement that corresponds to his contemporary understanding of the system of the natural beings. He divides the creatures of the world, *'ālam* in the upper ones, *'ulwiyyāt* and the lower ones, *sufliyyāt*, that is to say, he separates the supra-lunar from the sub-lunar phenomena. Those things that God has created below the lunar sphere are subdivided according to the four elements, fire, *nār*, air, *hawā'*, water, *mā'*, and earth, * arḍ*. The largest part of the work is dedicated to the Three Natural Kingdoms, called *al-kā'ināt* by Qazwīnī, divided into minerals, *ma'ādin*, plants, *nabāt* and animals, *ḥayawān*; human beings are included in the last kingdom. This structure of Qazwīnī's work is hierarchical, clear and intelligible and corresponds to the established system of natural history, the knowledge of which Qazwīnī wants to transmit to his readers. This hierarchical order of the material allows the user of the book to relate each and every piece of information to its proper position in the system.

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[8] Meier (1984), pp. 481–483, concluding on p. 483: "Der vorherrschende Eindruck bei der Betrachtung des jeweiligen Gesamtwerkes ist in der Regel . . . der einer geschlossenen, vollen Ordnung. Hier vollzieht sich also eine Art qualitativer Sprung, indem die quantitative Vielfalt des Materials aller Art als qualitative Fülle und Vollkommenheit erscheint . . ."; Ribémont (1997), p. 48: "the idea of an organised compendium of knowledge"; Fowler (1997), p. 13: "schematic organisation by subject of most earlier encyclopædias" as opposed to the alphabetical order of the entries; Christel Meier, 'Organisation of Knowledge and Encyclopædic Ordo: Functions and Purposes of a Universal Literary Genre,' in: Peter Binkley (ed.), *Pre-Modern Encyclopædic Texts* [as quoted *supra*, n. 5], p. 104: "In the Middle Ages encyclopædists made use of two general systems of classification to arrange information and to illustrate the interdependence of the different arts and sciences (later on they proceeded to alphabetical order). These systems were based either on traditional conceptions of the order of the world or on rational and scientific approaches to knowledge, i.e. on disciplines or on a system of sciences": "ordo rerum" and "ordo artium".

Second Criterion

The author of an encyclopædia wants to present serious,[9] but concise knowledge in manageable brevity.[10] It is the seriousness of the content of Qazwīnī's book that some researchers have doubted. They maintain that Qazwīnī's book deals with fabulous stories and anecdotes that cannot be taken seriously. They claim that his book is the epitome of the decadence of the Arabic-Islamic sciences.[11] I will try to refute this statement at a later point in this essay. For now a reference to Qazwīnī's own claim of seriousness might suffice. In his preface he emphasizes: "I swear by God, that I have not made up anything (I wrote), but written down everything as I have perused it".[12] He adds that he is concerned with "discernment or deep insight" of creation.[13]

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[9] Meier (1987), p. 111: "By definition an encyclopædia is a book of universal knowledge".

[10] Meier (1984), p. 475: "Die . . . mittelalterliche Enzyklopädie hat auch eine praktische Seite . . ." Sie ist "eine Bibliothek", ein Buch, das "in sich den Inhalt vieler Bücher" vereint.; and p. 489: ". . . Forderung nach einem knappen Kompendium der Dinge aller Wissensbereiche (besonders der Natur) . . ."; p. 491: "der Kompilationscharakter mit der entsprechenden Kürze bei gleichzeitiger Darbietung des maßgeblichen, . . . Wissens . . ."; Ribémont (1997), p. 59: "we can define the medieval encyclopædia as a « brief compendium »", plus the following quotations.

[11] Dubler (1960), p. 203f.: "The Arabic literature of the 4th/10th centuries, called 'classical', is characterized by an equilibrium between erudition and æsthetic creation. When this equilibrium was disturbed by the decadence of Arabic literature, the writers increasingly disregarded science; the ʿadjaʾib thus came into greater favour and reached their full development in the cosmographies of the 8th/14th century (sic.). The greatest author of this period was al-Ḳazwini . . ."; and p. 204: "At this epoch the cosmographical works increasingly neglect geography . . ."; and "As the scientific interest decreased, however, and the popular interest in amusing literature grew, the data lost their precision and their exact geographical localization"; Kowalska (1969), p. 178: "Die hier erwähnten kosmographischen Werke sind von vielen Standpunkten (aus gesehen) typisch für die Endperiode der Geschichte der mittelalterlichen Literatur der Araber, weil sie fast ausschließlich Kompilationen aus den Werken der früheren Verfasser sind, und nur im geringen Maße originelle Informationen bringen, die noch weniger ein Resultat der eigenen Beobachtungen des Verfassers bilden."

[12] Munich, Cod. arab. 464, fol. 2v, 9.

[13] Munich, Cod. arab. 464, fol. 3r, 2: *yanẓur bi-ʿayn al-baṣīra*. This expression seemed important to a later reader who gives at the margin the Ottoman translation as: *gönül gözü.*

The criterion of brevity no doubt applies to Qazwīnī's work: he managed to compress the knowledge on God's creatures into one volume. The earliest preserved manuscript of *'Ajā'ib al-makhlūqāt*, written in Wāsiṭ in 1280, is 424 pages long.[14] Qazwīnī is conscious of having to limit the knowledge he presents. For example, he stresses: "The wonders of the heavens are so numerous that I don't aspire to name a tenth of a tenth of them";[15] or "A human being should look at himself, for there are wonders in him, a lifetime is not long enough to comprehend a tenth of a tenth thereof".[16]

Brevity also characterises the method of his citation. Qazwīnī shortens most of his quotations, citing the main idea while leaving parts of long sentences out. This manner of citation enables him to include many reports and to present them in a more concise manner than the way they were presented in his sources, which is indicative of the encyclopædic genre.[17]

Third Criterion

The aim of an encyclopædia is essentially didactic. The author wants to educate.[18] Qazwīnī does not use any word that conveys the notion of education in his preface, but one of the stated aims of his book is to lead the reader to the feeling of astonishment in front of God's

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[14] Munich, Cod. arab. 464.

[15] Munich, Cod. arab. 464, fol. 3r, 17f.

[16] Munich, Cod. arab. 464, fol. 4r, 2f.

[17] Hees (2002), p. 243: "Die meisten Zitate hat Qazwīnī verkürzt, indem er aus einem längeren Abschnitt bei Ǧāḥiẓ immer wieder einzelne Satzteile wegläßt und nur die Hauptlinie des Gedankens oder der Geschichte aufgreift. Manchmal nimmt Qazwīnī dabei leichte Änderungen vor, hauptsächlich in der Wortstellung. Insgesamt kann er durch diese Art des Zitierens viele Nachrichten aufgreifen und sie dem Leser in einer im Vergleich zu Ǧāḥiẓ bündigen, einfachen und eben nicht ausschweifenden Form präsentieren."

[18] Meier (1984), p. 488: "die Enzyklopädie ist Hilfe zum Bücherlesen"; p. 489: die "Gattung . . . trägt also von ihrer Seite auch zur Kenntnis der Welt, d.h. der Werke des Schöpfers bei . . ."; p. 491: "vielmehr soll dem Schüler und Confrater Hilfe geleistet werden."; "Aus dem Charakter der Gattung läßt sich so im deduktiven Verfahren ihre Eignung auch als Bildungsmittel für das im Spätmittelalter rasch starkende lesende Laienpublikum schließen"; ". . . das universale, für alle Menschen gleich wichtige Bildungsziel"; Ribémont (1987), p. 50: "In fact, the encyclopædist aimed at transmitting learned knowledge to a reader who was assumed to expect it. Thus there is *action* in the sphere of learning and knowledge"; p. 55: "We find (in the prologues of encyclopædias) a lexical field with terms like *mores, edificatio, evigilatio, vivere in Domino*, etc."

creation. According to Qazwīnī this feeling is originally innate in the human being, but it is gradually lost due to different preoccupations. Qazwīnī hopes that the reading of his book will revive this feeling of astonishment and will stimulate the reader to contemplate the greatness of God's creation.[19] This can be considered a very clear pedagogical message.

Fourth Criterion

The author of an encyclopædia wants to make specialized knowledge verified by authorities and contemporaries accessible to his public. Such specialized knowledge is usually difficult to access and to comprehend by a general public. The users of an encyclopædia expect such a simplified presentation. Ribémont calls this the didactic transposition.[20] In order to fulfil this aim properly, the author of an encyclopædia should firstly be able to sift and collect the most significant contents from many different specialized books and secondly to systematize and order these collected bits of information in an accessible manner.[21] Qazwīnī is aware of this working process. He states: "It is now incumbent upon the one who studies my book to imagine the efforts I have undertaken in order to collect what was scattered, *fī jam'i mā kāna mubaddadan* and to put together what was cut into pieces, *fī talfīqi mā kāna mushattatan.*"[22] In this phrase the two central concepts of the encyclopædic working appear: to collect and order.

I want to investigate to what extent Qazwīnī in his treatment of the material fulfills his stated claims concerning collecting and ordering. As an example, I choose his presentation of the Third Natural Kingdom, the animals, *al-ḥayawān.*[23]

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[19] Munich, Cod. arab. 464, fol. 2v, 16–fol. 3r, 2.

[20] Ribémont (1987), pp. 50–53.

[21] Meier (1984), pp. 476–477.

[22] Munich, Cod. arab. 464, fol. 2r, 27–fol. 2v, 1.

[23] In this study I do not consider Qazwīnīs discussion of the human being, the djinn and the animals of wondrous appearances and forms, but concentrate on the remaining animals, Munich, Cod. arab. 464, fol. 168v–fol. 207r; plus the water animals that are treated at the end of the discussion about the third element, namely 'water', fol. 72r–fol. 78v. For a detailed analysis of Qazwīnī's treatment of the animals, please refer to Hees (2002), pp. 115–253.

In this case, we can observe that Qazwīnī indeed collected mate-
rial from a large number of sources with very different scopes and
nature. In his treatment of the animal kingdom he classifies the ani-
mals according to different categories, such as the beasts of burden,
cattle, birds and so on. He gives a description of each specific ani-
mal, followed by a presentation of the medical properties of its body
parts. For the physical descriptions, he uses Jāḥiẓ's *Kitāb al-ḥayawān*
frequently,[24] Bīrūnī's *Āthār al-bāqiya*, Ibn Faḍlān's *Riḥla*,[25] an anony-
mous work *Tuḥfat al-gharāʾib* less frequently[26] and most probably a
Persian work on natural history by Shāhmardān.[27] For his presen-
tations on the medical properties, he relies on Ibn Sīnā's *al-Qānūn
fī l-ṭibb*, most probably the lost work *Kitāb al-khawāṣṣ* by Balīnās as
well as the work of Shāhmardān.[28] For each animal category, he
writes a general introduction using information from a philosophi-
cal encyclopædia, namely *Rasāʾil Ikhwān al-Ṣafāʾ*.[29] It is evident that
he uses specialized sources for his presentation of the animal king-
dom. He derives relevant information from them and then reassem-
bles it in his own order. At least material from three separate fields
of knowledge, namely philosophy, natural history and medicine are
combined and presented.

His act of compilation is also evident in the large number of indi-
vidual animals that he was able to collect. The most impressive is
his collection of birds. He presents 57 different species.[30]

His description of the eagle stands as an example for his "putting
together what was cut into pieces". Al-Jāḥiẓ in his voluminous work
Kitāb al-ḥayawān has a number of reports on the eagle. These reports
are scattered throughout his work. Qazwīnī knew the entire work
of Jāḥiẓ and painstakingly collected and selected information on the
eagle from the different volumes and presented it in a coherent text
under the rubric *ʿuqāb*.[31] This is a concrete example of how Qazwīnī

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[24] Hees (2002), pp. 242–244.
[25] Hees (2002), p. 246.
[26] Hees (2002), p. 245f.
[27] Hees (2002), pp. 240–242; one must be of course very careful about such
claims of dependence as Remke Kruk points out in her review (2002), p. 651f.
[28] Hees (2002), pp. 247–249.
[29] Hees (2002), p. 239.
[30] Munich, Cod. arab. 464, fol. 185v–fol. 197r. For a table, comparing Qazwīnī's
impressive list with other sources dealing with birds, please see Hees (2002), p. 136f.,
where it becomes visible that Qazwīnī made an exceptional effort to be as com-
prehensive as possible in this regard.
[31] Munich, Cod. arab. 464, fol. 192v, 9–fol. 193r, 4. Concerning the eagle,

managed to make the scattered material on the eagle more accessible to his reader.[32]

In the same manner Qazwīnī uses Ibn Sīnā's *al-Qānūn fī l-ṭibb*. This is most evident in his entry on the frog.[33] He derives information from Ibn Sīnā's section on the frog in making simple remedies as well as from his treatise on 'Potions from animal poison'.[34] Therefore, Qazwīnī must have studied this entire medical work thoroughly. He collected information from different parts of this work and then assembled it under the appropriate rubric.[35]

We can observe how Qazwīnī was able to shape an integral whole out of the collected quotations. His description of the eagle for example is well structured. First, Qazwīnī assembles traditions about its hunting behaviour, then on the age of the eagle, and finally on some special behaviour by young eagles. He gave special care to the lucidity of his text.[36]

No doubt, Qazwīnī was successful in collecting and rearranging the results of his research.

Fifth Criterion

The author of an encyclopædia seeks to make his book as user-friendly as possible. To facilitate the use of his book, the author can include one or more of the following: a detailed table of contents, a clearly marked hierarchical structure, numerical or alphabetical lists, introductions, summaries, glossaries or cross-references.[37] Qazwīnī uses some of these devices in his text.

Qazwīnī quotes from Jāḥiẓ the following information: catching of the black wolf (V 550), pursuit of the armies (VI 322 and VII 21), telling by the huntsmen (VI 407), Iraq-Yemen (VII 37), feather pipes (VII 25), saying by the Beduins (VII 24). The numbers in brackets indicate volume and page of the edition by 'Abd as-Salām Muḥammad Hārūn, Cairo, 1385/1965–1389/1969, of the *Kitāb al-ḥayawān*. For a full discussion of Qazwīnī's presentation of the eagle, please refer to Hees (2002), pp. 151–176.

[32] Cf. Hees (2002), pp. 243; 251.

[33] Munich, Cod. arab. 464, fol. 76r, 23–fol. 76v, 23. For a full discussion of Qazwīnī's presentation of the frog, please refer to Hees (2002), pp. 189–204.

[34] Ibn Sīnā, *al-Qānūn fī l-ṭibb* (Būlāq, 1294 H., repr. Beirut: Dār Ṣādir, n.d.), vol. III, p. 232f., and vol. I, p. 466.

[35] Cf. Hees (2002), p. 248.

[36] Cf. Hees (2002), p. 170.

[37] Ribémont (1987), p. 58: "For this reason we can measure the evolution of the encyclopædic tradition by the writer's use of more and more indices, alphabetical

He presents a detailed table of contents, *fihrist*, filling two and a half pages.[38] This table of contents illustrates the hierarchical structure of the book, divided into two main parts, *al-maqāla al-ūla* and *al-maqāla al-thāniya*; subdivided into numbered subjects, *al-nazar al-awwal*, *al-nazar al-thāni*. These are further divided into sections, *anwāʿ*, and sub-sections, *fuṣūl*, that are alphabetically enumerated, *alif*, *bāʾ* and so on. The investigation about the human being has additional structuring features, namely divisions, *aqsām*, subdivided into kinds, *aṣnāf*.

These pages show another aspect of the user-friendliness of this text, namely, the optical design that marks the hierarchical structure through framed, particularly large and bold headings. Beneath these come subheadings in a slightly smaller script, written in red ink. Within the body of the text, new sections and quotations are indicated by a word written in an elongated script, in most cases in red ink. This way of highlighting the headings is used throughout the Wāsiṭ manuscript, which was inscribed during the lifetime of Qazwīnī in the city he lived in.[39]

For the subdivision of the single subjects, Qazwīnī chooses to arrange them in hierarchical order: in the case of the animals he begins with the "most noble", the beasts of burden, ending with the "less noble", the insects. Most of these subdivisions are arranged in alphabetical order. Such a system allows the user of the book to find the information desired as quickly as possible.

In addition to these practical features, Qazwīnī writes introductions for each and every new section of investigation.[40] He gives an overview of the following content including a definition of the living species to be discussed.

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tables, etc." A nice example of an analysis of a work along these lines is: Maaike van Berkel, 'The Attitude towards Knowledge in Mamlūk Egypt: Organisation and Structure of the *Ṣubḥ al-aʿshā* by al-Qalqashandī (1355–1418),' in: Peter Binkley (ed.): *Pre-Modern Encyclopædic Texts. Proceedings of the Second COMERS Congress, Groningen, 1–4 July 1996* (Leiden, 1997), pp. 159–168. She argues that the *Ṣubḥ al-aʿshā* was meant as a manual, a work of reference, intended for consultation, because al-Qalqashandī uses the above-mentioned features in order to facilitate the use of his book.

[38] Munich, Cod. arab. 464, fol. 7v–fol. 8v.
[39] Cf. Hees (2002), pp. 83–85.
[40] This is the case for the animals in general, *fi l-ḥayawān*, Munich, Cod. arab. 464, fol. 144r, 9–fol. 144v, 10; but also for each animal category, such as the beasts of burden, *ad-dawābb*, fol. 168v, 21–fol. 169r, 8; cattle, *an-naʿam*, fol. 171r, 4–23; wild animals, *as-sibāʿ*, fol. 175v, 15–25; birds, *aṭ-ṭayr*, fol. 185v, 17–fol. 186r, 14;

Sixth Criterion

In order to help the reader in visualizing the condensed basic knowledge, the author of an encyclopædia uses examples, narrations and illustrations.[41] This criterion for the literary genre 'encyclopædia' is clearly present in Qazwīnī's text. For example, in order to illustrate the cleverness of young eagles more vividly, he contrasts them with more familiar domesticated birds.[42]

Qazwīnī's narration of stories achieves a lively style of presentation. Under the rubric frog, for example, he narrates an orally transmitted anecdote on an emir from Mosul complaining about the croaking of the frogs in his pond, a story that ends with a surprising solution to this problem.[43]

Of course, the illustrations are the most obvious visual feature of the work. In the Wāsiṭ manuscript, 44 drawings and 467 coloured illustrations enrich the text.[44] The illustrations make the text more colourful, and more importantly, they give supplementary information and are indeed at times more lucid than the text itself. The animal illustrations for example substitute the description of the animal in the text, which is missing in most cases. This is how the illustrations facilitate the precise identification of the creature in question, thus bestowing upon the work more scientific value.[45]

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insects, *al-hawāmm wa-l-hasharāt*, fol. 197r, 21–fol. 197v, 13; and the water animals, *hayawanāt al-māʾ*, fol. 72r, 4–15. For a discussion of the general introduction about the animals, please see Hees (2002), pp. 144–150.

[41] Meier (1984), p. 471; 480f., concluding, p. 481: "Der Bestandteil Illustration entspricht, insgesamt gesehen, dem Werktyp Enzyklopädie"; Ribémont (1987), p. 52: "His desire is not to incorporate his knowledge into a narrative structure, or even a discourse that is both didactic and logical, whose aim is to demonstrate (in an almost mathematical or philosophical way). The didacticism of the author manifests itself only through example, illustration and images."

[42] Munich, Cod. arab. 464, fol. 192v, 24. In this case, Qazwīnī took the notion of the young eagles who do not move in their nest high up in the mountains and therefore never fall out, from Jāḥiẓ, but his further comment: "If one would put an ordinary bird's young one like a chicken or a partridge in a prey bird's nest, it would immediately crash down", is not to be found in the text of Jāḥiẓ.

[43] Munich, Cod. arab. 464, fol. 76v, 14–17. Qazwīnī reported that it was recommended to the emir that he should cover the pond with a huge cooking pot. Note, that Qazwīnī lived and studied in Mosul for about ten years during the 1220s. Cf. Hees (2002), pp. 49–66. For another example of such orally transmitted anecdotes, see fol. 184v, 2–10.

[44] For a study on the style of these illustrations see for example Hans-Caspar Graf von Bothmer, *Die Illustrationen des "Münchener Qazwīnī" von 1280. (Cod. Monac, arab. 464). Ein Beitrag zur Kenntnis ihres Stils* (München, 1971).

[45] Cf. Hees (2002), p. 346f.; Syrinx von Hees and Edward Schwartz, 'The bird

Seventh Criterion

In order to convince the readership of the credibility of the offered
basic knowledge, it is important for the author of an encyclopædia
to stress his faithfulness in dealing with his sources and his com-
mitment to tradition.[46] He has to quote authorities and formulate
his sentences as definite statements that need not be proved any-
more.[47] In this matter also, Qazwīnī's text corresponds to the expec-
tations of a user of an encyclopædia. Throughout his text he employs
citations of well-known authorities that are introduced by "he said",
qāla. In the Wāsit manuscript, a technique in the calligraphy is used
to indicate the beginning of a quotation: the letter *qāf* in the word
qāla is consistently written longer than usual. In the case of the ani-
mal description, the authorities mostly quoted are Ibn Sīnā (named
48 times), Bālīnās, the author of *Kitāb al-Khawāṣṣ* (31 times), and al-
Jāḥiẓ (26 times).[48] Qazwīnī also mentions authorities he did not con-
sult directly, but had quoted already in his sources. ʿAbdallah Ibn
ʿUmar as a ḥadīth-authority,[49] or more general authorities like the
hunters, the Bedouins or the Indians, as well as the names of poets
with their poems are derived from Jāḥiẓ and cited in Qazwīnī as
direct sources.[50]

The style of Qazwīnī's text corresponds to clear encyclopædic
statement sentences. He strives with great effort to be unambiguous
about his subjects, thus consciously avoiding disputed contents. For
instance his sources describe in different ways how the eagle is able

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illustrations of a thirteenth-century Arab natural history', in: *Interdisciplinary Science
Reviews* 29,3 (2004), pp. 231–247.

[46] Meier (1984), p. 477: "Seine Verbindlichkeit gewinnt das dargestellte Wissen
erst durch seine Authentizität, d.h. durch die authentische Wiedergabe der Lehre
der Fachautoritäten, womöglich der *inventores* jedes Wissensgebietes. Traditions-
gebundenheit und Quellentreue der Enzyklopädie sind also Tugenden, nicht Mängel."

[47] Ribémont (1987), p. 52: "... the encyclopædic discourse is characterised by
the presence of certain elements. These include, first of all, continual references and
quotations which make the text seem like an *accessus ad auctores*, as shown by the
recurrence of expressions such as *ut dixit*, "sicomme dit", or the appearance, often
abrupt, of the name of an *auctor* followed by a quotation. Furthermore, the ency-
clopædist's mode of expression is that of statement and definition."

[48] For a precise list of these occurrences in Qazwīnī's text, please refer to Hees
(2002), p. 247, fn. 494; p. 248, fn. 499; and p. 242, fn. 474.

[49] Fol. 76r, 25. For a commentary, see Hees (2002), p. 195. Another example
would be the naming of the anonymous *Ṣāḥib al-filāḥa*, fol. 192v, 11, a quotation
most probably taken over from Ibn Qutayba, cf. Hees (2002), p. 167.

[50] See Hees (2002), p. 243 with fn. 476.

to catch a hare or a fox. Qazwīnī avoids details and restricts his statement to the surely established fact, that "it hunts small wild animals like hares and foxes".[51] Qazwīnī tries not to digress from the main subject. He avoids citing information which might be equally valid in entries on other animals, as in the case of the eagle.[52]

It became evident that authorities are abundant in Qazwīnī's work and that he tries to formulate his sentences as clear and undisputed statements, avoiding any possible confusion or ambiguity, assuring his reader of the credibility of the offered knowledge.

Eighth Criterion

The encyclopædia is meant to aid the general cultural memory.[53] This idea is expressed by Qazwīnī in his preface, where he says: "I wanted to write down (the astonishing peculiarities) to make them lasting. I detested to forget them lest they would be lost".[54]

Ninth Criterion

Both Christel Meier and Bernard Ribémont underline the central position of natural history in the Western medieval works they studied.[55] These encyclopædias with a special focus on nature were abundant during the 13th century.[56] They present the res naturales as God's creation. The purpose of writing theses encyclopædias was to guide

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[51] Munich, Cod. arab., fol. 192v, 9. For a detailed reference to the other sources that were compared with this quotation (Aristotle; Jāḥiz; Ibn Qutayba; Ibn Sīnā; Shahmardān), please see Hees (2002), p. 166, fn. 129.

[52] See Hees (2202), p. 167f. In another case, Qazwīnī notes the well-known tradition of the hare changing his sex yearly, but ignores the disputed opinion, that this might be the way the hares reproduce themselves. See Hees (2002), pp. 177–179.

[53] Ribémont (1987), p. 53: "The encyclopædic text is a locus memoriæ . . ."; p. 58.

[54] Munich, Cod. arab., fol. 2r, 26f.

[55] Meier (1984), p. 479: ". . . die elementare Form der Enzyklopädie, die nur den Kosmos, die natürliche Welt darstellt"; p. 487: ". . . die Kosmographie (die unabdingbar in eine Enzyklopädie gehört)"; Ribémont (1987), p. 53: "Any medieval encyclopædia presents knowledge . . . with a particular orientation: to present the properties of res naturales, that is to say, practically all the elements of Creation, elements that are always considered as coming from the will of God."

[56] Cf. Jacques Le Goff, 'Pourquoi le XIIIᵉ siècle a-t-il été plus particulièrement un siècle d'encyclopédisme?', in: Picone (1994), pp. 23–40.

the reader through the study of nature to the knowledge of God.[57] This corresponds to Qazwīnī's main concern. Qazwīnī concentrates in his work on the presentation of natural history devoting most of his attention to the description of the Three Natural Kingdoms. He reports how he "passionately fell in love with the wonderful works of God the Sublime in his creations and with the extraordinary creative ability in his creatures".[58] He is convinced that his book on nature as God's creation is able to lead the reader to the knowledge of God. This is reflected in his words: "Whenever one ponders over (the physical perceptible creations of God), one gains through God right guidance, certainty, enlightenment and wisdom";[59] or: "Therein lies enlightenment and remembrance for each repentant servant of God";[60] completing his discussion of the harmonious functions of the human organs he says: "Neither the creator nor his devices are to be seen. Glory be to Him, how great he is and how evident is his proof."[61] Thus nature becomes a convincing proof of God's greatness. This use of the study of nature is expressed throughout the whole book.[62]

With this investigation of the distinguishing features of the encyclopædic genre, I hope to have made evident that the book *'Ajā'ib al-makhlūqāt* by Zakariyyā' al-Qazwīnī is a full-fledged encyclopædia in medieval terms. His work fulfils to a large extent the criteria developed by medievalists for the literary genre 'encyclopædia'. Arguably this book is more of an encyclopædia than *Kitāb Shifā' an-nafs* by Ibn Sīnā.[63] While the latter text has received its due attention from schol-

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[57] Meier (1984), p. 474: ". . . das Naturstudium als Weg zur Gotteserkenntnis"; p. 488: "die Enzyklopädie ist Hilfe zum Bücherlesen und sie führt zur Gotteserkenntnis".

[58] Munich, Cod. arab. 464, fol. 1v, 16f.

[59] Munich, Cod. arab. 464, fol. 2r, 4f.

[60] Munich, Cod. arab. 464, fol. 3r, 18.

[61] Munich, Cod. arab. 464, fol. 5r, 8.

[62] Another example would be Munich, Cod. Arab. 464, fol. 3v, 22: "From the earth germinates no leaf without that therein lies one or more profit, that man's intellect knows without understanding". His detailed description of the medical, cosmetic and hygienic properties of the animal parts and of the plants, make it very clear and especially graphic to the reader, how great the profit of God's created things is to him. Qazwīnī offers this possibility of interpretation through his outstanding combination of natural history with medicine. Cf. Hees (2002), p. 240.

[63] Compare the argument put forward by Charles E. Butterworth, 'In what sense is Averroes an encyclopedist?', in: Stefen Harvey (ed.): *The Medieval Hebrew Encyclopedia of Science and Philosophy* (Leiden, 2000), pp. 99–119.

ars discussing Arabic encyclopædias, the former has been largely ignored by scholars.

With regard to the content, the text is no doubt an encyclopædia of natural history. It seems to be the first encyclopædia of natural history in Arabic. However, Qazwīnī had the possibility to follow Persian models with special emphasis on natural history. Živa Vesel treated four Persian encyclopædias on natural history in her study on Persian encyclopædic writing.[64] Three of these works were composed in the 12th century prior to Qazwīnī's ʿAjāʾib al-makhlūqāt. In comparison to these Persian encyclopædias Qazwīnī's presentation of God's creation stands out for its extraordinarily clear hierarchical structure. The system he used follows closely the Aristotelian system of nature as developed in the parts on natural history, al-ʿilm aṭ-ṭabīʿī of the philosophical encyclopædias.[65]

Qazwīnī's choice of title for his encyclopædia, ʿAjāʾib al-makhlūqāt, The Wonders of Creation, refers to nature as a convincing wonder of God. It is a commonly expressed view by some authors that the term ʿajāʾib carries the meaning of fantastic and unrealistic, and consequently is conceived of as belonging to an unscientific context. Contrary to this view, I firmly believe that the combined notion of ʿajāʾib al-makhlūqāt indicates nothing unrealistic, but refers to living beings, that is to say to nature, as a sign of God.[66] This should not be seen to disqualify the serious research that went into the work, nor the accessibility of the work to readers of the time.

Classifying the work ʿAjāʾib al-makhlūqāt as an 'encyclopædia' greatly helps in understanding the purpose of this book better and to describe its position and function in Arabic literary history. There is no need anymore for dismissive phrases such as "there is nothing original in this work", "it is just a compilation", "it disregards science", "it deals only with learning, not with science", "it is a typical example of the decadence of Arabic literature". When we understand Qazwīnī's work as an encyclopædia, it becomes clear that his purpose was to transmit basic knowledge drawn from authoritative specialized works and this is what he actually did. Thus, his purpose was not to be

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[64] Živa Vesel, *Les encyclopédies persanes. Essai de typologie et de classification des sciences* (Paris, 1986), pp. 27–34; 46f.

[65] See Vesel (1986), p. 46f.; Hees (2002), pp. 103–109.

[66] For a full development of this argument, see Syrinx von Hees, 'The Astonishing: a critique and re-reading of ʿAjāʾib Literature', in: *MEL* 8,2 (2005), pp. 101–120.

original, but to provide a good compilation of verified information, offered in a clear and intelligible structure. The purpose was to offer a learning tool for his readers. It is this didactical transposition that Qazwīnī mastered in an exemplary manner. In this way he did not disregard science, but made scientific knowledge available for a broader public.

For whom did Qazwīnī write his book? Who actually used such organized compendia of basic knowledge? Is it possible to read such a systematic encyclopædia from beginning to end with pleasure? Could it be used to study the material in a systematic way? Or, was it specifically meant to be used as a reference work? Until now information on the history of the reception of ʿAjāʾib al-makhlūqāt and similar works is missing. Such an investigation would enhance our understanding of pre-modern encyclopædias. I don't want to jump to conclusions concerning the reception of ʿAjāʾib al-makhlūqāt, but it is remarkable and worth mentioning that a large number of illustrated and un-illustrated manuscripts are preserved to the present day. The work ʿAjāʾib al-makhlūqāt was translated into Persian and Ottoman Turkish. This testifies to the high popularity of Qazwīnī's encyclopædia on natural history. The readership must have been relatively huge. The intention of the author of such a general work on 'scientific subjects' was not to replace the specialized literature on which the author based his work. It was directed to a broad, non-specialized readership. Students could use such a book to get a first overview of the material, scholars of all specialties could profit from such a general reading and most probably literates who were not engaged in research professionally, could consult such a book. The existence of an encyclopædic text such as this one is itself testimony to a broad readership. In any case, a book addressing a large number of learned people should not be taken as a sign of the decadence of the Arabic-Islamic sciences.