

The Development of Early Qur'anic Manuscripts: A Diachronic Perspective

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Abstract

This study explores the diachronic development of early Qur'anic manuscripts, situating them within their historical, material, and artistic contexts. Employing palaeographical, codicological, and comparative approaches, it examines the evolution of script forms and manuscript conventions across the formative centuries of Islam. By analyzing key codices such as the Ṣan'ā' 1, Codex Parisino-petropolitanus, the Birmingham Qur'ān, the Topkapi Manuscript, and the Samarkand Qur'ān, the research highlights shifts in writing styles, orthographic practices, and diacritical systems that shaped the Qur'ān's early written tradition. The study also integrates scientific tools—including radiocarbon dating, high-resolution imaging, and digital encoding (TEI/XML, IIIF)—to contextualize these artefacts in their chronological and geographical frameworks. Findings suggest that early Qur'anic manuscripts were not only transmitters of sacred text but also cultural products reflecting broader intellectual, political, and aesthetic transformations in the early Islamic world. The paper underscores the need for continued interdisciplinary investigation combining material science, digital methods, and classical manuscript studies to enrich our understanding of the Qur'ān's textual and visual heritage.

Keywords: *Early Qur'anic manuscripts, palaeography, codicology, orthography, diacritical practices, manuscript studies, digital humanities.*

Introduction

In the study of Qur'ānic manuscripts, several closely related yet distinct terminological domains are employed, whose precise comprehension is indispensable for rigorous scholarly analysis. Codicology (*'Ilm al-Maṣāḥif*) is the discipline concerned with the material constitution of manuscripts, encompassing writing implements, binding structures, paper or parchment substrates, and the arrangement of quires and gatherings, focusing more on the *book as a physical object* than on its textual content (Déroche, 2006, pp. 15–22). Script typology (*Rasm-shināsī*) entails the classification and identification of script styles and sub-styles, based on parameters such as letterform morphology, proportional systems, angularity, and ornamental features, thereby organizing writing systems into discrete typological categories (Blair, 2006, pp. 101–106). Palaeography (*'Ilm Taḥārīr al-Qadīmah*) investigates the historical development of scripts, scribal habits, the material context of writing, and the determination of chronological and geographical provenance, thus illuminating not merely identification but the broader historical matrix within which scripts evolved (Gaur, 1992, pp. 112–118). Orthography (*'Ilm al-Rasm*) examines the principles governing the spelling of words, conventions of graphemic representation, and the use of diacritical marks or vowel signs, focusing on how linguistic forms are visually encoded. A particular sub-branch, Uthmanic orthography (*'Ilm Rasm 'Uthmānī*), addresses the specific orthographic conventions adopted in the canonical codices attributed to Caliph 'Uthmān ibn 'Affān, such as elision and augmentation of letters, word-division practices, and deviations from later standardized orthographies (Nasser, 2012, pp. 30–38). These disciplines are interdependent, and a comprehensive scientific and technical analysis of any Qur'ānic manuscript necessitates a synoptic understanding of all these fields.

Research Statement

This study undertakes a diachronic analysis of early Qur'ānic manuscripts with the aim of reconstructing their formal, functional, and regional trajectories within the first three centuries of Islam. By integrating palaeographical, codicological, and material-scientific evidence with classical Arabic treatises on *khatt* (calligraphy) and contemporary manuscript scholarship, the research seeks to clarify the morphological developments, transitional features, and cultural contexts that shaped the visual formation of the Qur'ān in its earliest written forms. In doing so, it positions the evolution of manuscript typology within the broader history of the Qur'ānic text, its modes of transmission, and its dual role as both a sacred scripture and a symbol of political and artistic identity.

Research Questions

1. What are the defining palaeographic and codicological characteristics of *Ḥijāzī* and *Kūfī* scripts in early Qur'ānic manuscripts, and how can these be systematically classified?

The Development of Early Qur'anic Manuscripts: A Diachronic Perspective

2. How do transitional forms (*semi-Ḥijāzī*, *early Kūfīc*) illustrate the shift from cursive, irregular forms to geometrically rigid calligraphy, and what regional factors influenced this transformation?
3. To what extent do classical Arabic sources on calligraphy (*ʿilm al-khaṭṭ*, *ʿilm al-rasm*) corroborate or contradict the typologies proposed by modern palaeographers such as Déroche, Blair, and Fedeli?
4. How can the integration of material-scientific methods (e.g., C14 dating, multispectral imaging) with palaeographic analysis refine the chronological attribution of early Qur'anic manuscripts?
5. What role did political, cultural, and technological developments in the Umayyad and Abbasid periods play in standardizing Qur'anic scripts and their associated orthographic conventions?

Methodology

The research employs a mixed-method, interdisciplinary approach:

- **Palaeographic Analysis:** Examination of letter morphology, baseline orientation, proportional systems, ductus, and ornamentation across a representative corpus of dated and undated Qur'anic folios (e.g., *Ṣaṇ'ā' 1*, *Codex Parisino-petropolitanus*, *Birmingham folios*, *Topkapi Mushaf*, *Tashkent Qur'ān*).
- **Codicological Assessment:** Analysis of page layout, ruling techniques (or absence thereof), folio dimensions, binding structures, and decorative schema to contextualize scribal practices.
- **Material-Scientific Integration:** Collation of published radiocarbon dating results (Reimer et al., 2020, pp. 889–890), pigment composition studies, and multispectral/RTI imaging data to correlate stylistic features with absolute dating evidence.
- **Textual and Philological Correlation:** Engagement with classical sources such as Ibn al-Nadīm's *al-Fihrist*, al-Dānī's *al-Muqni'*, and al-Qalqashandī's *Ṣubḥ al-A'shā*, alongside modern typologies (Déroche, 1992, pp. 37–45; Blair, 2006, pp. 55–60) to bridge historical theory with extant manuscript evidence.
- **Digital Humanities Tools:** Utilization of IIIF-compliant manuscript repositories and TEI/XML metadata to enable comparative visual analysis of dispersed fragments.

This integrated methodology ensures that the analysis of *Ḥijāzī* and *Kūfīc* scripts is not confined to stylistic categorization but is grounded in a holistic reconstruction of their diachronic development within the intertwined domains of textual history, material culture, and Islamic art history.

Literature Review:

The conceptual foundations for distinguishing *Ḥijāzī* and *Kūfīc* Qur'anic traditions arise from the convergence of classical Arabic codicological discourse and modern palaeographic methodology. Early Muslim bibliographers such as Ibn al-Nadīm in *al-Fihrist* (1871/1997) and al-

Dānī in *al-Muqni‘ fī Ma‘rifat Masāḥif Ahl al-Amṣār* (1988) provided the earliest catalogues of regional *maṣāḥif*, documenting orthographic patterns, scribal conventions, and the dispersion of script types. Al-Sijistānī’s *Kitāb al-Maṣāḥif* (1981) further preserved reports linking the earliest Qur’ānic scripts to the urban centers of Mecca and Medina, where *Ḥijāzī* script—characterized by slanted letterforms, irregular baselines, and minimal diacritic usage—was the norm. This script was optimized for speed and oral validation, reflecting a scribal culture deeply embedded in an oral-aural transmission context (Blair, 2006, pp. 23–28; Fedeli, 2017, pp. 41–47).

Orientalist typologies, pioneered by Michele Amari (1851) and refined by Déroche (1992, pp. 35–42; 2006, pp. 15–22), systematically classified *Ḥijāzī*, semi-*Ḥijāzī*, and early *Kūfic* scripts by analyzing morphology, letter proportions, and baseline orientation. Whelan (2000, pp. 121–126) critiques the geographic fixity of these labels, describing “*Ḥijāzī*” as a modern scholarly construct rather than a contemporaneous designation. Material evidence reinforces this complexity: the Ṣan‘ā’ 1 codex, examined by Sadeghi and Goudarzi (2012, pp. 33–49), exhibits orthographic diversity and textual variants in its lower text, revealing a dynamic and non-standardized scribal environment in the first Islamic century.

Kūfic, emerging in the late first and early second centuries AH, is portrayed in Arabic treatises such as the anonymous *Risāla fī ‘Ilm al-Khaṭṭ* and al-Qalqashandī’s *Ṣubḥ al-A‘shā fī Ṣinā‘at al-Inshā’* (1913–1920) as a perfected formal hand tied to Abbasid patronage and monumental epigraphy. Ibn Muqla’s (d. 328/940) *al-Khaṭṭ al-Mansūb* theory introduced proportional systems based on the *nuqṭa* (dot) as a unit of measure, which would later influence *Kūfic* variants, especially in architectural and ceremonial contexts. Al-Bawwāb (d. 413/1022) refined these principles, introducing a heightened level of precision and aesthetic uniformity that would influence later Qur’ānic scripts. Modern palaeographers such as George (2010) and Blair (2006) note that early *Kūfic* Qur’āns exhibit remarkable geometric balance, often without the aid of ruling, and functioned as both textual carriers and visual emblems of Islamic authority.

The transitional phase between *Ḥijāzī* and *Kūfic*—exemplified in semi-*Ḥijāzī* manuscripts—displays straightened baselines and incipient geometric regularity while retaining cursive or slanted features. Fedeli (2017, pp. 87–94) documents manuscripts where a single folio may integrate both idioms, suggesting a gradual adoption of aesthetic reforms within parallel scriptoria in different regions. This hybridity reflects the expansion of Qur’ānic manuscript production beyond the *Ḥijāz* to Iraq, Syria, and beyond, incorporating regional preferences into the evolving canon of Islamic calligraphy.

Recent advances in material science and digital humanities have transformed the study of these scripts. Radiocarbon calibration curves (Reimer et al., 2020, pp. 773–782), multispectral imaging, and reflectance

The Development of Early Qur'anic Manuscripts: A Diachronic Perspective

transformation imaging (RTI) have enabled precise dating and pigment analysis, correlating palaeographic styles with material chronologies. Metadata frameworks such as TEI/XML and IIIF (IIIF Consortium, 2020, pp. 5–12) facilitate the comparative study of dispersed fragments across international collections. Collaborative projects like *Corpus Coranicum* (Neuwirth, Sinai, & Marx, 2010, pp. 21–38) integrate textual criticism with codicological data, offering an unprecedented platform for diachronic typological analysis.

Together, Arabic classical sources and modern palaeographic research reveal that the study of *Hijāzī* and *Kūfī* Qur'anic manuscripts is not limited to stylistic classification but constitutes a reconstruction of the socio-cultural, political, and technological matrices of early Islam. By combining indigenous scribal theory—from Ibn Muqla's proportional canons to al-Bawwāb's refinements—with contemporary material-scientific techniques, scholarship continues to refine our understanding of the Qur'ān's early visual and material history.

Discussion:

In the scholarly investigation of Qur'anic manuscripts, palaeography occupies a critical and multidimensional position. First, it preserves the material traces of the scribal culture (*ḥaḍārat al-naskh*) of the formative Islamic centuries, allowing the reconstruction of the practices, conventions, and competencies of early Muslim scribes. Second, it provides verifiable empirical evidence for the book history of the Qur'ān, enabling historians to anchor textual narratives in demonstrable manuscript realities ((Déroche, 2006, pp. 15–22; Cellard, 2019, pp. 41–43; George, 2010, pp. 97–104).).

A salient example is the celebrated Ṣan'ā' 1 manuscript, preserved in the Dār al-Makḥṭūṭāt, Yemen. Intensive palaeographic and codicological research on its lower text has revealed crucial insights into the early evolution of the Qur'anic text: the gradual adoption of diacritical marking and vocalization systems, the emergence of specific orthographic conventions, and the changing arrangement of the text on the folio. These findings demonstrate that the earliest codices were not static artefacts but products of a living manuscript tradition, continuously shaped by scribal agency, pedagogical needs, and evolving aesthetic norms, before undergoing the processes of standardization in the later Umayyad and early 'Abbāsīd periods (Sadeghi & Goudarzi, 2012, pp. 351–357; Sadeghi & Bergmann, 2010, pp. 349–354).

Comparative palaeographic work by François Déroche (2009, pp. 65–72) on the *Codex Parisino-petropolitanus* has further illustrated how early scripts—particularly the Hijazi and early Abbasid Kufic—can be situated within a typological continuum, thereby linking visual morphology with chronological and geographical markers. Likewise, Éléonore Cellard's (2019, pp. 112–118) research on ancient Qur'anic manuscripts has shown that the integration of palaeographic analysis with material science techniques (such

as C14 dating and pigment analysis) significantly refines our understanding of the dating and provenance of early Qur'ānic codices.

Thus, palaeography in Qur'ānic studies extends far beyond mere script identification: it is a historical-interpretative discipline that, in conjunction with codicology, facilitates a holistic reconstruction of the Qur'ān's textual and material transmission history. By analysing ductus, baseline consistency, letter proportions, diacritical practices, and material substrates (parchment, ink composition, ruling patterns), palaeography answers the critical questions of *when*, *where*, and *how* a manuscript was produced—questions that are central to any comprehensive history of the Qur'ānic text (Déroche, 2006, pp. 21–27; George, 2010, pp. 45–52).

According to Islamic tradition, the Qur'ān constitutes the final divine revelation (*waḥy*) from God, delivered to the Prophet Muḥammad ﷺ through the angel Jibrīl (Gabriel). During the Prophet's lifetime, these revelations were preserved both orally and in written form by him and his Companions. Subsequently, during the caliphate of Abū Bakr al-Ṣiddīq (r. 11–13 AH/632–634 CE), the Qur'ān was collected into a codex, and during the caliphate of 'Uthmān ibn 'Affān (r. 24–35 AH/644–656 CE), it was standardized into an authoritative *muṣḥaf*, reportedly completed around 30–25 AH/650 CE (al-Suyūṭī, 1974/1998, pp. 141–143; al-Zarkashī, 1957, pp. 233–236).

In Western academic discourse, however, this narrative has been critically examined in light of material evidence. Scholars such as Puin (1996, pp. 33–35) and Wansbrough (1977, pp. 44–47) have argued that the final canonization of the Qur'ānic text occurred later than the Islamic tradition asserts, pointing to the relatively late compilation of early Islamic literary sources (especially ḥadīth) — approximately 150–200 years after the Prophet's death — and to textual divergences present in certain early manuscripts, notably Ṣan'ā' Manuscript DAM 01-27.1. Muslim scholars have generally rejected these revisionist claims, contending that they are incompatible with both palaeographic and codicological evidence (Sadeghi & Goudarzi, 2012, pp. 23–28; Déroche, 2009, pp. 78–84).

Contemporary projects such as Corpus Coranicum report that more than 60 discrete Qur'ānic manuscript fragments, comprising over 2,000 folios (approximately 4,000 pages), dated to before 800 CE (i.e., within 168 years after the Prophet's death), have been documented (Marx, 2015). Through palaeographic analysis, some of the world's oldest Qur'ānic codices have been identified, not only by their script typology but also through their distinctive scribal and material features. Prominent examples include:

1. **Ṣan'ā' Manuscript DAM 01-27.1** (Dār al-Makḥṭūṭāt, Ṣan'ā', Yemen) — An early Qur'ānic text in Hijazi script, whose lower text preserves readings divergent from the canonical *muṣḥaf* in certain passages (Sadeghi & Goudarzi, 2012, pp. 3–7).
2. **Codex Parisino-petropolitanus** (BnF Arabe 328a) — Preserved in the Bibliothèque nationale de France, this significant early Kufic manuscript

The Development of Early Qur'anic Manuscripts: A Diachronic Perspective

is dated to the late 1st or early 2nd century AH (Déroche, 2009, pp. 35–42).

3. **Birmingham Qur'ān Manuscript** (*Mingana Islamic Arabic 1572a*) – Preserved at the University of Birmingham, this rare Hijazi-script codex has been radiocarbon-dated to 568–645 CE, placing it within or just after the Prophet's lifetime (Small, 2015, pp. 12–15).
4. **Topkapi Manuscript** (*Topkapi Palace Library, MSS. H.S. 44/32*) – Preserved in the Topkapi Palace, Istanbul, this standard Abbasid-era *muṣḥaf* exemplifies mature Kufic calligraphy (Altıkulaç, 2007, pp. 55–62).
5. **Tashkent Qur'ān** (*Samarkand Kufic Qur'ān, Uzbek Academy of Sciences, MS. 114*) – A large-format Kufic manuscript traditionally attributed to the 'Uthmānic codex, though codicological analysis indicates an origin in the late 8th or early 9th century CE (Rezvan, 1995, pp. 57–61; Blair, 2006, pp. 72–74).

The discovery and ongoing scientific and palaeographic study of these manuscripts attest to the considerable geographical and calligraphic diversity of the Qur'anic textual tradition in its earliest centuries. Such diversity provides not only a means for historical verification of the Qur'anic text but also valuable insight into the broader civilizational and artistic heritage of Islam.

This study, therefore, undertakes a detailed examination of the two most significant early Qur'anic scripts – the Hijazi and the Kufic – outlining their respective typologies and identifying analytical distinctions between them, with the aim of facilitating Qur'anic manuscript research for Urdu-speaking scholars.

Early Qur'anic Scripts

An examination of the state of research on early Islamic calligraphy reveals two parallel yet complementary scholarly trajectories. The first concerns the **textual history** of the Qur'ān, including the documentation of *qirā'āt* (variant readings) through digital means. The second focuses on the **material history** of the Qur'ān, engaging in codicological analysis of book production, binding techniques, scribal practices, and sampling methodologies. When these two streams intersect, not only do historical inferences gain robustness, but scientific investigations – such as radiocarbon dating (C14) – also acquire meaningful contextualization (Marx & Neuwirth, 2010, pp. 389–392).

In the formative stage of Islamic calligraphy, two primary traditions stand out: Hijazi and Kufic. The Hijazi script is characterized by slanted letterforms, non-uniform baselines, and a general absence of diacritical points and vowel marks – unless added by later hands. By contrast, Kufic exhibits pronounced horizontal elongation, geometric and angular proportions, and strict baseline alignment. This distinction is not merely visual but also reflects the historical geography of early Islam: in the earliest centres of the Ḥijāz, the

Hijazi style predominated, whereas in Iraq – especially in Kufa – the emergence and refinement of the Kufic tradition intertwined the material manifestation of the Qur’ānic text with evolving aesthetic sensibilities (Blair, 2006, pp. 45–47).

The evolution of the Kufic tradition during the Abbasid period is most comprehensively documented in François Déroche’s seminal work *The Abbasid Tradition* (1992). In this study, Déroche provides an extensive typology of Qur’ānic scripts from the 8th to 10th centuries CE, analyzing codex structures, binding formats, and the sub-typologies of Kufic – particularly floriated/knotted variants and square Kufic tendencies. The following sections will examine in detail the formal, structural, and geographical characteristics of both early scripts, situating them within the wider historical and artistic landscape of early Islamic manuscript culture.

1. The Hijazi Script

The Hijazi script (*al-khaṭṭ al-Ḥijāzī*) is widely recognised as the earliest extant form of Qur’ānic calligraphy, emerging during the formative decades of the 1st/7th century CE. Its designation derives from the geographic locus of the Ḥijāz – encompassing the sacred urban centres of Mecca and Medina. The term “Hijazi” was first employed in the 19th century by Michele Amari, who distinguished between “Meccan” and “Medinan” styles based on a 10th-century manuscript (Amari, 1851, p. 12). In contemporary palaeographical discourse, François Déroche has introduced the more technical classification “Ancient Abbasid Script,” refining the typological parameters for early Qur’ānic writing.

Classical Islamic sources testify to the early diversity of Qur’ānic scripts. Ibn al-Nadīm, in *al-Fihrist*, records the prevalence of *al-mashq* and *al-ma‘qilī* scripts in pre-Abbasid Arabia (Ibn al-Nadīm, 1871/2009). Abū ‘Amr al-Dānī, in *al-Muqni‘*, notes the absence of diacritics in the earliest maṣāḥif and the gradual introduction of vowel marks for pedagogical purposes (al-Dānī, 1968, pp. 33–35). Al-Suyūṭī, in *al-Itqān fī ‘Ulūm al-Qur’ān*, and al-Zarkashī, in *al-Burhān fī ‘Ulūm al-Qur’ān*, likewise emphasise the formative period of Qur’ānic orthography, during which the visual stability of the text was subordinate to oral transmission (al-Suyūṭī, 1974, vol. 1, p. 179; al-Zarkashī, 1957, vol. 1, pp. 235–236).

The Development of Early Qur'anic Manuscripts: A Diachronic Perspective

The Hijazi script's historical context is bound to the religious and socio-political milieu of the nascent Islamic ummah. This was the period in which divine revelation was transcribed, the Qur'ānic text stabilised, and authorised copies prepared – a process corroborated by early Muslim historians and ḥadīth compilers, notably Ibn Abī Dāwūd in *Kitāb al-Maṣāḥif* (Ibn Abī Dāwūd, 1936, pp. 12–15). Surviving exemplars from the early Umayyad period reveal an austere, transitional aesthetic (Déroche, 1992, pp. 37–42).



Recto side of the [Stanford '07 folio](#). The upper text covers [Surah 2](#) (*al-Baqarah*), verses 265–271.

Palaeographic analysis suggests a gradual evolution from pre-Islamic Nabataean and

Arabian epigraphic traditions into a relatively flexible and flowing ductus by the early 1st/7th century (Fedeli, 2017, pp. 55–58). Unlike later Kufic, Hijazi lacks precise geometric regularity, leading some scholars to classify it as a “transitional script.” Alongside *Mashq* and proto-Kufic, Hijazi represents one of the first recognisably Islamic script traditions. Graphically, it is slightly angular with a rightward slant; diacritical points are absent, though occasionally a faint dash above consonants was added to distinguish similar forms (Déroche, 2013, pp. 22–27; al-Dānī, 2001, pp. 11–13).

Its geographic distribution remained primarily within the Ḥijāz – especially Mecca and Medina – with limited diffusion to northern Arabia and Syria. The irregularity and slant characteristic of the style may reflect local scribal conventions prioritising speed over visual uniformity (Blair, 2006, pp. 25–28). Visually, Hijazi is defined by its rightward-slanting letterforms, non-uniform baselines, short letter proportions, limited horizontal elongation, and slender vertical strokes. This minimalist aesthetic underscores the primacy of content over ornament in the earliest Qur'ānic manuscripts (Déroche, 2006, pp. 15–22; Blair, 2006, pp. 30–34).

Today, extant exemplars of the Hijazi script are preserved across major academic and museum collections worldwide. The most celebrated is the Ṣan'ā' palimpsest (*DAM 01-27.1*), housed at the *Dār al-Makḥṭūṭāt* in Yemen. Its lower text exhibits distinctive Hijazi features, and radiocarbon analysis situates it in the mid-1st/7th century (Sadeghi & Goudarzi, 2012, pp. 33–37). Another key example is the Codex Parisino-Petropolitanus, divided among

holdings in Paris and St. Petersburg. Despite its fragmentation, palaeographic analysis firmly associates it with the early Hijazi tradition (Déroche, 2009, pp. 49–56). The Mingana Collection at the University of Birmingham preserves two folios in Hijazi script whose radiocarbon dating (568–645 CE) places them within or immediately after the Prophet Muḥammad’s ﷺ lifetime (Small, 2015, pp. 25–27).

These artefacts hold more than visual significance: they constitute direct witnesses to the textual and codicological evolution of the Qur’ān in its earliest centuries. Early Muslim sources, such as Ibn Abī Dāwūd’s *Kitāb al-Maṣāḥif*, attest to the circulation of muṣḥaf copies in different regional scripts, reflecting a diversity of scribal practices even within the earliest Islamic community.

The classification of Hijazi script remains debated among scholars. François Déroche (1992) proposes that Hijazi should be treated as a “script family,” encompassing multiple sub-styles – some with greater slant and irregular baselines, others with less. Alba Fedeli (2017) identifies transitional scripts between Hijazi and early Kufic, arguing that their evolution was shaped both by aesthetic pressures and the practical demands of rapid transcription. Behnam Sadeghi and Uwe Bergmann (2010) note that the irregularity and lack of diacritics in Hijazi manuscripts indicate a milieu in which readers’ oral training rendered visual vowel indicators unnecessary; thus, what modern observers might perceive as a “visual deficiency” was in fact a testimony to the oral mastery of Qur’ānic recitation in the early ummah.

Collectively, these findings underscore that Hijazi script is not merely a palaeographic category but a living social and religious tradition. It reflects the intellectual, linguistic, and aesthetic priorities of the formative Islamic era and illuminates the processes by which the Qur’ān’s textual form was visually shaped and embedded into the earliest civilisational memory of Islam.

2. The Kufic Script

The Kufic script stands among the most systematised styles of Qur’ānic calligraphy, emerging with a fully recognisable identity by the late 1st/7th and early 2nd/8th centuries. Its nomenclature derives from the city of Kūfa, a prominent intellectual centre in early Islam renowned for its juridical schools and state chancery traditions (Déroche, 1992, pp. 133–140). From its inception, Kufic was not confined to Qur’ānic transcription; it adorned mosques, miḥrābs, coins, and monumental inscriptions, quickly becoming a visual emblem of Islamic civilisation (Blair, 2006, pp. 123–128).

Palaeographically, Kufic evolved out of Hijazi and other early Arabic scripts, adopting a distinct set of geometric principles. By the close of the 1st/7th century, its baseline had become almost perfectly horizontal, letterforms exhibited greater proportional balance, and horizontal elongation became a defining trait. Under the patronage of the ‘Abbāsīd caliphate, Kufic was cultivated not only as the script of the sacred text but also as a principal

The Development of Early Qur'anic Manuscripts: A Diachronic Perspective

element in architectural ornamentation and decorative arts (George, 2010, pp. 57–63; Ibn al-Nadīm, 1970, pp. 9–12).

The core features of the Kufic script include angular and rectilinear letterforms, a pronounced horizontal arrangement, and aesthetic equilibrium (The Metropolitan Museum of Art, 2020). Over time, several sub-styles emerged – such as Square Kufic (*al-kūfī al-murabbaʿ*), Floriated Kufic (*al-kūfī al-muzahhar*), and Knotted Kufic (*al-kūfī al-muʿaqqad*) – each securing a distinct place in the visual culture of Islamic art and architecture (George, 2010). In Western scholarship, the term “Kufic” was first introduced by Jacob George Christian Adler in the late 18th century. Some researchers argue that Kufic is not merely a script, but a calligraphic idiom in which artistry, precision, and ornamental beauty converge most conspicuously (Al-Amin, 2016, pp. 41–45).

Several remarkable exemplars of Kufic survive. The Blue Qurʾān – written in gold ink on indigo-dyed parchment – remains one of the most enigmatic manuscripts in Qurʾānic studies. Scholarly debate continues regarding its date and provenance, with competing attributions to the early Fāṭimid or late ʿAbbāsīd courts (D’Ottone Rambach, 2017, pp. 53–59; al-Maqrīzī, 1998, pp. 212–214). Beyond the Qurʾānic sphere, Kufic’s geometric and ornamental vocabulary influenced medieval European art through the phenomenon of pseudo-Kufic (Bloom & Blair, 2009, pp. 147–150). As Salwā Ibrāhīm Tawfīq al-Amīn observes: “*It is the first script of the Islamic period in which the manifestation of art, refinement, and beauty appears most explicitly*” (Al-Amin, 2016, p. 6). Thus, the Kufic script constitutes a milestone in the visual and calligraphic history of Islamic civilisation.

Distinctive Morphology and Ornamental Evolution of Kufic Script

The primary hallmark of the Kufic script lies in its geometric architecture and angular morphology, characterised by straight strokes, both vertical and horizontal extensions, and a disciplined calligraphic arrangement (Tan, 1999, pp. 34–36; George, 2010, pp. 112–115). In its earliest exemplars, no diacritical marks were employed to differentiate consonants, rendering graphemes such as *bāʾ*, *tāʾ*, and *thāʾ* visually identical (Jazayeri, Michelli, & Abulhab, 2017, pp. 77–79; al-Qalqashandī, 1913/1987, pp. 55–57). From the early 3rd/9th to the early 4th/10th century CE, Qurʾānic manuscripts began to feature sūrah headings in gold ink, often accompanied by marginal *palmette*-shaped vegetal ornaments to demarcate textual divisions (Fraser, 2006, pp. 211–214; al-Ṣafadī, 1962, p. 143).

According to Alain George (2010, pp. 118–121), Kufic manuscripts display an extraordinary uniformity and parallelism in the number of lines per page, despite being executed without any ruling lines – an exceptional feat of scribal precision. One of the most striking exemplars is the Blue Qurʾān, written in gold ink on indigo-dyed parchment, attributed to either the early Fāṭimid or the late ʿAbbāsīd court (D’Ottone Rambach, 2017, pp. 59–62;

Fraser, 2006, pp. 215–219; al-Maqrīzī, 1998, p. 124).

From as early as the 2nd/8th century, ornamental Kufic became a central component of Islamic visual arts, appearing in Qur'ānic headings, numismatics, monumental inscriptions, ceramics, architectural façades, and textiles (Wilson, 1988, pp. 47–50; Ekhtiar, 2015, pp. 112–115). Numismatic inscriptions played a decisive role in refining the script: in 'Abbāsīd coinage, letterstrokes became perfectly straight while curves adhered to geometric circularity (George, 2010, pp. 128–130).

In Persia, the Square Kufic (*al-kūfī al-murabba'*) or *Bannā'ī script* emerged during the 6th/12th century, executed in brick and tile inscriptions adorning religious and civic architecture (Sakkal, 2004, pp. 22–25; Al-Ḥimyarī, 1984, pp. 73–75). Entire façades were sometimes clad with tilework rendering the names *Allāh*, *Muḥammad*, and *Alī* in this angular grid-based format. Moreover, pseudo-Kufic—a stylised imitation of the script—penetrated European art during the Middle Ages and Renaissance, appearing in Christian paintings, decorative objects, and ecclesiastical architecture as an exoticised reference to the Orient (Bloom & Blair, 2009, pp. 105–110).

Distinctive Morphology and Ornamental Evolution of Kufic Script

The primary hallmark of the Kufic script lies in its geometric architecture and angular morphology, characterised by straight strokes, both vertical and horizontal extensions, and a disciplined calligraphic arrangement (Tan, 1999, pp. 54–57; George, 2010, pp. 41–45). In its earliest exemplars, no diacritical marks were employed to differentiate consonants, rendering graphemes such as *bā'*, *tā'*, and *thā'* visually identical (Jazayeri, Michelli, & Abulhab, 2017, pp. 77–80; al-Qalqashandī, 1913/1987, pp. 112–115). From the early 3rd/9th to the early 4th/10th century CE, Qur'ānic manuscripts began to feature sūrah headings in gold ink, often accompanied by marginal *palmette*-shaped vegetal ornaments to demarcate textual divisions (Fraser, 2006, pp. 130–134; al-Ṣafadī, 1962, pp. 221–223).

According to Alain George (2010, p. 45), Kufic manuscripts display an extraordinary uniformity and parallelism in the number of lines per page, despite being executed without any ruling lines—an exceptional feat of scribal precision. One of the most striking exemplars is the Blue Qur'ān, written in gold ink on indigo-dyed parchment, attributed to either the early Fāṭimid or the late 'Abbāsīd court (D'Ottone Rambach, 2017, p. 112; Fraser, 2006, p. 78; al-Maqrīzī, 1998, vol. 2, p. 2038).

From as early as the 2nd/8th century, ornamental Kufic became a central component of Islamic visual arts, appearing in Qur'ānic headings, numismatics, monumental inscriptions, ceramics, architectural façades, and textiles (Wilson, 1988, p. 57; Ekhtiar, 2015, p. 142). Numismatic inscriptions played a decisive role in refining the script: in 'Abbāsīd coinage, letterstrokes became perfectly straight while curves adhered to geometric circularity (George, 2010, p. 48).

The Development of Early Qur'anic Manuscripts: A Diachronic Perspective

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Kufic script first established its distinct identity between the late 1st century AH and the early 2nd century AH in Kufa, a city that had emerged as one of the principal intellectual and literary centres of the Islamic polity. It marked a decisive shift from the irregular structural features of the Hijazi script toward a more regulated, geometric, and aesthetically disciplined visual system (George, 2010, p. 42; Déroche, 1992, p. 35). Scholars widely agree that Kufic functioned both as a visual emblem and as a textual mode. François Déroche (1992, p. 38) has provided a detailed typology and historical trajectory of its development, while Sheila Blair (2006, p. 57) has explored its ornamental and architectural dimensions, and Bloom (2007, p. 64) has illuminated its political and sociocultural significations. In the modern period, Alain George (2010, p. 44) and other researchers have employed digital analytical methods to clarify its proportional systems, scribal pressure dynamics, and regional stylistic variations.

Comparative Study of the Ḥijāzī and Kūfī Scripts

The two earliest and most prominent calligraphic traditions in Qur'anic manuscripts—Ḥijāzī and Kūfī—represent not only the aesthetics of early Islamic scribal practice but also reflect the intellectual, linguistic, and historical priorities of the emerging Islamic civilisation. Both scripts arose from the same religious and cultural milieu, yet they diverged markedly in their visual structure, scribal conventions, and aesthetic orientation. A comparative study of these scripts elucidates the evolutionary transition of Islamic writing during the formative centuries and highlights the socio-cultural and artistic forces that shaped this transformation.

Structural Differences

In Ḥijāzī script, the baseline is irregular and, at times, slightly slanted from right to left. Letter height and width display minimal uniformity, and lines of text often appear slightly staggered. Vertical strokes—such as *alif* (ا) and *lām* (ل)—are thin and relatively short, while descenders (*ḥurūf dhū al-ṭawīl al-suflī*, e.g., *nūn* [ن], *yā'* [ي], *qāf* [ق]) curve downward at their terminal points. These features impart a more cursive (*mursal*) and informal quality to the script (Fedeli, 2017, p. 183). In contrast, Kūfī script is characterised by a perfectly straight and stable baseline, with strict geometric proportionality in letterforms and a pronounced horizontal elongation. Vertical letters such as

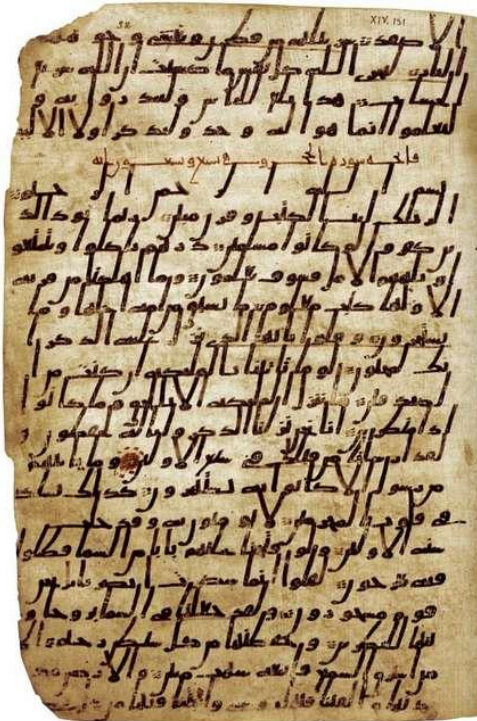
alif (ا) and *lām* (ل) are thick and robust, while the angles of all strokes are sharply defined and conform to predetermined proportional rules.

Hijāzī manuscript – Birmingham Qurʾān, folio Ms. Mingana Islamic Arabic 1572a – Exhibits a non-uniform baseline and slanted letterforms (Déroche, 2009).

ʿAbbāsīd-period Kūfīc folio (British Library Or. 2165) – Features a straight baseline and clearly defined geometric proportions (Blair, 2006).



Seventh-century [Quran manuscript](#) held by the University of Birmingham. Folio 2 recto (left) and folio 1 verso (right). Folio 2 (left) from the end of Chapter 19 to the beginning of Chapter 20. Folio 1 (right) from chapter 18 verse 23 to verse 31



[Codex B. L. Or. 2165 01](#)

[Page from the B. L. Or. 2165](#)

[codex.](#)

Use of *Nuqat* and *A'rāb* (Diacritical Marks & Vowel Signs)

In the earliest *Hijāzī* codices, *nuqat* (diacritical points) and *a'rāb* (vowel signs) are either entirely absent or were added subsequently by a *later hand*. This indicates that in the first century AH, the Qurʾānic text was primarily understood through linguistic training and the oral tradition (*samāʿī riwāyah*), rendering visual cues largely unnecessary (Sadeghi & Bergmann, 2010; al-Dānī, 1997). In the *Kūfīc* tradition, diacritics and vowel marks were also initially sparse; however, from the mid-second century AH during the ʿAbbāsīd period, a systematic application of pointing and full vocalization emerged, especially as the Qurʾān was increasingly recited in non-Arab regions and visual aids became indispensable for. Certain Kūfīc manuscripts display gold or red ink for diacritical points and decorative markers to indicate verse divisions, enhancing both the legibility and the aesthetic

The Development of Early Qur’anic Manuscripts: A Diachronic Perspective

grandeur of the *muṣḥaf*.

Arrangement and Calligraphic Aesthetics

Ḥijāzī manuscripts typically exhibit closely spaced lines, plain margins, and little to no decorative elements in the page layout. The focus of the period was on the transmission of the message and expedience in writing. Pages tend to be relatively small in size, with simple binding (Déroche, 2006, p. 51). By contrast, *Kūfic* manuscripts often feature widely spaced lines, large folios, and ornate marginal decoration. In the ‘Abbāsīd era, many codices included gilded verse markers, vegetal motifs, or geometric frames to demarcate *sūrahs* and *āyāt*—serving both as functional reading aids and as a means of imparting regal, ceremonial gravitas to the sacred text (Bloom, 2007, p. 108).

Aspect	Ḥijāzī	Kūfic
<i>Nuqaṭ</i> and <i>A‘rāb</i>	Minimal or added by a later hand	Colored diacritics and symbolic markers (red/green)
Visual Character	Simplicity and fluidity	Structured lineation, ornamentation, visual symmetry
Reading Facilitation	Reliance on oral tradition	Visual markers and diacritics aid pronunciation

Transitional Scripts and Their Identification

The transition from the *Ḥijāzī* to the *Kūfic* script was a gradual and evolutionary process. In *semi-Ḥijāzī* manuscripts, the *baseline* begins to straighten, yet the letterforms still retain a characteristic slant. Conversely, in *early Kūfic*, geometric proportions become more pronounced, while diacritics and ornamentation remain limited.

Alba Fedeli (2017, p. 23) cites manuscript examples in which both *Ḥijāzī* and *Kūfic* elements coexist on the same *folio*—for instance, a straight baseline accompanied by curved descenders (*dumm*). Such hybrid forms constitute strong evidence that scribes were gradually adopting an emerging aesthetic, a process that unfolded in parallel within various regional *scriptoria* (George, 2010, p. 46).

Summary Table

Aspect	Ḥijāzī	Kūfic
Baseline	Irregular, slanted	Straight and firm
Letter Proportion	Short verticals, limited horizontal extension	Marked horizontal elongation
Angular Quality	Soft, rounded edges	Sharp, geometric angles
Diacritics and Vocalization	Minimal or added later	Sparse in early phase, fully developed later
Page Layout	Simple, undecorated	Wide spacing, ornamental margins
Transitional Forms	Semi-Ḥijāzī	Early Kūfic

Conclusion

The examination of the scripts and material aspects of Qur'ānic manuscripts demonstrates that, in the formative centuries of Islam, the transcription of the Qur'ān reflected not only religious and cultural traditions but was also shaped by political, geographical, and artistic forces. A combined palaeographic and codicological analysis of *Ḥijāzī*, *Kūfic*, and their transitional forms substantiates the view that each script emerged within a distinct temporal and geographical framework. Scientific techniques such as radiocarbon dating (C^{14}) further strengthen these historical reconstructions, while digital tools such as TEI/XML encoding and the International Image Interoperability Framework (IIIF) play a pivotal role in preserving, structuring, and making this knowledge accessible on a global scale (Déroche, 2006; IIIF Consortium, 2020; Reimer et al., 2020).

From an academic perspective, this study underscores that Qur'ānic manuscripts are not merely textual records but also civilizational and historical artefacts—bridging material culture, the aesthetic principles of calligraphy, and the intellectual tradition of Islam. Their study opens new horizons for Islamic art history, historical linguistics, and religious studies (Blair, 2006; Marx, 2015).

For future research, it is imperative to design further interdisciplinary projects that integrate material science, digital humanities, and traditional manuscript studies. Particular attention should be devoted to locating and incorporating underexplored collections and private holdings. Furthermore, the quantitative advancement of manuscript research can be achieved by harnessing modern technologies such as machine learning and computer vision—tools that have already been successfully tested in recent years by certain Western research centres



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