

IRSTI 03.20.00

UDC 52(091)

Idiyev Akbar

Junior Research Fellow, Al-Biruni Institute of Oriental Studies,
Academy of Sciences of the Republic of Uzbekistan (Tashkent, Uzbekistan)

E-mail: akbaridiyev515@gmail.com

ORCID: <https://orcid.org/0009-0009-8153-1228>

AHMAD DANISH'S ASTRONOMICAL AND GEOGRAPHICAL HERITAGE IN WORLD COLLECTIONS: MANUSCRIPTS, CATALOGUE CONCORDANCES, AND THE HISTORIOGRAPHY OF ATTRIBUTION

Abstract

This article reconstructs the worldwide manuscript geography of Ahmad Danish's (1827–1897) astronomical and geographical works and reviews the principal scholarship devoted to their interpretation. The survey distinguishes three levels of evidence: currently verified manuscript records, legacy catalogue or bibliographic references that require reconciliation, and disputed attributions. For holdings of the Al-Biruni Institute of Oriental Studies in Tashkent, the Institute's current electronic catalogue is treated as the latest cataloguing authority whenever its component numbering conflicts with A. B. Vildanova's 1998 printed catalogue or older literature. This rule is especially important for *Istihraj-i tūl va 'arż-i balad*, now recorded electronically as 2247/5. Confirmed evidence outside Tashkent includes *Manāẓir al-kawākib*, MS 760, in Dushanbe, and the Bukhara topographical plan preserved in the P. I. Lerch archive in St Petersburg, although the latter's attribution to Danish remains disputed. Iranian repertoires are treated as bibliographic evidence rather than proof of an Iranian holding, while no shelfmark-level Danish scientific manuscript was verified in the Turkish and major Western catalogues searched for this study. The article also reassesses the contested “Zīj of Ahmad Danish” and maps the main historiographical contributions from manuscript cataloguing, astronomy, geography, and cartographic studies.

Keywords: Ahmad Danish; astronomy; geography; manuscript collections; electronic catalogue; Bukhara; Dushanbe; St Petersburg; attribution; historiography

Идиев Акбар

Ўзбекистон Республикасы Ғылым академиясы Ёбу Райхан Беруни атындағы

Шығыстану институтының кіші ғылыми қызметкері

(Ташкент, Ўзбекистон)

E-mail: akbaridiyev515@gmail.com

ORCID: <https://orcid.org/0009-0009-8153-1228>

ӘЛЕМ ҚОРЛАРЫНДАҒЫ АХМАД ДОНИШТИҢ АСТРОНОМИЯЛЫҚ ЖӘНЕ ГЕОГРАФИЯЛЫҚ МҰРАСЫ: ҚОЛЖАЗБАЛАР, КАТАЛОГТЫҚ СӘЙКЕСТЕНДІРУ ЖӘНЕ АТРИБУЦИЯ ТАРИХНАМАСЫ

Аңдатпа

Мақалада Ахмад Доништің (1827–1897) астрономия және география саласындағы еңбектерінің әлемдік қолжазба қорларында сақталу географиясы қайта құрастырылып, оларды зерттеген негізгі ғылыми еңбектер талданады. Деректер үш деңгейге бөлінеді: қазіргі каталогпен расталған қолжазбалар, қайта салыстыруды қажет ететін бұрынғы каталогтық-библиографиялық мәліметтер және даулы атрибуциялар. Ташкенттегі Ёбу

Райхан Беруни атындағы Шығыстану институтының қолжазбалары үшін институттың қазіргі электрондық каталогы ең соңғы сипаттама ретінде басымдыққа ие. Сондықтан электрондық каталог пен А. Б. Вильданованың 1998 жылғы баспа каталогы немесе ескі әдебиет арасында нөмірлеу қайшылығы болса, мақалада электрондық жазба негізгі нұсқа ретінде алынады. Бұл қағида әсіресе қазіргі каталогта 2247/5 ретінде берілген *Istihraj-i tūl va 'arż-i balad* үшін маңызды. Ташкенттен тыс нақты расталған материалдарға Душанбедегі *Manāẓir al-kawākib*, №760 қолжазбасы және Санкт-Петербургтегі П. И. Лерх қорындағы Бұхара жоспары жатады; соңғысының Донишке тиесілігі даулы. Иран деректері физикалық сақтау орны емес, библиографиялық репертуар ретінде бағаланады, ал Түркия мен Батыстың қаралған каталогтарынан Доништің ғылыми қолжазбасының сенімді шифры табылмады. Даулы «Зиж» мәселесі де жеке қарастырылады.

Түйін сөздер: Ахмад Дониш; астрономия; география; қолжазба қорлары; электрондық каталог; Бұхара; Душанбе; Санкт-Петербург; атрибуция; тарихнама

Идиев Акбар

младший научный сотрудник Института востоковедения имени Абу Райхана Беруни
Академии наук Республики Узбекистан
(Ташкент, Узбекистан)

E-mail: akbaridiyev515@gmail.com

ORCID: <https://orcid.org/0009-0009-8153-1228>

**АСТРОНОМИЧЕСКОЕ И ГЕОГРАФИЧЕСКОЕ НАСЛЕДИЕ АХМАДА
ДОНИША В МИРОВЫХ ФОНДАХ: РУКОПИСИ, КАТАЛОЖНЫЕ
СООТВЕТСТВИЯ И ИСТОРИОГРАФИЯ АТРИБУЦИИ**

Аннотация

В статье реконструируется география хранения астрономических и географических произведений Ахмада Дониша (1827–1897) в мировых рукописных собраниях и анализируется основная научная литература, посвященная этим текстам. Материал разделен на три уровня достоверности: подтвержденные актуальными каталогами рукописи, старые каталожные и библиографические сведения, требующие сверки, и спорные атрибуции. Для фонда Института востоковедения имени Абу Райхана Беруни в Ташкенте приоритет отдается действующему электронному каталогу как наиболее позднему описанию. Поэтому при расхождении нумерации электронного каталога с печатным каталогом А. Б. Вильдановой 1998 г. или более ранней литературой основным считается электронный шифр. Наиболее показателен трактат *Istihraj-i tūl va 'arż-i balad*, ныне зарегистрированный как 2247/5. За пределами Ташкента надежно подтверждается рукопись *Manāẓir al-kawākib* №760 в Душанбе; топографический план Бухары хранится в архиве П. И. Лерха в Санкт-Петербурге, однако авторство Дониша остается дискуссионным. Иранские указатели используются как библиографическое свидетельство, а не как доказательство конкретного хранения. В проверенных турецких и крупных западных каталогах шифр научной рукописи Дониша не установлен. Отдельно рассмотрена спорная атрибуция так называемого «Зиджа Ахмада Дониша».

Ключевые слова: Ахмад Дониш; астрономия; география; рукописные фонды; электронный каталог; Бухара; Душанбе; Санкт-Петербург; атрибуция; историография

Idiyev Akbar

Özbekistan Cumhuriyeti Bilimler Akademisi Abu Rayhan Biruni Şarkiyat Enstitüsü genç
araştırmacısı
(Taşkent, Özbekistan)

E-posta: akbaridiyev515@gmail.com

ORCID: <https://orcid.org/0009-0009-8153-1228>

DÜNYA KOLEKSİYONLARINDA AHMAD DÂNİŞ'İN ASTRONOMİ VE COĞRAFYA MİRASI: YAZMALAR, KATALOG EŞLEŞTİRMELERİ VE NİSPET TARİHYAZIMI

Özet

Bu makale Ahmad Dâniş'in (1827–1897) astronomi ve coğrafya alanındaki eserlerinin dünya yazma koleksiyonlarındaki dağılımını yeniden kurmakta ve bu metinleri inceleyen başlıca bilimsel çalışmaları değerlendirmektedir. Kaynaklar üç güven düzeyinde ele alınmıştır: güncel kataloglarla doğrulanmış yazmalar, yeniden karşılaştırılması gereken eski katalog veya bibliyografik kayıtlar ve tartışmalı nispetler. Taşkent'teki Abu Rayhan Biruni Şarkiyat Enstitüsü yazmaları için Enstitünün mevcut elektronik katalogu en yeni tanım olarak öncelikli kabul edilmiştir. Böylece elektronik kayıt ile A. B. Vildanova'nın 1998 tarihli basılı katalogu veya eski literatür arasında numaralandırma farkı bulunduğunda elektronik kayıt esas alınmaktadır. Bu durum özellikle bugün 2247/5 olarak kayıtlı *Istihraj-i tül va 'arz-i balad* için önemlidir. Taşkent dışındaki kesin örnekler arasında Duşanbe'deki *Manāzir al-kawākib*, nr. 760 bulunmaktadır. St Petersburg'daki P. I. Lerch arşivinde korunan Buhara topografik planı ise Dâniş'e atfedilmiş olmakla birlikte yazarlığı tartışmalıdır. İran repertuarları somut bir İran yazma nüshasını kanıtlamadığından bibliyografik delil olarak değerlendirilmiştir. İncelenen Türkiye ve başlıca Batı kataloglarında Dâniş'in bilimsel eserlerine ait doğrulanabilir bir raf numarası tespit edilememiştir. Makalede ayrıca "Ahmad Dâniş Zîci" olarak yayımlanan metnin tartışmalı nispeti ele alınmaktadır.

Anahtar kelimeler: Ahmad Dâniş; astronomi; coğrafya; yazma koleksiyonları; elektronik katalog; Buhara; Duşanbe; St Petersburg; nispet; tarihyazımı

1. Introduction

Ahmad Danish (1827–1897) is normally approached as a Bukharan reformist thinker, historian, calligrapher, artist, and critic of Manghit political institutions. Yet manuscript evidence shows that astronomy, mathematical geography, calendrical computation, globe-making, and astrological practice formed a substantial and technically distinctive part of his intellectual activity. The problem is not the absence of references to these interests. On the contrary, the literature contains numerous titles and shelfmarks. The difficulty is that those references were produced at different moments in the history of cataloguing and do not always describe the same component of a composite codex. Consequently, a shelfmark repeated in a later article can preserve an obsolete subdivision, merge several works into one unit, or even transfer a neighbouring anonymous text into Danish's oeuvre.

The central methodological decision concerns the Al-Biruni Institute of Oriental Studies. The Institute's current electronic catalogue is a living finding aid that reflects later recataloguing of composite manuscripts. In the case of conflicting component numbers, the electronic description is therefore treated here as the latest institutional authority, while A. B. Vildanova's 1998 printed catalogue and earlier scholarly references are preserved as evidence for the history of description [1–3]. This is not a claim that electronic records are infallible. It is a reproducibility rule: readers should be able to request the manuscript by the identifier currently used by the holding institution.

The article establishes the verifiable corpus, separates current shelfmarks from legacy references, reviews the principal scholarship, and isolates disputed cases, especially the Buhara plan and the so-called *Zij* of Ahmad Danish.

2. Materials, Search Strategy, and Transliteration

The source base combines institutional catalogues, manuscript descriptions, academic publications, and catalogue repertories. For Tashkent, the principal authorities are the Electronic Catalogue of Manuscripts of the Main Fund of the Al-Biruni Institute of Oriental Studies and Vildanova's *Sobranie vostochnykh rukopisei Akademii nauk Respubliki Uzbekistan: Tochnye i*

estestvennye nauki (1998) [1–2]. The electronic catalogue is used for current identifiers; the printed catalogue is indispensable for codicological detail and for reconstructing changes in component numbering. Earlier works by E. E. Bertel's, A. Kakhkhorov and I. Khodjiev, G. P. Matvievskaia, and later scholarship are used to trace the historiography of individual texts [4–7].

For Dushanbe, the survey uses the manuscript citation of *Manāẓir al-kawākib*, MS 760, in specialist metrological and historical literature and the publication activity of the Centre of Written Heritage of the National Academy of Sciences of Tajikistan [8–9]. For St Petersburg, it uses A. R. Muhammadzhonov's 1965 publication of the Bukhara plan together with later scholarship that questioned the attribution [3, 10–11]. Iranian evidence is evaluated through *Aḥmad Monzavī's* union catalogue tradition, which is explicitly designed to describe Persian manuscripts in collections across several countries and therefore cannot be equated automatically with a manuscript physically held in Iran [12]. Turkish manuscript literature and cataloguing infrastructure were searched for Danish's name and titles, with special attention to the danger of homonymous authors and similarly titled astronomical classics [13].

Evidence is assigned one of four statuses: Verified current holding; Verified holding with disputed authorship; Legacy/unreconciled catalogue reference; or Bibliographic reference without a verified physical shelfmark. This distinction is essential for a global survey. It prevents a bibliographic index in Tehran, for example, from being counted as an Iranian manuscript, and it prevents an old Tashkent component number from overriding a later institutional re-description.

Persian and Arabic titles follow an Oxford/IJMES-compatible scholarly romanization with macrons and ' for 'ayn; Persian *izāfa* is rendered -i. Familiar English place names are retained in running prose.

3. Tashkent: the Al-Biruni Institute as the Core Collection

The Al-Biruni Institute remains the principal repository for Danish's exact-science manuscripts. The current electronic catalogue identifies *Manāẓir al-kawākib* under inv. 2144. Older bibliographies and manuscript lists have associated the same title with additional numbers, including 2941, 459, and 5259. Those legacy numbers are valuable clues, but they cannot all be counted as independent current witnesses without item-by-item reconciliation. The problem is visible in inv. 459: Vildanova's description of 459/1 assigns the astronomical notes to Sayyid Mir Siddiq, pen-name Hishmat, a student of Danish in astrology, rather than to Danish himself [2]. Thus an older bare reference to "459" does not establish a Danish copy of *Manāẓir al-kawākib*.

The strongest geographical manuscript in the current electronic catalogue is *Istihṛāj-i ṭūl va 'arż-i balad*, 'The extraction/determination of the longitude and latitude of a locality'. It is now catalogued as 2247/5. The electronic description records a Persian autograph dated Shawwāl 1293/October–November 1876, occupying fols. 55a–74a, twenty folios in total, written in *nasta'liq* with twenty-five lines per page. The text is directly relevant to mathematical geography because *ṭūl* and *'arż* are geographical longitude and latitude, and the manuscript contains coordinate-oriented astronomical terminology. In older scholarship the same work was cited as 2247/IV. The shift is not a trivial typographical variation: it reflects re-segmentation or renumbering of the composite manuscript. For this study, 2247/5 is used throughout because it is the current electronic record [1, 3].

This re-cataloguing also explains a second apparent contradiction. In Vildanova's printed catalogue, 2247/5 is *Tabaddul va taghyīr-i dawlat-hā*, an autograph astrological text, and 2247/6 contains astronomical and astrological notes [2, pp. 115–116]. In the current electronic catalogue, the object identified as *Istihṛāj* has become 2247/5, while the subsequent units are correspondingly recorded as 2247/6 and 2247/7. Rather than choosing between the catalogues as though one described a different physical manuscript, the article treats the electronic catalogue as the latest component map and the 1998 catalogue as the historical description that documents the earlier sequence.

The globe tradition is represented by *Risāla dar ‘ilm-i kura / Risāla fi a’ māl al-kura*. The current electronic catalogue confirms 2247/1 and 5867/1. Vildanova’s printed catalogue describes 2247/1 as an autograph composed in 1287/1870–71, structured in forty-one chapters and devoted to the construction and use of celestial and terrestrial globes; it also records later copies under 5867/1, 465/2, and 466/2 [2]. Because the current electronic catalogue has been independently matched in this project only for 2247/1 and 5867/1, the latter two printed-catalogue witnesses are retained here as legacy verified descriptions rather than silently promoted to current electronic records.

Planetary calculation is represented securely by *Ta’dīl-i khamṣa-yi mutaḥayyira*, current electronic inv. 2362/2. Vildanova likewise attributes 2362/2 to Danish and dates completion to Ramadan 1300/July–August 1883. In the same codex, 2362/3 is described as Danish’s autograph *Ta’dīl al-shams dar burūj*, while 2362/1 is explicitly anonymous astronomical tables appended to Danish’s autographs [2, pp. 115–116]. The distinction directly corrects secondary literature that has cited ‘2362/I’ generically as Danish’s astronomical tables. Where the electronic catalogue and the printed catalogue agree on 2362/2, the attribution is strong; where only an old whole-codex number survives in the literature, it must be treated cautiously.

The printed catalogue also records 5095/1, *Jadval-i sā’āt-i ṭulū’ va ghurūb-i shams*, and 5095/2, *Jadval-i ikhtiyārāt-i qamar dar burūj*, as Danish autographs [2, p. 114]. It further records the 1299–1300 AH calendar under 5095/3 [2, p. 154]. These entries remain part of the verified 1998 institutional corpus, although their current electronic subdivisions were not independently rechecked in this survey.

Table 1 – Al-Biruni Institute holdings and catalogue concordance

Work	Shelfmark	Evidence status	Comment
Manāẓir al-kawākib	2144	Current electronic record	Legacy literature also cites 2941, 459, 5259; not all reconciled
Istihraj-i ṭul va ‘arż-i balad	2247/5	Current electronic record; autograph, 1293/1876	Older literature: 2247/IV; printed 1998 sequence differs
Risāla dar ‘ilm-i kura	2247/1; 5867/1	Current electronic records	Printed catalogue also describes 465/2 and 466/2
Ta’dīl-i khamṣa-yi mutaḥayyira	2362/2	Electronic and printed catalogues agree	Autograph; Ramadan 1300/1883
Ta’dīl al-shams dar burūj	2362/3	Printed catalogue verified	Autograph; current subdivision not independently rechecked here
Jadval-i sā’āt-i ṭulū’ va ghurūb-i shams	5095/1	Printed catalogue verified	Autograph; 1296/1878–79
Jadval-i ikhtiyārāt-i qamar dar burūj	5095/2	Printed catalogue verified	Autograph; 1296–1299/1878–82
Tabaddul va taghyīr-i dawlat-hā	2247/6	Current electronic sequence	Printed catalogue had this as 2247/5
[Astronomical draft / notes]	2247/7	Current electronic sequence	Printed catalogue had notes as 2247/6
[Astronomical tables]	2362/1	Anonymous in printed catalogue	Must not be automatically attributed to Danish
[Astronomical notes by Hishmat]	459/1	Attributed to Hishmat	Evidence of Danish’s teaching milieu, not his authorship

4. Dushanbe: Manāẓir al-kawākib and its Modern Publication

The most securely documented non-Tashkent astronomical manuscript is preserved in Dushanbe. Specialist literature cites Ahmad b. Mir Nasir b. Yusuf al-Hanafi al-Siddiqi al-Bukhari, Manāẓir al-kawākib, manuscript no. 760 of the Institute of Language, Literature, Oriental Studies and Written Heritage of the Academy of Sciences of the Republic of Tajikistan [8]. This is an unusually strong identification because the shelfmark, title, author's expanded name, and repository are all stated together. The record has also entered scholarship on Tajik metrology, where the treatise is used as a source for historical measurement practice.

The institutional successor, the Centre of Written Heritage of the National Academy of Sciences of Tajikistan, publicly lists Ahmad Danish's Manāẓir al-kawākib among its publications and holdings-related scholarly output [9]. A modern edition was prepared in Dushanbe in 2017 with M. Kholov associated with its preparation and commentary. The Dushanbe tradition is consequently important in two senses: it preserves an identifiable manuscript witness, and it has generated a philological publication that made the astronomical text more accessible for modern scholarship.

5. St Petersburg: the Bukhara Topographical Plan and a Disputed Attribution

A second major branch of Danish-related geographical material is cartographic rather than textual. In 1965 A. R. Muhammadzhonov published a topographical plan of Bukhara discovered in the personal archive of the orientalist P. I. Lerch. The plan is executed in coloured inks and watercolour on polished Samarqand paper and measures approximately 52 × 44 cm. Muhammadzhonov's attribution to Ahmad Danish rested on historical context, Danish's known artistic and engineering skills, and comparison of the handwriting with authenticated Danish autographs [3, pp. 31–42].

A later source-critical treatment makes clear why that attribution should not be stated as a settled fact. I. Naimov's 2022 study gives the archival location as the Institute of Oriental Manuscripts of the Russian Academy of Sciences, fond 36, inventory 1, file 17, fol. 1, and explicitly notes that neither the archival file nor the map contains a statement that Danish drew, sold, presented, or otherwise authored the object; the study therefore calls for further expert examination [14, p. 182]. Naimov also records the existence of competing positions in the literature, including the 2021 contribution by Kh. Turaev and the earlier objection associated with O. A. Sukhareva [14, p. 182].

The case is methodologically valuable because it shows that 'geographical heritage' is broader than securely authored manuscripts. The plan belongs in a global survey of Danish scholarship because it has a documented history of attribution, but it must not be counted in the same evidentiary category as an autograph carrying a catalogue attribution. In this article the object is therefore described as a Bukhara plan attributed to Danish, with authorship remaining open to palaeographic, codicological, and archival testing.

6. Iran, Turkey, and Other Collections: What Has and Has Not Been Verified

Iranian bibliographic literature provides an important clue but not, at present, a secure Iranian shelfmark. Aḥmad Monzavī's Fihrist-i nuskhahā-yi khaṭṭī-i Fārsī is a union catalogue designed to aggregate descriptions of Persian manuscripts in libraries across the world, with particular coverage of Iran, Turkey, and Pakistan [12]. The author index links 'Bukhārā'ī, Aḥmad Kalla, son of Mīr Nāṣir' with Manāẓir al-kawākib. This is strong bibliographic evidence that the title circulated in the Persian manuscript catalogue tradition, but the union-catalogue character of the work means that the index entry alone cannot be converted into the claim 'a copy is held in Iran'. Until the underlying entry and its library siglum are identified, the responsible formulation is 'Iranian bibliographic repertory reference; physical repository not yet verified'.

Turkey requires similar caution for a different reason. Turkish libraries preserve vast Persian astronomical collections, and modern surveys describe systematic catalogues for Topkapı, Süleymaniye-related collections, Istanbul University, Köprülü, Kandilli Observatory, and other institutions [13]. Nevertheless, in the catalogue searches carried out for this study no

shelfmark-level record could be securely linked to Ahmad Makhdum Danish's *Manāẓir al-kawākib*, *Risāla dar 'ilm-i kura*, or *Istihraj-i tūl va 'arż-i balad*. Name-searching is particularly hazardous because Ottoman bibliographic records contain other persons named Ahmed Dāniş, and searches for 'kawākib' retrieve classical works such as al-Sufi's *Şuwar al-kawākib* rather than Danish's *Manāẓir*. These false positives were excluded.

Major Western catalogue searches likewise produced many Persian astronomical texts but no shelfmark-level item securely attributable to Danish. This is not proof of absence; it only means those repositories cannot yet be added to the confirmed holding list. *Iranica's* older synthesis—Dushanbe, St Petersburg, and especially Tashkent—thus remains broadly consistent with the presently verified evidence [15].

7. The Contested Zīj: Why Publication Does Not Equal Authorship

The text published or promoted as the *Zīj* of Ahmad Danish is the clearest example of the need to separate publication history from manuscript authorship. In a dedicated article spanning pp. 116–120 of *Mu'arrikh* no. 1 (13), 2018, M. Sh. Kholov first notes that the earlier specialist literature on Danish's astronomy did not identify such a *zīj*, then compares the published text with the Dushanbe manuscript tradition of *Zīj-i Muḥammad Shāhī* associated with Sawai Jai Singh [16, pp. 116–120]. His comparison treats textual coincidence and manuscript evidence, rather than the title of a modern edition, as the decisive attribution criteria.

Accordingly, the present article does not place "*Zīj-i Aḥmad-i Dāniş*" in the secure corpus. It remains a disputed attribution until provenance, authorial statements, textual independence, and its relationship to the Jai Singh tradition are demonstrated through direct manuscript comparison [16, pp. 118–120].

8. Historiography: Studies of the Manuscripts, Astronomy, Geography, and Cartography

The historiography of Ahmad Danish's exact-science heritage is uneven: early studies often worked with composite codices and legacy shelfmarks, while later thematic publications sometimes repeated those identifiers without reconciling them against newer cataloguing. For that reason, the present review uses only publications whose bibliographic identity and pagination can be independently verified in an institutional catalogue, a journal or book facsimile, or an authoritative reference work. Unverified titles are not used as substantive evidence.

The first layer is manuscript identification and the historiography of Danish studies itself. E. E. Bertel's *'Rukopisi proizvedenii Akhmada Kalle'* (1936, pp. 9–28) is among the earliest specialized studies to treat surviving manuscripts as the basis for reconstructing Danish's oeuvre [4, pp. 9–28]. Jiří Bečka's *'Soviet Studies on Ahmad Donish'* in *Archív Orientální* 31 (1963, pp. 483–487) is important for a different reason: it maps the development of Soviet-era research and thus provides an early historiographical overview rather than a shelfmark authority [17, pp. 483–487]. Vincent Fourniau's *Encyclopaedia Iranica* synthesis (1993, pp. 647–649) later summarized the international picture, explicitly noting manuscripts in Dushanbe, St Petersburg, and especially Tashkent and naming *Manāẓir al-kawākib* and the globe treatise among Danish's scientific writings [15, pp. 647–649]. Because it predates current electronic recataloguing, it is used here as a historiographical synthesis, not as the final authority for present-day component numbers.

A second layer consists of specialist work on exact-science manuscripts. G. P. Matvievskaya's study of the mathematical and astronomical manuscripts of the Tashkent Institute (1972, pp. 169–200) places Danish's materials within the wider manuscript history of exact sciences [6, pp. 169–200]. A. Kakhkhorov and I. Khodjiev then devoted a concise specialized article specifically to Danish's astronomical manuscripts (1976, pp. 91–93) [5, pp. 91–93]. G. S. Sobirov and I. Kh. Khodjiev extended the documentary field to Dushanbe collections (1984, pp. 415–420) [7, pp. 415–420]. The decisive catalogue-level consolidation for Tashkent is A. B. Vildanova's 1998 volume: Danish's relevant autograph entries are described on pp. 114–116, while the calendar 5095/3 is recorded on p. 154 [2, pp. 114–116, 154]. This

catalogue is therefore more useful for codicological description and the 1998 component sequence than later general summaries.

A third layer concerns geography and cartography. A. R. Muhammadzhonov's 1965 article (pp. 31–42) introduced the Bukhara topographical plan into scholarship and argued for Danish's authorship through provenance, professional profile, and handwriting comparison [3, pp. 31–42]. The later discussion has become more source-critical. Naimov's 2022 study (pp. 178–182, especially p. 182) records the St Petersburg archival reference and stresses that the archival file and the object itself contain no explicit statement naming Danish as author [14, pp. 178–182]. The historiographical shift is significant: the plan is no longer methodologically equivalent to a catalogued autograph merely because a plausible attribution has a long publication history.

A fourth layer comprises thematic studies of Danish's scientific ideas. Z. A. Akhmedova's 'Astronomicheskie vzgliady Akhmada Donisha' (2018, pp. 44–46) is a short synthesis of his astronomical views [18, pp. 44–46]. N. Karieva's study of natural-science ideas (2019, pp. 110–117) is broader and useful for connecting astronomy, geography, cartography, and manuscript references, although its registration numbers must be checked against current cataloguing [19, pp. 110–117]. B. Y. Egamov's 'Ahmad Donish: Geograph and Traveller' (2021, pp. 533–543) foregrounds geography and travel and discusses the Bukhara plan; however, the author himself characterizes the article as general and preliminary, so it is used here for thematic framing rather than manuscript attribution or shelfmark control [20, pp. 533–543, esp. pp. 538–540].

The most consequential recent development is attribution criticism. M. Sh. Kholov's 2018 article, 'Ziji Ahmadi Donish yā Savay Jay Singh?' (pp. 116–120), questions the modern attribution of the published zīj by confronting it with the earlier astronomy literature and the manuscript tradition of Zīj-i Muḥammad Shāhī [16, pp. 116–120]. This is methodologically important because it demonstrates that publication under Danish's name is not, by itself, evidence of authorship. Taken together, the historiography reveals three recurrent problems: obsolete component numbering, conflation of astronomy with astrology or mathematical geography, and attribution by proximity or publication history. The present study responds by separating current shelfmarks from legacy references, distinguishing genres, and assigning disputed objects an explicitly provisional status.

Table 2 – Verified scholarship and catalogues used in the historiographical analysis

Study (exact pages)	Focus	Historiographical value / limitation
Bertel's, 1936, 9–28	Manuscript corpus	Early specialized manuscript-based identification of Ahmad Kalla/Danish works; pagination follows the authoritative Iranica bibliography.
Bečka, 1963, 483–487	History of research	Early historiographical survey of Soviet studies on Ahmad Donish; useful for research history, not for current shelfmarks.
Muhammadzhonov, 1965, 31–42	Bukhara topographical plan	Introduced the plan and argued for Danish attribution through provenance/context and handwriting; attribution is inferential rather than explicit in the object.
Matvievskaya, 1972, 169–200	Exact-science manuscripts	Places Danish-related material within the broader Tashkent corpus of mathematical and astronomical manuscripts.
Kakhkhorov/Khodjiev, 1976: 91–93	Danish's astronomical manuscripts	Short specialized study; a key point of reference for later manuscript scholarship.

Study (exact pages)	Focus	Historiographical value / limitation
Sobirov & Khodjiev, 1984, 415–420	Dushanbe collections	Extends the documentary setting to astronomical and mathematical manuscripts preserved in Dushanbe.
Fourniau, 1993, 647–649	International synthesis	Summarizes Danish's life, scientific writings, and broad manuscript geography; predates current e-catalogue numbering.
Vildanova, 1998, 114–116, 154	Institutional catalogue	Primary printed catalogue authority for Danish's scientific autographs, codicological data, and the 1998 component sequence.
Akhmedova, 2018, 44–46	Astronomical ideas	Thematic synthesis of astronomical views; not a codicological or shelfmark-level study.
Kholov, 2018, 116–120	Zīj attribution	Direct attribution critique using prior scholarship and comparison with the Zīj-i Muḥammad Shāhī tradition.
Karieva, 2019, 110–117	Natural sciences	Broad synthesis connecting astronomy, geography and cartography; older registration numbers require catalogue concordance.
Egamov, 2021, 533–543	Geography and travel	Useful geographical framing and map discussion; author describes the treatment as general/preliminary, so it is not used as shelfmark authority.
Naimov, 2022, 178–182 (p. 182)	Map attribution and visual heritage	Records the St Petersburg archival reference and explicitly notes the absence of a direct authorship statement on the archival object.
Current Al-Biruni e-catalogue	Current manuscript identifiers	Latest institutional basis for present Tashkent shelfmarks; cited by inventory number rather than page.

9. Source-Critical Reliability Rules

This article applies a hierarchy of evidence. First priority is given to the manuscript itself and to the current catalogue of the holding institution; second priority to printed institutional catalogues and specialist manuscript studies; third priority to thematic syntheses. A later secondary article cannot override a current institutional shelfmark merely by repeating an older number. Likewise, a union-catalogue index entry without an identified repository siglum is treated as bibliographic evidence, not as proof of a physical holding.

Page-specific citations are supplied whenever a printed scholarly work is used for a substantive claim. Works without independently verifiable pagination or bibliographic identity are excluded from the argument. The current electronic catalogue is the necessary exception to page citation: it is cited by inventory/component number and date of access. This procedure is intended to prevent three common errors in the Danish literature—counting obsolete subdivisions as separate manuscripts, converting bibliographic references into physical holdings, and treating modern publication titles as proof of authorship.

10. Conclusion

A source-critical global survey shows that the securely verifiable centre of Ahmad Danish's astronomical and geographical manuscript heritage remains Tashkent, with an

important independent astronomical witness in Dushanbe and a disputed cartographic attribution in St Petersburg. Iranian manuscript repertoires extend the bibliographic trace of the works but, without a library siglum and shelfmark, do not yet establish an Iranian holding. No Danish scientific manuscript could be verified at shelfmark level in the Turkish and major Western catalogues searched for this study; such repositories should therefore not be added to the holding list merely because they preserve large Persian astronomical collections.

For the Al-Biruni Institute, the current electronic catalogue should be cited as the primary authority for present component numbers. This resolves the most important practical discrepancy: *Istihraj-i tul va 'arz-i balad* is cited here as 2247/5, while 2247/IV is retained only as a legacy reference. The same principle clarifies the shifted 2247 sequence and prevents 2362/1 or 459/1 from being absorbed into Danish's authorship on the basis of proximity or older shorthand citation.

The study also demonstrates that the boundaries of Danish's oeuvre remain open to textual criticism. The Bukhara plan must be discussed as a disputed attribution, not a secure autograph. The so-called *Zij* of Ahmad Danish must remain outside the verified corpus until its relationship to Sawai Jai Singh's *Zij-i Muhammad Shāhī* is established through direct textual comparison. Conversely, *Manāẓir al-kawākib*, *Risāla dar 'ilm-i kura*, *Ta'dil-i khamṣa-yi mutaḥayyira*, the solar and lunar tables, and especially *Istihraj-i tul va 'arz-i balad* provide a firm foundation for a more technical history of science in nineteenth-century Bukhara.

Future work should combine direct manuscript examination with digital catalogue concordance. The immediate priorities are to collate the Tashkent and Dushanbe witnesses of *Manāẓir al-kawākib*; produce a critical edition and annotated translation of *Istihraj-i tul va 'arz-i balad*; compare all witnesses of the globe treatise; identify the underlying repository entry behind Monzavi's union-catalogue reference; and conduct palaeographic testing of the St Petersburg plan. Such work would transform Danish's scientific legacy from a list of celebrated titles into a documented history of texts, instruments, calculations, copying, and circulation across Central Asian and Eurasian manuscript collections.

REFERENCES:

1. Electronic Catalogue of Manuscripts of the Main Fund of the Al-Biruni Institute of Oriental Studies, Academy of Sciences of the Republic of Uzbekistan (SCAM). Records for Ahmad Danish: inv. 2144; 2247/1, 2247/5–7; 2362/2; 5867/1 and related records. Accessed 21 September 2026.
2. Вильданова А. Б. (сост.). Собрание восточных рукописей Академии наук Республики Узбекистан. Точные и естественные науки / отв. ред. А. Урунбаев. Ташкент: Фан, 1998. 248 с. ISBN 5-648-02552-1.
3. Мухамеджанов А. Р. Историко-топографический план Бухары Ахмада Дониша // Общественные науки в Узбекистане. 1965. № 5. С. 31–42.
4. Бертельс Е. Э. Рукописи произведений Ахмада Калле // Труды Таджикистанской базы АН СССР. 1936. Т. III. С. 9–28.
5. Каххоров А., Ходжиев И. Об астрономических рукописях Ахмада Дониша // Известия АН Таджикской ССР. Отделение физико-математических и геолого-химических наук. 1976. № 4 (62). С. 91–93.
6. Матвиевская Г. П. Математические и астрономические рукописи ИВ АН УзССР // Из истории точных наук в средневековом Ближнем и Среднем Востоке. Ташкент, 1972. С. 169–200.
7. Собиров Г. С., Ходжиев И. Х. Астрономические и математические рукописи, хранящиеся в библиотеках Душанбе // Историко-астрономические исследования. Москва, 1984. Вып. 17. С. 415–420.
8. Ahmad Donish. *Manāẓir al-kawākib*. Manuscript of the Institute of Language, Literature, Oriental Studies and Written Heritage, Academy of Sciences of the Republic of Tajikistan, no. 760; cited in M. Sh. Kholov, studies on Tajik metrology.

9. Аҳмади Дониш. Манозир-ул-кавокиб / таҳия ва таҳқиқи М. Холов. Душанбе, 2017. 432 с.; Centre of Written Heritage, National Academy of Sciences of Tajikistan, online book catalogue.
10. Тураев Х. Две точки зрения по историко-топографическому плану Бухары Ахмада Дониша // Вопросы истории Центральной Азии в современной медиевистической интерпретации: сборник статей, посвященный юбилею академика Д. Юсуповой. Ташкент, 2021. С. 185–188.
11. Сухарева О. А. Квартальная община позднефеодального города Бухары (в связи с историей кварталов). Москва: Наука, 1976. С. 64.
12. Monzavī A. Fihrist-i nuskhahā-yi khaṭṭī-i Fārsī [A Catalogue of Persian Manuscripts]. Tehran: Regional Cultural Institute, 1969–. Union catalogue, 6 vols. in 7 parts.
13. Encyclopaedia Iranica. Persian Manuscripts iii. In Ottoman and Modern Turkish Libraries. Survey of catalogues and Persian manuscript collections in Turkey. Online edition.
14. Наимов И. Аҳмад Донишининг тасвирий санъатга оид илмий ижодида ислохотчилик ғояларининг акс этиши // Ўзбекистон тарихининг долзарб масалалари (XIX аср иккинчи ярми – XX аср охири): 1-умуммиллий илмий йиғини тўплами. Тошкент: Фан, 2022. Б. 178–182, айниқса Б. 182.
15. Fourniau V. Dāneš, Aḥmad Maḳdūm // Encyclopaedia Iranica. Vol. VI, Fasc. 6. 1993. P. 647–649. Updated online edition.
16. Холов М. Ш. Зичи Аҳмади Дониш ё Савай Чай Сингх? // Муаррих. Душанбе, 2018. № 1 (13). С. 116–120.
17. Bečka J. Soviet Studies on Ahmad Donish // Archiv Orientalní. 1963. Vol. 31, No. 3. P. 483–487.
18. Ахмедова З. А. Астрономические взгляды Ахмада Дониш // Вестник науки и образования. 2018. № 11 (47). С. 44–46.
19. Кариева Н. Взгляды на естествознание в трудах Ахмеда Дониша // Шарқ машъали / Восточный факел. 2019. С. 110–117.
20. Egamov B. Y. Ahmad Donish: Geograph and Traveller // International Journal of Multicultural and Multireligious Understanding. 2021. Vol. 8, No. 3. P. 533–543. DOI: 10.18415/ijmmu.v8i3.2533.

REFERENCE (TRANSLITERATION / ENGLISH FORM):

1. Electronic Catalogue of Manuscripts of the Main Fund of the Al-Biruni Institute of Oriental Studies, Academy of Sciences of the Republic of Uzbekistan (SCAM). Ahmad Danish records. Accessed 21 September 2026.
2. Vil'danova A. B. (comp.). Sobranie vostochnykh rukopisei Akademii nauk Respubliki Uzbekistan. Tochnye i estestvennye nauki [Collection of Oriental Manuscripts of the Academy of Sciences of the Republic of Uzbekistan: Exact and Natural Sciences]. Tashkent: Fan, 1998. 248 p.
3. Mukhamedzhanov A. R. 'Istoriko-topograficheskii plan Bukhary Akhmada Donisha' [The Historical-Topographical Plan of Bukhara Attributed to Ahmad Danish]. Obshchestvennye nauki v Uzbekistane, no. 5 (1965): 31–42.
4. Bertel's E. E. 'Rukopisi proizvedenii Akhmada Kalle' [Manuscripts of the Works of Ahmad Kalla]. Trudy Tadzhikistanskoi bazy AN SSSR, III (1936): 9–28.
5. Kakhkhorov A., Khodzhiev I. 'Ob astronomicheskikh rukopisiakh Akhmada Donisha' [On the Astronomical Manuscripts of Ahmad Danish]. Izvestiia AN Tadzhikskoi SSR, no. 4 (62) (1976): 91–93.
6. Matvievskaia G. P. 'Matematicheskie i astronomicheskie rukopisi IV AN UzSSR' [Mathematical and Astronomical Manuscripts of the Institute of Oriental Studies]. In Iz istorii tochnykh nauk v srednevekovom Blizhnem i Srednem Vostoke. Tashkent, 1972, 169–200.

7. Sobirov G. S., Khodzhiev I. Kh. 'Astronomicheskie i matematicheskie rukopisi, khраниashchiesia v bibliotekakh Dushanbe.' *Istoriko-astronomicheskie issledovaniia* 17 (1984): 415–420.
8. Ahmad Donish. *Manāẓir al-kawākib*. Dushanbe manuscript no. 760, Academy of Sciences of Tajikistan.
9. Ahmad Donish. *Manāẓir al-kawākib*. Prepared/studied by M. Kholov. Dushanbe, 2017. 432 p.
10. Turaev Kh. "Dve tochki zreniia po istoriko-topograficheskomu planu Bukhary Akhmada Donisha" [Two Views on the Historical-Topographical Plan of Bukhara Attributed to Ahmad Danish]. In *Voprosy istorii Tsentralnoi Azii v sovremennoi medievisticheskoi interpretatsii*. Tashkent, 2021, 185–188.
11. Sukhareva O. A. *Kvartal'naia obshchina pozdnefeodal'nogo goroda Bukhary*. Moscow: Nauka, 1976.
12. Monzavī A. *Fihrist-i nuskhahā-yi khaṭṭī-i Fārsī* [A Catalogue of Persian Manuscripts]. Tehran, 1969–.
13. *Encyclopaedia Iranica*. 'Persian Manuscripts iii. In Ottoman and Modern Turkish Libraries.' Online survey of Turkish Persian manuscript catalogues.
14. Naimov I. "Ahmad Donishning tasviriy san'atga oid ilmiy ijodida islohotchilik g'oyalarining aks etishi" [Reformist Ideas in Ahmad Danish's Scholarly-Artistic Work]. In *O'zbekiston tarixining dolzarb masalalari (XIX asr ikkinchi yarmi – XX asr oxiri)*, 178–182, esp. 182. Tashkent: Fan, 2022.
15. Fourniau V. 'Dāneš, Aḥmad Maḳdūm.' *Encyclopaedia Iranica*, VI/6 (1993): 647–649. Updated online edition.
16. Kholov M. Sh. "Ziji Ahmadi Donish yo Savay Jay Singh?" [The Zīj of Ahmad Danish or Sawai Jay Singh?]. *Mu'arrikh*, 2018, no. 1 (13): 116–120.
17. Bečka J. "Soviet Studies on Ahmad Donish." *Archív Orientální* 31, no. 3 (1963): 483–487.
18. Akhmedova Z. A. 'Astronomicheskie vzgliady Akhmada Donisha' [Astronomical Views of Ahmad Danish]. *Vestnik nauki i obrazovaniia*, no. 11 (47) (2018): 44–46.
19. Kariyeva N. 'Vzgliady na estestvoznaniye v trudakh Akhmeda Donisha' [Views on Natural Science in the Works of Ahmad Danish]. *Sharq Mash'ali*, 2019: 110–117.
20. Egamov B. Y. "Ahmad Donish: Geograph and Traveller." *International Journal of Multicultural and Multireligious Understanding* 8, no. 3 (2021): 533–543. DOI: 10.18415/ijmmu.v8i3.2533.