The Ṣābiʾ Family Library of Thābit ibn Qurra's Works in Baghdad

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Thābit ibn Qurra (d. 901 CE) was one of the notable scholars studying Greek science and philosophy in the early Abbasid period. He is especially known for his translations of important Greek scientific works. He established a family in Baghdad (the so-called "Ṣābiʾ family"), and the members of this family survived as court scholars, among whom was Abū Isḥāq Ibrāhīm ibn Hilāl al-Ṣābī (d. 994), a great-grandson of Thābit, who became the head secretary of the Buyid court. Most remarkable is the existence of an Arabic manuscript containing three works composed by Thābit, which Abū Isḥāq Ibrāhīm copied with recourse to an exemplar in Thābit's handwriting: Istanbul, Köprülü MS 948. Moreover, Ibn al-Qiftī's *Taʾrīkh al-ḥukamāʾ* cited a list of Thābit's works composed by Abū ʿAlī al-Muḥassin (d. 1010), a son of Abū Isḥāq Ibrāhīm. These facts suggest that this family, descended from Thābit, authorised his works by keeping his autograph exemplars and producing copies of his authentic works. In this article, by examining the contents of al-Muḥassin's catalogue of Thābit's works, the colophons of Köprülü MS 948 copied by Abū Isḥāq Ibrāhīm, and the correspondence concerning Apollonius' mathematical works between Abū Isḥāq Ibrāhīm and al-Kūhī, I elucidate how the members of this family managed the works of its founder Thābit, protecting his reputation as an authority on Greek science and philosophy by controlling the copying of his works, and how they struggled to maintain their high position at the court by using Thābit's legacy.

Keywords: Thābit ibn Qurra, Ibn al-Qiftī's Taʾrīkh al-ḥukamāʾ, Köprülü (Istanbul) MS 948, Abū Isḥāq Ibrāhīm ibn Hilāl al-Ṣābī, al-Kūhī

Introduction

Abū al-Ḥasan Thābit ibn Qurra (d. 901 CE) stands as one of the preeminent scholars who was engaged in the realm of Greek science and philosophy in the early Abbasid period.[1] He acquired particular praise for his translations of significant Greek scientific works. Noteworthy among these endeavours was his revision of Isḥāq ibn Ḥunayn's (c. 830-910/911) Arabic

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1 On the life and times of Thābit ibn Qurra, see Rashed, *Founding Figures*, 113-122. Rashed, *Thâbit ibn Qurra* contains important articles on Thābit's achievements in Greek science and philosophy.

translations of Euclid's *Elements* and Ptolemy's *Almagest*.[2] The rectified translations, in turn, became the authoritative Arabic versions of these texts in the Islamicate world.[3]

Thābit's erudition also manifested in the composition of synopses for Greek scientific and philosophical works, including the *Almagest* and Nicomachus' *Introduction to Arithmetic*. In addition, he authored original works derived from his profound engagement with Greek science, such as *On the Measurement of the Conic Section Called Parabola*; *Treatise on the Motion of Two Luminous Bodies [i.e., the Sun and the Moon]*; and *Treatise on the Concise Exposition of What Aristotle Presented in his Book* Metaphysics *of [Topics] That Proceed According to the Method of [Apodictic] Demonstration, not Persuasion, Written for the Vizier Abū al-Ḥusayn al-Qāsim ibn ʿUbayd Allāh*.[4]

Concerning the beginning of Thābit's exploration of Greek science, several Arabic historical records accentuate his affiliations with the Banū Mūsā.[5] The Banū Mūsā – namely, Muḥammad (d. 873), Aḥmad, and Ḥasan – distinguished themselves in the Abbasid court through their profound engagement with Greek mathematics and astronomy.[6] Among their noteworthy accomplishments lies their Arabic translation of Apollonius' *Conics*. They were the sons of Mūsā ibn Shākir, who was an astronomer/astrologer (*munajjim*) and was a companion to the young al-Maʾmūn, who was the future seventh Abbasid caliph. Upon Mūsā's demise, the Banū Mūsā entered al-Maʾmūn's court, gradually ascending to prominent positions by the time of al-Maʾmūn's accession. Their tenacious commitment to maintaining their high positions is represented by an episode reported by Ibn Abī Uṣaybiʿa (1203-1270) detailing a power struggle between them and al-Kindī (d. after 866).

Abū Yūsuf Yaʿqūb ibn Isḥāq al-Kindī, who was frequently called the first Arab philosopher, emerged as a prolific luminary in the domains of mathematics, astronomy, astrology, medicine, and philosophy.[7] A significant portion of his treatises consists of compendious elucidations of Greek scientific and philosophical works. Ibn Abī Uṣaybiʿa documented in *Sources of Information about the Classes of Physician* (*ʿUyūn al-anbāʾ fī ṭabaqāt al-aṭibbāʾ*; henceforth, *ʿUyūn al-anbāʾ*) the stratagem employed by the Banū Mūsā, wherein they deceived al-Kindī, leading to the tenth Abbasid caliph, al-Mutawakkil (r. 822-861), no longer trusting him. Subsequently, they endeavoured to wrest from al-Kindī the books he owned.[8] This episode impresses on us that to ascend to their eminent positions in the court, the Banū Mūsā exhibited pronounced assertiveness against contemporaneous scholars such as al-Kindī, trapping him in their manoeuvres.

This episode also suggests that the books in scholars' libraries played a central role in ensuring their authoritative standing. Given that the majority of the acclaim bestowed upon

2 Isḥāq ibn Ḥunayn was the primary Arabic translator of Greek scientific and philosophical works in Thābit's days. Concerning his biography, see Cooper, Isḥāq ibn Ḥunayn.

3 Note that another Arabic version composed by Thābit is identified by Grupe, The "Thābit-version".

4 In the present article, all translations from sources (just as these titles of Thābit's works) are mine.

5 On the early career of Thābit, I utilise Mimura, Ghulāms (slave boys), 191-196.

6 On the biography of the Banū Mūsā brothers, see Hill, *Book of Ingenious Devices*, 3-6.

7 On his biography, see Adamson, *al-Kindī*.

8 On this episode, see Adamson and Pormann, *Philosophical Works of al-Kindī*, lxv-lxviii.

both al-Kindī and the Banū Mūsā emanated from their proficiency in Greek scientific pursuits, it is reasonable that they sought to acquire new Greek scientific works and expand their knowledge of Greek science. We must remark, however, that as they were not sufficiently proficient in the Greek tongue to comprehend these source texts, they had to rely on linguistic aides to read them. In fact, al-Kindī engaged scholars who were skilful in Greek texts, most of whom were Syriac Christians. He organised a group referred to by some modern scholars as the "Kindī-circle", who rendered into Arabic quite a few Greek scientific and philosophical compositions.[9] Conversely, the Banū Mūsā found Thābit ibn Qurra to be a promising candidate capable of undertaking this task.

Several Arabic bio-bibliographies report that the first encounter between the Banū Mūsā and Thābit ibn Qurra took place when Thābit was a money-changer in Ḥarrān,[10] and Muḥammad ibn Mūsā, who was the eldest of the Banū Mūsā, chose him as a companion upon returning from the Roman region, discerning his linguistic ability. Subsequently, Thābit studied under the tutelage of Muḥammad ibn Mūsā, thereby acquiring profound knowledge in Muḥammad's house.[11]

While the Arabic bio-bibliographies refrain from specifying Thābit's age at the time of their encounter, they do clarify Muḥammad's role in Thābit's tutelage, implying an inadequacy in Thābit's educational foundation, particularly in the realm of Greek science, in his native land, Ḥarrān. Consequently, we can conclude that owing to Thābit's demonstrated proficiency in multiple languages, Muḥammad decided to teach him the rudiments of Greek scientific knowledge, commencing at a foundational level. This pedagogical endeavour aimed to elevate Thābit into a linguistic assistant for the Banū Mūsā's scholarly investigations thereafter.

Owing to Muḥammad's tutelage, Thābit emerged as an indispensable aide to the Banū Mūsā. As explained in the preface to their Arabic version of Apollonius' *Conics*, Aḥmad, the middle brother of the Banū Mūsā, achieved his translation with the help of Hilāl ibn Abī Hilāl al-Ḥimṣī and Thābit ibn Qurra.[12] The case of the Arabic version of the *Conics* underscores that, in the process of assisting the Banū Mūsā, Thābit availed himself of invaluable opportunities to become acquainted with quite a few Greek scientific works. As a result, he evolved into a proficient scholar of Greek science, composing numerous works on Greek science and philosophy, as mentioned above.

Significantly, quite a few of Thābit's sons also became prominent scholars of Greek sciences. Indeed, serving as a preeminent medical practitioner in Baghdad, Sinān ibn Thābit

9 On his translation activities, see Adamson, *al-Kindī*, 25-29.

10 Ḥarrān was one of the central cities in Upper Mesopotamia, now in Turkey. On the myth about this city, see van Bladel, *Arabic Hermes*, 64-118.

11 Here, I utilise the description found in Ibn al-Nadīm's (c. 932-990) *Catalogue* (*Fihrist*). The Arabic text of it is in Ibn al-Nadīm, *Kitāb al-Fihrist*, ed. Flügel, 272; the English translation in Dodge, *Fihrist*, 647. Note that a new edition of this work has been published: Ibn al-Nadīm, *Kitāb al-Fihrist*, ed. Sayyid; however, as Hameen-Anttila remarks in Hameen-Anttila, *Khwadaynamag*, xii, the editor Sayyid sometimes emends the Arabic text without notice, so we should be very cautious when we refer to this new edition; see also Stewart, Editing the *Fihrist*.

12 For the Arabic text with an English translation of this preface, see Banū Mūsā, *Apollonius: Conics*, ed. Toomer, 620-629; for a French translation, see Appolonius, *Conics*, trans. Rashed *et al.*, 500-507.

(d. 943), assumed an esteemed position as a court physician to three Abbasid caliphs: al-Muqtadir (r. 908-932), al-Qāhir (r. 932-934), and al-Rāḍī (r. 934-940).[13] Furthermore, Ibrāhīm ibn Sinān (908-946), a son of Sinān, was recognised as a distinguished scholar in the domain of Greek mathematics in his era.[14] This fact illustrates that not only Thābit's son but also his grandson were actively engaged in the pursuit of Greek science.

Moreover, as outlined in the genealogical lineage traced from Thābit ibn Qurra (see Figure 1), his progeny established affiliations with another Ṣābian family. Consequently, this lineage (the so-called "Ṣābiʾ family")[15] engendered Abū Isḥāq Ibrāhīm (925-994), the chief secretary of a Buyid ruler, Muʿizz Dawla (915-967). It is noteworthy that this family continued its eminence as court secretary-scholars in Baghdad until the year 1222. This overview highlights the enduring impact of Thābit's intellectual legacy on Greek science and philosophy, thereby establishing the significant Ṣābiʾ family in Baghdad.

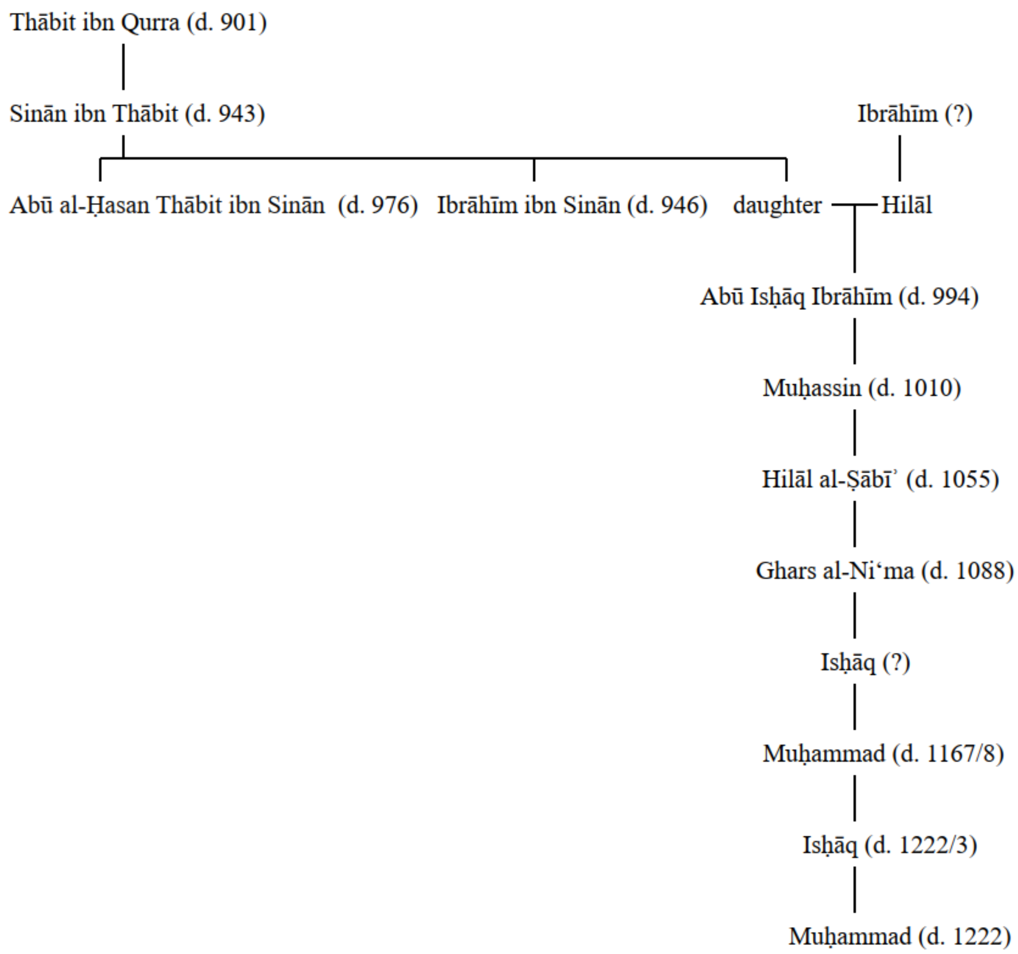

Fig. 1: The Ṣābiʾ Family Tree[16]

13 On the biography of Sinān ibn Thābit, see Dold-Samplonius, Sinān ibn Thābit.

14 On the biography of Ibrāhīm ibn Sinān, see Rashed and Bellosta, *Ibrāhīm ibn Sinān*, 1-5.

15 On the Ṣābiʾ family, see Roberts, Being a Sabian.

16 I have composed this family tree based on Roberts, Being a Sabian, 274.

Thābit ibn Qurra's heritage in Greek science and philosophy was documented in major Arabic bio-bibliographies. To our knowledge, the oldest surviving documentation is found in Ibn al-Nadīm's *Fihrist*, where Ibn al-Nadīm presented a concise account of Thābit's biography along with a list of his works.[17] Subsequently, borrowing Ibn al-Nadīm's biographical portrayal of Thābit, Ibn al-Qifṭī's (d. 1248) *History of Wise Men* (*Taʾrīkh ḥukamāʾ*)[18] and Ibn Abī Uṣaybiʿa's (1203-1270) *ʿUyūn al-anbāʾ*[19] extended quite a few episodes that elucidated Thābit's life and significantly enlarged the list of his scholarly works.

In fact, while Ibn al-Nadīm's *Fihrist* recorded only 14 items in its list of Thābit's works, Ibn Abī Uṣaybiʿa's *ʿUyūn al-anbāʾ*, by contrast, contained approximately 150 items.[20] The sheer magnitude of Thābit's output underlines the profound impact of his contributions to Greek science and philosophy, thereby substantiating the Ṣābiʾ family's enduring prominence within the court, notwithstanding their adherence to Ṣābianism.[21]

On the other hand, there is the question of how Ibn Abī Uṣaybiʿa obtained the information he used in compiling his comprehensive list of Thābit's works. Addressing this query necessitates consulting the list of Thābit's works in Ibn al-Qifṭī's *Taʾrīkh ḥukamāʾ*, as will be explored next.

Al-Muḥassin's catalogue of Thābit's works

Ibn al-Qifṭī is known to have written *Taʾrīkh al-ḥukamāʾ* in Aleppo at almost the same time as Ibn Abī Uṣaybiʿa wrote the early versions of *ʿUyūn al-anbāʾ*, that is, around 1240 CE. As elucidated by Ignacio Sánchez, it becomes evident that the early versions of *ʿUyūn al-anbāʾ* were compiled separately from the compilation of the *Taʾrīkh al-ḥukamāʾ*.[22]

Significantly, in the *Taʾrīkh ḥukamāʾ*, Ibn al-Qifṭī's principal source regarding the list of Thābit's works was the catalogue of their titles documented by Abū ʿAlī al-Muḥassin (d. 1010), a son of Abū Isḥāq Ibrāhīm, which encompassed approximately 80 entries. When he cites this catalogue, Ibn al-Qifṭī starts with the following note:

> As for the titles of the works he [= Thābit] composed, I found leaves written by the hand of Abū ʿAlī al-Muḥassin, which contain the report of Thābit's genealogy as well as the detailed and thorough report of the books he composed, so I attach them [the leaves] after this because these [sheets] are the authoritative source concerning that, by the successful God.[23]

17 The Arabic text is in Ibn al-Nadīm, *Kitāb al-Fihrist*, ed. Flügel, 280; trans. Dodge, *Fihrist*, 662.

18 The Arabic text is in Ibn al-Qifṭī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 115-122.

19 Ibn Abī Uṣaybiʿa, *ʿUyūn al-anbāʾ*, ed. Savage-Smith *et al.*, vol. 2/1, 550-565; trans. Savage-Smith *et al.*, vol. 3/1, 593-610.

20 Note that many of Thābit's works are now lost, so quite a few of his works of which we know only the title may be very short treatises, like pamphlets.

21 On the importance of Greek scholarship for Thābit as a survival tool in the court, see Mimura, Greek scientific and philosophical knowledge.

22 See Savage-Smith *et al.*, *Literary History*, vol. 1, 31-75.

23 Ibn al-Qifṭī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 116. Unless otherwise noted, here and in the following all translations from Arabic are my own.

Then, after several pages, he concludes the citation of the catalogue with the following phrase: "[the document written] by the hand of al-Muḥassin ibn Ibrāhīm al-Ṣābī is like this",[24] thereby attesting to his fidelity in reproducing it following the exemplar transcribed by al-Muḥassin's hand.

It is obvious that al-Muḥassin added his own comments to some of the titles of Thābit's works in his documentation. For example, he appended the following comment to the title "His [= Thābit's] book on a pause between the two movements of the arteries":

> Two books. He [=Thābit] composed this book in Syriac because he indicated in it a refutation of al-Kindī. A student of his known as ʿĪsā ibn Usayd al-Naṣrānī translated it into Arabic, and Thābit revised the Arabic version. Some people said that the translator of this book was Ḥubaysh ibn al-Ḥasan al-Aʿsam, but this is wrong. Abū Aḥmad al-Ḥusayn ibn Isḥāq, known as Ibn al-Kurnayb, already refuted [the opinion of] Thābit concerning this book after Thābit's death, although [his refutation] was not useful. When he [= Thābit] composed it [= this book] for Isḥāq ibn Ḥunayn, Isḥāq approved of it very strongly and wrote at the end of it in his own hand that he praised Abū al-Ḥasan Thābit, blessed him, and extolled him.[25]

Since this note mentions detailed scholarly debates from around the time of Thābit, including Thābit's exchange with Isḥāq ibn Ḥunayn, it is conceivable that al-Muḥassin compiled this catalogue by perusing extant historical archives, conceivably stored in his familial repository.

On the other hand, the entry on Thābit in Ibn Abī Uṣaybiʿa's *ʿUyūn al-anbāʾ* presents the titles of his works in a different sequence from that of Ibn al-Qiftī's. Considering the additional titles in Ibn Abī Uṣaybiʿa's list, absent in Ibn al-Qiftī's, it becomes evident that Ibn Abī Uṣaybiʿa must have drawn upon a source beyond what was obtained by Ibn al-Qiftī.[26]

However, we observe that certain annotations appended by al-Muḥassin in his catalogue find a corresponding entry within the list in *ʿUyūn al-anbāʾ*. For example, Ibn Abī Uṣaybiʿa transcribed the identical comment about the title "His book on a pause between the two movements of the arteries" as the one quoted above that al-Muḥassin had added in his catalogue.[27] This shows not only that Ibn Abī Uṣaybiʿa must have composed his list by merging a number of sources, including al-Muḥassin's catalogue, and rearranging the sequence of the titles, but also that his compilation was significantly influenced by al-Muḥassin's catalogue.

That the two lists in the *Taʾrīkh ḥukamāʾ* and *ʿUyūn al-anbāʾ* originated from al-Muḥassin's catalogue underlines the strong influence exerted by al-Muḥassin's survey of Thābit's works; it became a significant promoter for the dissemination of Thābit's accomplishments in Greek science and philosophy among scholars in Baghdad. This endeavour had extended

24 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 119.

25 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 116.

26 For example, Morelon in the introduction to his edition compares the titles of Thābit's astronomical works in the Arabic bio-bibliographies, and points out some extra titles in Ibn Abī Uṣaybiʿa's list; Thābit ibn Qurra, *Œuvres d'astronomie*, ed. and trans. Morelon, xiv-xviii.

27 Ibn Abī Uṣaybiʿa, *ʿUyūn al-anbāʾ*, ed. Savage-Smith *et al.*, vol. 2/1, 558; trans. Savage-Smith *et al.*, vol. 3/1, 602.

its reach by around 1240 to Aleppo, where Ibn al-Qifṭī composed the *Taʾrīkh ḥukamāʾ*, as well as to Sarkhad, where Ibn Abī Uṣaybiʿa composed the early version of the *ʿUyūn al-anbāʾ*.[28] Thanks to the titles of Thābit's works collected in al-Muḥassin's catalogue, it became possible for Ibn Abī Uṣaybiʿa to list approximately 150 titles of Thābit's works, even though Ibn al-Nadīm's *Fihrist* had contained only 14 titles. Interestingly, within Ibn al-Qifṭī's *Taʾrīkh ḥukamāʾ* and Ibn Abī Uṣaybiʿa's *ʿUyūn al-anbāʾ*, we also find al-Muḥassin's list of the works written by Sinān ibn Thābit, a son of Thābit, which we turn to next.

Al-Muḥassin's list of Sinān ibn Thābit's works

In both Ibn al-Qifṭī's *Taʾrīkh ḥukamāʾ* and Ibn Abī Uṣaybiʿa's *ʿUyūn al-anbāʾ*, the entries on Sinān ibn Thābit begin with biographical episodes from his life and end with the same list of his works under almost identical headings:

The heading in Ibn al-Qifṭī's work:

> [the titles of] his [= Sinān ibn Thābit's] works which are transmitted from the hand of al-Muḥassin ibn Ibrāhīm ibn Hilāl al-Ṣābī[29]

The heading in Ibn Abī Uṣaybiʿa's work:

> [the titles of] the books by Abū Saʿīd Sinān ibn Thābit ibn Qurra which are transmitted from the hand of Abū ʿAlī al-Muḥassin ibn Ibrāhīm ibn Hilāl al-Ṣābī[30]

Given that, as mentioned before, the early versions of the *ʿUyūn al-anbāʾ* were compiled independently of the *Taʾrīkh al-ḥukamāʾ*, the reference to al-Muḥassin's list of Sinān ibn Thābit's titles in the works of both Ibn al-Qifṭī and Ibn Abī Uṣaybiʿa illustrates that al-Muḥassin's endeavour to catalogue Sinān's works also extended its impact beyond Baghdad. Remarkably, the list had a clear influence on Barhebraeus' (Bar ʿEbroyo, Ibn al-ʿIbrī, 1225/6-1286) Syriac chronicle entitled *Book on the Records of the Time* (*Ktābā d-maktbānūt zabnē*; henceforth, *Chronicorum*).

Barhebraeus, who was a Syriac Orthodox prelate and polymath,[31] authored many works in Syriac, alongside quite a few in Arabic, covering diverse subjects, such as biblical exegesis, theology, history, philosophy, and astronomy. He also composed several chronicles in both Syriac and Arabic. In one of his Syriac chronicles, entitled *Chronicorum*, he listed the titles of Thābit's works in Syriac.[32] However, as elucidated by Kevin van Bladel, this list was in fact a mixture of titles of works written by Thābit and others from al-Muḥassin's Arabic

28 See Savage-Smith *et al.*, *Ibn Abi Usaybiʿah*, x.

29 Ibn al-Qifṭī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 195.

30 Ibn Abī Uṣaybiʿa, *ʿUyūn al-anbāʾ*, ed. Savage-Smith *et al.*, vol. 2/1, 572; trans. Savage-Smith *et al.*, vol. 3/1, 617.

31 See Takahashi, *Barhebraeus*, for a comprehensive bio-bibliography of Barhebraeus.

32 See Takahashi, Thābit b. Qurra.

list of Sinān ibn Thābit's works that had been subsequently translated into Syriac. In fact, this list preserved the sequential arrangement found in al-Muḥassin's list of Sinān's works, notwithstanding Barhebraeus' assertion, deliberately misleading or otherwise, that these works were written by Thābit in Syriac.[33] The utilisation of this list by Barhebraeus serves to validate the success of al-Muḥassin's project of surveying the scholarly accomplishments of his ancestors.

The above analysis of al-Muḥassin's survey of the works authored by Thābit and Sinān reveals the profound impact of his catalogues of the works of these two authors. This attests to al-Muḥassin's deliberate endeavour to compile a comprehensive catalogue of works written by the ancestors of the Ṣābiʾ family.

Moreover, the opening to Ibn al-Qiftī's presentation of al-Muḥassin's catalogue of Thābit's works, quoted above, illustrates that al-Muḥassin included Thābit's genealogical lineage in his catalogue, although Ibn al-Qiftī did not copy it. Since the entry on Thābit in Ibn al-Qiftī's *Taʾrīkh ḥukamāʾ* lacks details concerning Thābit's ancestry, the genealogy documented by al-Muḥassin presumably only pertains to the Ṣābiʾ family lineage from Thābit to al-Muḥassin. Consequently, it seems plausible that al-Muḥassin's project was the preservation of the Ṣābiʾ family's intellectual heritage concerning the realms of Greek science and philosophy, including the catalogue of Thābit's works and Sinān's, alongside the Ṣābiʾ family lineage.

Here, we must remember that, as mentioned previously, al-Muḥassin's comment on the title "His book on a pause between the two movements of the arteries" shows that the Ṣābiʾ family had already collected records pertaining to Thābit's works. Thus, the undertaking to scrutinise the scholarly accomplishments of their ancestry might not have been initiated by al-Muḥassin personally but rather a coordinated one, a family enterprise. That this survey was organised by the broader Ṣābiʾ family is further suggested by a note left in Ibn al-Qiftī's list of Thābit's works following al-Muḥassin's catalogue, which I turn to now.

A note in Ibn al-Qiftī's list of Thābit's works

After the copy of al-Muḥassin's catalogue, Ibn al-Qiftī provided a list of Thābit's summary works in the realms of astronomy and geometry.[34] He then listed two Arabic translations attributed to Thābit – *Treatise about the Explanation of the Ṣābians' Doctrine* and *Dhakhīra* – and attached the following note to these two titles:

> I asked Abū al-Ḥasan Thābit ibn Sinān about this treatise [= the *Treatise about the Explanation of the Ṣābians' Doctrine*] and the summary [= the *Dhakhīra*], and he said, "These are not by Thābit, and I did not find them among his works and his exemplars."[35]

Considering the family relationship between Abū al-Ḥasan Thābit ibn Sinān (d. 976) and Abū Isḥāq Ibrāhīm, as depicted in Fig. 1, it is clear that the referent of the first "I" in this note should not be interpreted as Ibn al-Qiftī. Given when Abū al-Ḥasan died as well as the fact

33 See van Bladel, *Arabic Hermes*, 93-94.

34 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 120.

35 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 120.

that this note was placed after al-Muḥassin's catalogue, it is plausible that "I" means Abū Isḥāq Ibrāhīm, the father of al-Muḥassin. Consequently, this note provides evidence that Abū Isḥāq Ibrāhīm had at least begun assembling information regarding works composed by Thābit.

Important in this context is the existence of an Arabic manuscript containing Thābit's works that was copied by Abū Isḥāq Ibrāhīm, which is today housed in the Köprülü Library in Istanbul. This particular manuscript serves as a witness to his diligence in preserving Thābit's legacy. In the following section, I discuss this manuscript in more detail.

Istanbul, Köprülü, Fazıl Ahmed Paşa MS 948

Köprülü MS 948 consists of 58 folios.[36] As Pouyan Rezvani notes, the front page of this codex bears testament to its ownership through possession notes, validating its association with Muḥammad ibn Muḥammad ibn Muḥammad ibn al-Ghazzī al-ʿĀmirī (1498-1576 CE) and Ismāʿīl ibn al-Nāblusī (1530-1585), both of whom were active in Damascus.[37] The provenance of this codex indicates that codices held by the Ṣābiʾ family in Baghdad were separated and disseminated to other owners; we know that Köprülü MS 948 must have been present in Damascus during the 16th century CE.

On the front page (fol. 1a), the copyist Abū Isḥāq Ibrāhīm added the following title:

> Book of Abū al-Ḥasan Thābit ibn Qurra – May God be pleased with him – on the time-instruments which are called sundials; an account by him explaining the means – mentioned by Ptolemy – by which those who preceded him [= Ptolemy] determined circular movements of the Moon, which are uniform; and [an account] also by him on constructing a solid figure of fourteen sides inside a known sphere.

In concordance with this title, this codex comprises the following three works authored by Thābit in the following order:

> Book on the time-instruments which are called sundials (fols. 1b-45b);[38]
> Account explaining the means – mentioned by Ptolemy – by which those who preceded him [= Ptolemy] determined circular movements of the Moon, which are uniform (fols. 46b-54b);[39]
> Account on constructing a solid figure of fourteen sides inside a known sphere (fols. 55a-58b).[40]

36 This codex has been published twice in facsimile version: Sezgin, *Thâbit ibn Qurra*; Rezvani, *Sih risālah-i*. See also the catalogue entry in the *Ptolemaeus Arabus et Latinus* project (https://ptolemaeus.badw.de/ms/964).

37 See Rezvani, *Sih risālah-i*, 6.

38 Thābit ibn Qurra, Œuvres *d'astronomie*, ed. and trans. Morelon, 130-168.

39 Thābit ibn Qurra, Œuvres *d'astronomie*, ed. and trans. Morelon, 83-92.

40 The Arabic text with a French translation is in Asselah, *Thābit ibn Qurra*.

At the end of each work, the copyist Abū Isḥāq Ibrāhīm appended a colophon. For example, the first work has the following colophon (fol. 45b):

> I copied the whole of that [book] from the exemplar by Abū al-Ḥasan Thābit ibn Qurra – may God be pleased with him – which was by his hand. Ibrāhīm Hilāl ibn Ibrāhīm ibn Zahrūn wrote [it] in Dhū al-Hijja 370 AH [= 981 CE]. I collated it with the exemplar, and it was corrected. Thank God.[41]

This colophon shows that this codex was copied by Abū Isḥāq Ibrāhīm in 981.

A remarkable aspect of this colophon is the explicit statement by the copyist, Abū Isḥāq Ibrāhīm, that he had an exemplar of this work copied by Thābit himself. Similar references to Thābit's exemplars of his works are found not only in this colophon but also in those appended to the second and third treatises. In fact, Abū Isḥāq Ibrāhīm remarked in the colophon of the second treatise (fol. 54b) as follows:

> I copied it from a copy by Abū al-Ḥasan Thābit ibn Qurra – May God have mercy upon him – which was [actually] not by his hand. I collated it with this copy, and it was corrected.[42]

This colophon attests to Abū Isḥāq Ibrāhīm being very much aware of whether his exemplars had been copied by Thābit or not. Then, in the colophon of the third treatise (fol. 58b), he noted:

> I copied it from the exemplar by Abū al-Ḥasan Thābit ibn Qurra – May God have mercy upon him – which was by his hand.[43]

These three colophons show that Abū Isḥāq Ibrāhīm systematically collected exemplars of Thābit's works copied in his own hand. Thus, his collection might have been a veritable repository affiliated with the Ṣābiʾ family library holding only the authentic works written by their ancestors, such as Thābit. Here, we must also remark that Abū Isḥāq Ibrāhīm's intention to collect Thābit's authentic works is clear in the note quoted above on the *Treatise about the Explanation of the Ṣābians' Doctrine* and the *Dhakhīra*, preserved in Ibn al-Qiftī's *Taʾrīkh ḥukamāʾ*, where he sought the validation of their attribution to Thābit from his uncle, Abū al-Ḥasan Thābit ibn Sinān.

Given Abū Isḥāq Ibrāhīm's initiative in constructing the familial library, it is plausible that his son, al-Muḥassin, undertook the compilation of an authentic inventory describing the works written by the family ancestors, namely, Thābit and Sinān, just like a library catalogue.

Indeed, there is a noticeable correlation between al-Muḥassin's catalogue elucidating the works of Thābit and the contents of Köprülü MS 948. Al-Muḥassin's catalogue of Thābit's works appears to us to list the titles of works on mathematics, astronomy, medicine, and

41 See also Thābit ibn Qurra, Œuvres *d'astronomie*, ed. and trans. Morelon, 168.

42 See also Thābit ibn Qurra, Œuvres *d'astronomie*, ed. and trans. Morelon, 92.

43 See also Asselah, *Thābit ibn Qurra*, 330-331.

philosophy in an unsystematic manner. However, in this catalogue, we find three titles sequenced in the following order:

> His [= Thābit's] book on the time-instruments which are called sundials;
> His book on constructing a solid figure of fourteen sides inside a known sphere;
> His book on explaining the means – mentioned by Ptolemy – by which those who preceded him [= Ptolemy] determined circular movements of the Moon, which are uniform.[44]

Clearly, these three titles in question are the works Abū Isḥāq Ibrāhīm copied in Köprülü MS 948. Given the relative lack of thematic coherence among these three compositions, it is reasonable for us to conclude that Thābit's works were organised in the family library in a specific order, and al-Muḥassin listed their titles in alignment with this established order, while Abū Isḥāq Ibrāhīm copied these three works, maintaining an almost identical sequential arrangement as in the library.

As a result of the family commitment to collecting the exemplars of their ancestors' works, preserving their authentic copies, and disseminating comprehensive title lists, Thābit's remarkable achievements undoubtedly obtained heightened recognition among scholars in Baghdad compared to the era during which Ibn al-Nadīm authored the *Fihrist*. Subsequently, his esteemed reputation spread beyond Baghdad through an exhaustive list of his works composed by al-Muḥassin, just as found in the *Taʾrīkh ḥukamāʾ* and *ʿUyūn al-anbāʾ*.

The above analysis shows that the Ṣābiʾ family, wherein Abū Isḥāq Ibrāhīm and al-Muḥassin emerged as pivotal figures, systematically collected and catalogued the genuine works written by their ancestors, in particular Thābit and Sinān. Their zealous engagement in preserving their family's intellectual legacy impresses on us the significance they attributed to comprehending the entire picture of the family's erudite contributions to Greek science and philosophy. Furthermore, Abū Isḥāq Ibrāhīm even tried to extend part of Thābit's scholarly contribution to Greek science through his own research, as I shall elucidate by analysing the correspondence between him and al-Kūhī, a court scholar in the Buyid dynasty.

Correspondence between Abū Isḥāq Ibrāhīm and al-Kūhī

Abū Sahl Wījan ibn Rustam al-Kūhī (fl. second half of the 10th century CE), a contemporary of Abū Isḥāq Ibrāhīm, emerged as a preeminent scholar in the realm of Greek mathematical sciences, gaining particular praise for his proficiency in astronomical observation.[45] Utilising this erudition, he provided invaluable services for various Buyid rulers and composed quite a few works on Greek mathematics and astronomy.

Al-Kūhī's contact with the Ṣābiʾ family is discernible in al-Muḥassin's list of Sinān's works, where he recorded the title "His [= Sinān's] revision of Abū Sahl al-Kūhī's style in all of his books".[46] Although this work is not extant, its title suggests that Sinān proofread and revised all Arabic texts written by al-Kūhī. Given the chronological disparity between Sinān and

44 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 117.

45 On his biography, see Berggren, Kūhī.

46 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 195.

al-Kūhī, it can be inferred that al-Kūhī was still in the early stages of his scholarly life when Sinān wrote this revision.

Remarkably, Ibn al-Qiftī's entry on al-Kūhī in the *Taʾrīkh ḥukamāʾ* suggests a sustained relationship between al-Kūhī and the Ṣābiʾ family after the days of Sinān.[47] In this entry, Ibn al-Qiftī initially expounds upon al-Kūhī's eminence in the realms of mathematics, astronomy, and astronomical instruments. Subsequently, he elucidates an episode involving Sharaf al-Dawla, a ruler of the Buyid dynasty (r. 983-988/9), who, in 988/989, manifested a keen interest in the observation of planetary motions and entrusted al-Kūhī with the execution of this observation due to al-Kūhī's profound knowledge of mathematical sciences.[48] Consequently, al-Kūhī erected a building dedicated to observation and conducted celestial observations.

Following his description of this episode, Ibn al-Qiftī transcribes two testimonial documents authored by al-Kūhī about two astronomical observation events. In these documents, al-Kūhī affirmed that the events were held in front of esteemed individuals, such as judges and eminent scholars. Concluding the transcription of these two documents, Ibn al-Qiftī notes that the participants in these events put their signatures on these documents, and he lists their names, which include that of Abū Isḥāq Ibrāhīm.

These documents show that the association between al-Kūhī and the Ṣābiʾ family continued, at the very least, until the time of Abū Isḥāq Ibrāhīm. Indeed, in addition to his signature on this document, a correspondence between him and Abū Isḥāq Ibrāhīm is preserved in three Arabic manuscripts. This correspondence comprises four epistles.[49] In the first and second epistles penned by Abū Isḥāq Ibrāhīm, he asked al-Kūhī to furnish the remaining propositions of Apollonius' *Treatise on Determinate Ratio*.[50]

Apollonius was an eminent scholar of Greek mathematics, acclaimed particularly for his work entitled *Conics*.[51] Besides the *Conics*, the titles of some of Apollonius' other works have been transmitted, albeit most having regrettably been lost. One of them is the *Determinate Section* (the *Determinate Ratio* in Arabic), which is unfortunately not extant in its original Greek nor in its Arabic translation. Despite this, a reference to this work by Pappus of Alexandria, an eminent Greek mathematician flourishing around the 4th century CE, indicates that it deals with the following problem: "Given four points – A, B, C, D – on a straight line l, to determine a point P on that line such that the ratio $AP{\cdot}CP$ / $BP{\cdot}DP$ has a given value."[52] The discussion between al-Kūhī and Abū Isḥāq Ibrāhīm about the *Determinate Ratio* is thus a valuable witness to this lost work.

47 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 351.

48 See also Sayılı, *Observatory in Islam*, 114-115.

49 Berggren provided an Arabic edition of this correspondence with an English translation and commentary: Abū Sahl al-Kūhī and Abū Isḥāq al-Ṣābī, The correspondence, ed. Berggren.

50 Abū Sahl al-Kūhī and Abū Isḥāq al-Ṣābī, The correspondence, ed. Berggren, 103-110 (in Arabic part); trans. Berggren, 42-52.

51 On the biography of Apollonius, see Toomer, Apollonius of Perga.

52 See Toomer, Apollonius of Perga, 188.

Remarkably, al-Muḥassin included the title "His [Thābit's] revision of the first book of Apollonius' *Determinate Ratio*" in his catalogue of Thābit's works, accompanied by the following note:

> This book is in two volumes: Thābit revised the first book very well and commented, explained, and elucidated it, but he never revised volume two, which was incomprehensible.[53]

This note indicates that finalising the rectification of the second book was one of the projects left unfinished by Thābit, and Abū Isḥāq Ibrāhīm's request to al-Kūhī suggests he intended to extend Thābit's heritage with the assistance of his colleague.

Al-Kūhī's response indicates that he had completed some propositions of the second book together with Abū Isḥāq Ibrāhīm on a previous occasion. However, he posited a reservation regarding his ability to complete the remaining propositions without Abū Isḥāq Ibrāhīm's help, so he expressed a desire to meet with Abū Isḥāq Ibrāhīm soon. Furthermore, he recalled that supplementary propositions had been put forward by Abū Isḥāq Ibrāhīm about the second book, prompting Abū Isḥāq Ibrāhīm to send his own propositions if he wanted to have the remaining propositions before their meeting.[54]

This response shows that Abū Isḥāq Ibrāhīm himself was engaged in rectifying the second book, wherein he proffered additional propositions, and that concerning Apollonius' *Determinate Ratio*, Abū Isḥāq Ibrāhīm surpassed al-Kūhī, probably due to Abū Isḥāq Ibrāhīm's connections to the Ṣābiʾ family library, a repository endowed with quite a few works on this subject, coupled with his tutelage amongst the family members. Remarkably, several works composed by al-Kūhī on mathematical topics discussed by Apollonius have survived.[55] His attempts to explore these topics indicates that scholarly exchanges between al-Kūhī and Abū Isḥāq Ibrāhīm on the *Determinate Ratio*, some of which were recorded in the correspondence, were the basis for his research on Greek mathematics, especially when it came to Apollonian subjects.

Conclusion

In this article, by examining the contents of al-Muḥassin's catalogue of the works composed by Thābit and Sinān as well as the three colophons of Köprülü MS 948 copied by Abū Isḥāq Ibrāhīm, I elucidated that, in order to apprehend the erudite accomplishments of the Ṣābiʾ family, this family – especially Abū Isḥāq Ibrāhīm and al-Muḥassin – systematically collected and catalogued the genuine works authored by their ancestors. The paramount importance ascribed to this scholarly legacy by the members of this family is further confirmed by Abū Isḥāq Ibrāhīm's aim of completing Thābit's work on the second book of Apollonius' *Determinate Ratio*, as shown in his correspondence with al-Kūhī. His endeavour

53 Ibn al-Qiftī, *Taʾrīḫ al-ḥukamāʾ*, ed. Lippert, 119.

54 Abū Sahl al-Kūhī and Abū Isḥāq al-Ṣābī, The correspondence, ed. Berggren, 110-124 (in Arabic part); trans. Berggren, 52-70.

55 See Sezgin, *Geschichte des arabischen Schrifttums*, vol. 5, 112-117.

to understand the *Determinate Ratio* highlights the significance of Greek scientific knowledge for this family.

The profound undertaking of the Ṣābiʾ family in preserving the family's accomplishments illustrates the potency of their scholarly legacy in Greek erudition as a powerful survival tool for the family members as court scholars. The establishment of the Ṣābiʾ family library in Baghdad was thus a pivotal means for them to perpetuate their influence within the court.

As previously mentioned, however, the front page of Köprülü MS 948, which was likely held in the Ṣābiʾ family library in Baghdad, contains three ownership statements including those of Muḥammad ibn Muḥammad ibn Muḥammad ibn al-Ghazzī al-ʿĀmirī (1498-1576) and Ismāʿīl ibn al-Nāblusī (1530-1585), both of whom were active in Damascus. This establishes that the family library in Baghdad was deconstructed at some point, with its codices subsequently separated and circulated to other owners. As a result, Köprülü MS 948 was present in Damascus in the 16th century CE; and its current possession by the Köprülü Library in Istanbul means that we are able to examine its contents. A global search of codices might lead us to recognise other items that formed part of the Ṣābiʾ family library in Baghdad, offering further insights into the history of the family library.

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