The Attribution of an Arabic Commentary on Naṣīr al-Dīn al-Ṭūsī's *Taḥrīr al-Majisṭī* to Shams al-Dīn al-Samarqandī[*]

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Abstract: In this paper, I thoroughly examine the anonymous commentary found in Theology Library (Tehran University) MS 678 on Ṭūsī's *Taḥrīr al-Majisṭī*, which the copyist attributed to Samarqandī in the colophon. I compare its contents and some references to Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*, including a bibliographical note in Ḥājjī Khalīfa's *Kashf al-Ẓunūn*, an owner's note on the front page of Carullah MS 1485 (a manuscript of Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī*), and Nīsābūrī's own marginal note recording the name Samarqandī in the autograph of his *Sharḥ Taḥrīr al-Majisṭī*. In this way, I establish Faculty of Theology Library MS 678 to be a manuscript of Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*. This identification in turn reveals that Nīsābūrī, in his *Sharḥ Taḥrīr al-Majisṭī*, called Samarqandī "an eminent scholar" and quoted Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* several times. Therefore, one can conclude Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* has been very influential on Nīsābūrī when he composed his *Sharḥ Taḥrīr al-Majisṭī*.

Keywords: *Sharḥ Taḥrīr al-Majisṭī*, *Taḥrīr al-Majisṭī*, Niẓām al-Dīn al-Nīsābūrī, *Almagest*, astronomy

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1. Introduction

Shams al-Dīn al-Samarqandī (d. 1322) was a scholar renowned especially for his logic work *Risāla fī Ādāb al-Baḥth*[1] and wrote several books on kalām, logic, mathematics, and astronomy, which would become textbooks in madrasas.[2] From his works, one can detect his profound knowledge of astronomy. For example, his book entitled *'Ilm al-Āfāq wa-l-Anfus* [Science of the Cosmos and the Soul],[3] a work on the sciences of the celestial world and the sublunary world, contains the Section ("Stage" [*Maẓhar*]) 2 "The Configuration (*hay'a*) of the World and the Composition of the Parts Necessary for It," wherein he gave an overview of *'ilm al-hay'a* [science of the configuration].

'Ilm al-hay'a is a genre of theoretical astronomy that provided a cosmography using the composition of celestial spheres as inspired by the Ptolemaic planetary models and lacked complex mathematical proofs.[4] This astronomical genre was popularized in Ibn al-Haytham's (965-ca. 1040) *On the Configuration (hay'a) of the World* and later standardized by al-Khiraqī (d. 1138/9) in *Al-Tabṣira fī 'ilm al-hay'a* and then by Naṣīr al-Dīn al-Ṭūsī (1201-1274) in *Tadhkira fī 'Ilm al-Hay'a*.

That Samarqandī knew Ṭūsī's *Tadhkira* very well is shown by the content of Section 2 of his *'Ilm al-Āfāq wa-l-Anfus* (consisting of sixteen chapters), because he structured this Section by following faithfully following Ṭūsī's *Tadhkira,* as evident from the list of its chapter headings as presented below:[5]

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1   For his work on logic, see Larry Benjamin Miller, *Islamic Disputation Theory: The Uses & Rules of Argument in Medieval Islam*, Cham, Switzerland: Springer, 2020, Chapter 5.

2   For his biography, see Gholamreza Dadkhah's Persian and English introduction to his edition of the *'Ilm al-Āfāq wa-l-Anfus*: Gholamreza Dadkhah (ed.), *Shams al-Dīn Samarqandī: Science of the Cosmos and the Soul*, Costa Mesa, CA: Mazda Publishers, 2014; see also İhsan Fazlıoğlu, "Samarqandī: Shams al-Dīn Muḥammad ibn Ashraf al-Ḥusaynī al-Samarqandī" in *The Biographical Encyclopedia of Astronomers*, eds. Thomas Hockey et al., New York: Springer, 2007, 1008. For the madrasa tradition of mathematical sciences, see Sonja Brentjes, *Teaching and Learning the Sciences in Islamicate Societies (800-1700)*, Turnhout: Brepols, 2018, 77-91.

3   In this article, I use Dadhkah's edition (Dadkhah, *Shams al-Dīn Samarqandī: Science of the Cosmos and the Soul*) for the text of the *'Ilm al-Āfāq wa-l-Anfus*.

4   On this genre, see F. Jamil Ragep, "Astronomy," in *Encyclopaedia of Islam, THREE*, eds. Kate Fleet, Gudrun Krämer, Denis Matringe, John Nawas, and Everett Rowson. (Accessed December 19, 2022. doi:http://dx.doi.org/10.1163/1573-3912_ei3_COM_22652); F. Jamil Ragep, *Naṣīr al-Dīn al-Ṭūsī's Memoir on Astronomy*, 2 vols., New York: Springer-Verlag, 1993, vol. 1, 29-46; Sally Ragep, *Jaghmīnī's Mulakhkhaṣ: an Islamic introduction to Ptolemaic astronomy*, Cham: Springer, 2016, 27-65.

5   In this list, I note the chapter number and title in the *Tadhkira* corresponding to each chapter of the *'Ilm al-Āfāq wa-l-Anfus* Section 2. For the text of *Tadhkira*, I use Ragep's edition and English translation (Ragep, *Naṣīr al-Dīn al-Ṭūsī's Memoir on Astronomy*) with some modification as needed. In the present article, all translations from sources except for *Tadhkira* are mine.

ʿIlm al-Āfāq wa-l-Anfus Section 2

Chapter 1: On the Preliminaries of the Things That Can Be Indicated by Sense-Perception

<div dir="rtl">(الفصل الأوّل في المقدّمات من الأشياء التي يمكن أن يشار إليها بالحسّ)</div>

= *Tadhkira* Bk 1

Chapter 2: On the Sphericity of the Sky and the Earth, the Earth Being in the Middle of the World, and It [the Earth] Having No Sensible Quantity in Relation to the Celestial Orbs

<div dir="rtl">(الفصل الثاني في كرية السماء والأرض وكون الأرض في وسط الكلّ وكونها غير ذات قدر محسوس بالنسبة إلى أفلاك العلوية)</div>

= *Tadhkira* Bk 2 Ch 1: On the Sphericity of the Sky and the Earth, the Earth Being in Relation to the Sky as the Center of a Sphere to Its Circumference, and It [the Earth] Being Completely Stationary

<div dir="rtl">(الفصل الأوّل في استدارة السماء والأرض وكون الأرض عند السماء كمركز الكرة عند محيطها وكونها غير متحرّكة بالجملة)</div>

Chapter 3: On the Arrangement of the Bodies of the World

<div dir="rtl">(الفصل الثالث في ترتيب أجرام العالم)</div>

= *Tadhkira* Bk 2 Ch 2: On the Arrangement and Order of the Bodies

<div dir="rtl">(الفصل الثاني في ترتيب الأجرام ونضدها)</div>

Chapter 4: On the Well-Known Great Circles

<div dir="rtl">(الفصل الرابع في الدوائر العظمى المشهورة)</div>

= *Tadhkira* Bk 2 Ch 3: On the Well-Known Great Circles

<div dir="rtl">(الفصل الثالث في الدوائر العظمى المشهورة)</div>

Chapter 5: On the Orbs and the Motions of the Sun

<div dir="rtl">(الفصل الخامس في أفلاك الشمس وحركاتها)</div>

= *Tadhkira* Bk 2 Ch 6: On the Orbs and the Motions of the Sun

<div dir="rtl">(الفصل السادس في أفلاك الشمس وحركاتها)</div>

Chapter 6: On the Orbs and the Motions of the Moon

(الفصل السادس في أفلاك القمر وحركاته)

= *Tadhkira* Bk 2 Ch 7: On the Orbs and the Motions of the Moon

(الفصل السابع في أفلاك القمر وحركاته)

Chapter 7: On the Orbs and the Longitudinal Motions of Mercury

(الفصل السابع في أفلاك عطارد وحركاته الطولية)

= *Tadhkira* Bk 2 Ch 8: On the Orbs and the Longitudinal Motions of Mercury

(الفصل الثامن في أفلاك عطارد وحركاته الطولية)

Chapter 8: On the Orbs and the Longitudinal Motions of the Remaining Planets

(الفصل الثامن في أفلاك الكواكب الباقية وحركاتها الطولية)

= *Tadhkira* Bk 2 Ch 9: On the Orbs and the Longitudinal Motions of the Remaining Planets

(الفصل التاسع في أفلاك الكواكب الباقية وحركاتها الطولية)

Chapter 9: On the Latitudes of the Planets

(الفصل التاسع في عروض الكواكب)

= *Tadhkira* Bk 2 Ch 10: On the Latitudes of the Five Planets

(الفصل العاشر في عروض الكواكب الخمسة)

Chapter 10: On the Total Declination

(الفصل العاشر في الميل الكلّي)

Chapter 11: On Parallax

(الفصل الحادي عشر في اختلاف المنظر)

= *Tadhkira* Bk 2 Ch 12: On Parallax

(الفصل الثاني عشر في اختلاف المناظر)

Chapter 12: On the Variation in the Moon's Illumination and Lunar and Solar Eclipses

(الفصل الثاني عشر في اختلاف نور القمر والخسوف والكسوف)

= *Tadhkira* Bk 2 Ch 13: On the Variation in the Moon's Illumination and on Lunar and Solar Eclipses

(الفصل الثالث عشر في اختلاف نور القمر وفي الخسوف والكسوف)

Chapter 13: On a General Summary of the Circumstances of the Earth

(الفصل الثالث عشر في جمل من أحوال الأرض)

= *Tadhkira* Bk 3 Ch 1: On a General Summary of the Configuration and Circumstances of the Earth

(الفصل الأوّل في جمل من هيئة الأرض وأحوالها)

Chapter 14: On the Various Locations of the Orb in Relation to the Places and Nychthemerons

(الفصل الرابع عشر في اختلاف أوضاع الفلك بالقياس إلى المواضع والأيّام والليلي)

Chapter 15: On Dawn and Dusk

(الفصل الخامس عشر في الصبح والشفق)

= *Tadhkira* Bk 3 Ch 9: On Dawn and Dusk

(الفصل التاسع في الصبح والشفق)

Chapter 16: On the Measurements of the Distances and the Bodies

(الفصل السادس عشر في مقادير الأبعاد والأجرام)

= *Tadhkira* Bk 4: On Finding the Measurements of the Distances and the Bodies

(الباب الرابع في معرفة مقادير الأبعاد والأجرام)

The above list also reveals that Samarqandī titled most of the chapters using the same wording as the titles in *Tadhkira*. Notably, by comparing the main text of Section 2 in the *ʿIlm al-Āfāq wa-l-Anfus* with *Tadhkira*, one realizes that Samarqandī had also copied the main text of *Tadhkira* throughout Section 2 and added his comments when needed. This fact is obvious based on the beginning of Chapter 16, Topic 2: "On Finding the Distances of the Moon from the Center of the World":

Section 2, Chapter 16, Topic 2 from *'Ilm al-Āfāq wa-l-Anfus*:

Topic 2: On Finding the Distances of the Moon from the Center of the World

The distances of the Moon and the other wandering stars from the center of the World are known for any time based upon the radii of their orbs being 60 parts; <u>for the quantities of the radii of their epicycles and their eccentricities are also known in these parts as has been mentioned, and that [the Moon's distances] has been explained in Book 5 Chapter 13 of the *Almagest*</u>. However, the ratio of one to the other is not known; thus, finding that is required...[6]

البحث الثاني في معرفة أبعاد القمر من مركز العالم

كان أبعاد القمر وغيره من السيّارة من مركز العالم معلومة في كلّ وقت بحسب كون أنصاف أقطار أفلاكها ستّين جزءاً. فإنّ مقادير أنصاف أقطار تداويرها وما بين مراكز أفلاكها أيضاً معلومة بهذه الأجزاء كما مرّ، وقد بيّن ذلك في الفصل الثالث عشر من المقالة الخامسة من المجسطي. لكنّ لم تكن نسبة أبعاد بعض الكواكب إلى البعض معلومة فطلب معرفة ذلك...

Tadhkira Bk 4 Ch. 2:

Chapter 2: On Finding the Distances of the Moon from the Center of the World

The distances of the Moon and the other wandering stars from the center of the World are known for any time based upon the radii of their orbs being 60 parts, as is stated in calculating their true positions by the method of geometry. The ratio of one to the other is not known; thus, finding that is required...[7]

الفصل الثاني في معرفة أبعاد القمر من مركز العالم

كان أبعاد القمر وغيره من السيّارة من مركز العالم معلومة في كلّ وقت بحسب كون أنصاف أقطار أفلاكها ستّين جزءاً على ما يذكر في حساب تقويماتها بطريق الهندسة. ولم تكن نسبة أبعاد بعض الكواكب إلى البعض معلومة فمعرفة ذلك ...

This quotation makes clear how Samarqandī had utilized *Tadhkira*: He had learned *'ilm al-hay'a* by reading *Tadhkira*, a standard textbook on this science in his days, and borrowed many portions of *Tadhkira* while writing Section 2 of *'Ilm al-Āfāq wa-l-Anfus*.

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6   The Arabic text is in Dadkhah, *Shams al-Dīn Samarqandī: Science of the Cosmos and the Soul*, 193.

7   The Arabic text and English translation are in Ragep, *Naṣīr al-Dīn al-Ṭūsī's Memoir on Astronomy*, 314-315.

On the other hand, the above comparison reveals Samarqandī's own words (underlined in the quotation), in which he points out "that [the Moon's distances] has been explained in Book 5 Chapter 13 of the *Almagest*." Because Bk 5 Ch 13 of the *Almagest* provides the distances of the Moon,[8] his comment is appropriate in this context, showing his knowledge of the *Almagest* itself. Given that he had studied *Tadhkira* carefully, for him to have worked on the *Almagest* as well would have been natural, for Ṭūsī recommended in the introduction to *Tadhkira* that readers should also study the *Almagest*.[9] Note that, before writing *Tadhkira*, Ṭūsī had composed a recension of the *Almagest* titled *Taḥrīr al-Majisṭī* [Recension of the *Almagest*], in which he paraphrased the contents of the *Almagest* alongside his own updates.[10] As such, this work became popular in the Islamicate world as a manual for studying the *Almagest*, with many commentaries on it having been composed,[11] illustrating that contemporaries with Samarqandī would have in general learned the contents of the *Almagest* by reading Ṭūsī's *Taḥrīr al-Majisṭī*.

At this point, I should note that when Samarqandī finished the explanation of the sphericity of the heavens in Section 2 Chapter 2 of *ʿIlm al-Āfāq wa-l-Anfus*, he ended with the note: "We have already explained this required thing in a commentary on the *Almagest* with two demonstrations, but here what we have just told is enough (وقد بيّنا هذا المطلوب في شرح المجسطي ببرهانين لكنّ ما ذكرنا الآن كاف هاهنا)".[12] This reference shows that he had composed a commentary on the *Almagest* alongside his thorough study of its contents.

As for Samarqandī's *sharḥ* [commentary] on the *Almagest*, a bibliographical note is found in Ḥājjī Khalīfa's (also known as Kâtip Çelebi, 1609-1657) *Kashf al-Ẓunūn*, where he included in the entry of the *Almagest* the information about Ṭūsī's *Taḥrīr al-Majisṭī* and mentioned Samarqandī's commentary on the *Taḥrīr al-Majisṭī* stating, "*Sharḥ Taḥrīr al-majisṭī* by the eminent and investigator Shams al-Dīn al-Samarqandī, which is a commentary containing the solution to problems of it [= the *Taḥrīr al-Majisṭī*] in one volume (وشرح تحرير المجسطي للفاضل المحقّق شمس الدين السمرقندي وهو شرح مشتمل على حلّ مشكلاته في مجلّد)".[13] This information in *Kashf al-*

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8   For Ptolemy's discussion, see G. J. Toomer, *Ptolemy's Almagest*, London: Duckworth, 1984, 247-251.

9   The Arabic text and English translation are in Ragep, *Naṣīr al-Dīn al-Ṭūsī's Memoir on Astronomy*, 92-93.

10   See George Saliba, "The Role of the Almagest Commentaries in Medieval Arabic Astronomy: A Preliminary Survey of Ṭūsī's Redaction of Ptolemy's Almagest", *Archives internationales d'histoire des sciences* 37 (1987): 3-20.

11   The Arabic text is in Dadkhah, *Shams al-Dīn Samarqandī: Science of the Cosmos and the Soul*, 135.

12   *Ibid.*

13   For the commentaries of Ṭūsī's *Taḥrīr al-majisṭī*, see, Fuat Sezgin, *Geschichte des arabischen Schrifttums*, Leiden: E. J. Brill, 1967-, vol. 6, 93-94.

Ẓunūn indicates that Samarqandī had studied the *Almagest* by reading Ṭūsī's *Taḥrīr al-Majisṭī* and composed a commentary on it, as had his contemporaries.

Although Ḥājjī Khalīfa mentioned Samarqandī's commentary on Ṭūsī's *Taḥrīr al-Majisṭī*, no one has yet to have located it among Arabic manuscripts. Ahlwardt, the cataloguer of Arabic manuscripts now held at Staatsbibliothek zu Berlin, identified MS Landberg 493 (Ahlwardt no. 5656) as a manuscript of Samarqandī's *Sharḥ Taḥrīr al-majisṭī* without presenting reasons,[14] and some bibliographers have accepted this identification.[15] Morrison, however, rejected it, confirming this to be a manuscript of *Sharḥ Taḥrīr al-Majisṭī* written by Niẓām al-Dīn al-Nīsābūrī (d. ca. 1330).[16]

As a scholar active in the Ilkhanate, Nīsābūrī wrote several works not only on religious topics but also on mathematical sciences such as *Tawḍīḥ al-Tadhkira* [Elucidation of the *Tadhkira*] and *Sharḥ Taḥrīr al-Majisṭī* [Commentary on (Ṭūsī's) *Taḥrīr al-Majisṭī*], as well as a commentary on Ṭūsī's *Zīj-i Īlkhānī*.[17] These titles emphasize how basic Ṭūsī's texts were for Nīsābūrī and his contemporaries, including Samarqandī. Remarkably, his religious and scientific works became greatly influential, and we have many manuscripts of his works including his *Sharḥ Taḥrīr al-majisṭī*. Thus, Morrison accomplished the identification of this Berlin manuscript as a manuscript of his *Sharḥ Taḥrīr al-majisṭī* with recourse to his knowledge of other manuscripts of it.

Recently, however, Dadkhah, an editor of Samarqandī's *'Ilm al-Āfāq wa-l-Anfus*, pointed out in the Persian introduction to his edition the existence of Faculty of Theology Library (Tehran University) MS 678 (henceforth MS A), a manuscript of an anonymous commentary on Ṭūsī's *Taḥrīr al-Majisṭī*, in whose colophon the copyist attributes this work to Samarqandī. Dadkhah suggested the possibility that this attribution might be correct based on Samarqandī's note concerning the sphericity of the heavens in Section 2 Chapter 2 of *'Ilm al-Āfāq wa-l-Anfus* as quoted above: "We have already explained this required thing in a commentary on the *Almagest* with two demonstrations."[18] Dadkhah argued that due to MS A (ff.

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14   See Wilhelm Ahlwardt, *Verzeichnis der arabischen Handschriften*, 10 vols., Berlin: A. Asher, 1887, vol. 5, 144.

15   See, e.g., Sezgin, *Geschichte des arabischen Schrifttums*, vol. 6, 94.

16   See Robert G. Morrison, *Islam and Science: The Intellectual Career of Niẓām al-Dīn al-Nīsābūrī*, London; New York: Routledge, 2010, 260 (fn. 11). Note that he already pointed out this finding in his dissertation ("The Intellectual Development of Niẓām al-Dīn al-Nīsābūrī (d. 1329 A. D.)", PhD Dissertation submitted to Columbia University, 1998, 49 (fn. 55)).

17   For Nīsābūrī's life and work, see Morrison, *Islam and Science*.

18   See Dadkhah, *Shams al-Dīn Samarqandī: Science of the Cosmos and the Soul*, 29-30 (in his Persian Introduction). I owe Ali Fikri Yavuz for drawing attention to this Tehran MS and introducing me to its existence.

3-4) containing two demonstrations connected to the sphericity of the heavens,[19] MS A might actually be a manuscript of Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*.

In fact, MS A, ff. 3-4 contains the author's comments regarding Ṭūsī's words in Bk 1 Ch 3 of *Taḥrīr al-Majisṭī* on the sphericity of the heavens: "[the circle and the sphere] are greater than all [other] isoperimetric [plane and solid] figures [respectively] (وهما أوسع من كلّ شكل تساويهما في المحيط)," for which the author of the commentary in MS A added a geometrical proof with a diagram (see Fig 1) for demonstrating this Ṭūsī's statement.[20]
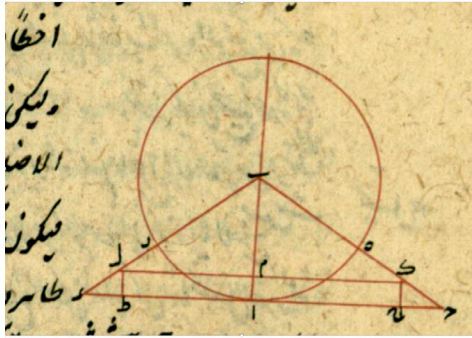

Figure 1: Diagram in MS A, f. 3b.

In the commentary tradition of the *Almagest*, quite a few commentators added their mathematical proofs about the circle and sphere being greater than all other isoperimetric figures,[21] for Ptolemy had stated in Bk1 Ch 3: "[the shape of the heavens is spherical] since of different shapes having an equal boundary those with more angles are greater [in area or volume], the circle is greater than [all other] surfaces, and the sphere greater than [all other] solids," [22] because he thought that the heavens must have the greatest volume relative to its size.[23] Remarkably, Nīsābūrī's comment in his *Sharḥ Taḥrīr al-Majisṭī* Bk1 Ch 3 on the same passage from the *Taḥrīr al-majisṭī* as the one commented in MS A, where Nīsābūrī gave the same geometrical proof as the author of the commentary in MS A did and used the same diagram (see Fig. 2).[24]

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19   Note that this MS has no folio number, so I number the first folio as f. 1.

20   See Olaf Pedersen, *A Survey of the Almagest*, New York: Springer, 2011, 36.

21   The English translation is taken from Toomer, *Ptolemy's Almagest*, 40.

22   See Toomer, *Ptolemy's Almagest*, 40 (fn. 25).

23   See Olaf Pedersen, *A Survey of the Almagest*, New York: Springer, 2011, 36.

24   Carullah MS 1485, ff 7b-8b. Note that the labels in the diagram are the same as in the diagram in MS A (see Fig. 1).
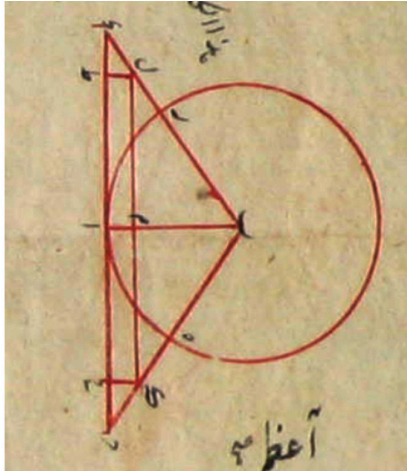
Figure 2. Diagram in Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī* (Carullah MS 1485
[a manuscript of Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī*], f. 8a).

The above analysis shows that this kind of geometrical proof found in MS A was very popular in the commentaries of the *Almagest* concerning Bk 1 Ch 3 (on the sphericity of the heavens). Thus, Dakhkah's argument based on the existence of these proofs about the sphericity of the heavens in MS A is not enough for proving the identity of MS A as a manuscript copy of Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*. In this article, therefore, by thoroughly examining MS A, I will argue that we can confidently attribute MS A to Samarqandī, especially by focusing on some references to Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* made by scholars apart from Samarqandī and the parts of MS A that correspond to these references.

2. Description of MS A

MS A consists of 203 folios. The date of its copying and the name of the copyist are recorded in the colophon as follows:

Colophon (f. 203a):

The completion of copying this noble and precious commentary attributed to the master, eminent, erudite, sage, cautious, and thorough Shams al-Dīn al-Samarqandī on the commentary of the Almagest edited by the most learned among the ancients and most eminent among the moderns, the defender of truth and religion [i.e. Naṣīr al-Dīn] Muhammad al-Tūsī [by] the needer of God Ibn Ahmad Muhammad Naṣrullāh --May God render him victorious-- occurred on Tuesday, the tenth of the month Shawwal, 1013 H [1605 CE].

قد وقع الفراغ من تسويد هذا الشرح الشريف النفيس المنسوب إلى

المولى الفاضل العالم المحقّق الحذير المدقّق شمس الدين السمرقندي على

الشرح(!) المجسطي الذي حرّره أعلم علماء

المتقدّمين أفضل فضلاء المتأخّرين تلك

الحكماء المدقّقين نصير الحقّ والدين

محمّد الطوسي الفقير إلى الله ابن

أحمد محمّد نصر الله نصره الله

في يوم الثلاثاء عاشر

شهر شوّال

سنة 1013

From the colophon, we know that MS A was copied in 1605 CE by Ibn Aḥmad Muḥammad Naṣrullāh, who connected here this commentary to Samarqandī though the beginning of MS A (presented below) does not give the name of the author:

Beginning (f. 1b):

In the name of God, the Beneficent, the Merciful.
Praise be God the Lord of the World, and may a benediction be upon the master of the apostles [Muhammad] and his excellent and virtuous family.
When the exact sciences and the true quests are the most precious sciences in rank …

بسم الله الرحمن الرحيم

الحمد لله ربّ العالمين والصلوة على سيّد المرسلين وآله الطيّبين الطاهرين

أمّا بعد فلمّا كانت العلوم اليقينية والمطالب الحقيقية أشرف العلوم مرتبة …

In the introduction (f. 1b), the author declares the *Almagest* to be the best work on the mathematical sciences and Ṭūsī's *Taḥrīr al-Majisṭī* to be the most updated version of it, containing the ancient scholars' scholarship as well as his contemporary scholars' achievements. Next, he writes, "So, I wished to write a commentary on it [*Taḥrīr al-Majisṭī*] containing the solution to the problems of it and the explanation of the difficulties of it (فأردت أن أكتب له شرحاً مشتملاً على حلّ مشكلاته وإيضاح معضلاته)." As such, he decided to explain difficult parts of the *Taḥrīr al-Majisṭī* word for word. As announced in this introduction, the main text of this work consists of pairs of short sentences from Ṭūsī's *Taḥrīr al-Majisṭī* and the author's comments.

What is remarkable about the introduction is that the author's statement "containing the solution to the problems of it" matches exactly the above-mentioned explanation given by Ḥājjī Khalīfa regarding Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* (i.e., "containing the solution to the problems of it"). This correspondence also suggests that Ḥājjī Khalīfa really had access to Samarqandī's commentary.

As the above analysis shows, references to Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* by scholars other than Samarqandī are very useful for considering the possibility that Samarqandī might be the author of the commentary copied in MS A. Here, we must remark that in studying Nīsābūrī's achievements about astronomical instruments, Morrison had discovered two references to Samarqandī in manuscript copies of Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī*.[25] Because Nīsābūrī was a younger contemporary of Samarqandī, these references might be important for knowing what Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* made. Thus, I will next examine these two references in Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī* and obtain clues for determining who the author of MS A is.

3. Nīsābūrī's Sharḥ Taḥrīr al-majisṭī and Clues for Samarqandī's Sharḥ Taḥrīr al-Majisṭī

Of the two references to Samarqandī Morrison had found, the first one is the marginal note located in Tunis MS 3663 (the autograph of Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī* and Morrison's principal source for Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī*) on f. 82b, where Nīsābūrī noted the name Samarqandī for explaining the word "one (or some) of the eminent scholars (بعض الأفاضل)" in his main text from Bk 5 Ch 14. The second one occurs on the title page of Carullah MS 1485 (a manuscript copy of Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī*), on which Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* is mentioned in connection to Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī*.[26]

As for the second reference, we notice that Carullah MS 1485 (henceforth, MS B) has n the title page (f. 1a) an owner's note from an owner named Waliyuddin (?) Jarrullah[27] written in 1139/1726-7 CE in which he added his comment about Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī* as follows:

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25   See Morrison, *Islam and Science,* 260 (fn. 11).

26   Note that contrary to Morrison's note, there is no note by Ḥājjī Khalīfa that Nīsābūrī referred many times in his *Almagest* commentary to Samarqandī's commentary on *Taḥrīr al-Majisṭī*. I owe this correction to Morrison through personal communication.

27   Unfortunately, part of the name is illegible because of the binding of the codex.

Front Page (f. 1a):

This is the book entitled *Tafsīr of Taḥrīr* [i.e., *Tafsīr*] to the *Taḥrīr al-Majisṭī* of the sage Ṭūsī [written] by the eminent Niẓām al-Dīn al-Nīsābūrī, where he [Nīsābūrī] quoted a commentary by the master Samarqandī on *Taḥrīr* [*al-Majisṭī*], which was the ultimate commentary [on the *Taḥrīr al-Majisṭī*], and there is a commentary by Qāḍī Zāda al-Rūmī on it [Nīsābūrī's commentary].

هذا كتاب مسمّى بتفسير التحرير إلى تحرير المجسطي للمحقّق الطوسي للفاضل نظام الدين النيسابوري وينقل فيه عن حاشية السيّد السمرقندي على التحرير وهي أقصى الحواشي وعليه حاشية لقاضي زاده الرومي

From this comment ("he quoted a commentary by the master Samarqandī on *Taḥrīr*"), we understand the reason why Morrison described that the title page of MS B "says that Nīsābūrī drew heavily on Samarqandī's commentary on *Taḥrīr al-Majisṭī*,"[28] although evaluating from this short comment how heavy the reliance of Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī* was on Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* is difficult. At the very least, however, Islamic scholars in the 16th century CE like Waliyuddin Jarrullah can be said to have recognized that Nīsābūrī had quoted Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* in his own in *Sharḥ Taḥrīr al-Majisṭī*.

Given this recognition, Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī* likely contains part of Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*, and the first reference Morrison found (i.e., the marginal note containing Samarqandī's name in Bk 5 Ch 14) might be a reference by Nīsābūrī himself to Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*. In connection with this marginal note in Tunis MS 3663, however, Morrison found in this MS another case in Bk 5 Ch 12 where Nīsābūrī had placed the name Muʾayyad al-Dīn al-ʿUrḍī (ca. 1200-ca. 1266), one of the leading astronomers working at the Marāgha Observatory,[29] in the margin in order to clarify the same phrase "one (or some) of the eminent scholars" in the main text as in Bk 5 Ch 14. Thus, Morrison concluded that "the eminent scholar" in Bk 5 Ch 14 might be either ʿUrḍī or Samarqandī without arguing Nīsābūrī to have been referring to Samarqandī.

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28   See Morrison, *Islam and Science*, 260 (fn. 11).

29   For his biography, see Petra G. Schmidl, "ʿUrḍī: Muʾayyad (al-Milla wa-) al-Dīn (Muʾayyad ibn Barīk [Burayk]) al-ʿUrḍī (al-ʿĀmirī al-Dimashqī)," in *The Biographical Encyclopedia of Astronomers*, *Springer Reference*, eds. Thomas Hockey et al., New York: Springer, 2007, 1161-1162; see also the introduction to George Saliba, *Kitāb al-hayʾah: the astronomical work of Muʾayyad al-Dīn al-ʿUrḍī: a thirteenth century reform of Ptolemaic astronomy*, Bayrūt, Lubnān: Markaz Dirāsāt al-Waḥdah al-ʿArabīyah, 1990;

Remarkably, the marginal notes of the name Samarqandī (Bk 5 Ch 14) in MS B and the name of ʿUrḍī (Bk 5 Ch 12) are found in the same places respectively as in Tunis MS 3663, though Morrison did not mention this fact. The reason why MS B contains the same notes can be explained with recourse to the colophon (f. 271a) from which we know that MS B was copied on 19 Muḥarram 890 H (February 23, 1485 CE) by Muḥammad ibn Ibrāhīm ibn Masʿūd al-Awḥadī, who recorded the colophon of his exemplar that had been copied on 11 Jumādā al-Ākhira 724 H (June 12, 1324 CE) that itself had been copied from a manuscript transcribed from the autograph. Thus, the fact that MS B contains the same marginal notes found in the autograph (Tunis MS 3663) indicates that MS B derived from the autograph and preserved not only the main text of the autograph but also (perhaps part of) the marginal notes Nīsābūrī had written. Therefore, we can inspect Nīsābūrī's marginal notes to some extent by examining MS B, despite my lack of access to the autograph (i.e., Tunis MS 3663).

MS B has many marginal notes that were added throughout the folios, most of which are for correcting the main text and frequently marked with "correct (صح)". Among these, I have found five marginal notes of a scholar's name for explaining "one (or some) of the eminent scholars" in the main text. Out of the five references, one occurs in Bk 1 Ch 4[30] and four are found in Bk 5.

Among the four in Bk 5,[31] the first and second references occur in Ch 12 (f. 121b and 122b), both of which have the name ʿUrḍī. Because these two precisely correspond to the case Morrison found in Bk 5 Ch 12 of Tunis MS 3663, it is obvious that they come from the marginal notes written by Nīsābūrī.

In the main text of Bk 5 Ch 12 (on the construction of a parallactic instrument called the triquetrum; see Fig. 3),[32] Nīsābūrī commented on the construction of the triquetrum. As for the first reference, he mentioned a criticism by "one (or some) of the eminent scholars," whom he identified as ʿUrḍī in the margin as follows (MS B, ff. 121b-122a):

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30   I will mention this note later.
31   Of the four notes in Bk 5, the fourth refers to Badr al-Dīn Tabrīzī (MS B, f. 123b), so I will not analyze this note in this article.
32   For the details of Nīsābūrī's discussion about the triquetrum, see Morrison, "The Intellectual Development of Niẓām al-Dīn al-Nīsābūrī", 44-47.
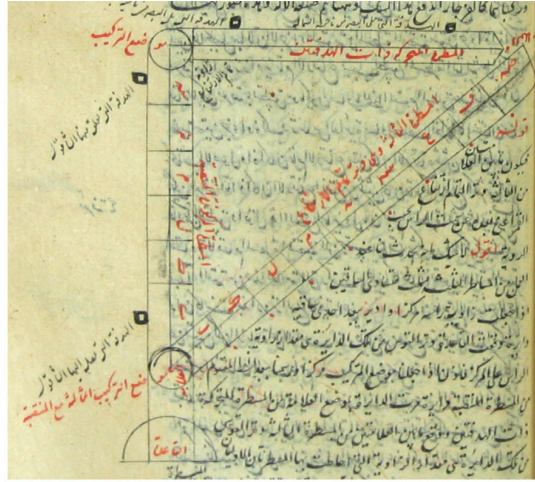
Figure 3. The Triquetrum in MS B, f. 122a.

However, one (or some) of the eminent modern scholars doubts here: Ptolemy does not explain to which side [of the first ruler] we connect the third ruler. As for that, he mounts it [the third ruler] on the surface to which the perpendicular [first ruler] and the second [ruler] are attached, the thickness of the body of the third [ruler] intervenes between the two touching surfaces [of the first and second rulers], so the triangle whose upper angle is at the axis and whose base is the thin ruler [the third ruler] cannot occur on the meridian plane. Likewise, if we mounted it on the back of the perpendicular [first ruler], the body of the perpendicular ruler would intervene between the two surfaces of the string [ruler, i.e., the third ruler] and the movable [ruler] having two vanes [the second ruler], so it is impossible for the three surfaces of the rulers forming the angle to be on the meridian plane under any condition. When the altitude is close to the zenith, it is difficult for the thin ruler [the third ruler] to subtend the angle; up to here is his phrase.

لكنّه شكّك بعض الأفاضل المتأخّرين هاهنا بأنّ بطلميوس لم يبيّن أنّ المسطرة الثالثة في أيّ الوجهين نركبها. فأمّا أن يركبها في السطح الذي قرن به القائمة والثانية حالت ثخانة جسم الثالثة بين السطحين المماسّين، فلا يكون المثلّث الذي زاويته عند المحور الأعلى وقائدته المسطرة الرقيقة حاصلاً في سطح نصف النهار. وكذلك إن نركبها في ظهر القائمة حال جسم المسطرة القائمة بين سطحي الموتّرة والمتحرّكة ذات الهدفتين فلا يمكن أن يكون السطوح الثلاثة من المساطر التي تحدّ الزاوية في سطح نصف النهار بحال من الأحوال. وإذا كان الارتفاع قريباً من سمت الرأس تعذّر أن يوتّر الزاوية بالمسطرة الرقيقة؛ إلى هاهنا عبارته.

Here, "the eminent scholar" argued that the thickness of the rulers tilts the triangle for obtaining the altitude, so the exact altitude cannot be obtained on the meridian. Because Nīsābūrī ended this reference with the words "up to here is his phrase," this part is most likely a quotation from a work by "the eminent scholar."

In fact, almost the same words are found in ʿUrḍī's *Kayfiyyat al-Arṣād* [The Manner of Observations] as follows:

> As for doubt [about Ptolemy's triquetrum], when he [Ptolemy] connects the third ruler to the first ruler which is perpendicular to the base, he does not explain to which side [of the first ruler] he connects it. As for that he mounts it [the third ruler] on the surface [of the second ruler] to which the perpendicular [first ruler] is attached, the thickness of the body of the third [ruler] intervenes between the two touching surfaces [of the first and second rulers], so the triangle whose upper angle is at the axis and whose base is the thin ruler [the third ruler] cannot occur on the meridian plane. Likewise, if he mounted it on the back of the surface of the perpendicular [first ruler], the body of the perpendicular ruler would intervene between the two surfaces of the string [ruler, i.e., the third ruler] and the movable [ruler], having two vanes [the second ruler]; so, it is impossible for the three surfaces of the rulers forming the angle to be on the meridian plane under any condition. When the altitude is close to the zenith, it is difficult for the thin ruler [the third ruler] to subtend the angle.[33]

أمّا الشكّ فإنّه لمّا ربط المسطرة الثالثة بالمسطرة الأولى القائمة على الكرسي لم يبيّن[34] في أيّ الوجهين يركبها. فأمّا أن يركبها في السطح الذي قرن به القائمة والثانية حالت ثخانة جسم الثالثة بين السطحين المماسّين، فلا يكون المثلّث الذي زاويته عند المحور الأعلى وقائدته المسطرة الرقيقة حاصلاً في سطح نصف النهار. وكذلك لو ركبها في ظهر القائمة حال جسم المسطرة القائمة بين سطحي الموتّرة والمتحرّكة ذات الهدفتين فلا يمكن أن تكون السطوح الثلاثة من المساطر التي تحدّ الزاوية في سطح نصف النهار بحال من الأحوال. وإذا كان الارتفاع قريباً من سمت الرأس تعذّر أن يوتّر الزاوية بالمسطرة الرقيقة.

Concerning the second reference found in Bk 5 Ch 12 where Nīsābūrī discusses a shortcoming of the calibration of the triquetrum, he mentioned a criticism by "one (or some) of the eminent scholars" labelled with "ʿUrḍī" in the margin as follows (MS B, f. 122b):

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33   The Arabic text is from Sevim Tekeli, "Al-Urdi"nin 'Risalet-ün fi Keyfiyet-il-Ersad' Adlı Makalesi", *Araştırma* 7 (1970): 1-169, 168; *cf.* Tekeli's English translation in Tekeli, "Al-Urdi"nin 'Risalet-ün fi Keyfiyet-il-Ersad' Adl Makalesi", 97.

34   يبيّن is my reading; *cf.* يتبين in Tekeli's text.

One (or some) of the eminent scholars accuses here this instrument of deficiency, -- he says -- because only the altitude over 30 degrees can be obtained with it. As for an altitude lower than 30 degrees, it cannot be obtained with it as he said, because the degrees divided on the perpendicular [first] ruler are 60 degrees.

وهاهنا نسب بعض الأفاضل هذه الآلة إلى النقص. قال: لأنّها لا يحصل بها إلّا الارتفاع الذي يزيد على ثلاثين جزءاً. أمّا الارتفاع الذي ينقص عن ثلاثين فلا يحصل بها لأنّ الأجزاء المقسومة في المسطرة المنتصبة ستّون جزءاً.

Here, "the eminent scholar" criticized the limitation of the altitude taken by the triquetrum. That is, the zenith distance is measured with recourse to the first ruler calibrated to 60 degrees, so it is impossible to measure the distance over 60 degrees (i.e., for altitudes less than 30 degrees) with this instrument. Because Nīsābūrī inserted "he says" in this part, he is likely also quoting here a work by "the eminent scholar," and indeed, nearly the same exact words are found again in 'Urḍī's *Kayfiyyat al-Arṣād* as follows:

As for deficiency [of the triquetrum], only the altitude on the meridian circle can be obtained with it [the triquetrum], and an altitude [to be obtained] must be more than 30 degrees. As for an altitude lower than 30 degrees, it cannot be obtained with it as he said, because the degrees divided on the perpendicular ruler are 60 degrees.[35]

وأمّا النقص فإنّها لا يحصل بها سوى الارتفاع في دائرة نصف النهار وأن يكون ارتفاغ أكثر من ثلاثين جزءاً. فأمّا الارتفاع الذي ينقص عن ثلاثين فلا يحصل بها على ما قاله لأنّ الأجزاء المقسومة في المسطرة القائمة جزءاً.

These two cases confirm that when Nīsābūrī put the name of 'Urḍī in the margin, he had quoted in the main text 'Urḍī's words almost verbatim from his work, which in this case was *Kayfiyyat al-Arṣād*. Now, we will study the portion of Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī* that sparked a marginal reference by Nīsābūrī to Samarqandī.

In Bk 5 Ch 14 (on the ratio of the apparent diameters of Sun, Moon, and shadow at the syzygies), where Nīsābūrī commented on Ṭūsī's phrase "rather, by means of lunar eclipses … conveniently (بل كان بخسوفات إلى قوله بسهولة)" about the procedure for determining the Moon's visible diameter based on two lunar eclipses, he mentioned a comment by "one (or some) of the eminent scholars," whom he identified as Shams al-Dīn al-Samarqandī in the margin as follows (MS B, f. 125a):

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35 The Arabic text is from Tekeli, "Al-Urdi"nin 'Risalet-ün," 169; cf. Tekeli's English translation in Tekeli, "Al-Urdi"nin 'Risalet-ün," 98.

One (or some) of the eminent scholars states here: The meaning of this statement is not clear. As for what he [Ptolemy] said in the original [i.e., the *Almagest*], it is clear – he says – and its meaning is [as follows]: when it is known that the finding of the quantity of the Moon's [visible] diameter by the method of the measurement in the way of the ruler is not reliable, we know the equality of it [= the Moon's visible diameter] to the Sun's [visible] diameter based on the way which does not need the measurement in the way of the ruler. When that is known, then we calculate the lunar eclipses when [the Moon being] at the farthest distance on the apex, so that the quantity of its [visible] diameter also results in the calculation just as is found by observation.

وذكر بعض الأفاضل هاهنا: أنّ هذا الكلام مهناه غير واضح. وأمّا وأمّا ما ذكره في الأصل فواضح، قال: ومعناه أنّه لمّا علم أنّ معرفة مقدار قطر القمر بطريق مساحة وجه المسطرة غير معتمد عرفنا مساواته لقطر الشمس على وجه لا يحتاج إلى مساحة وجه المسطرة. ولمّا علم ذلك فبعد ذلك حسبنا الخسوفات في الأبعد من الذروة حصل مقدار قطره بالحساب أيضاً كما وجد بالرصد.

After this reference, Nīsābūrī began his comment (with the word "I say"), where he reconsidered the comment by "the eminent scholar" whom he identified as Samarqandī in the margin.[36] Since Nīsābūrī also inserted "he says" in this case, this part is presumably a quotation from a work by Samarqandī.

What is remarkable is that the author of the commentary in MS A gave his comment regarding the same phrase in Ṭūsī's *Taḥrīr al-Majisṭī* "rather, by means of lunar eclipses … (بل كان من خسوفات إلى آخره)", just as Nīsābūrī did. The following is the entirety of the comment in MS A (ff. 81b-82a):

This is a statement whose meaning is not clear. As for what he [= Ptolemy] said in the original [i.e., the *Almagest*], it is clear, and its meaning is [as follows]: when it is known that the finding of the quantity of the Moon's [visible] diameter by the method of the measurement in the way of the ruler is not reliable, we know the equality of it [the Moon's visible diameter] to the Sun's [visible] diameter based on the way which does not need the measurement in the way of the ruler, namely [the way] that the agreement of the borders of its [the Moon's] body with the hole of the movable [vane] at the place where the borders of the Sun's body agree with it [the hole] at the place itself (!) is observed, just as mentioned before that, so it is known that in this case, the quantity of its visible diameter is equal to the Sun's visible diameter when the Moon is at the farthest distance. When that is known, then we calculate the lunar eclipses when [the Moon being] at the farthest distance on the apex, so that the quantity of its diameter results by the calculation too just as is found by observation.

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36   For the details of Nīsābūrī's discussion, see Morrison, *Islam and Science*, 156-159.

هذا كلام معناه غير واضح. وأمّا ما ذكره في الأصل فواضح ومعناه أنّه لمّا علم أنّ معرفة مقدار
قطر القمر بطريق مساحة وجه المسطرة غير معتمد عرفنا تساويه بقطر الشمس على وجه لا
يحتاج إلى مساحة وجه المسطرة وهو أن يرى انطباق حواشي جرمه على الثقبة 37 المتحرّكة
على الموضع الذي انطبق حواشي جرم الشمس عليها على ذلك الموضع بعينه من المسطرة
كما مرّ قبل ذلك، فعلم أنّ مقدار قطره حينئذ مساو لمقدار قطر الشمس في الروية وكان القمر
حينئذ عند بعده الأبعد. ولمّا علم ذلك فبعد ذلك حسبنا الخسوفات في الأبعد من الذروة
حصل مقدار قطره بالحساب أيضاً كما وجد بالرصد.

As is shown by the underlined parts in the text of MS A, Nīsābūrī obviously utilized in his comment the text transmitted in MS A. Because he consciously skipped the explanation of the measurement by the diopter found in the middle of the text of MS A, this editorial work of his confirms that he possessed the commentary on *Taḥrīr al-Majisṭī* contained in MS A at hand and quoted from it, deliberately truncating part of the text. Because he was a contemporary of Samarqandī and his references to scholars' names in the margin are correct, this case in Bk 5 Ch 14 strongly suggests that MS A is a work by Samarqandī (i.e., it is his *Sharḥ Taḥrīr al-Majisṭī*).

Here, we must remark that in the first case of the above-mentioned five marginal notes of a scholar's name for explaining "one (or some) of the eminent scholars" in the main text (i.e. the note in Bk 1 Ch 4 [MS B, f. 10b]), Nīsābūrī quotes part of the commentary on Bk 1 Ch 4 found in MS A (ff. 4a-4b) almost verbatim as an opinion by "one (or some) of the eminent scholars" and labelled it "Shams al-Dīn al-Samarqandī" in the margin. This case also confirms his quotation of Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*.

Moreover, another case is found in Bk 1 Ch 8, where Nīsābūrī quotes a comment by "the eminent scholar," although he did not put the name of this "eminent scholar" in the margin. In BK 1 Ch 8 ("that there are two different primary motions in the heavens, the first motion according to the equator and the second according to the ecliptic") where Nīsābūrī comments on Ṭūsī's phrase "if not [if the second motion were not on a different pole], it could be content with the first [motion] (وإلّا لكان الاقتصار على الأولى كافياً)," he mentioned a comment by "one (or some) of the eminent scholars," that begins as follows (MS B, f. 14b):

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37 الثقبة is my reading; cf. اليقب in MS A.

One (or some) of the eminent scholars says: it means that if the motions of the planets were parallel to the equator, it could be content with one kind of motion, namely, the motion from the east to the west, in the case that each one of the orbs of the planets, for example, and the orb of the fixed stars be in motion towards the west with the motion allotted to it…

قال بعض الأفاضل: يعني لو كانت حركات الكواكب على موازاة معدّل النهار لكان الاقتصار على نوع واحد من الحركة وهي الحركة من المشرق إلى المغرب كافياً بأن كان مثلاً أفلاك السيّارة وفلك الثوابت كلّ منها متحرّكاً نحو المغرب بحركة المختصّة به …

Interestingly, MS A is found to have almost the same exact words as those mentioned by Nīsābūrī in his comment on Ṭūsī's words "because their differences [of the poles] enable the transmission of their retardation in the motion (لإمكان إسناد اختلافاتها إلى تأخيرها عن الحركة)," which follow "if not, it could be content with the first" (i.e., Ṭūsī's words commented upon by Nīsābūrī). The beginning of the comment in MS A is as follows (f. 6b):

It means that if the motions of the planets were parallel to the equator, it could be content with one kind of motion, namely, the motion from the east to the west, in the case that each one of the orbs of the planets, for example, and the orb of the fixed stars be in motion towards the west with the allotted motion…

يعني لو كانت حركات الكواكب في موازاة38 معدّل النهار لكان الاقتصار على نوع واحد من الحركة وهي الحركة من المشرق إلى المغرب كافياً بأن كان مثلاً أفلاك السيّارة وفلك الثوابت فكلّ منها متحرّكاً نحو المغرب بحركة المختصّة...

This case also illustrates that when composing his *Sharḥ Taḥrīr al-Majisṭī*, Nīsābūrī quoted several times the commentary now available in MS A; if one carefully compares the text of MS A with Nīsābūrī's *Sharḥ Taḥrīr al-Majisṭī*, other quotations can be found in Nīsābūrī's *Sharḥ Taḥrīr al-majisṭī* that match the commentary in MS A. Given that and as mentioned above concerning the owner's note in MS B, some scholars detected Nīsābūrī to have quoted from Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* in his own *Sharḥ Taḥrīr al-Majisṭī*, and these multiple quotations from the text transmitted in MS A also lead us to conclude that the commentary in MS A was written by Samarqandī.

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38 موازاة is my reading; cf. موازاⵏ in MS A.

4. Conclusion

By thoroughly examining MS A and comparing its text and some references to Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*, especially those by Nīsābūrī, I have established that MS A is a manuscript copy of Samarqandī's *Sharḥ Taḥrīr al-Majisṭī*. This identification in turn reveals that Nīsābūrī called Samarqandī "an eminent scholar" in his *Sharḥ Taḥrīr al-Majisṭī* and had quoted Samarqandī's own *Sharḥ Taḥrīr al-Majisṭī* several times; therefore, we can conclude that Samarqandī's *Sharḥ Taḥrīr al-majisṭī* had been very influential on Nīsābūrī while composing his *Sharḥ Taḥrīr al-Majisṭī*. As such, I have provided substantial additional evidence to support Morrison's claim to the point that, as quoted above, says "Nīsābūrī drew heavily on Samarqandī's commentary on *Taḥrīr al-Majisṭī*."

Owing to the analysis in my article, the text of Samarqandī's *Sharḥ Taḥrīr al-Majisṭī* is currently available. Thus, by scrutinizing its contents, we can obtain a concrete evaluation of Samarqandī's significance within the history of the commentary tradition of Ṭūsī's *Taḥrīr al-Majisṭī*.

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