

Shīrāzī's *Nihāyat al-Idrāk*: Introduction and Conclusion

F. Jamil Ragep¹
McGill University

Jamil.ragep@mcgill.ca

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Abstract

Quṭb al-Dīn al-Shīrāzī (634H/1236CE-710H/1311CE) wrote four major works on astronomy: *Nihāyat al-idrāk fī dirāyat al-aflāk* ("The utmost attainment in comprehending the orbs), in Arabic, first edition completed mid-Shaʿbān 680/November 1281); the *Ikhtiyārāt-i Muẓaffarī* ("Selections for Muẓaffar al-Dīn Arslan" [a minor ruler in Qaṣṭamūnī (modern Kastamonu, Turkey)], in Persian, completed sometime between 680/1281 and 684/1285); *al-Tuḥfa al-shāhiyya* ("The imperial gift" dedicated to the Vizier Amīr Shāh ibn Tāj al-Dīn Muʿtazz ibn Ṭāhir in Siwās, in Arabic, first edition completed last part of Jumādā I 684/ July or August 1285); and *Faʿalta fa-lā talum* ("You've done it so don't blame [me]"), a supercommentary on the *Tadhkira fī ilm al-hayʾa* by Naṣīr al-Dīn al-Ṭūsī, in Arabic, completed sometime after the *Tuḥfa*, which, Shīrāzī claims in *Faʿalta*, was plagiarized by a certain al-Ḥimādhī, whence the need for this rather vituperative work). None of these works has been edited or translated, which is rather surprising given the importance of all these texts for an understanding of Islamic astronomy. As a small contribution toward the goal of giving Shīrāzī's works the editions they deserve, an edition and translation of the introduction and conclusion of the *Nihāya* are presented below.

Keywords: Quṭb al-Dīn al-Shīrāzī, *Nihāyat al-Idrāk*

1. I wish to thank Sally Ragep, Reza Pourjavady, and Shokry Gohar, who helped immeasurably in improving this article whose shortcomings remain my own.

Introduction

The *Nihāya* is interesting for a number of reasons. In the introduction, Shīrāzī states that he intends to follow “the linguistic style [*alfāz*] of [Ṭūsī’s] *Tadhkira*”, i.e. *al-Tadhkira fī ʿilm al-haʿya*, and that he will “incorporate it in the course of the exposition if it is clear, and expound upon it if something in it is obscure.” Thus the *Nihāya* is not a traditional commentary but rather a kind of expository work, following the four-part structure of the *Tadhkira* and quoting it in detail, but without adhering to the conventions of a commentary, whether that be by incorporating the original text within a seamless exposition (*ʿalā al-lafẓ*) or by interpreting the text passage by passage (*ʿalā al-maʿnā*).¹ Clearly Quṭb al-Dīn had far loftier ambitions. Among other things, he was intent on including material not only from Ṭūsī but from earlier authors as well, a point made clear in the conclusion where he lists a number of earlier *hayʿa* works, i.e. works on theoretical astronomy/cosmology. And in the body of the text, he also presents several astronomical models from earlier authors, e.g. Abū ʿUbayd al-Jūzjānī, ʿUmar Khayyām, Muʿayyad al-Dīn al-ʿUrḍī, and Naṣīr al-Dīn al-Ṭūsī, even if he did not accept them.² The *Nihāya* is thus a kind of historical summing up of the *hayʿa* (theoretical astronomy) literature up to Shīrāzī’s time, with references to numerous lost or relatively unknown works of Islamic astronomy; it is thus a gold mine for the historian, one that has yet to be excavated to any appreciable degree.³

Because of the way Shīrāzī presents his material, it is easy to see how E.S. Kennedy was misled into thinking that Quṭb al-Dīn was claiming models that in fact had been proposed by another astronomer, namely Muʿayyad al-Dīn al-ʿUrḍī.⁴ A closer reading has revealed that Shīrāzī was not seeking to appropriate the work of others but was laying the foundation for his own theories, some of which were presented in the *Nihāya*. Shīrāzī seems to have revised his theories almost as soon as he proposed them; thanks to work by Kaveh Niazi and Amir Gamini, we now have evidence that the models in the *Nihāya* were revised in a

1. On the 4-part structure of a *hayʿa* work, see Ragep, *Naṣīr al-Dīn...*, vol. I, p. 36; on commentaries of the *Tadhkira* and why I do not consider the *Nihāya* a commentary, see *ibid.*, pp. 58-59.

2. Kaveh Niazi (p. 158) considers that the “*Nihāya/Limit* was meant, at least in part, as a reference work on astronomy for the practitioner....The evidence for this consists of the inclusion in the *Nihāya/Limit* (sic) of models which Shīrāzī considered incorrect or inadequate in treating the many “difficulties” that were brought against them.”

3. The recent dissertation by Kaveh Niazi (2011) and ongoing research by Amir Gamini are exceptions to this. Earlier work by E.S. Kennedy and George Saliba focused on a few of the astronomical models.

4. Kennedy; for the discovery that some of the models presented by Shīrāzī had originated with al-ʿUrḍī, see Saliba, pp. 113-134.

short period, from the time of the first edition of the *Nihāya* until the writing of *al-Tuḥfa al-shāhiyya*, scarcely four years later. In the meantime Shīrāzī penned his Persian work, the *Ikhtiyārāt-i Muẓaffarī*, which, as Niazi has shown, was neither a Persian translation of the *Nihāya* nor a “dumbed down” version of it, but contained Shīrāzī’s ongoing efforts to find correct configurations (*hay’āt*) for the planets (Niazi, pp. 115-172, 211-218; cf. Gamini).

Another interesting aspect of the introduction is Shīrāzī’s multiple dedications. On the one hand, he formally dedicates the work to his long-time patron Shams al-Dīn al-Juwaynī, the Sāhib Diwan (chief financial administrator) under the Īlkhāns until he was put to death in 1284 AD. Rhapsodizing one’s patron is of course standard practice, but one senses that, given the tenuous nature of his life, Shīrāzī is being sincere in his effusive praise. And it is likely that Shīrāzī owed his appointment as chief judge in Malaṭiya and Siwās to Shams al-Dīn as well as his role as emissary from the Mongol court to the Mamluks in 1282 AD.¹ On the other hand, and remarkably, Shīrāzī names another dedicatee, a certain Muḥammad ibn ‘Umar al-Badakhshānī. This seems to be a scholarly dedication since Shīrāzī tells us that it is this Badakhshānī who asked him to write the *Nihāya* and indeed to follow the “linguistic style [*alfāz*] of the *Tadhkira*.” This adds another name to our increasing list of scholars associated with Shīrāzī, who seems to have formed an extensive network centered in Tabrīz.²

The introduction is significant for another reason, namely Shīrāzī’s prioritizing of astronomy, and presumably the other mathematical sciences, over natural philosophy and metaphysics. For he says:

proofs [in astronomy] are solid due to their being numerical or geometrical, about which there is no doubt, in contrast to the proofs of natural philosophy and theology [metaphysics]; for this reason agreement among the scholars of the latter two cannot be hoped for. And [its proofs] have surpassed their like in the positive sciences and its propositions excel in the philosophical sciences.

One might compare this with what Ptolemy says in the introduction to the *Almagest*:

From all this we concluded: that the first two divisions of theoretical philosophy should rather be called guesswork than knowledge, theology because of its completely invisible and

1. For a discussion of Shīrāzī’s relation to Shams al-Dīn al-Juwaynī, as well as his judgeship in Anatolia, see Niazi, pp. 98-100, 106-107.

2. For a preliminary discussion of this network, see Ragep, “New Light on Shams.”

ungraspable nature, physics because of the unstable and unclear nature of matter; hence there is no hope that philosophers will ever be agreed about them; and that only mathematics can provide sure and unshakeable knowledge to its devotees, provided one approaches it rigorously. For its kind of proof proceeds by indisputable methods, namely arithmetic and geometry. (Ptolemy, p. 36).

This clearly marks a significant break with his teacher Naṣīr al-Dīn, a devout follower of Ibn Sīnā and thus an adherent of the notion that one should follow the standard Aristotelian hierarchy of the sciences: metaphysics, physics and mathematics. I have previously discussed the implications of this inversion of the Aristotelian viewpoint for the manner in which Quṭb al-Dīn tries to prove the immobility of the Earth; in brief, Naṣīr al-Dīn maintained the opinion that astronomy was dependent on natural philosophy for proving that the Earth is at rest, whereas Shīrāzī held that one could prove this through mathematical and empirical means, thus obviating the necessity of subalternating astronomy to natural philosophy (Ragep, “Ṭūsī and Copernicus”). This is important to keep in mind when one assesses the reasons for Shīrāzī’s insistence on finding alternative models to Ptolemy; calling this a philosophical imperative, based on Shīrāzī’s adherence to Aristotelian physics, is clearly inadequate.¹ That Shīrāzī had a rather jaundiced view of Hellenistic philosophy is apparent from a number of comments he makes in other works. For example, in the *Durrat al-tāj*, when referring to the parts of the book dealing with first philosophy, natural philosophy and metaphysics, he makes the point that “these sciences contain things that are contrary to conviction (*i ṭiqād*), some on the basis of certainty (*yaqīn*), some on the basis of religion (*dīn*)” (Shīrāzī, *Durrat al-tāj*, I, 237). And in his *Sharḥ ḥikmat al-ishrāq*, in referring to the Peripatetics, he states that “they don’t agree on anything” and “the clever no longer have trust in either their books or their words, since they are not free of uncertainty and doubt” (Shīrāzī, *Sharḥ ḥikmat al-ishrāq*, p. 25).² Why Shīrāzī should take such a contrarian view, especially in the face of the great prestige of his erstwhile teacher Naṣīr al-Dīn, not to mention Ibn

1. But cf. Niazi, p. 120, who takes a different view: “However, by invoking Aristotle’s authority immediately prior to his confident claims in regards to his own innovative work in astronomy Shīrāzī appears to be hearkening to an even greater authority on physical theory, i.e., Aristotle, from whom the principles of *hay’ā* and of natural philosophy ultimately derived.”

2. I owe these references to my colleague Reza Pourjavady, who not only pointed them out to me but also helped me understand their import.

Sīnā, is not entirely clear. One may hope that ongoing studies of Shīrāzī's philosophical position will help resolve some of these issues.¹

Finally, we should make a few remarks about the edition. One of the things we are learning about Islamic scientific texts is that they were often subject to revisions by the author. For example, Naṣīr al-Dīn al-Ṭūsī completed the first edition (the Marāgha version) of his *Tadhkira* in 659/1261. But we know that from that time until his death in 672/1274, he revised the text several times. A final edition (the Baghdad version) was issued most likely in 672/1274 (Ragep, *Naṣīr al-Dīn...*, vol. I, pp. 70-75).² Thus it should not be surprising to find multiple editions of Shīrāzī's works that are the result of his editorial hand. Several years ago, Robert Morrison pointed this out in the case of the *Tuḥfa* (Morrison, pp. 33-37). Due to the work of Niazi and Gamini, we can now fairly conclusively state that the *Nihāya* exists in multiple editions as well. Currently the main evidence for this is the reference in Book II, Chapter 8 ("On the Upper Planets and Venus") in some witnesses of the *Nihāya* (either within the text or as a marginal note) to the *Ikhtiyārāt*, which itself refers to the *Nihāya* in the introduction as an earlier work. Niazi struggles with this seeming contradiction but does not reach a conclusion on how to resolve it (Niazi, pp. 116, 128, 133-135).³ The simplest way to settle the issue is to conclude that there was a first edition of the *Nihāya* to which Shīrāzī later made emendations. Proof of this comes from Berlin, Staatsbibliothek, Petermann I MS 674, f. 84b; this early witness of the *Nihāya* does not include the reference to the *Ikhtiyārāt*. As with the case of the *Tadhkira*, some copies of the *Nihāya* have the reference in the margin of the manuscript (e.g. Tehran Univ. MS 7070 and Istanbul, Köprülü MS 957), while it occurs in the body of others (e.g. Tehran, Malik Library MS 3506; British Library MS 7482; Tehran University MS 2696; and Istanbul, Ahmet III MS 3333).

In making the following edition, it therefore seemed best to use a manuscript that we can tentatively identify as a "first edition" (Berlin, Staatsbibliothek, Petermann I MS 674) and one that we can provisionally call the "second edition" (Istanbul, Ahmet III MS 3333). Petermann I MS 674 lacks a colophon, but we know it is an early copy because of a readership note that references a student of Shīrāzī (Gacek,

1. John Walbridge raises some of these issues in his study of Shīrāzī's relationship to Suhrawardī's Illuminationist tradition (Walbridge, pp. 104-108).

2. As Saliba has noted, we have a somewhat similar situation with al-'Urḍī's *Kitāb al-hay' a* (al-'Urḍī, 32-36).

3. I was also made aware of this chronological problem by Amir Gamini (private communication).

p. 14). Ahmet III MS 3333 can be dated from its colophon to 738 H/1338 CE. Because the full range of extant manuscripts still need to be examined and analyzed, I make no claims that this is a “critical” edition. Nevertheless, the small number of variants in these passages leads me to suspect that, at least for the introduction and the conclusion, Shīrāzī made few if any changes in these parts from the version he completed in mid-Sha‘bān 680/November 1281.

Nihāyat al-idrāk fī dirāyat al-aflāk
by Quṭb al-Dīn al-Shīrāzī

Incipit, Introduction, Explicit, and Colophon

Berlin, *Staatsbibliothek*, Petermann I MS 674 (=Ahlwardt 5682),
ff. 0b-233b
Collated with Istanbul, Topkapı Saray, Ahmet III 3333,
ff. 34b-162a

Signs and Conventions Used in Apparatus:

[Separates reading in edition from any variant
:	Separates variant and manuscript <i>sigla</i>
+	Added in
-	Missing from
=	Indicates another variant
(...)	Editor's comments
ح	Istanbul, Topkapı Saray, Ahmet III 3333, ff. 34b-162a
س	Berlin, <i>Staatsbibliothek</i> , Petermann I MS 674, ff. 0b-233b
ها	In the margin

[Incipit and Introduction]

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ رَبِّ أَنْعَمْتَ فَرْدًا^١
قال مولانا وأستاذنا أفضل الوري علامة العالم سيّد فضلاء بني آدم^٣ قدوة المحققين
سلطان العلماء في العالمين حجة الحقّ على الخلق أجمعين مفخر أفاضل الأنام ملك^٤
القضاة والحكّام قطب الملة والحقّ^٥ والدين محمود بن مسعود الشيرازي أدام الله ظلال^٦
جلاله ومثّع الله المسلمين بفضله وإفضاله^٧ أمّا بعد حمد الله فاطر السماوات^٨ فوق
الأرضين عبرة للناظرين المتوسّمين ومزيّنها بزواهر الثواب والمتحيرين إلهاماً لدقائق
صنعه فيها قلوب المستبصرين والصلوة على سيّد الأوّلين والآخريين محمّد وآله الطيبين
الطاهرين فإنني قد كنت برهة من الزمان عازماً على أن أحرّر لنفسي ولسائر الأخوان في
علم الهيئة التي فاز بالسعادة عالمها وانغمس في الشقاوة جاهلها لكونه أشرف العلوم
لأنّ شرف العلم إما بكون معلوماته ثابتة باقية غير متغيّرة أو بكون الطرق المؤدّية إليها
طرقاً يقينية مبرّاة عن شوب الظنون^٩ أو بكثرة فوائده وهذا العلم الذي نحن بصددده قد
اجتمع له الفضل من هذه الجهات كلّها لثبات موضوعاته على أحسن نظام وأتمّ دوام على
ما لا يخفى وكثرة فوائده على ما لا يحصى ووثاقه براهينه لكونها عددية أو هندسية لا
شك فيهما بخلاف براهين الطبيعي والإلهي ولهذا لم يرج اتفاق الحكماء فيهما وفاق
هي أمثالها من الفنون الحقيقية وعلت أشكالها من العلوم الحكمية رسالة مغنية عن غيرها
مشمّلة على زبدة المبسوطات المؤلّفة ولباب المجموعات المصنّفة في تركيب الأفلاك
ومحتوية على ملخّص ما وصل إليه ومحصل ما انتهى عنده منتهى الإدراك بحيث يكون
تبصرة للمبتدئ وتذكّرة للمنتهي بل عمدة لأولى الأبصار وغاية لذوي الأفكار وكانت
العوائق شاغلة إيايّ دونه حائلة بيني وبينه إلى أني استسعدت بعد آونة من الدهر وملاوة
من العصر وقد مسّ نفسي مضض العناء وعرتها خطوب معضلة اللأواء ولم يكن من
نعيم الأمانى إلى قلبي سبيل ولا لسلوك محجّتها هادٍ ودليل بالاتّصال ثانياً إلى عالي^{١٠}

١. ح: 34b؛ س: 0b

٢. ربّ أنعمت فرداً - ح:

٣. سيّد فضلاء بني آدم] - ح:

٤. ملك] مالك : ح

٥. والحق] - ح:

٦. ظلال] ظل : ح

٧. ومثّع الله المسلمين بفضله وإفضاله] - ح:

٨. السماوات] السّموات : ح

٩. الظنون] بمظنون : ح

١٠. عالي] ها : ح

جناب من هو خلاصة الدهر^١ ونخبته وصفوة العصر وزيدته أعني رفيع حضرة من هو للزمان منيته ولأهله مهجته ومن الجلال بهاؤه وبهجته ومن الكمال تفصيله وجملته

فظاهره حسن وباطنه نقي^٢ ورؤيته أمن وطلعته منى^٣
فما هو إلا دوحة من مكارم^٤ لقد طاب منه الأصل والفرع مجتئى^٥

وهو المولى المعظم^٦ صاحب الأعظم آصف الزمان ولي الأيادي والإحسان صاحب ديوان الممالك بعداً وقرباً مولى ملوك العالمين شرقاً وغرباً شمس الدنيا والدين علاء الإسلام والمسلمين محمد بن صاحب السعيد بهاء الدين محمد الجويني ضاعف الله في سبوغ النعم جلاله ومد على الخافقين ظلاله فألحقت هممه العلية ومواهبه السنية لواحق كرمه التي تلاطمت أمواجها بسوابق نعمه التي تصادمت أفواجها وأعدت أظافه العميمة وأخلاقه الكريمة إلى أغصاني الذوابل ماءها وإلى أزهاره الفواتر بهاءها ولما كان ذلك كذلك وكان من المعلوم^٧ أن فواضل النعم لا تعقل شواردها إلا بحبائل الشكر العميم ومناهل الكرم لا توردها إلا بوسائل الحمد الجسم وأن أعم الشكر أدومه على مر الزمان وأجسم الحمد أبقاه على اختلاف الأديان رأيت أن أجمع الكتاب المذكور برسمه ليكون باقياً طول الدهر كاسمه لا يخلقه الجديدان ولا يغيره الملوان إذ ليس علماً يتغير بتغير الأديان ويختلف باختلاف الزمان والمكان بل هو كموضوعه ثابت أبداً وأزلاً لا يستحيل ولا يقبل خلاً وكبراهينه القطعية يكون دائماً معقولاً إلى أن يقضي الله أمراً كان مفعولاً وككثرة منافعه وأقلها الدخول تحت قوله عز قائل^٨ الذين^٩ يذكرون الله قياماً وقعوداً وعلى جنوبهم ويتفكرون في خلق السموات والأرض ربنا ما خلقت هذا باطلاً يكون سرمداً حاصلاً ثم إنني لما استخرت الله تعالى^{١٠} في ذلك وشرعت في تحريره سألني من لا تسعني^{١١} مضايقته ولا توافقي مخالفته وهو أعز رفقاني علي وأولاهم بالإحسان إليه لدي بل الجناب الرفيع والأخ العزيز أفضل العصر وأوحد الدهر أشرف الدين شرف الأقران محمد بن عمر البدخشاني أدام الله فضله وكثر في الأفاضل مثله أن أشير في مظان الاحتياج إشارة خفيفة^{١٢} إلى الأرصاد وإيماءً لطيفاً^{١٣} إلى كيفية استخراج الحركات وغيرها منها وأن أتبع ألفاظ التذكرة التي لم يسبقها ما قبلها ولا يلحقها ما بعدها وأدرجها في أثناء الكلام إن كانت ظاهرة وأبسطها إن كان فيها نوع انغلاق فتلقيت مرسومه

١. س: 1a

٢. ح: 35a

٣. الدين [الذي]: س

٤. تعالى] - ح

٥. يسعني] - شعني: ح

٦. خفيفة] ها: ح (مع رمز «اصح») = خفه: ح

٧. س: 1b

وأسعفت مأموله جمعاً بين المصلحتين واستزادة للعنايتين ولما كان هذا الكتاب لا يغادر صغيرة ولا كبيرة إلا أحصاها^١ ولا أبيّة ولا شريدة إلا سخّرها وأدناها لاشتماله على نهايات أفكار الأولين من المتقدمين واحتوائه على غايات أنظار الآخرين من المتأخرين مع فوائد شريفة وفرائد لطيفة من قبلنا إن لم تكن أجلّ مما ذكروا وأكبر لم تكن أقل وأصغر سمّيته نهاية^٢ الإدراك في دراية الأفلاك ليكون اسمه دالاً على معناه وظاهره مخبراً عن فحواه ورتبته على أربع مقالات المقالة الأولى فيما يحتاج إلى تقديمه قبل الشروع في المقاصد المقالة الثانية في هيئة الأجرام العلوية وما يتعلّق بها من أوضاع بعضها^٣ عند بعض وغيره المقالة الثالثة في هيئة الأرض وقسمتها إلى العامر والغامر وما يلزمها بحسب اختلاف أوضاع العلويات وغيره المقالة الرابعة في معرفة مقادير الأبعاد والأجرام وإلى الله الرغبة في إتمام ما قصدت وتيسير أسباب ما اعتمدت إنه أكرم مسئول وأمنح مأمول

[Explicit]

⁴ وهذا آخر الكتاب والحمد لله ملهم الصواب فهذا ما سمحت به قريحتي القريحة وفكرتي الجريحة لتلاطم أمواج الأحوال وتراكم أثباج الأشغال وعموم لا تعدّ عديدها وهموم لا ينادى وليدها وقد بذلت الوسع في كشف المعاني وإظهارها^٥ مع إيجاز الضوابط واختصارها وأتيت بحلّ ما لم يتأت لأحد قبلي حلّها بل أشكل عليهم جلّها أو كلّها هذا مع أن زيغ البصر وطغيان القلم موضوعان والخطاء والنسيان عن الإنسان مرفوعان فالمرجو من متصفّح كتابي هذا أن لا يبادر إلى إنكار^٦ ما لم يألف سمع^٧ أو خالف طبعه بل عليه أن يمعن النظر ويجانب الاعتساف ثم يسلك مسلك الاستنكار أو الاعتراف فإن بالحقّ يعرف الرجال لا بتقادم الدهور والآجال وأن يصلح ما يعثر عليه من الخلل والفساد متجنباً فيه طريق الجدل^٨ والعناد وأن يذكرني بصالح^٩ دعائه ويشكرني بفتاح ثنائه كما قال أرسطو في كتابه فيما بعد الطبيعة وليس ينبغي أن نشكر من قال في

١. أحصاها [أحصاها] ح

٢. نهاية [بنهاية] ح

٣. بعضها] - ح

٤. ح: 161b؛ س: 233a

٥. س: 233b

٦. إنكار [الانكار] ح

٧. سمع^٧ [سمع^٧] ح

٨. الجدل [و] -: ح

٩. ح: 162a

الحقّ قولاً جزلاً بل ومن قال في ذلك قولاً نزرأ هذا مع أنّ ما قلناه^١ ليس أقلّ مما ذكروا وأصغر بل هو أجل وأكبر وإنما يعرف ذلك من تصفّح الكتب المعبّرة المصنّفة في هذا الباب المومئ إلى بعضها في خطبة الكتاب كالرسالة المعينية^٢ والزبدة واللباب وغاية الأفكار والعمدة لأولى الألباب وكالمملخص وتركيب الأفلاك والتذكرة والمحصل ومنتهى الإدراك والتبصرة وأحاط بمعانيها وأدرك كنه مبانيها ثم قابل بينها وبين هذا الكتاب ليتميّز عنده القشر من اللباب والله ملهم السداد والرشاد منه المبدأ وإليه المعاد وإذ وفقني الله تعالى لإتمام ما قصدته وإنجاز ما وعدته فلنختم الكتاب حامدين لله تعالى^٣ على آلائه العظام ونعمائه الجسام ومصليين على زبدة الليالي والأيام محمد خير الأنام وعلى آله البررة الكرام مصابيح الظلام ومفاتيح الكلام^٤

[Colophon of ح]

فرغ المصنّف رحمه الله من تصنيفه وتأليفه في ليلة النصف من شعبان سنة ثمانين وستماية والكاتب من كتبه تعليقاً لنفسه أفقر عباد الله وأحوجهم إليه محمد بن محمد بن محمد الملقّب بشرف السمرقندي عفا الله عنه وتجاوز عن سيئاته في شعبان الواقع في شهور سنة ثمان وثلثين وسبعماية بمدينة توقات وقيت من الآفات بحق النبي صاحب المعجزات الباهرات وصلى الله على سيّدنا محمد وآله الطيبين الطاهرين

١. قلناه [قلنا : ح

٢. المعينية] المعنيه: ح

٣. تعالى] - : ح

٤. الكلام] + والحمد لله ربّ العالمين : ح

[Incipit and Introduction]

In the name of God the Beneficent, the Merciful
Lord, you have been gracious; may you grant additional bounty

Our master and teacher, the most excellent of men, the most learned of the world, the lord of mankind's eminences, the model of the righteous, the sultan of the learned in the worlds, the touchstone of truth over all creation, the source of pride for the most worthy of humanity, the king of justices and judges, the pole of the faithful community, of truth and religion, Maḥmūd ibn Mas'ūd al-Shīrāzī, may God continue the shadows of his glory and may God allow the Muslims to enjoy his favor and his bestowal of benefits, said:¹

After praising God, the Creator of the heavens above the earths, as an example for careful observers, and their Adorner with the radiance of the fixed stars and the planets, as an inspiration for the hearts of the perspicacious with the intricacies of His craftsmanship of them, and praying for the master of the ancients and the moderns, Muḥammad, and his most excellent and virtuous family, I resolved at one time to compose for myself and for all colleagues a treatise in astronomy [*ilm al-hay'a*] whose cognoscente gains happiness while its ignoramus is plunged in distress because it is the most noble of the sciences. For the nobility of a science is either due to its body of knowledge being fixed, permanent, and unchangeable; or due to the methods producing [this knowledge] being certain, free of any taint of doubt; or due to the multitude of its benefits. This science with which we are concerned has brought together priority in all these aspects: on the fixity of its subject matter according to the best system; the most absolute permanence as is obvious; and the multitude of its benefits that are innumerable. And its proofs are solid due to their being numerical or geometrical, about which there is no doubt, in contrast to the proofs of natural philosophy and theology [metaphysics]; for this reason agreement among the scholars of the latter two cannot be hoped for. And [its proofs] have surpassed their like in the positive sciences and its propositions excel in the philosophical sciences. And this treatise [I resolved to compose]

1. This incipit is clearly due to a student writing during Shīrāzī's lifetime. A number of manuscripts have the following, unembellished incipit, probably representing his original wording:

يقول أحوج خلق الله اليه محمود بن مسعود الشيرازي ختم الله بالحسنى اما بعد

(The most needy of God's creation, Maḥmūd ibn Mas'ūd al-Shīrāzī, may God seal a felicitous fate, states:)

would be independent of others, comprising the essence of the detailed publications and the gist of the written compilations dealing with the arrangement of the orbs and containing an epitome of what has been reached, and the outcome that has been attained by the utmost discernment so that it would be enlightening for the beginner and a memento for the consummate; indeed, a support for the most discerning, and a final destination for those with cognition. But obstacles preoccupied me, standing in the way of it, until after some time and an extended period, during which the pain of hardship had injured my soul and the difficult circumstances of distress had afflicted it, there being no pathway from the blessing of security to my heart nor a leader or guide taking me to that [security], I sought help once again by contacting his honor most high, he who is the quintessence of the age and its most select, the purest of the times and its prime, I mean the exalted presence who is for [our] time that which is wished for and for its people its lifeblood, and of the lofty its most brilliant and most splendid, and of the perfect, its most detailed and its most complete.

His exterior is beauty and his interior is piety;
 his look is at peace and his appearance is an object of desire.
 He is none other than a sprawling tree of noble deeds,
 from whom the trunk and branches are delicious harvest.

He is the exalted master, the sublime lord, the Āṣaf of [our] time, the guardian of authority and charity, the finance minister of realms near and far, the companion of the kings of the world east and west, Shams al-Dunyā wa-'l-Dīn, exalted in Islam and among the Muslims, Muḥammad, the son of the felicitous lord, Bahā' al-Dīn Muḥammad al-Juwaynī, may God multiple his glory with abounding grace, and extend his shadow over the East and West. Thus his high-mindedness and his sublime gifts attend his magnanimity whose waves dash against his earlier kindnesses, their droves of [beneficiaries] bumping up one another. His complete kindness and his noble character returned to water my wilted limbs and to give radiance to my languid blossoms. That being the case, and it being well-known that the exceptional excess of kindness cannot be grasped except with an all-encompassing web of gratitude, and springs of generosity cannot be brought up except by the expedient of prodigious praise, and that the most universal gratitude is that lasting longest across the passage of time and that the most prodigious praise is that enduring best across differences in creeds, I decided to compile the book described above, so that it would endure through all time, just as his name, not to be created anew with a new dawn or be changed with a new day. For it is not a science that changes with a change of religions, or varies over time and place; rather, it is

like its subject—fixed permanently and unendingly, unchanging and immune to imperfection—and like its definitive proofs—always intelligible until God decrees [another] effective order—and like the multitude of its benefits. And [even] its most minor part has a place in the statement of the Almighty: “Whoever—standing, sitting or reclining—recall God and reflect on the creation of the heavens and the Earth [will say]: Our Lord! Thou hast not created this in vain” [Qur’ān, III.191], it is eternally existent. Then when I sought guidance from God Almighty about that and I had begun to compose it, he whose displeasure may it not discredit me nor his opposition befit me, he who is the dearest to me of my companions and most worthy of favors from me, indeed the high honorable, the dear brother, the most excellent of the age and unique of the time, Ashraf al-Dīn, noblest of peers, Muḥammad ibn ‘Umar al-Badakhshānī, may God perpetuate his pre-eminence and make more plentiful those sharing his excellence, he asked me in an suitable place to give an idea, lightly expressed, about observations and a congenial indication on how to derive the motions and other things from them, and that I follow the linguistic style of the *Tadhkira*, which nothing before has surpassed and nothing after has overtaken, and that I incorporate it in the course of the exposition if it is clear, and expound upon it if something in it is obscure. So I accepted his decree and complied with his wishes, combining the two issues and striving to be meticulous in both. And since this book does not leave anything small or large without enumerating it, nor the shunned or rejected without turning it to account and bringing it closer, so as to include the utmost thoughts of the foremost Ancients and contain the paramount ideas of the uppermost of the Moderns as well as sublime benefits and fine singularities from us—and even though they are not greater or larger than what they have stated neither are they lesser or smaller—I have called it the *Utmost Attainment in Comprehending the Orbs*, so that its name will indicate its connotation and its literal sense will inform its signification. I organized it into four books: the First Book is “On what Needs to Be Introduced before Undertaking the Intended Content”; Book Two is “On the Configuration of the Upper Bodies and What Pertains to Them of the Circumstances of One to Another, and so on”; Book Three is “On the Configuration of the Earth” and I have divided it into the inhabited and the desolate, and what adheres to them according to the differences in the positions of the upper [bodies], and so on; Book Four is “On Understanding the Quantities of the Distances and [Sizes of] Bodies.” And to God is the request to complete what I have intended and to facilitate the means to

what I have intended, for He is the most magnanimous of those implored, and the most giving of those embodying hope.

[Explicit]

This is the end of the book: praise be to God Who inspires truth. This is [the extent] that my ulcerated disposition and my wounded thinking has permitted due to the collision of the waves of circumstances and the accumulation of affairs at their crest, incalculable grief and unmentionable concerns whose source cannot be voiced. I have done my best to uncover the material and make it clear, despite succinctness and brevity of what is recorded. And I brought forth a solution to that which had not been forthcoming to anyone before me—indeed, most or all of it had remained obscure to them; despite everything, diversion of sight and repression of pen were relieved, and error and forgetfulness were lifted from [my] person. It is hoped that whoever examines this book of mine will not rush to reject that which does not have a familiar ring or goes against the grain. Rather he should examine closely and avoid any distraction, and then follow the path of rejection or approval; for through truth does a person know, not through long-standing [tradition] or antiquity. [And it is hoped] that he will correct shortcomings and mistakes he finds, steering clear of argumentation and obstinacy; and that he will remember me with suitable good wishes and thank me in his exordium of praise, just as Aristotle stated in his book *On Metaphysics*: It is not necessary that we [only] thank him who states the truth with profuse words, but also him who states it with few. Nevertheless, what we have stated is neither less nor smaller than what they have put forth; indeed, it is greater and larger. One may know this by examining the books that have been set forth and composed in this discipline, some of which have been referred to in the body of the book such as: *al-Risāla al-Muʿniyya*, *al-Zubda*, *al-Lubāb*, *Ghāyat al-afkār*, *al-ʿUmda li-ʿĪla al-albāb*; and such as *al-Mulakhkhaṣ*, *Tarkīb al-aflāk*, *al-Tadhkira*, *al-Muḥaṣṣal*, *Muntahā al-idrāk*, and *al-Tabṣira*. And he [should] completely grasp their meaning and understand their foundations to the utmost; then he [should] compare them with this work in order for him to distinguish the chaff from the grain. God is the inspirer of proper conduct and righteousness, from whom is the beginning and to whom is the return. And since God has granted me success in completing what I intended, and the fulfillment of what I promised, let us then end the book, praising God Almighty for His enormous blessings and His copious grace, and praying for the essence of the nights and the days, Muḥammad, the most excellent of mankind,

and upon his family, the righteous, the noble, the illuminators of darkness and the keys to the Word.

[Colophon of ح]

The author, may God bless him, completed its writing and composition during the night of mid-Sha‘bān, in the year 680, and the copyist, the most deprived servant of God and the neediest of them, Muḥammad ibn Muḥammad ibn Muḥammad, nicknamed Sharaf al-Samarqandī, may God forgive him and overlook his misdeeds, [completed] his copy that was penned for himself, in the month of Sha‘bān, falling in the months of the year 738 in the city of Tūqāt, may it be protected from harm, by the truth of the Prophet, he of the dazzling miracles, and may God bless our master Muḥammad and his most excellent and virtuous family.

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