

**RISĀLĀT AL-BĪRŪNĪ FĪ FĪHRIST
KUTUB AL-RĀZĪ:
A COMPREHENSIVE
BIBLIOGRAPHY OF THE WORKS OF
ABŪ BAKR AL-RĀZĪ (D. 313 A.H/925)
AND AL-BĪRŪNĪ (D. 443/1051)**

Nurdeng Deuraseh*

Abstrak

Risālah al-Bīrūnī fī Fihrist Kutub al-Rāzī merupakan bibliografi dua tokoh agong ilmuwan Islam iaitu Abū Bakr Muḥammad ibn Zakariyā al-Rāzī (m. 313/925) dan Abū al-Rayḥān Muḥammad ibn Aḥmad al-Bīrūnī (m. 443/1051). Ia adalah bibliografi paling lengkap berbanding bibliografi yang dituliskan oleh Ibn Nadīm (m.384/ 995), Ibn Juljul (m. 385/996 C.E), al-Bayhaqī (m. 565 A.H/1170), al-Qiftī (m.645/1248), Ibn Abī Uṣaybi'ah (m.668 /1266) dan Ibn Khallikān (m.681/1283 C.E). *Risālah* ini dituliskan oleh al-Bīrūnī pada tahun 427/1036. Makalah ini mengemukakan terjemahan Inggeris *Risālah al-Bīrūnī fī Fihrist Kutub*

* Dr. Nurdeen Deuraseh obtained his BA from the International Islamic University Malaysia (IIUM), and his MA and PhD from the International Institute of Islamic Thought and Civilisation (ISTAC). He was a Research Scholar at the Oxford Centre for Islamic Studies, Oxford University, during Trinity Term, 2004. He is currently a Senior Lecturer at the Universiti Putra Malaysia. He has published in *The Yale Journal for Humanities in Medicine* (USA); *Islamic Culture* (India); *Arab Law Quarterly* (London); *Journal of the International Society for the History of Islamic Medicine*, *Hamdard Islamicus* (Pakistan), *Minerva* (Netherlands) and, the *International Medical Journal Malaysia*. E-mail: nurdeng@putra.upm.edu.my.

al-Rāzī di samping perbincangan berkaitannya secara ringkas.

Kata kunci: *Risālah al-Bīrūnī fī Fihrist Kutub al-Rāzī*; Abū Bakr Muḥammad ibn Zakariyā al-Rāzī; Bibliografi Abū Bakr Muḥammad ibn Zakariyā al-Rāzī; al-Bīrūnī; bibliografi al-Bīrūnī.

Abstract

Risālah al-Bīrūnī fī Fihrist Kutub al-Rāzī is a bibliographical document of two Muslim scholars namely Abū Bakr Muḥammad ibn Zakariyā al-Rāzī (m. 313/925) and Abū al-Rayḥān Muḥammad ibn Aḥmad al-Bīrūnī (m. 443/1051). It is a comprehensive bibliography compared with what had been made by Ibn Nadīm (m.384/ 995), Ibn Juljul (d. 385/996 C.E), al-Bayhaqī (d. 565 A.H/1170), al-Qiftī (d.645/1248), Ibn Abī Uṣaybi'ah (d.668 /1266) and Ibn Khallikān (d.681/1283 C.E). The *Risālah* was written in 427/1036. This article proposes an English translation of the *Risālah* together with a brief introduction and discussion.

Keywords: *Risālah al-Bīrūnī fī Fihrist Kutub al-Rāzī*; Abū Bakr Muḥammad ibn Zakariyā al-Rāzī; Bibliography Abū Bakr Muḥammad ibn Zakariyā al-Rāzī; al-Bīrūnī; bibliography of al-Bīrūnī.

Introduction

After the death of Abū Bakr Muḥammad ibn Zakariyā al-Rāzī in 313 A.H/925 C.E, many of his writings were plagiarized, some were lost and some still known to us in several manuscripts and other historical and bibliographical documents.¹ In 427 A.H/ 1036 C.E, we received a full index

¹ Before 427 A.H/ 1036 C.E, Al-Rāzī's bio-bibliography, unfortunately, is little

or *Fihrist* (bibliography) of the works of al-Rāzī by al-Bīrūnī (d.443 A.H/ 1051 C.E).² In the introduction of al-Bīrūnī's *Risālāt or Fihrist*, it was mentioned that the project was not of his own initiative. He realized the difficulties of the task, its challenges and its seriousness. Therefore, he initially hesitated to write the *Fihrist* and tried to avoid such a responsibility when he was asked to do so by his friend. But with the encouragement of his friend who persisted in his request, the *Fihrist* was adequately completed.³

Since the 19th century, scholarly efforts made by various institutions as well as individual Muslims and western scholars such as Edward Sachau, Suter, Wiedmann, O.

known for certain. Only a few allowed him fair chronological treatment. Ibn Nadīm (d.384 A.H/ 995 C.E), Ibn Juljul (d.ca 385 A.H/996 C.E), al-Bayhaqī (d.565 A.H/1170 C.E), al-Qifī (d.645/1248 C.E), Ibn Abī Uṣaybi'ah (d.668 A.H/1266 C.E) and Ibn Khallikān (d.681/1283 C.E) gave bio-bibliographies of al-Rāzī's life and works and offered only a brief survey and in some cases with contradictory appraisals.

² The *Risālah* of al-Bīrūnī was not known to the author of *Tārīkh Ḥukamā' al-Islām* of Zāhir al-Dīn al-Bayhaqī (499-565 A.H/ 1106-1170 C.E). However, it was mentioned by Ibn Abī Uṣaybi'ah in his '*Uyūn al-Anbā' fi Ṭabaqāt al-Aṭibbā'*. Another work which Ibn Abī Uṣaybi'ah occasionally referred to was *al-Fihrist* of Ibn Nadīm who was the first of the Arabs to write such a catalogue (index or *Fihrist*) of books which existed at the end of tenth century (his *Fihrist* was completed in 987 C.E). In his *Fihrist*, Ibn al-Nadīm introduced brief biographies and bibliographies of many Muslims as well as Greek scholars in various branches of science together with their lineages, dates of the birth and death, origins and residences. Ibn Nadīm divided his *Fihrist* into ten treatises. These treatises were divided into three sections. The first section dealt with philosophy, the second with mathematics and the third with medicine. In Spain, after a long development of medical writings, we appreciate the works of a towering figure in the Islamic world, Abū Dāwūd Ibn Juljul (d.385 A.H/996 C.E). He wrote the first comprehensive directory entitled *Ṭabaqāt al-Aṭibbā' wa al-Ḥukamā'* which dealt with the biographies of physicians and philosophers. Besides brief biographies of Greek physicians and their achievements, Ibn Juljul also gave a brief discussion on Muslim Andalusian physicians. This directory represent an important information source for later historians. Another important directory is *Akhbār al-'Ulamā' bi Akhbār al-Ḥukamā'* by Ibn al-Qifī (d.645/1248) who gave a brief biography of many physicians arranged in alphabetical and chronological orders.

³ Al-Bīrūnī, *Risālāt al-Bīrūnī fī Fihrist Kutub al-Rāzī*, ed. by Mehdi Mohaghegh (Tehran: Tehran University, 1973), 1. The writing of *Fihrist* or index of particular intellectual figures was widely known in the history of science. As an example, Galen wrote *Finex (Phoenix)* which listed his own medico-philosophical writings. Similarly, Hunayn ibn Ishāq (d. 259/873) listed Galen's works which included the books that he translated and those not translated by him in his *Risālāt Hunayn Ibn Ishāq ilā 'Alī ibn Yasya fī dhikru mā turjīm min*

Rescher, Ruska, Kraus, J. Homa'i, Z. V. Toghan, H. Q. Tuḡan, S. H. Barani, A. Ghorbani, Sami Khalaf. Hamarneh and Sayyed Khan have been meticulously devoted to analyze al-Bīrūnī's writings from various objective aspects. Edward Sachau was among the eminent scholars who edited and translated into English two of al-Bīrūnī's most important works. They are: *Kitāb al-Hind and al-Athār al-Bāqiyah 'an al-Qurūn al-Khāliyah*. In the introduction of the Arabic text of al-Bīrūnī's *al-Athār al-Bāqiyah*, Sachau published the works of al-Bīrūnī simultaneously in Arabic and German languages based on al-Bīrūnī's *Risālāt*. In one statement, he said: "Judging al-Bīrūnī in reflection to his predecessors, we come to the conclusion that his works formed a most marked progress. His description of Hindu philosophy was probably unparalleled. His system of chronology and astronomy was more complete and accurate than had ever before been given."⁴

A German Professor of Physics, E. Wiedmann (1852-1928), studied many of al-Bīrūnī's works in the German language which were published in *Sitzungsberichte der Physikalisch Medizinischen Sozietat zu Erlangen*. In 1912, he wrote the biography and bibliography of al-Bīrūnī based on Ibn Abī Uṣaybi'ah's '*Uyūn al-Anbā' fī Ṭabaqāt al-Aṭibbā'*'.⁵ Later on, in co-operation with Heinrich Suter, he provided in German the works of al-Bīrūnī based on *Bīrūnī's Fihrist* and Yāqūt's *Mu'jam al-'Udabā'* in his *ber al-Bīrūnī und Seine Schriften*.⁶

kutub Jalīnūs bi 'ilmihī wa ba'du mā lam Yutarjam. From this, we know that al-Bīrūnī's *Fihrist* is similar to that of Galen's and Hunayn's. Yet unfortunately, no comprehensive evaluation has ever been made of al-Bīrūnī's *Risālah* aside from the German translations and annotations by J. Ruska and another by M. Mohaghegh. (Max Mayerhoff, "New Light on Hunayn ibn Ishāq and His Period" in *ISIS* 8 (1926), 685-724.

⁴ Al-Bīrūnī, *Al-Beruni's India*, ed & tr. By Edward C.Sachau, (New Delhi: Oriental Book Reprint Corporation), 1983, I, p. xxxiv.

⁵ Wiedmann, E., *Biographie von al Baihaqi nach JAqst*, 2. *Biographe von al-Biruni nach Ibn Abi Usaibi'a*, (Beitr. Zur Gesch der Naturwiss, 28) SPMSE, 1912, 44, pp.113-8.

⁶ It was published by (Beitr.Zur Gesch. der Naturwiss, 60) SPMSE, 1920-1, pp.52-3, 55-96; also in the Wiedmann's Aufsätze zur arabischen Wissenschaftsgeschichte, Hildesheim, 2(1970), pp.474-515.

In 1925, the German historian of science, J. Ruska, published in the German language al-Rāzī's works based on al-Bīrūnī's *Risālah* entitled *al-Bīrūnī als Quelle für das Leben und die Schriften al-Rāzī's*.⁷ In this work, the author provided after a short introduction, the translation of al-Bīrūnī's *Fihrist* of the works of al-Rāzī. Besides this, G.S.A Ranking too provided a full account of al-Rāzī's works in Latin based on Ibn Abī Uṣaybī'ah's *Uyūn al-Anbā' fī Ṭabaqāt al-Aṭibbā'* and Ibn Khallikān's *Wafāyāt al-A'yān* which were considered as remarkable sources of information up to his time.⁸

Al-Bīrūnī's *Fihrist* has been edited by P. Kraus and published in Paris in 1936, under the title *Épître de Beruni Contenant le Répertoire des Livres de Musammad b.Zakariyā al-Rāzī*. Another praiseworthy and complete edition of al-Bīrūnī's *Fihrist* was edited by a Persian scholar, Mehdi Mohaghegh, with Persian translation and introduction, published by Tehran University in 1973 and reprinted in 1992.⁹ About the same year and time, Saleh K. al-Hamarnah-- one of the few leading Arab authorities-- had carried meaningful researches in his *Note on al-Bīrūnī's Views of al-Rāzī's Works* which was presented on the occasion of Millenary of Abū Rayḥān Muḥammad ibn Aḥmad al-Bīrūnī.¹⁰

E.S Kennedy introduced *al-Bīrūnī's* works in his "*al-Bīrūnī*" which was published in *Dictionary of Scientific Biography*.¹¹ Kennedy gave brief description of most of al-

⁷ See, ISIS 5 (1923), pp.26-50

⁸ For detail, see the list with Latin translation by Saloman Negri, a priest of the Great Church who died in A.D. 1729, in G.S.A Ranking's *The Life and Works of Rhazes, Proceeding of the XVII International Congress of Medicine*, 1913, pp.237-268

⁹ According to Mehdi Mohaghegh, the difficulties of editing the Arabic text were dominated by the fact that there was available only one unique copy which exists in Leiden (MSS.No.133). This manuscript has many errors, but a careful study of it will enable us to make the necessary corrections (see, M.Mohaghegh, *Notes on Biruni's Fihrist, in Birūnī's Commemorative Volume*, ed.by Hakim Mohammad Said, (Pakistan: Hamdard National Foundation), 1973, p. 231).

¹⁰ See, in *Birūnī's Commemorative Volume*, ed. by Hakim Mohammad Said, (Pakistan: Hamdard National Foundation), 1973.

¹¹ New York, Vol. 2, 1970, pp.147-57

Bīrūnī's available works. Apart from all these, one should also refer to the works of Sami K. Hamarneh, the prolific author in the history of Islamic medicine and pharmacy. He wrote three noteworthy indexes namely: *Index of Ar. Mss. On Med. and Pharmacy*, published by The National Library, Cairo, Parts 1+2, 1967; *Catalogue of Arabic Manuscripts on Medicine and Pharmacy at British Library*, published in Cairo, 1975 and *Fihrist Makhṭūṭat Dār al-Kutub al-Ẓāhiriyyah*, Damascus, 1969. Also another paper entitled: *Arabic Manuscripts of the National Library of Medicine-Washington D.C.*, Jr. *History of Arabic Science*, Vol.1, 1977, pp.72-108. Besides these published works, other major sources of our knowledge are to be found in Carl Brockelmann's (1868-1956) *Geschichte der arabischen Litteratur (GAL)*" and Fuad Sezgin's *Geschichte des Arabischen Schrifttums (GAS)*." These authors gave and suggested new manuscripts of al-Rāzī and al-Bīrūnī that are found in various libraries in the world.

S.H. Nasr prepared al-Bīrūnī's bibliography entitled *al-Bīrūnī: An Annotated Bibliography*.¹² In his introduction, the author mentioned that the work was an attempt to provide sources which touched upon al-Bīrūnī's contributions both directly and indirectly in various languages. To achieve his noble aim, S.H. Nasr divided his book into two main sections, first is the sources in Arabic languages and the other in European languages such as French, English and German.

Translation of *Risālat al-Bīrūnī fi Fihrist Kutub al-Rāzī*¹³

This epistle, written by the wise master, distinguished and glorious scholar, Abū Rayḥān Muḥammad Ibn Aḥmad al-Bīrūnī, may God make his tomb comfortable and sanctify his soul, for cataloguing the books of Muḥammad Ibn Zakariyā al-Rāzī.

¹² Published by High Council of Culture and Art, Center of Research and Cultural Co-ordination, Tehran, Iran, 1973.

¹³ The translation is based on Arabic text edited by Mehdi Mohaghegh. It was published by Tehran University, Iran in 1973 and reprinted in 1992.

You mentioned-you keep to mention and because of this, it is mentioned-that you desire ardently to be acquainted with all that happened in the time of Muḥammad b. Zakariyā b. Yaḥyā al-Rāzī, and seeking to know the number of books composed by him and their titles in order to obtain and acquire them.

Your conviction of the acuteness of al-Rāzī's genius and the integrity of his intelligence and his utmost achievement in the art has awakened a desire in you to know who started and invented medical art and its authorities. Even if such knowledge is a narrative or informative research, you should not be confused about it. This is because, the translator, Iṣḥāq Ibn Ḥunayn had already written a treatise on the histories of the famous Greek physicians and their great men who introduced the principles, fixed the laws and really preserved them to help mankind maintain its inheritance in the world, such that the soundness of their resolution and estimation has led many sick people to make use of visits to the temples which were built in their names, seeking recovery from illness by entering them and offering in them sacrifices and obtaining successful cures from them without proper medications for healing.¹⁴

Iṣḥāq ibn Ḥunayn would have added to this art sufficiently, if his treatise was not corrupted in the transcription and transmission from people who collected it without editing and gathered without inspection.

¹⁴ Al-Bīrūnī mentioned in his *Risālah* that Greek and Indian medicines had been even derived knowledge from earlier sources i.e., Egyptian. The remarkable achievements of Egyptian civilization was clear when al-Bīrūnī asserted that, besides the art of astronomy which was well developed in Egypt, there were many great achievements by Egyptian physicians in medical science. As an example, the Egyptians were the first to cure diseases by using the flute (musical pipe) and melodies (*al-zamar wa alḥān*). It might be thought that this method was used to cure the pains of the soul. While at the same time, it was also effective on both: the body and also the soul. But this was limited to the decrease of pain rather than to bring about a cure. According to al-Bīrūnī, Egyptian knowledge spread to Greece, perhaps through Hermes (Hermes Trismegistus and in the Holy Quran calling him the Prophet Idrīs) who spent many years of his life in Egypt. He transmitted their science to the Greeks. It also seems probable that the system of astrology he subsequently taught originally came from Egypt. This science, as indicated by al-Bīrūnī, continued

You mentioned that when you realized that I am characterized by a different method, you come to me hoping that your heart would be consoled by me in your request, in spite of its having little usefulness and small advantage. Indeed, I confirmed your doubt of me, as far as possible, and I verified to you Abū Bakr al-Rāzī's books which I have seen or whose titles I have discovered by means of his guidance and indication. Were it not for my respect for you, I would not have done this, because such a work could bring upon me hatred from al-Rāzī's opponents who might think that I belong to his sect and am among those who equalize between al-Razi's true justifications and his inclinations to heretic tendencies and expressions in fanaticism, which exposed him to big sins. Religiously, he did not reduce the harshness (*qasāwah*) by his neglect, avoidance, ignorance since he worked on disapproved things with evil desires and corrupt deeds. In addition, he was influenced by the books of Mani and his followers which deceived all religions,

to spread among his people such as it happened in the writings of Thales (ca.626-546 B.C) of Miletus and then it slowly spread throughout the Greek world. Doubtless to say that scientific medicine began with the Greeks, since they were able to create a scientific method which appeared as a prominent feature of their intellectual life in later centuries. Yet, it is not recognized that the medical arts began with them. As far as the origin of the healing art is concerned, we agree that medical profession began much earlier, but it is not certain that it began before other sciences such as astronomy and mathematics. It is impossible to know the origin of medicine without referring to the works of preceding scholars, particularly the work of Ishāq ibn Hunayn (d.910 C.E) which became known at that time. In relation to this, al-Bīrūnī gave special attention to *Tārīkh al-Aṭibbā'* of Ishāq ibn Hunayn which was written for Wazīr al-Qāsim b. 'Ubaydallāh Wālī al-Dawlah. According to al-Bīrūnī, Ishāq's *Tārīkh al-Aṭibbā'*, provided enough information to this art of healing, if his treatise had been acquired without any correction or alteration by corrupted copyists and transmitters. Since this matter is concerned prominently with the history of noteworthy physicians, al-Bīrūnī also turned his attention to the work of Yaḥyā al-Naḥwī. Once al-Bīrūnī found the book of Yaḥyā, he imagined that it provided more additional information on each of the physicians. It is because of this, that Yaḥyā was qualified to be called one of those who could differentiate between the true and false and who could interpret the secret matter. However, it is clear from the way in which al-Bīrūnī's *Risālah* was presented, that he was referring to Ishāq's work rather than that of Yaḥyā al-Naḥwī's which was not available to him, but possibly its text was available in Ishāq's *Tārīkh al-Aṭibbā'*. See Al-Bīrūnī, *Risālat al-Bīrūnī fī Fihrist Kutub al-Rāzī*, ed. by Mehdi Mohaghegh (Tehran: Tehran University, 1973), p. 1-2.

including Islam.¹⁵

The proof of what I say can be found at the end of his book *On Prophecies* which the author made glorious and great. This work corrupted his thought, tongue and pen with which an intelligent man would have nothing to do and would not pay any attention since his effort will not secure anything good in this world save hatred.¹⁶

We have not ceased observing people who do not follow his ideas saying: “Indeed, Rāzī destroyed the wealth of the people, their bodies and religions”. This is true in the first extreme and many other extremes. Therefore, it is impossible to sensibly argue with him with moderation.

¹⁵ It has been claimed that al-Rāzī’s philosophy was based on Mani’s teaching and school of thought. Mani (215-276 C.E) was the founder of Manicheanism that held some special fascination as a great religion which was claimed by him to be universal religion. The essential doctrines of Manicheanism were their beliefs in two creators, the creator of good (kingdom of light) and the creator of evil (kingdom of darkness). The former represents Light, whereas the latter, Darkness. Based on this belief, Mani’s religion explained everything within a dualistic framework. Mani’s concept of existence (*al-wujūdiyyah*) was explained as three periods of creation namely the beginning, the middle (intermediate) and the end. With regard to the first period of existence, it happened when the creator of good was separated from the creator of evil and resided respectively, in the north and the south, kept apart by a border between the two kingdoms. Unfortunately, in the second period of existence, the creator of evil or the kingdom of darkness—which consisted of five dwellings namely smoke, fire, wind, water and darkness itself—wished to reach the glorious, remarkable kingdom of light (which consisted of intelligence, positive knowledge, thought, meditation and conscientious). However, the kingdom of light declined and refused to compromise with this kingdom of gloom. As a result war broke out between the two kingdoms and led for the first time to the mixture of light and darkness. The final period was the continuation of the great war between the kingdoms of light and darkness. The former attempted to spread and circulate good while the latter attempted to spread and disperse evil throughout the world. Within a short time the above ideas influenced Augustine (354-430 C.E) before he converted from atheism to Christianity. Many historians claimed that al-Razi followed Mani’s religion in his doctrines of the five eternal. In order to visualize whether al-Rāzī followed al-Mani’s idea or otherwise, one should study al-Rāzī’s chief fundamental concepts of the metaphysics which he introduced in *al-‘Ilm al-Ilāhī* namely his doctrine of the five eternal. They are creator, universal soul, primeval matter, absolute time and absolute space. (see, al-Rāzī’s *al-‘Ilm al-Ilāhī*, in *Rasa’il Falsafiyah* (Beirut: Lajnah Iḥya’ al-Turāth al-Arabiyyah al-Jadīdah, 1982).

¹⁶ Al-Rāzī’s *al-‘Ilm al-Ilāhī* had been refuted by Abū Ḥatīm al-Rāzī (d.322 A.H/934 C.E) in his *A’lām al-Nubuwwah*. This book presented the debate between Abū

Although I am free from following him concerning matters that corrupted property – despite my love of wealth and other things for the purpose of becoming rich, I cannot free myself from it – I am not saved from other aspects. This is because, I read his book on *Divine Science (Metaphysics)* in which he displays indications of Mani's books particularly the book entitled *the Book of Secrets*, such that the sign misled me as the white and yellow alloys in alchemy deceive others.

My youth creates in me a desire to speak the truth but remains obscured in order to seek those secrets from my acquaintances in various cities and lands. I remained in the torments of desire for more than forty years until a letter from *Ḥamadhān* reached me while I was in *Khawārizm* which included the books which were in the collections of *Faḍl b. Sahlān*, who knew that I loved them much. Together with this letter is the book which included Manichaean writings such as: *Pragmateria, the book of Giants, the Treasure of Living, Certain Morning, the Foundation, Bible, the Shaburiqan* and several epistles by Mani. Among them also was the *book of secrets*, which I searched for. I was overwhelmed with joy when I obtained it just like the joy of a thirsty person upon seeing mirages. It is sad that finally, this felling turned into sadness when I discovered that it was a fantasy.

Hātim al-Rāzī and Abū Bakr al-Rāzī. From the title of this book, it seems that Abū Hātim tried to prove the necessity and actual existence of the Prophets and the Imams. Furthermore, he argued against and refuted all those who doubted or denied the –signs” and –indications” of the true Prophets. This does include Abū Bakr al-Rāzī's views who--according to Abū Hātim--disbelieved the necessity and actual existences of the prophets. Abū Hātim mentioned that Abū Bakr's reason was that the prophets were the main causes of wars and misery of mankind. Furthermore, Abū Hātim also condemned the views of Abū Bakr who was against the necessity of Imams. The reasons given were that men originally were created equal. In the celebrated debate, Abū Bakr asked Abū Hātim by saying, “what are your reasons that God chooses some people (*qawm*) to be superior to others, which make them the guides and leaders of the later, and cause people to need them. Abū Hātim replied that, it is the act and wisdom of God.” In another statement, Abū Hātim requested Abū Bakr to tell him whether other philosophers were also of the same opinion in the doctrine of the five eternal. Abū Bakr replied that the ancient philosophers held different opinions of this problem but he personally had been able to reach his own conclusions through deductive

I believe that God speaks the truth in his saying: "For any to whom Allāh Giveth not light, there is no light."¹⁷ Then, I summarized the purely nonsensical and deviating contents of the book, for the purpose of study, so that those people who are stricken by the harm that also befalls me will inspect them and rush to be healed from them as I have done.

This was the condition of Abū Bakr al-Rāzī, and I do not believe that he was trying to deceive others, on the other hand he himself was deceived, just like what he believes concerning people whom God preserves from such ideas, and his share in that which he desire will not diminish; for all actions are in accordance with one's intentions and on the day of judgment, one should be a sufficient account against himself.

His birth place is Rayy where he was born on the first of Sha'bān in the year 251 A.H. I am not sure about his career except that he worked on alchemy. His eyes were normal but later on were exposed to serious afflictions by his continuous dabbling with fires and strong fumes which affected them. Then, he switched to the study of the healing arts and promoted the medical profession. He reached high reputation and was needed and called by great kings who welcomed him with full respect.

He (al-Rāzī) had studied continuously, strong in his pursuit, put his lamp in a niche on a wall. He held his book opposite the lamp, so that if he became sleepy, the book would fall down from his hand and awaken him to resume his study as before. This was one of the reasons that impaired

investigations and reasoning. Closely related to the above view, we should also take notice of the critical assessment made by Qādī Sa'īd al-Andalusī in his *Ṭabaqāt al-'Ummān*. He wrote that Abū Bakr al-Rāzī did not study theology in depth, and did not understand the aim of religion (*al-Dīn*). Hence, his (Abū Bakr al-Rāzī) judgment was therefore wrong or misleading. For this reason, Qādī Sa'īd concluded that Abū Bakr al-Rāzī was confused, held wrong views, and criticized people unfairly. See Abū Ḥātim al-Rāzī, *A'lām al-Nubuwwah*, ed. by Šāleh al-Šawī (Tehran: Tehran Imperial Iranian Academy of Philosophy, 1997), p. 6.

¹⁷ Surat *al-Nūr*, 24: 40

his sight besides the fact that he eagerly was desirous to eat too much broad beans (*Vicia faba* Linn., *Faba vulgaris* M.) which harmed him. His career ended by him becoming blind as he will be also blind in the hereafter.

At the end of his life, he was inflicted with cataracts. Then, a person associated in his school days came to him from *Tabāristān* to treat him. He (al-Rāzī) asked the healer, how to treat his ailment, he then relate it. Abū Bakr al-Rāzī said: "I witness that you are the unique healer and the most knowledgeable of the oculists (eye doctor) but you know that this condition is not without pains at which the soul feels disgust and long hardships which burden the patient. As life is short, and the approach of death is near, it is repulsive for people like me to have pains and ailments affecting the rest of life. Therefore, please leave, being thanked for your intention and endeavor." And Rāzī gave generously his reward.

After that, his days did not last long and he died in Rayy in Sha`bān, 313 A.H, at the age sixty two and five days according to lunar reckoning and sixty one and two months and one day according to solar reckoning. The followings are his books which I knew:

His Books on Medicine

- 1 *Al-Jāmi' al-Kabīr* (*A Great Comprehensive*), known as *Continens*.¹⁸ It is commentary which is not finished yet in its final form.

¹⁸ One of his medical and clinical works entitled *al-Ḥāwī fī al-ṭibb*. It is the greatest encyclopedia written during the middle age, which the author spent almost fifteen years in preparing it, working diligently night and day until his eyesight failed and the muscles of his hand became stiff and seriously aching in pain. For this reason, *al-Ḥāwī fī al-ṭibb* is not well organized, because the author died before revising it prior to its publication. In other words, he died before he had the chance to complete it in a final form. In his book *al-Ḥāwī fī al-ṭibb*, the author attempted to record all diseases and their treatments, which were known in the past down to his time whether: Greek, Syriac, Indian or Persian. After he had mentioned them, he added his own opinion. His personal notes, ideas, comments and own experiences were indicated by the Arabic term "*Lī*" which means *Mine or my own*. We found that, al-Rāzī's goal

- 2 *Ithbāt al-Ṭibb* (Proofs to Medicine).
- 3 *Al-Madkhal Ilā al-Ṭibb* (Introduction to Medicine).
- 4 *Al-Radd ‘alā al-Jāhiz fī Munāqaḍatihī al-Ṭibb* (Reply to al-Jāhiz Concerning His Critiques of Medicine).
- 5 *Al-Radd ‘alā al-Nāshī fī Naqdihi al-Ṭibb* (Reply to a Nashi Concerning His Critiques of Medicine).
- 6 *Fī Miḥnat al-Ṭabīb wa kayfa yanbaghi ‘an yakūn* (The Examination of the Physician and How He Should Undertake)
- 7 *Al-Murshid* (The Guide).
- 8 *Al-Kunnāsh al-Manṣūrī* (The Book of al-Manṣūrī), dedicated to Manṣūr ibn Asad, a relative of the governor of Khurasan.
- 9 *Taqāsim al-‘ilal* (Classification of Diseases), known as *Taqṣīm wa al-Tashjīr* (Dividing and Diagramming).
- 10 *Al-Ṭibb al-Mulūkī* (Royal Medicine).
- 11 *Man lā Yahḍuruḥu al-Ṭabīb* (Home Medical Advice).¹⁹
- 12 *Al-Adwiyah al-Musaḥḥalāt al-Mawjūdah fī Kullī*

in acquiring knowledge was to find the truth. He unhesitatingly condemned the ignorant practitioners who blindly accepted ancient thinking. This is clear when the scholars proved that his book *al-Shukūk ‘ala Jālīnūs (Galen)*, indicated how he was the first fearless Muslim physician who rejected the idea that physicians must accept and surrender totally to Galenic thought. This does not mean that he was an arrogant person as some people claimed. Indeed, he himself acknowledged that his criticisms did not mean that he was better or more knowledgeable than the ancient physicians. At the same time, he emphasized that it was his duty to correct what the ancients have dealt with in order to perfect what can be perfected. Unfortunately, Al-Rāzī’s *Shukūk alā Jālīnūs (Doubt Concerning Galen)* was opposed, refuted and rejected by many Muslim physicians notably: Alī Ibn Riḍwān (d.459 A.H/1067 C.E) who was of the view that al-Rāzī did not understand the true meaning of Galen’s views because of his lack of knowledge of logic. Ibn Riḍwān defended Galen against the criticism by al-Rāzī in his “*On the Solution of Al-Rāzī’s Doubts Concerning Galen’s Book*”. See, Mehdi Mohaghegh, ‘The Kitāb al-Shukūk ‘Alā Jālīnūs of Muḥammad Ibn Zakariyā al-Rāzī’, in *Islamic Studies Presented to Charles J. Adams*, ed. by Wael B. Hallaq and Donald P. Little (Leiden: E.J. Brill, 1991), pp. 107-116.

¹⁹ On the issue of the relationship between the rich and the poor in medical service, al-Rāzī treated his patients --both the rich and the poor -- with the utmost concern and care. For this reason, he wrote both *Man lā Yahḍuruḥu al-Ṭabīb* known as *Ṭibb al-Fuqarā’* and *Kitāb al-Manṣūrī fī al-Ṭibb*. The former is

- Makān* (The Medicaments which are Universally Available).
- 13 *Al-Qarābādhin al-Kabīr* (The Large Abridged Formulary).
- 14 *Al-Qarābādhin al-Saghīr* (The Small Abridged Formulary).
- 15 *Al-Iklīl* (Diadem), ascribed to him.
- 16 *Kitāb al-Fākhīr* (The Manual of Magnificence), ascribed to him.
- 17 *Daf' Maḍārr al-Aghdhiyyah* (Prevention of Harmful Nutriments).
- 18 *Al-Judārī wa al-Hasbah* (Smallpox and Measles).
- 19 *Fī Tawallud al-Hasāt* (The Development of Stone in Bladder or Kidney).
- 20 *Qūlanj* (Book on Colic).
- 21 *Kitāb fī al-Niqris wa Awjā' al-Mafāṣil* (Book on Gout and the Pain of Joints).
- 22 *Kitāb fī al-Fālij* (Book on Paralysis).
- 23 *Kitāb fī al-Laḡwah* (Facial Paralysis).
- 24 *Fī Hay'at al-Kabid* (On the Form (Anatomy) of the Liver).
- 25 *Fī Hay'at al-Qalb* (On the Form (Anatomy) of the Heart).
- 26 *Fī Hay'at al-'Unthayayn* (On the Form (Anatomy) of the Testicles).
- 27 *Fī Hay'at al-Sammākh* (On the Form (Anatomy) of the Orifice of the Ear).
- 28 *Fī al-Fasd* (Phlebotomy (blood letting)).
- 29 *Al-Ṣaydanah* (On Pharmacology).²⁰
- 30 *Kitāb al-Abdāl* (The Book of Substitute).

dealt with 36 diseases, which could be treated within a short period. While *Kitāb al-Manṣūrī fī al-Ṭibb*, is for rich people who were able to pay for the treatment even though it was expensive. See Sarton, *Introduction to the History of Science*, 1:609-10; Ghada Karmi, *Notice of Another Manuscript of Al-Rāzī's Kitāb al-Manṣūrī*, J. for the History of Arabic Science, Vol.3, No.1, 1979, pp.88-90; Shākir al-Fahhām, 'Fī Bayān Nisbah Kitāb al-Manṣūrī fī al-Ṭibb', *Majallāt Majma' al-Lughah al-'Arabiyyah bi Damshik*, Vol.67, 1992, pp.159-165.

²⁰ S. K. Hamarneh, "Updating al-Birūnī's *Kitāb al-Ṣaydanah* on Pharmacy and Materia Medica", *Hamdard Medicus*, Vol.XXXIX, No.2, 1996, p.10.

- 31 *At'imāt al-Mardā* (Diets for the Patient).
- 32 *Manāfi' al-Sikanjabīn* (On the Advantage of the Oxymel).
- 33 *'Ilājāt al-'Ubnah* (The Treatments for Itchiness).
- 34 *Al-A'māl bī al-Ḥadīd* (book referring to surgical manipulations).
- 35 *Fī al-'Atar wa al-Anbajāt wa al-Adkhān* Great Book on the Perfumes (aromatic plants), Mangos (anbajāt) and al-Adkhān (That is a plant of the Graminae family of panicum miliaceum, English little millet or corn seed).
- 36 *Taqdīm al-Fākihah Qabla al-Ta'ām wa Ta'khīruhā Minhu* (The Precedence and the Delay of Taking Fruit Before or After Taking the Meals).
- 37 *Fī mā Jarā Baynahu wa Bayn Jarīr al-Ṭabīb fī al-Tūt 'Aqīb al-Battīkh* (The debate between him and the physician, Jarīr concerning precedence of taking Damascus mulberry after taking melon).
- 38 *Fī al-Nazlah*²¹ (On the Catarrh) Which Abū Fayḍ Suffered.
- 39 On the Diseases in which Swellings and Influenza Affect the Heads of People during the Cold Season.
- 40 *Fī Wujūb al-Istifragh fī Awā'il al-Ḥummiyāt* (On the Necessity of Vomiting during the Beginning of Fevers).
- 41 *Fī al-Mā' al-Mubarrad bi al-Thalj wa al-Mubarrad 'alā al-Thalj* (On the Cooling of Water Caused by Ice and that which is Cool by placing it on Ice).
- 42 *Fī al-'Illah al-latī lahā Yaz'am Juhhāl al-Aṭibbā' 'ann al-Thalj Yu'attish* (On What Ignorant Physicians Considered about Snow Causing a Person to become very thirsty).
- 43 *Fī al-Niqris* (On Gout).
- 44 *Fī al-'Ilal al-Qātilah li 'Izamihā li Zuhūrihā Baghtatan* (On Fatal Diseases Because of Their Suddenness and Intensity of Their Appearances).

²¹ *Nazlat* meaning inflammation of mucous memberance.

- 45 *Fī 'Illat al-Mawt al-Wahī min al-Sumūm* (On the Cause of Death from Poisons).
- 46 *Fī Anna al-Himyah al-Mufritah Dārrah bi' al-Asihhā'* (The Excessive Dieting is Harmful to the Healthy Bodies).
- 47 *Fī anna lī al-Ṭīn al-Mutanaqqal bihi Manāfi'* (On the Beneficial Use of terra sigillate (terra-cotta)).
- 48 *Fi 'Illāt Ta'tīsh al-Samak* (The Reason Why Fish Causes Thirst).
- 49 *Fī al-'Illat al-laṭī laha Sār al-Nā'im Yu'riqu Akthar min al-Yaqzān* (The Reason Why a Person Sweats while Sleeping More than while he is awake).
- 50 *Fī al-'Illat al-laṭī Sāra al-Kharīf Mumridan* (The Reason Why People Get ill More During Autumn Season).
- 51 *Fī al-'Illat al-latī (lahā) Yudfa' al-Ḥarr Marratan bi al-Takashshuf wa Marratan bi al-Tadaththur* (On the Reason Why a Person Becomes very Hot Undressed and on Other occasions well-dressed).
- 52 *Fī anna al-Ṭabīb al-Ḥādhiq Laysa Yaqdiru 'alā Ibrā' al-'Ilal Kulliha wa anna Dhālika Laysa fī Wus'i al-Bashar* (On the Inability of the Skillful Physician to heal all Diseases as this is not Within His Power).
- 53 *Fī annahu Yanbaghī li al-Ṭabīb an Yatalattafa li Īsāl al-Nās ilā Shahawātihim* (The Physician should be more Flexible with his Patients in allowing them to Eat What Their Likes in Moderation).
- 54 *Fī al-Aghrād al-Mumīlah li Qulūb Kathīrin min al-Nās 'an Afāḍil al-Aṭibbā' ilā Akhissā'ihim* (On the Reasons Which Turn the Hearts of People Away From Competent Virtuous Physicians to the Ignorant Contemptible Ones).
- 55 *Fī al-'Illah al-latī lahā Taraka (Ba'du) al-Nāsi Wa Ru'ā'uhum al-Ṭabīb wa in Kāna Hādhiqan* (The Reasons Why Some Common People and Others Leave a Physician even though He is a Skillful One).
- 56 *Fi al-'Illah al-latī lahā Yanjahu Juhhāl al-Aṭibba' wa al-*

Nisā' Akthar min al-'Ulamā' (The Reason Why the Ignorant Physicians and Old Women Have More Success (in treatment) than the Scholarly Learned Ones).

Natural Sciences

- 57 *Sam' al-Kiyān* (On Hearing of Existence).
- 58 *Al-Radd 'alā al-Misma'i fī Raddihi' alā al-Qā'ilīn bi Qīdam al-Hayūlā* (A Refutation of al-Misma'i concerning His Rejection of the Eternity of Primordial Matter).
- 59 *Al-Hayūlā al-Ṣaghīr* (The Small Primordial Matter).
- 60 *Al-Hayūlā al-Kabīr* (The Great Primordial Matter).
- 61 *Fī al-Zamān wa al-Makān* (On Time and Place).
- 62 *Mā Jarā Baynahu wa Bayn Abī al-Qāsim al-Ka'bī fī al-Zamān* (The Refutation between Him and Abū al-Qāsim al-Ka'bī on the Discourse Concerning Time).
- 63 *Fī al-Farq Bayn Ibtidā' al-Muddah wa Bayn Ibtidā' al-Ḥarakāt* (The Difference between the Starting of Time and Motions).
- 64 *Fī al-Ladhdhāt* (On Pleasure).
- 65 *Fī mā Jarā Baynahu wa Bayna Shahīd al-Balkhi fī al-Ladhdhah* (A Discourse between Him and Shahīd al-Balkhi Regarding the Discussion on Pleasure).
- 66 *Fī Tathbīt al-Istiḥālah wa Munāqaḍah Man Qāla (Inna) al-Taghayyur Kumūn wa Zuhūr* (On the Confirmation of Transmutation in Alchemy and Contrasting that to the One Who Says that the Change is Both in Latency (*kumūn*) and Appearances).
- 67 *Fī Kayfiyyāt al-'Ightidhā'* (The Qualitative Manner of Nutriment).
- 68 *Fī Kayfiyyāt al-Numuw* (The Qualitative Manner of Growth).
- 69 *Fī al-Tarkīb* (On the Structure), and its two Kinds.
- 70 *Fī al-Tarkīb* (On the Structure).

- 71 *Fī anna lī al-Jism Muḥarrikan min Dhātiḥī Ṭabī'iyyan* (On the fact that Body Moves by Virtue of Itself Naturally).
- 72 *Fī Annahu Yumkin an Yakūn Sukūn wa Iftirāq lam Yazal wa lā Yumkin an Yakūna Ḥarakatun wa Ijtimā' lam Yazal* (The possibility of discontinuance of nonmobility and separation as well as the mobility and meeting together).
- 73 *Fī al-'Ādah wa Annahā Taḥawwala Ṭabī'atan* (On Habit and its Transformation into Nature).
- 74 *Fī al-Baḥth 'an al-Arḍ Ahiya Ḥajariyyatun fī al-Aṣl Am Ṭīniyyah* (Exploring Whether the Earth in its Natural State is Stony or Radish Clay).
- 75 *Fī 'Illat Jadhb al-Maghmāṭis al-Ḥādīd* (The Reason Why Magnet Attracts Iron).
- 76 *Fī al-'Atash wa Sabab Izdiyād al-Ḥarārah* (The Reason Why Thirst Increases Temperature).
- 77 *Fī Anna Markaz al-Arḍ Yanbū' al-Bard* (On the Center of Earth Being Considered Source of Cold).
- 78 *Fī Jawwi al-Asrāb* (On the Atmosphere of Subterranean Habitations).
- 79 *Fī al-Radd 'Alā Ḥusayn al-Tammār 'Alā Jawwi al-Asrāb* (The Refutation to Husayn al-Tammar Concerning Atmosphere of Subterranean Habitations).
- 80 *Fī al-Shi'r* (On Poetry).
- 81 *Fī al-Khiyār al-Murr* (On Bitter Cucumber).
- 82 *Fī al-Radd 'Alā al-Sarakhsi fī Amr al-Ta'm al-Murr* (Refutation to al-Sarakhsi Concerning the Bitter Taste).
- 83 *Fī al-'Illah al-lati lahā Sara Mubtaran min al-Badan La Yaltaṣiq Bihi* (On the Cause Why Some Parts of the Body when Separates, it cannot be Sticked to it firmly).
- 84 *Fī Ma'rifat Tatrīf al-Ajfān* (On How the Eyelids Twinkle).
- 85 *Fī al-Azminah wa al-Aḥwiyah* (On Seasons and Airs).
- 86 *Fī al-Baḥth 'Ammā Qīla Fī Kitāb al-Astuquṣṣāt Fī Ṭabī'at al-Insān* (Exploring on what have been

- said in the Book of *al-Astuquṣṣāt* (the Elements) Concerning the Nature of Man).
- 87 *Mā Qālat al-Qudamā' Fī al-Mabādi' wa al-Kayfiyyāt* (What the Ancients Said on the Matter of Principles and Qualities).
- 88 *Al-Shūkūk 'alā Jālīnūs* (Doubts Concerning Gālen).
- 89 *Fīmā Waqa'a li al-Jāhiz Min al-Tanāquḍ fi Faḍīlat Ṣīnā'at al-Kalām* (The Contradiction of al-Jahiz on the Excellence of the Art of Rational Theology).

On Logic

- 90 *Al-Madkhal ilā al-Mantiq* (Introduction to Logic).
- 91 *Jawāmi' Qāṭiḡhūriyās wa Bārīrmīniyās wa Anulūtiqā* (The Collections of Aristotle's Categories, Interpretations and Analytics).
- 92 *Fī al-Mantiq bi Alfāz Mutakallimī al-Islām* (On Logic as Expressed in Islamic theological Idioms).
- 93 *Kitāb al-Burhān* (The Book of Demonstration or Evidence).
- 94 *Kayfiyyat al-Istidlāl* (How to Furnish an Evidence).
- 95 *Qaṣīdatuhū fi al-Mantiq* (His Poem on Logic).
- 96 *Fī al-Khabar Kayfa Yuskanu Ilayhi wa Mā 'Alāmat al-Muḥaqqiq Minhu* (On News: How to accept it and What is the Sign to Justify it).

Mathematics and Astronomy

- 97 *Fī Miqdār Mā Yumkinu an Yustadraka Min al-Nujūm 'ind Man Qāla Innahā Aḥyā' Nāṭiqah wa Man lam Yaqūl Dhālik* (On how do one possibly rectify astrological determinations in accordance with those who regard that the stars to be living things and those who believe otherwise).
- 98 *Fī al-Hay'ah* (On Astronomy).
- 99 *Fī 'illat Qiyām al-Arḍ Waṣt al-Falak* (The Reason why the Earth Stands in the Middle of the Celestial Sphere).

- 100 *Fī Annahu Lā Yutaṣawwar liman lam Yartadi bi al-Burhān Anna al-Arḍ Kuriyyah wa al-Nās Hawālīhā* (Concerning the Person who had not had Enough Logical Training to convince him that the Earth is indeed Ball Shaped with People around it).
- 101 *Fī Anna Ṭulū' al-Kawākib wa Ghurūbahā min Ḥarakat al-Samā' Dūna Ḥarakat al-Arḍ* (The Rise and Disappearance of Stars are the Results of the Motion of the Celestial Sphere and not due to the Motion of the Earth).
- 102 *Fī Anna al-Kawākib 'alā Ghāyat al-Istidārah Laysa Fīhā Nutū' wa Aghwār* (The Stars are Completely Spheroid Without Projections and Depressions).
- 103 *Fī 'illat Taḥarruk al-Falak 'alā Istidārah* (The Reason why the Celestial Sphere Moves Within its Orbit).
- 104 *Fī Anna al-Dal'a Ghayra Mushārik li al-Qutr* (The Chord of the Circle is not Joined with its Diameter).
- 105 *Kayfiyyat al-Ibṣār* (On Mechanism of Sight).
- 106 *Fī al-'Illat al-Latī lahā Yudiq al-Nazar fī al-Nūr wa Yattasi' fī al-Zulmah* (The Reason why the Vision are Narrow in the Light but Wide Open in the Dark).

Commentaries, Abridgements and Summaries.

- 107 *Tafsīr Kitāb Tīmāwus* (Commenting on the book of Plato's Timaeus).
- 108 *Ikhtisār Kitāb al-Nabd al-Kabīr* (His Commentary of the great book on the Pulse).
- 109 *Talkhīṣuhu li Hīlat al-Bur'* (His Commentary of the book of the Method of Healing).
- 110 *Talkhīṣuhu li al-'Ilal wa al-Amrād* (His Commentary of the book of Accidents and Their Causes).
- 111 *Talkhīṣuhu li al-A'dā' al-Ālimah* (His Commentary of the book of Pathology).
- 112 *Talkhīṣuhu li Fuṣūl Buqrāt* (His Commentary of the Aphorisms of Hippocrates).

- 113 *Talkhīṣuhu li Kitāb Fulūtarkhas* (His Commentary of the book of Plutarch).

Philosophical and Hypothetical Sciences

- 114 *Al-'Ilm al-Ilāhī al-Ṣaghīr 'Alā Ra'y Suqrāt* (The Small book of Divine Science Based on Socrates's View).
- 115 *Jawābuhu 'An Intiqād Abī al-Qāsim 'Alayh* (His answer to the criticism of Abū al-Qāsim concerning it).
- 116 *Al-'Ilm al-Ilāhī al-Kabīr* (The Major Book of Divine Science).
- 117 *Fī Idāh Ghalat al-Muntaqid 'Alayh Fī al-'Ilm al-Ilāhī* (Criticism and Clarification of those who criticize the Divine Science Book).
- 118 *Fī al-Falsafat al-Qadīmah* (On Ancient Philosophy).
- 119 *Fī al-Intiqād wa al-Taḥdhīr 'Alā Ahl al-I'tizāl* (Criticisms and Warning Statements to the members of Mu'tazilah).
- 120 *Al-Ishfāq 'alā al-Mutakallimīn* (Sympathy with the Rational Theologians).
- 121 *Maydān al-'Aql* (The Domain of Reason).
- 122 *Al-Ḥāsīl* (One who Achieves).
- 123 *Al-Risālah al-Hādiyah ilā al-Fihrist* (The Epistle of Guidance to the *Fihrist*).
- 124 *Qaṣīdatuhu al-Ilāhiyyah* (His Poems on Theological Interpretations).
- 125 *Fī Sabab Khalq al-Sibā'* (The Reason for the Creation of Wild Beasts).
- 126 *Al-Shukūk 'Alā Ibruqlus* (Doubts Concerning Proclus).
- 127 *Naqd Kitāb al-Tadbīr* (Refutation to the book of Management).
- 128 *Naqd Kitāb Furfūriyūs Ila Anābū al-Miṣrī* (Refutation to the book of Porphyry to Anebon of Egypt).
- 129, 130 *Kitābān Ilā al-Ḥasan bin Muḥārib al-Qummī* (Two books to al-Ḥasan b. Muḥārib al-Qummī).

Metaphysics

- 131 *Al-Nafs al-Ṣaghīr* (Small Book on the Soul).
 132 *Al-Nafs al-Kabīr* (Major Book of the Soul).
 133 *Fī 'Anna Jawāhir la Ajsām* (The Substances are not Bodies).
 134 *Naqd Kitāb al-Wujūd lī Mansūr bin Ṭalhah* (Refutation of the book of Existence by Mansūr ibn Ṭalhah).
 135 *Fī al-Ru'yā al-Mundhirāt* (On the Warning Vision).
 136 *Fī anna al-Harakah Ma'lūmah ghayr Mar'iyyah* (That Motion is Known but not Seen).

The Divine Sciences

- 137 *Fī anna li al-Insān Khāliqan Muṭqinan Ḥakīman* (That Man has a Wise and Perfect Creator).
 138 *Fī Wujūb Da'wat al-Nabī 'Alā Man Naqara bi al-Nubuwwāt* (Obligation to Propagate the Teachings of the Holy Prophet (pbuh) Against Those who Denied Prophecies).
 139 *Fī Wujūb al-Du'ā' Min Ṭariq al-Ḥazm* (The Obligation of Prayer in Absolute and Sincere Faith).
 140 *Al-Radd 'alā Sīsan al-Thanawī* (Refutation to Sisan al-Thanawī).
 141 *Al-Radd 'alā Shahīd fī Lughaz al-Ma'ād* (Refutation to Shahīd on the Secret of the Future Life).
 142 *Fī Annahu Lā Yumkinu An Yakūna al-'Ālamu Lam Yazal 'Alā Mā Nushāhid 'Alayh al-Ān* (It is Impossible to find out that the World was Still as What We See Today).
 143 *Fī Anna al-Munāqadah Bayn Ahl al-Dahr wa al-Tawḥīd li Nuqṣān al-Qismah Fī Asbāb al-Fi'l* (The Disagreement between the Materialists and Monotheists on Incomplete Division of the Causes of Action).
 144 *Fimā Istadraka li al-Qā'ilīn bi Huduth [al-Ajsām] Min al-Faql 'Alā al-Qā'ilīn bi Qidamihā* (Preference of the Newness of the [bodies]'s Creation Over those speak of its Eternity).

- 145 *Fī al-Imām wa al-Mu'tamm* (On the Imam and his Follower).
- 146 *Fī al-Imāmah* (On the Imamate).
- 147 *Fī al-Imāmah 'alā al-Kayyal* (On Imamate in connection to al-Kayyal).
- 148 *Al-Ṭibb al-Rūḥānī* (On the Spiritual Medicine).
- 149 *Fī al-Sīrah al-Falsafiyah* (On the Philosophical Life).
- 150 *Qaṣīdatuhu fī al-'Izah al-Yūnāniyyah* (On His Poem Concerning the Lesson of Greek Culture).

Alchemy

- 151 *Al-Madkhal al-Ta'līmī* (Instructive Introduction).
- 152 *'Ilal al-Ma'ādin* (The Causes of Minerals), it is being the logical Introduction.
- 153 *Ithbāt al-Ṣinā'ah* (Proof of the Art).
- 154 *Kitāb al-Ḥajar* (The Book of Stone).
- 155 *Kitāb al-Tadbīr* (The Book of Management).
- 156 *Kitāb al-Iksīr* (The Book of Elixir), found in two copies.
- 157 *Kitāb Sharaf al-Ṣinā'ah* (The Book of the Nobility of the Art).
- 158 *Kitāb al-Tartīb* (The Book of Arrangement), it is Confidence.
- 159 *Kitāb al-Tadābīr* (The Book of Managements).
- 160 *Kitāb al-Shawāhid* (The Book of Witnesses).
- 161 *Kitāb Miḥan al-Dhahab wa al-Fiḍḍah* (The Book of Examination of Gold and Silver).
- 162 *Kitāb Sīr al-Ḥukamā'* (Secret of the Philosophers).
- 163 *Kitāb al-Sīr* (The Book of Secret).
- 164 *Kitāb Sīr al-Asrār* (The Book of the Secret of Secrets).
- 165 *Kitāban fī al-Tajārib* (Two books on Experiments).
- 166 *Kitāban fī al-Tajārib* (Two books on Experiments).
- 167 *Risālah ilā Pān* (The Epistle to Pan).
- 168 *Munyat al-Mutamannī* (Book on Ambition of the Ambitious).

- 169 *Risālah ilā al-Wazīr al-Qāsim bin 'Ubaydillāh* (The Epistle to Wazīr al-Qāsim ibn 'Ubaydillāh).
- 170 *Kitāb al-Tabwīb* (The Book of Classifications).
- 171 *Al-Radd 'alā al-Kindī fi Raddihī 'alā al-Kīmiyā* (The Refutation of Al-Kindī of His Rejection of Alchemy).
- 172 *Al-Radd 'alā Muḥammad bin al-Layth al-Rasā'ili fi Raddihī 'alā al-Kīmiyā'iyyīn* (The Refutation of Muḥammad ibn al-Layth al-Rasa'ili for his Rejection of Alchemists).

Heretical Books

- 173 *Fī al-Nubuwwāt* (On Prophecies). It was claimed to be against religions.
- 174 *Fī Ḥiyal al-Mutanabbīn* (On the Tricks of False Prophets). It was claimed as attacking the necessity of the prophets.

On the Various Arts

- 175 *Fīmā Istadrakahū min Kutub Jālinūs Mimmā lam Yadhkurhu Ḥunayn fī Risālatihī* (On Galen's Extant Books Which are not Mentioned in Ḥunayn's Epistle).
- 176 *Fī anna al-Mubarraza fī Jamī' al-Ṣinā'āt Ma'dūm* (The Most Learned and Best Trained Person in all the Arts is not to be Found).
- 177 *Fī al-Radd 'alā al-Qā'ilīn bi Tahrīm al-Makāsib* (Refutation of Those Who Claim that Salaries are Prohibited).
- 178 *Fī Ḥikmat al-Nard* (The Wisdom of Nard).
- 179 *Fī 'Udhr Man Ishtaghala bi al-Shatranj* (Excuse for those Occupied with Chess).
- 180 *Fī Annahū lā Yanūbu 'an al-Muskiri Ghayruhu* (No Substitute for Intoxicants).
- 181 *Fī Sharaf al-'Ayn* (Nobility of the Individual).
- 182 *Fī Amārāt al-Iqbāl wa al-Dawlah* (On the Signs of Fortuitous Advancement and Good Fortune).

- 183 *Kitāb al-Khawās* (The Book of the Properties of Things).
- 184 *Kitāb fī Ḥiyāl al-Kuttāb* (The Book of the Method of the Writers).

We have fulfilled one of your desires, now we come to other matters. We say: Indeed, there are two views concerning the origin of the beginning of science. The first is that science is not of ancient origin while the second says that it is of ancient origin. The first group is divided into two schools. The first school is of the opinion that the arts are attained through revelation. They proved that each science has a prophet to teach them. The second school is of the opinion that science can be attained by man's reason through syllogism, which is instinctive to him. It is in man in *potentia*, while in other animals, it is through inspiration. By this, it guides both man and animal to whatever they approve or disapprove and warn them to defend themselves from harm or disease. Thus, we see their intentions were achieved at certain times when it becomes easy for them or to take away the cause of the harm and therefore, try to find their solutions. In this connection, the experimenters and researchers referred to the method of injection (*huqnah*) which was learnt from a bird that used to fill its beaks with sea water and inserted it into itself. If a man was able to compare and think from this phenomenon, it would be the lowest method enough for him to learn. The same was informed by God to those who did not know how to bury the dead by saying: "Woe is me, was I not even able to be as this raven."²²

After which, they implemented the syllogistic principle by using several related premises, experiments and observations which can elucidate and achieve their goals. The long period was extended by later generations, therefore, the inheritance was transferred to future generations, until all information were collected together by the new

²² *Sūrah al-Mā'idah*, 5: 31

generation. Thus, making them possible to grow and bear fruits (rewards). This is what is meant by *al-Tanāsukh*. It does not mean the transfer of souls into ghosts, but it means the transfer of guidepost (*al-ma'ālim*) from those who have died to later generations as in the form of preserved books.

At one time, in several wide areas, people possessed so much knowledge that they transferred the knowledge from some people to some other people, orally and demonstratively, which together encompass more than declaration (*al-bayān*). As such, by the long periods and wide areas, they were able to gather together all the principles of knowledge and works for mankind. God, in full Kindness, honors mankind. He does not delay the benefits which may be obtained from His creation, such as a place to live on the earth, food from trees and the services of animals.

We put in the table below what has been mentioned in Ishāq's epistle of the noteworthy physicians and their other conditions without mentioning their respective periods which are of no value. We transmitted them from Syriac scripts (writings), which would give us protection against misspellings. The table is as follow:

Name of physicians	Origin and Time of Study	Completion and benefit	State of inactiveness and old age	Life span of each	Period between the death of the former and the appearance of the latter	Number of years since Asclepius I up to the death of each one
Asclepius I	50	40	0	90	0	90
Gurus	57	30	-	97	733	970
Minos	64	20	-	84	496	1550
Parmenides	25	15	-	40	690	2280
Plato	40	20	-	60	695	3035
AsclepiusII	25	95	-	120	1395	4550
Hippocrates of Cos	16	79	-	95	122	4767
Galen of pergamon	17	70	0	87	648	5503

These dates are known if we compare with other famous dates. Among these, that of Hippocrates who lived in the time of *Ardshirbahman*, was recorded in the books of Moroccan, Artokhashat. He was nicknamed as "long hands". According to Galen in his *Commentary of the Hippocratic Oath*, Hippocrates asked a worker of Cos which at that time was under the Roman.

Unfortunately, Persian histories were mixed and confused making it difficult to identify the truth. It was also mentioned in the book of *al-Akhhār* that Asclipios II, lived in the time of Amnapios, the twenty first of Egyptian kings. The first king of this dynasty preceded the era of Alexander date by about 1368 years.

In fact, Ishāq dated the death of Galen in the year 397 of the era of Alexander. Thus, the period from the first king of Amnapios to the date of the death of Galen is 1795 years. From this, if we deduct the period from Asclipios I, to the death of Galen, 3737 years remained. Referring to the table, it should be the time of the death of Plato. However, it should be said that it is not necessary that what we transmitted concerning the king of Egypt must be true. As the last table of the collection dates showed, if we refer to the period before the death of Galen, Asclipios I was born 93 years after the beginning of the existence of man.

According to Roman Christian history, that from the Prophet Adam (a.s) to the time of the Alexander the great is 5198 years. But according to Jewish history, is 3448 years, because the period from Adam (a.s) to the period of the birth of Asclepius is about the same as the birth of Asclipios to the time of great flood, which is about 1550 years.

The above information is based on what has been mentioned by Ishāq. He was of the opinion that the period from the death of Galen to the year 290 of Hijrah is 815 years. Galen mentioned that he wrote a *book on Anatomy* in the time of Hadriyanus, the king of Rome. And he wrote at the beginning of his active days, *the books of al-Majast (Almagest)* and *al-Akhhār* which corresponded with the year 428 of the era of Alexander. This date is later than what has been given by Ishāq regarding the death of Galen.

However, it is rather surprising that what has been mentioned in *Kitāb Akhlāq al-Nafs (Moral Character)* by Galen that he dates it from the time of worshipping idols to the time Qumudus which happened nearly five hundred and slightly more years of the era of Alexandria.

If we do not have the knowledge on the date of the death of Galen as evidence, then the history of medicine will be in the dark.²³

No doubt, the majority of Greek scholars regarded Asclapious as the founder of medical science. Though, some of them believed that it was the result of inspiration, Yaḥyā al-Naḥwī was of the opinion that, it was the result of experiment by which people could master it. God gives man the authority and raises him to reach the light. One of the signs could be found in Indian histories in their beliefs in the separation of souls from the bodies and the burning of the dead persons.

Galen said: "Indeed, Asclepius and Dyunosis were historians. They practiced the medical arts, then God made them powerful tools by which one of them taught the art of medicine to the common people while the other introduced wine and making (*Ṣinā'ah*) *al-kurum*. Again he said: "there are agreements and covenants among the offspring of Asclepius that they would not teach the art of medicine to any stranger. Instead, they would only teach the arts to their children at the two known schools in two islands namely: Rhodes and Qubrus (Cyprus) and in the city

²³ Michael W. Dols, in order to elaborate the medical theory and practice of Greek, has termed its system as Galenism, see, M. Dols, *Medieval Islamic Medicine: Ibn Riḍwān's Treatise "On the Preservation of Bodily ills in Egypt"* (Berkeley: University of California, 1984), p. 3-24. No doubt Galen (130-200 C.E) appears to have influenced the development of Islamic medicine. Unlike Hippocrates, Galen, who after profound philosophical training, devoted himself to theoretical, as well as, to practical medicine, created a model for future generations of physicians to aspire to combined philosophy and medicine. For these reasons, he sought not only to heal, he explained and speculated about the nature of disease and health, probably because he sought to integrate the practical medicine of Hippocrates (5th-4th century B.C) with the idealistic philosophy of Plato (427-347 B.C) by means of Aristotle's (384-322 B.C) logic. This synthesis was to become the most influential medical doctrine in the history of philosophy of medicine. Thus, Galenism underwent

(small-island) of Cos, in order to confine this art to members of their family. They taught their children orally until the time of Hippocrates, who was afraid that medicine might disappear. Therefore, he composed the art in book form (the Hippocrates corpus).” It was reported that this factor also preserved the art from being degenerated.²⁴

The same was implemented by the Persian kings who played significant roles in the arts, politics, side by side with other kings in the world. They classified the people into classes and restricted each of them according to their capabilities and not beyond that.

The Indian kings did the same thing, up to this time, until the classes made significant contributions with the advance of time. Indian Brahmins are religious people who

various additions and subtractions by the various cultures which had adopted it. In spite of certain basic and common Galenic principles, they did not appreciably change the Galenic fundamental principles of the doctrine. Among the famous fundamental principles of Galenism was the idea of health and disease. Galenism held that disease was basically the result of an imbalance between four humors making up an individual's temperament, fire, earth, air and water. These four elements, in turn, were endowed with the four qualities of hot, cold, dry and wet respectively. Food and drink, like everything else, consists of these basic elements. Food, therefore, could interfere with or influence an individual's temperament. See, Ḥunayn ibn Ishāq, *Kitāb Jālīnūs ilā Ghalwaqaṅ fī al-Ta'annī li Shifā' al-Amrād*, ed. Muḥammad Sālim (Cairo: al-Hay'ah al-Miṣriyyah al-'Āmmah li al-Kitāb, 1982), p. 24-29; Rudolph E. Siegel, *Galen's System of Physiology and Medicine* (Basle: S. Karger, 1968), p. 211-215; *Encyclopaedia of Islam*, new ed., "Djalīnus", by R. Walzer.). Manfred Ullmann, in his *Islamic Medicine*, says: "Galen's original works were circulated in numerous copies, they were constantly quoted, commented on, and made into question and answer form for catechetical purpose. So it is that Galen's teachings determine Arabic medicine in all essential points: from Galen comes the teaching about the humours, the physiology of metabolism, the theories of three digestions and of the movement of the blood. From Galen comes the conception of the four effective grades of medicine, from Galen comes the teleological thinking that seeks to recognize and explain each organ and each natural process in and explain each organ and each natural process in terms of its purpose." See M. Ullmann, *Islamic Medicine* (Leiden: E.J. Brill, 1970), p. 10-11.

²⁴ Hippocrates was, as far as we know, the first who turned away from the traditional treatment of the sick by means of drugs and surgery to the preventive treatment of health and actual treatments of the sick by means of all kinds of rules, regulating the life of the healthy and sickly according to a fixed rule. The Hippocratic Corpus was so named after Hippocrates, son of Heraclides, who lived from about 460 to 377 B.C. Hippocrates represents

inherited the sayings and knowledge from their predecessors without giving away their books to any stranger. When the time came closer to our time, one of them attempted to preserve and interpret it in a book because he was afraid of its disappearance. This story is similar to the phenomena which Galen narrated on what happened to Hippocrates.

However, according to what has been narrated by people who experimented and were of the opinion that the medical art was created in certain countries and by certain people, such as those of Phrygia, Mysia, Ifranjah and Egypt. They used flute (music) and melodies to cure pain. Such were the magic of Persian, Babylonian, Yemeni, Indian and *Aqalibah*. The matters available to them as mentioned. Based on their agreement, it limited to certain people. If they were clever and intelligent enough, they would have mastered the art of both; medicine or other subjects.

It is clear among the people that there are differences in desires and practices. The reason for this is that God takes care of selected people by which they were able to revive the world. Among the various nations, Babylonian is the most suitable group who did not have ambition in science.

Medicine, philosophy and astronomy were called in the ancient time as the science of Chaldaeans, because Kulwadhian and Babylonian were not in conflict. As a result, the science of astronomy became famous for them. Sometime, it was called Magic Science and at other time

nobility and the best image of the health professions, their dignity and honor. He was called by his admirers, The *Imām* (the chieftain and leader), the virtuous physician and the Father of Medicine. He was considered the first among his peers and "the unique, the unequal and the foremost", in his time. In his tender-heartedness and compassionate spirit, he embodies the saying in his aphorism: "where there is love for mankind, there is love for the healing arts. Hippocrates described the difficulty of medical practice by saying: "life is short, the art is long, the time is limited, the testing is risky and the decision is difficult. See Franze Rosenthal, "Life is Short, the Art is Long: Arabic Commentaries on the first Hippocratic Aphorism," *Bulletin of the History of Medicine* 40 (1961); Hamarneh, *Tārīkh Turāth*, p. 70-77, p. 226-245. For an early recognition of the importance of preservation of health according to Hippocrates, see W.M. Mann, *The Medical Works of Hippocrates: A New Translation from Original Greek Made Especially for English Readers* (Oxford: Blackwell Scientific Publications, 1950).

Talisman (Aṣḥāb al-Talsamah). It was mentioned in the book *al-Akḥbār* that this science was brought to Egypt in the time of Afhatos, the sixth of Egyptian kings. His throne preceded the time of Alexandria by nearly one thousand and eight hundred years.

Some were of the opinion that the person who transferred all three wisdom crafts was Hermes.²⁵ As a result, astrology continued to be famous among his people, such as Thales of Miletus.

Though flutes (music) and melodies were used to cure the pains of the soul, they were also effective to the body which is related to the soul. But this is limited to decreasing the pain rather than to have a cure.

Then, we come to the question of the eternity of the world. We say: "They also believed in the eternity of the sciences and the healing arts without which the world cannot exist". However those who did not thoughtlessly were of the opinion that they were a potentiality at one time and at other times is actuality.

The event which occurred to humans with destruction such as death and inhabitable areas without buildings - even though the destruction was not complete - remained. Thereafter, they lived simple life depended on what was available. If their needs were observed, these were minimal but slowly expending with the increase in the number of people. Then the arts appeared in their society. Progress grew with time until a satisfactory stage and beyond that, until it clashed with undesirable events which in turn caused it to return from an actuality to a potentiality.

Whatever happened, the community actually lived in various stages. If we take for example one stage, we will come to the conclusion that it will not be outside of what people say of the newness of the world.

The period of the origin of Indian medicine which refers to the period of the origin of medicine will not be discussed or

²⁵ Hermes Trismegistus is the Prophet Idrīs (a.s).

mentioned here. The book *Charak* in medicine was the most ancient of Indian medical works. It was told that the time of Indian medicine was nearly the same as the time Asclepius I. It no surprise that Asclepius became the first self taught father of medicine. Therefore, his knowledge should refer to what had been taught to Adam about names.

Once I found the book of *Yahyā al-Nahwī* on *Tiryāq* which mentioned more additional information about each one of physicians. It is because of this, he was qualified to be called one who could differentiate between true and false, and one who could interpret the matter safety. I imagine that it provided the time of the noteworthy physicians, but unfortunately the book was lost. If not, I will quote it here since it is relevant to our discussion. Up to this point, I think, I had persuaded and proved your desire.

As I started the discussions earlier by mentioning the books of Abū Bakr, I would now conclude by giving a list of my books which you had asked for. That is, the books which I have written up to the year 427 after Hijrah/ 1036 C.E., the year in which I was 65 lunar and 63 solar years old. I would not be surprised if the interpretation of my dream becomes a reality, although I would not mind if it doesn't.²⁶

²⁶ The exact date of al-Bīrūnī's dream was explained by Ghazanfar in his *al-Mushāṭah li Risālat al-Fihrist*. He said: "The date of the dream was the seventh of the month of Shawwāl of the year 424 and Abū al-Rayḥān's death occurred after 190 months save one month." In an other statement, Ghazanfar said: "Between the date of the dream and the time of death, there are 5577 days which is equivalent to 15 lunar years and eight months and half or one third of the month. As we already understand, a true dream is one of the important channels to know the hidden future which man is always anxious to know." See Ghazanfar Tabrizī, *al-Mushāṭah li Risālat al-Fihrist*, ed. by M. Mohaghegh (Tehran: Tehran University Publication, 1992), p. 81. Al-Bīrūnī indicated that, if some misfortune was told, men would attempt to avoid it since it is their nature to ask for happiness, peace, security and tranquility in life. In relation to this, al-Bīrūnī was of the opinion that, man tries to make his fortune and happiness with omen and good dreams by being very optimistic towards astrologers. With regards to al-Bīrūnī's dream, he said: "I dreamt during such a day and I therefore asked the astrologers to explain my future based on my birthdate". The astrologers attempted to predict al-Bīrūnī's length of life as well as the time of his death. But according to al-Bīrūnī, all these

1. I worked on the *Astronomical Tables of al-Khwarizmī together with Analysis, Useful Questions and Correct Answers (Zij al-Khawārizmī Ilalahu wa wasamtu al-Masā'il al-Mufīdah wa al-Jawābāt al-Sadīdah)*, in 1250 folios.
2. The physician Abū Ṭalhat worked on a topic which has to be refuted. Therefore, to cancel such a lie, I wrote a book that *Provides the Proof Based on the Astronomical Tables of Khwārizmī (Ibtāl al-Buhtān bi Īrād al-Burhān 'alā 'Amal al-Khawārizmī fī Zijihī)*, in 360 folios.
3. I also found a chapter in the book written by Abū al-Ḥasan al-Aḥwāzī in which the author did injustice to al-Khwārizmī. This forced me to write a book on *the Mediation between the Two (al-Wisātah Bainahuma)*, in 600 folios.
4. I wrote a book and gave it a title, *To Complete the Tables of Habash with Reasons and Correction of the Errors (Takmil Zīj Habash bi al-'Ilal wa Tahzīb A'mālih min al-Zalal)*, in which one of it contains comprises 250 folios.
5. When I was at Sind-Hind, I wrote a book entitled *Collections of the Existence of the Indian Ideas on the Astronomical Calculations (Jawāmi' al-Mawjūd li Khawāṭir al-Hunūd fī Ḥisāb al-Tanjīm)*, in 550 folios.
6. I corrected the astronomical tables of *al-Arkand*, rendered in my own words since the available

predictions were false. It should be noted that al-Bīrūnī's other dreams had more significance than the previous one. He narrated that one night when he was sixty one years old, he dreamt about sighting the crescent. Then, he tried to note its disappearance, yet he was not able to see it. Later on, someone told him: leave it alone, for he will see it one hundred and seventy times. Then, he quickly woke up with joy in his heart soon after he perceived this dream. Al-Bīrūnī used astronomical and astrological methods to describe the length of his life. He changed the fourteen and two months of lunar years into solar and deduced fifteen and half months. In this way, he found that it was connected with time of his birth. From this dream, al-Bīrūnī concluded, that his life was coming to its end. Therefore, he devoted his remaining time day and night to finish uncompleted works which were mainly in first drafts. See al-Bīrūnī, *Risālat al-Bīrūnī fī Fihrist Kutub al-Rāzī*, p. 37-38.

- translation is not well understood and the Sanskrit (Indian) technical terms were omitted.
7. I dedicated to Isfahbad Jiljilan Marzuban bin Rustom, *Kitāb Maqālīd 'Ilm al-Hay'ah fī Mā Yahduthu fī Bāṣīt al-Kurrah* (The Book on the Keys to Astronomy on What Occurs on the Surface of the Sphere), in 155 folios.
 8. I worked on the two equal and united orbits which I called it, *Khiyāl al-Kusūfayn 'Ind al-Hind* (The Image of the two Eclipses according to the Indians). It became well known amongst them, since it provided astronomical tables. Unfortunately, these informations are unknown to our astronomers.
 9. I wrote a book entitled *Fī Amr al-Mumtahin wa Tabṣīr Ibn Kaysūm* (On the Examination and Explanation Matter of Ibn Kaysum) who went beyond the competence of his research and who himself was ignorant of this topic, in 100 folios.
 10. I wrote a book to answer the question of one of scholars who expert on yearling (the variations of the years) entitled *Ikhtilāf al-Aqāwīl li Istikhrāj al-Tahāwīl* (Different Statements on calculation of the Yearling), in 30 folios.
 11. I responded to the question of one who doubted the equation tables of the sun and did not follow the good method which was introduced by Habash entitled, *Discourse on the Resolution and the Analysis of the Equation*, in 70 folios.
 12. *Maqālah fī Tahdhīb al-Ṭuruq al-Muhtāj Ilayhā fī Istikhrāj Hay'at al-Falak 'Ind al-Mawālīd wa Tahāwīl al-Sinīn wa Ghayrihā min al-Awqāt* (On the Improvements of the Used Methods in the Calculation of the Configuration of the Stars and Others Relating to Time), in 60 folios.
 13. I wrote for al-Qāḍī Abū al-Qāsim al-'Āmirī a book *Miftāh 'Ilm al-Hay'ah* (On the Key to Astronomy), in 30 folios. This included the principles of astronomy without illustrations.

14. I wrote for Abū al-Ḥasan Musāfir a book entitled *Tahdhīb Fuṣūl al-Farghānī* (*Correction of al-Farghani's Aphorisms*), in 200 folios.
15. Also for him (Abū al-Ḥasan Musāfir) a detailed book, *Fī Ifrād al-Maqāl fī Amr al-Azlāl* (*On the Exhaustive Treatise on Shadows*), in 200 folios.
16. Another book for him (Abū al-Ḥasan Musāfir), which dealt with the equalization of the extension of heavenly mansions entitled *Fī Isti'māl Dawā'ir al-Sumūt li Istikhrāj Marākiz al-Buyūt* (*Employment of the Circles of the Azimuth for the Calculation of the Centers*), in more than 100 folios.
17. For some astrologers of Jurjan, I wrote a book *Maqālah fī Ṭālī' Qubbat al-Arḍ wa Ḥālāt al-Thawābit Dhawāt al-'Urūd* (*On the Rise of the Cupola of the Earth and the Position of the Fixed Stars with Their Latitudes*), in 30 folios.
18. A small treatise without illustrations, *Fī I'tibār Miqdār al-Layl wa al-Nahār fī Jamī' al-Arḍ* (*On the Consideration of the Duration of the Night and the Day throughout the Earth*). It defines that, at the polar region, a day is equal to a year.
Then, I worked on longitudes and latitudes of cities and their directions from one to another:
19. *Kitāb Taḥdīd Nihāyāt al-Amākin li Taṣḥīḥ Masāfāt al-Masākin* (*A book on the Determination of the Coordinating of Cities for the Correction of Distances between Cities*), in 100 folios.
20. *Kitāb Tahdhīb al-Aqwāl fī Taṣḥīḥ al-'Urūd wa al-Atwāl* (*A book on Accurate Statements for Correcting the Latitudes and Longitudes*), in 200 folios.
21. *Kitāb Taṣḥīf al-Manqūl Min al-'Arḍ wa al-Ṭūl* (*The Traditional Errors Concerning the Latitude and Longitude*), in 40 folios.
22. *Maqālah fī Taṣḥīḥ al-Ṭūl wa al-'Arḍ li Masākin al-Ma'mūr min al-Ard li Masākin al-Ma'mūr min al-Ard* (*A treatise on the Accurate Determination of Longitude and Latitude of the Cities of the World*), in 20 folios.

23. Another treatise *Fi Ta'yīn al-Balad min al-'Arḍ wa al-Ṭūl* (On the Determination of the Latitude and Longitude of a City), also in 20 folios.
24. *Maqālah fī Istikhrāj Qadr al-Arḍ bi Rasad Inhiṭāt al-Ufuq 'An Qulal al-Jibāl* (A treatise on Calculation of the Value of the Earth by Measuring the Angle of Inclination of the Horizon from the Top of the Mountain), in 60 folios.
25. *Fī Ghurūb al-Shams 'Ind Manārat Iskandariyyah* (On the Sunset at the Lighthouse of Alexandria), in 40 folios.
26. *Fī al-Ikhtilāf al-Wāqi' fī Taqāsīm al-Aqālīm* (On the Different Ideas Concerning the Divisions of the Regions), in 20 folios.
27. *Fī Ikhtilāf Dhawī al-Faḍl fī Istikhrāj al-'Arḍ wa al-Mayl* (On the Different Facts among the Scholars Concerning the Calculation of the Latitude and Slope) (the angle of inclination).
28. *Kitāb al-Ajwibah wa al-As'ilah li Taṣḥīḥ Samt al-Qiblah* (A book on Questions and Answers to Correct Direction of the Qiblat), in 30 folios.
29. *Idāh al-Adillah 'Alā Kayfiyyat Samt al-Qiblah* (Explanation of the Proofs on How to Determine the Direction of the Qiblat), in 25 folios.
30. *Tahdhīb Shurūṭ al-'Amal li Taṣḥīḥ Sumūt al-Qibal* (Correction of the Conditions of the Works to Correct the Direction of the Qiblat), in 40 folios.
31. *Fī Taqwīm al-Qiblah bi Bust bi Taṣḥīḥ Ṭūlihā wa 'Arḍihā* (On the Fixing of the Direction of Qiblat at Bust by Correcting its Longitude and Latitude), in 15 folios.
32. *Fī al-Inbi'āth li Taṣḥīḥ al-Qiblah* (On the Procedure for the Correction of the Qiblat), in 45 folios.
33. *Talāfi 'Awārid al-Zallah fī Kitāb Dalā'il al-Qiblah* (Correction of the mistakes in the Book – Dalā'il al-Qiblah").

I also wrote the books relating to Arithmetics:

34. *Tadhkirah fī al-Ḥisāb wa al-‘Add bi Arqām al-Sind wa al-Hind (A treatise on Arithmetics and Enumerations According to the Numbers of Sind-Hind), in 30 folios.*
35. *Fī Istikhrāj al-Ki‘āb wa Adla‘ mā Warā’ahu min Marātīb al-Ḥisāb (Discourse on the Calculation of Cubes and Side of Triangle Based on the Rules of Arithmetics), in 100 folios.*
36. *Kayfiyyat Rusūm al-Hind fī Ta‘allum al-Ḥisāb (The Indian Methods for Learning Arithmetics).*
37. *Fī Anna Ra’y al-‘Arab fī Marātīb al-‘Adad Aswab min Ra’y al-Hind Fihā (On the Opinion that the Arabian’s rule of Numbers is Superior to that of Indian), in 15 folios.*
38. *Fī Rāshikāt al-Hind (On the Indian Rashikats), in 15 folios.*
39. *Fī Saklab al-A’dād (On the Saklab of the Numbers), half of which is available in 30 folios.*
40. *Tarjamah mā fī Barāhim Sidhānd min Ṭuruq al-Ḥisāb (Translation of the Methods of Calculations as Found in Brahmasiddhanta), in 40 folios.*
41. *Mansūbāt al-Darb (Methods of Multiplications).*

I also worked on rays and transits:

42. *Tajrīd al-Shu‘ā’āt wa al-Anwār ‘an al-Faḍā’ih al-Mudawwanah fī al-Asfār (Clearing the Passing of Rays and Lights from Ignominious Recording), in 55 folios.*
43. *Maqālah fī Tahṣīl al-Shu‘ā’āt bi Ab‘ad al-Ṭuruq ‘an al-Sā’āt (A treatise on the Obtaining the Rays by the Most Remote Methods of the Hours), in 10 folios.*
44. *Fī Matrah al-Shu‘ā’ Thābitan ‘alā Taghayyur al-Biqā’ (on the Projection of the Rays Which Remains Fixed inspite of the Changes in the Regions), in 15 folios.*
45. *Tamhīd al-Mustaqarr li Tahqīq Ma’nā al-Mamarr (The*

Preparation of the Abode for the Determination of the Significance of the Transit), in 60 folios.

I further worked on topics related to instruments and their uses:

46. *Fī Isti'āb al-Wujūh al-Mumkinah fī Ṣan'at al-Usturlāb* (*On All Possible Methods of Making an Astrolabe*), in 80 folios.
47. *Fī Tashīl al-Taṣḥīḥ al-Usturlābī wa al-'Amal bi Murakkabātihi min al-Shamālī wa al-Janūbī* (*The Easy Method on the Correction of the Astrolabes and the Use of Its Northern and Southern Compound Instruments*), in 10 folios.
48. *Fī Tastīh al-Ṣuwar wa Tabṭīh al-Kuwar* (*On the Projection of the Constellations and Making Planisphere*).
49. *Fīmā Ukhrija mā fī Quwwat al-Usturlāb ilā al-Fi'l* (*On the Power of Astrolabe to the Action Which Can Be Used*), in 30 folios.
50. *Fī Isti'māl al-Usturlāb al-Kurī* (*On the Use of the Circular Astrolabe*), in 10 folios

I then worked on matters related to chronology:

51. *Maqālah fī Ta'bīr al-Mīzān li Taqdīr al-Azmān* (*A treatise On the Explanation of the Balance for Calculation of the Times*), in 15 folios.
52. *Fī Tāḥsīl al-Ān min al-Zamān 'Ind al-Hind* (*Analysis of the Present Moment of Time According to the Indians*), in 15 folios.
53. *Tadhkirah fī al-Irshād ilā Ṣawm al-Naṣārā wa al-A'yād* (*A Guidance Treatise (Calendar) On the Fasting and Festivals by Christians*), in 20 folios.
54. *Fī al-I'tidhār 'Ammā Sabaqa li fī Tārīkh al-Iskandar* (*Apology from the Earlier Mistake Concerning the History of Alexander*), in 10 folios.
55. *Fī Takmil Ḥikāyāt 'Abd al-Malik al-Ṭabīb al-Bustī fī Mabda' al-'Ālam wa Intihā'ih fī Qarīb* (*A Supplement of Certain Bustian physician, Abd al-Malik on the Beginning and the End of the Earth*), in 100 folios.

I also worked on Comets:

56. *Maqālah fī Dalālat al-Āthār al-'Ulwiyyah 'alā al-Āhdāth al-Suflīyyah* (A treatise on the Evidence of the Influence of the Celestial Region on the Terrestrial Phenomena), in 30 folios.
57. *Fī Ibtāl Zunūn Fāsīdah Khatarat 'alā Qulūb Ba'd al-Aṭibbā' fī Amr al-Kawākib al-Ḥādithah fī al-Jaww* (Cancellation of the Corrupted Doubts in the Heart of Some Physicians Concerning the Phenomena of the Planets in the Atmosphere), in 70 folios.
58. And a treatise *Maqālah fī al-Kalām 'alā al-Kawākib Dhawāt al-Adhnāb wa al-Dhawā'ib* (On the Sayings Concerning the Planets endowed with Tails and Comets), in 65 folios.
59. *Maqālah fī Mudī'āt al-Jaww al-Ḥādithah fī al-'Uluww* (A treatise On the Illuminated Atmosphere Which Appears in the Celestial Region).
60. *Maqālah fī Tasaffuh Kalām Abī Sahl al-Qūhī fī al-Kawākib al-Munqaddah* (A Study of Abū Sahl al-Qūhī Concerning the Falling of Stars), in 15 folios.

I worked further on:

61. *Kitāb fī Taḥqīq Manāzil al-Qamar* (A book On Verification of the Position of the Moon), in 180 folios.
62. *Fī al-Faḥṣ 'an Nawādir Abī Ḥafs 'Umar bin al-Farrukhān* (Research on Anecdotes of Abū Ḥafs 'Umar b. al-Farrukhān), in 240 folios.
63. *Maqālah fī al-Nisab al-Latī Bayn al-Filizzāt wa al-Jawāhir fī al-Hajm* (The treatise On Ratios between the Volumes of Metals and Precious Stones), in 30 folios.
64. *Maqālah fī Istikhrāj al-Awṭār fī al-Dā'irah bi Khaṣṣat al-Khaṭṭ al-Munhanī* (The treatise On the Calculation of Chords in a Circle by the Properties of its Curved Line), in 80 folios.
65. *Tadhkirah fī al-Masāḥah li al-Musāfir al-Muqawī* (A

- treatise *On the Distance that a Traveler could Covers*), in 10 folios.
66. *Maqālah fī Naql Khawāss al-Shakl al-Qattā' ilā Mā Yughnī 'Anhu* (A treatise *On Transmission of the Illustrated Properties which are Necessary*), in 20 folios.
67. *Maqālah fī anna Lawāzim Tajzi' al-Maqādir lā ilā Nihāyah Qarībah min Amr al-Khattayn al-Ladhayn Yaqrabān wa lā Yaltaqiyān fī al-Istib'ād* (A Treatise *On the Necessary Consequences of the Division in Infinity of Two Lines that Came too Close to Each (in Nearness to Each), But Never Meeting at Any Distant Point*), in 10 folios.
68. *Maqālah fī Şifat Asbāb al-Sukhūnah al-Mawjūdah fī al-'Ālam wa Ikhtilāf Fusūl al-Sanah* (A treatise *On the Description of the Causes of Heat Which Exist in the World and the Differences of the Seasons in the Year*), in 45 folios.
69. *Maqālah fī al-Baḥth 'an al-Ṭarīqah al-Madhkūrah fī Kitāb al-Āthār al-'Ulwiyyah* (A treatise *On the Research of the Method Which was Mentioned in the Book of Meteorology*), in 40 folios.
70. *Al-Masā'il al-Balkhiyyah fī al-Ma'ānī al-Muta'alliqah bi Inkisār al-Şinā'ah* (Al-Balkhi's Problems on the Meanings of the Decline of the Art), in 70 folios.
71. *Al-Jawābāt 'an al-Masā'il al-Wāridah min Munajjimī al-Hind* (Answers to the Questions Raised by Indian Astronomers), in 120 (folios).
72. *Al-Jawābāt 'an al-Masā'il al-'Ashr al-Kishmīriyyah* (Answers to the Ten Questions Raised by Kashmirian).

I also worked on topics related to astrology:

73. *Kitāb al-Tafhīm li Awā'il Şinā'at al-Tanjīm* (The Book of Instruction in the Elements of the Art of Astrology).
74. *Maqālah fī Taqṣīṭ al-Quwā wa al-Dalālāt Bayn Ajzā' al-Buyūt al-Ithnā 'Ashara* (A treatise *On Division of*

- the Forces and the Signs between the Various Parts of the Twelve Planets*), in 15 folios.
75. *Maqālah fī Hikāyat Tariq al-Hind fi Istikhrāj al-'Umr* (A treatise *On the History of the Indian Method of Calculating the Age*).
76. *Maqālah fī Sayr Sahmay al-Sa'ādah wa al-Ghayb* (A treatise *On the Path of Good Fortune and its Absence*).
77. *Fī al-Irshād ilā Taṣḥīḥ al-Mabādi' Ishtamala 'alā al-Namudhārāt* (*Guide to the Correction of the Principles Contained in Namudhārāt*), in 50 folios.
78. *Maqālah fī Tabyīn Ra'y Baṭlīmīyūs fī al-Sālkhudāh* (A *Treatise on the Clarification of the Ptolomy's Ideas on Salkhudah*), in 7 folios.
79. *Tarjamah Kitāb al-Mawālīd al-Ṣaghīr li Birāhīmīhir* (*Translation of the Book on Offspring Written by Varahamihira*).

I also translated books, the contents of which were regarded as unfavorable and dull joking:

80. *Qiṣṣat Wāmiq wa 'Adhrā'* (*The Story of Wamiq and 'Adhrā'*).
81. *Hadīth Qasīm al-Surūr wa 'Ayn al-Ḥayāh* (*The Story of Qāsīm al-Surūr and 'Ayn al-Ḥayāt*).
82. *Hadīth Urmazdiyār wa Mihriyār* (*The Story of Urmazdiyār and Mihryār*).
83. *Hadīth Sanamay al-Bāmiyān* (*The Story of the Two Idols at Bamiyan*).
84. *Hadīth Dādhmīh wa Kirāmī Dakhat Hahli al-Wādī* (*The Story of Dadhmeh, Kirāmī Dakhat Hahli al-Wādī*).
85. *Hadīth Nīlūfar fī Qiṣṣat Dabistī wa Barbuhākīr* (*The Story of Nīlūfar in the Story of Dabistī and Barbuhākīr*).
86. *Qāfiyat al-Alif min al-Itmām fī Shi'r Abī Tammām* (*The Rhyme Ending in the Letter Alif (Qāfiyah al-Alif) in the Supplement Work of Abū Tammām's Poetry*).
87. *Maqālah fī al-Istibhār fī Qadd al-Ashjār* (A treatise *on the Growth and Sizes of the Trees*).

88. *Taḥṣīl al-Rāḥaḥ bi Taḥṣīḥ al-Masāḥaḥ* (Obtaining the Rest by Correcting the Land-Survey).
89. *Al-Taḥdhīr min Qībal al-Turk* (Warning against the Turks).
90. *Al-Qur'ah al-Muṣarraḥaḥ bi al-'Awwāqib* (The Clear Fortune Which Indicates the Consequences).
91. *Al-Qur'ah al-Muthammanah li Istīnbāṭ al-Damā'ir al-Mukhammanah wa Sharḥ Mazāmīr al-Qur'ah al-Muthammanah* (The Valuable Fortune for Obtaining the Hidden Imagination and Commentary on the Valuable Fortune).
92. *Tarjamah Kalb Yārah – Maqālah li al-Hind fī al-Amrād al-Latī Tajrī Majrā al-'Ufūnah* (Translation of the Book Kalb Yara, the Indian Treatise on Disease Which Accompanies Decay).

I worked on topic relating to doctrinal ideas:

93. *Fī Taḥqīq mā li al-Hind min Maqālah Maqbūlah fī al-'Aql Aw Mardhūlah* (A treatise On India's Ascertaining Statements to be accorded by Intellectual Acceptance, or to be rejected by Reasoning), in 700 folios.
94. *Maqālah fī 'Illat 'Alāmāt al-Burūj fī al-Zījāt min Hurūf al-Jumal* (A treatise on the Cause of the Signs of Zodiac in Astronomical Tables by the Alphabets of Sentences), in 15 folios.
95. *Kalām fī al-Mustaqarr wa al-Mustawda'* (The Statements on the Abode and In-abode), in 10 folios.
96. *Maqālah fī Bāsdīyū al-Hind 'ind Majī'ih al-Adnā* (A treatise On the Basdiu of India Which Predicts the Near Future).
97. *Tarjamah Kitāb Shāmīl fī al-Mawjūdāt al-Maḥsūsaḥ wa al-Ma'qūlah* (Translation of a Comprehensive Book on the Sensible and Reasonable).
98. *Tarjamah Kitāb Bātanjal fī al-Khālās min al-Irtibāk* (Translation of Patanjali on the Elimination of Confusion).

The copies of my works which were lost are many, for example:

99. *Al-Tanbīh 'alā Ṣinā'at al-Tamwiyah Wahiyā Aḥkām al-Nujūm* (Warning against the Art of Deceit which is devoted to Astrology).
100. *Tanwīr al-Minhāj ilā Tahlīl al-Azyāj* (Illumination of the Method in Analyzing the Astronomical Tables).
101. *Al-Taḥbīq ilā Taḥqīq Harakat al-Shams* (The Practice of the Ascertaining of the Movement of the Sun).
102. *Al-Burhān al-Munīr fī A'māl al-Tasyīr* (The Correct Proof Concerning the Propulsive Works).
103. *Kitāb Tanqīḥ al-Tawārīkh wa Amthāl Dhālika* (The Book of Verification of Dates and Other Such Subjects).

Concerning the interpretation of my visions which I mentioned, for your information, a human being even though being the wisest and the cleverest amongst the people, will always hope the best for himself. Therefore, he is anxious to hear good news and is distressed by unpleasant ones. Then, he tries to make his fortune and happiness with omen and good dreams by being very optimistic according to the astrologers. In fact, I myself experienced this, during such days. I therefore, asked the astrologers to explain my future based on my birthday. They began to predict the length of my life. Unfortunately, their calculations differed. One of them stated that I would live for another sixteen years, while the other was of the opinion that my entire life will be 40 years or slightly more which I consider it to be false. This is because I was already more than 50 years old. Others added more years up to sixty or slightly more.

At this time, I was taken over by intense pains and suffering which were sometimes simultaneous and at other times one after another. The pains penetrated my bones and weakened completely my strength and disabled me from being able even to move and enfeebled completely my senses. After sometime, I improved though my faculties had weakened on account of old age.

One night when I was sixty one years old, I dreamt that I was looking for the crescent of the moon at the place where the crescent of the moon disappears, but I was not able to see the crescent. Someone said to me: leave it alone, for you will see it one hundred and seventy times. Then, I woke up and changed the fourteen years and two months of lunar calendar into solar years and reduced fifteen and half months to get the final result. I found that the total was near to the years of the great mercury. They mentioned that it dominates the time of my birthday. By this, I am not surprised of their interpretations because my life will surely come to an end. Nothing remains of it, except the one thing that my uncompleted works will remain in my hands which needs revising and being mostly in their first draft. Here are few more examples:

104. *Al-Qānūn al-Mas'ūdī.*
105. *Al-Āthār al-Bāqiyah min al-Qurūn al-Khāliyah (The Chronology of Ancient Nations).*
106. *Al-Irshād ila mā Yudraku wa lā Yunālu min al-Ab'ād (Guide to Measurements of Inaccessible Distances).*
107. *Al-Kitābah fi al-Makāyīl wa al-Mawāzīn wa Sharā'it al-Tayyār wa al-Shawwāhīn (Writing on Measures, Weights and about the Conditions Governing Both Wings of Balance).*
108. *Jam' al-Ṭuruq al-Sā'irah fi Ma'rifat Awtār al-Dā'irah (Collections of All Known Methods of Discovering the Chords of Circles).*
109. *Taşawwur Amr al-Fajr wa al-Shafaq fī Jihhatay al-Sharq wa al-Gharb min al-Ufuq (The Imagination of the Horizontal Phenomena of Dawn and Dusk in Both East and West Directions).*
110. *Takmīl Şinā'at al-Tastīḥ (Perfection of the Art of Surface).*
111. *Jalā' al-Adhhān fī Zīj al-Baṭṭānī (A Clear Mind to Understand Astronomical Table of al-Baṭṭānī).*
112. *Tahdīd al-Ma'mūrah wa Taşḥīḥuhā fī al-Şūrah*

(Boundaries of Countries and Cities were fixed and their Correction through a Map).

113. *'Ilal Zīj Ja'far al-Mukannā bi Abī Ma'shar (Defects of the Astronomical Table of Ja'far (d.885 C.E.) whose Surname is Abū Ma'shar) (Latin Albumasar).*

All these treatises including what I translated of Indian books were written with God's help and after I ascertained that my mind, my senses and my body were healthy according to my age. You must know that I prepared the books at the time of my life after which I became more knowledgeable, it was without any prejudice to my earlier works. In fact, all of them like my children and others who have worked under my names are like babies on the lap and necklaces around the neck. I don't differentiate between them and my own children.

The books which were written by Abū Naṣr Maṣṣūr b. 'Alī b. 'Irāq (d.425 A.H/1034 C.E), the Khwarizm governor of the believer's leader, may God gives him guidance:

1. *Kitāb fī al-Sumūt (Book on Azimuth).*
2. *Kitāb fī 'Illat Tanṣīf al-Ta'dīl 'ind Aṣḥāb al-Sind Hind (Book on Reasons for the Division in Two of the Equations According to the People of the Sind-Hind).*
3. *Kitāb fī Taṣḥīḥ Kitāb Ibrāhīm bin Sinān fī Taṣḥīḥ Ikhtilāf al-Kawākib al-'Ulwiyyah (The Correction of the Book of Ibrāhīm b. Sinān's Correction of the Differences in the Celestial Planets).*
4. *Risālah fī Barāhīn A'māl Habash bi Jadwal al-Taqwīm (Epistle on the Proof of the Works of Habash Concerning the Table of Calendar).*
5. *Risālah fī Taṣḥīḥ mā Waqa'a li Abī Ja'far al-Khāzin min al-Sahw fī Zīj al-Ṣafā'iḥ (Epistle on the Correction of What Abū Ja'far al-Khāzin had Omitted in the Disk Tables).*
6. *Risālah fī Mujāzāt Dawā'ir al-Sumūt fī al-Uṣṭurlāb (His epistle on the Passage of the Azimuth Circles in the Astrolabe).*

7. *Risālah fī Jadwal al-Daqā'iq* (His epistle on the Table of the Minutes).
8. *Risālah fī al-Barāhīn 'alā 'Amal Muḥammad bin al-Ṣabāḥ fī Imtīhān al-Shams* (His epistle on the Proofs of the Work of Muḥammad b. al-Ṣabāḥ on the Examination of the Sun).
9. *Risālah fī al-Dawā'ir al-Latī Tahuddu al-Sā'āt al-Zamāniyyah* (His epistle on the Circles Which Limit the Temporal Hours).
10. *Risālah fī al-Burhān 'alā 'Amal Habash fī Maṭāli' al-Samt fī Zījīhi* (His epistle on the Proof of the Work of Habash Concerning the Direction of Sunrise in his Astronomical Table).
11. *Risālah fī Ma'rifat al-Qisiyy al-Falakiyyah bi Ṭariq Ghayr Ṭariq al-Nisbah al-Mu'allafah* (His Epistle on the Knowledge of the Arc of Sphere Based on Another Method that has been composed).
12. *Risālah fī Ḥall Shubhat 'Araḍat fī al-Thālīthah 'Asharah min Kitāb al-Uṣūl* (His epistle on the Solution of Shubahah which appeared in Chapter Thirteenth of the Book of al-'Usūl).

The books which Abū Sahl 'Īsā b. Yahyā al-Masīhī (d.407 A.H/1017 C.E.) wrote under my name:

1. *Kitāb fī Mabādi' al-Handasah* (His book on the Principle of Astronomy).
2. *Kitāb fī Rusūm al-Ḥarakāt fī al-Ashyā' Dhawāt al-Waḍ'* (His book on the Rules of the Movement of Things Endowed With Positions).
3. *Kitāb fī Sukūn al-Arḍ Aw Ḥarakatihā* (His book on Non-movement or Movement of the Earth).
4. *Kitāb fī al-Tawassuṭ Bayn Aristūṭālīs wa Jālīnūs fī al-Muḥarrīk al-Awwal* (His book on Reconciliation between the Ideas of Aristotle and Galen Regarding the Prime Mover).
5. *Risālah fī Dalālat al-Lafz 'alā al-Ma'nā* (His epistle on the Evidence of Word to the Meaning).

6. *Risālah fī Sabab Bard Ayyām al-'Ajūz* (His epistle on the Cause of the Cold during Old Age).
7. *Risālah fī 'Illat al-Turbah al-Latī Tusta'malu fī Aḥkām al-Nujūm* (His epistle on the Cause of Soil which was used in Astrology).
8. *Risālah fī Ādāb Suhbat al-Mulūk* (His epistle on Manners in the Company of Kings).
9. *Risālah fī Qawānīn al-Ṣinā'ah* (His epistle on the Rules of the Art).
10. *Risālah fī Dustūr al-Khaṭṭ* (His epistle on the Instructions on Script Writing).
11. *Risālah fī al-Ghazaliyyāt al-Shamsiyyah* (His epistle on the Rising of the Sun).
12. *Risālah al-Narjisiyyah* (The Narcissus Epistle).

The books which were written by Abū 'Alī al-Ḥasan bin 'Alī al-Jīlī under my name are:

1. *Al-Risālah al-Mu'anwanah bi Min wa 'An* (Epistle entitled *Min wa 'An*).

I have now given you the titles of the books which you desire in your quest for knowledge to purify yourself, *Wassalam*.

End of the *Risālah* by the teacher known as the author of *al-Fihrist*.

Concluding Remarks

Al-Bīrūnī, in his *Risālāt al-Bīrūnī fī Fihrist Kutub al-Rāzī*, has surveyed and investigated as much as possible at that time, the works of al-Rāzī and displayed enough respect and mastery talents as a distinguished scholar in various cultural activities. Al-Bīrūnī classified the works of al-Rāzī, which totaled to one hundred and eighty four, as follows:²⁷

²⁷ Al-Bīrūnī, *Risālāt al-Bīrūnī fī Fihrist Kutub al-Rāzī*, ed. by M. Mohaghegh, (Tehran: Tehran University Publications), 1973, pp.5-18.

1. On Medicine	1-56 Books
2. On Nature Sciences	57-89
3. On Logic	90-96
4. Mathematics and Astronomy	97-106
5. Commentaries and Summaries	107-113
6. Philosophy and Hypothetical Sciences	114-130
7. Metaphysics	131-136
8. Theology	137-150
9. Chemistry	151-172
10. Heretical Books	173-174
11. Various Arts	175-184

After cataloging the works of al-Rāzī, al-Bīrūnī recorded 103 of his completed works, 10 unfinished works and 25 works which were written under his supervision. The latter are included 12 works of Abū Naṣr Maṣṣūr bin 'Alī bin 'Iraq (d.425 A.H/ 1034 C.E), 12 by Abū Sahl 'Īsā bin Yaḥyā al-Masīhī (d.407 A.H/1017 C.E) and one by Abū 'Alī al-Ḥasan ibn 'Alī al-Jīlī. Thorough examining of al-Bīrūnī's works indicates that al-Bīrūnī mastered various branches of sciences such as astronomy, astrology, mathematics, chronologies, comets, anecdotes and theology. The works that were written by al-Bīrūnī were of different sizes. Several among them were only 10 folios each while others amounted up to 360, 550 and 600 folios each. The largest of all was *Kitāb al-Hind* in 700 folios.

It is found that serious study of the works of both al-Rāzī and al-Bīrūnī are sufficient to discover the depth of achievements which they had contributed towards human scientific endeavors. Based on the works of the former, we see several important views developed by al-Bīrūnī. Both were among the great pioneers who contributed so much to fuller understanding of modern scientific achievements. However, it would be very difficult to evaluate who was the more distinguished. Nevertheless, Bīrūnī's time covered more of the present period which we are concerned with, and he was the first among the Muslim scholars who studied and described Indian culture from various aspects. Thus, it

may be said that al-Bīrūnī's writings were more updating and complete. Though during his stay in India, he faced many difficulties due to the differences in the two civilizations, the Islamic and the Indian in aspects of languages, religions, customs and so on, he had successfully written most of Indian civilization.²⁸

²⁸ Al-Bīrūnī, *Al-Beruni's India*, ed & tr. By Edward C.Sachau, (New Delhi: Oriental Book Reprint Corporation), 1983, Vol. I, p. xxxiv.

