

## Medicine In Islamic Culture

### The “Kitab al-Shukuk’alas Jālinus” of Muhammad ibn Zachariyā al-Razi

M. MOHAGHEGH

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Abū Bakr Muhammad ibn Zachariyā al-Rāzi, known as the “Galen of the Arabs,”<sup>1</sup> “the Physician *par excellence* of the Muslims,”<sup>2</sup> and “Learned Master (*Allamah*) of the Sciences of the Ancients,”<sup>3</sup> was one of the most widely-recognized and encyclopaedic philosophers ever to appear in the Islamic world. He read with a number of teachers from Khurāsān, al-Nishaburi,<sup>4</sup> Abu Zayd al-Balkhi,<sup>5</sup> and Ali ibn Rabban al-Tabari.<sup>6</sup> He made a thorough study of medical practice in the hospitals of Rayy and Baghdad, finally achieving the rank of “resident surgeon” (“*al-tabib al-maristani*”). Al-Razi debated with many outstanding personalities of his time. He discussed metaphysics and the problem of time with Abu al-Qasim al-Ka’bi al-Balkhi;<sup>8</sup> the question of the pre-existence of matter with Ahmad ibn al-Hasan al-Masma’i;<sup>9</sup> the validity of medicine with Abu al-Abbas al-Nashi al-Akbar;<sup>10</sup> the problem of pleasure with Abu al-Hasan Shahid ibn al-Husayn al-Balkhi;<sup>11</sup> bitter taste with Ahmad ibn Muhammad Abu Tayyib al-Sarakhsi;<sup>12</sup> and the *imate* with Ahmad ibn Kayyal.<sup>13</sup>

The esteem in which al-Razi was held in indicated by the *Fihrist* (bibliography) of his writings compiled by Abu Rayhan al-Biruni, another great learned man of the 5th/11th century.<sup>14</sup> Al-Biruni undertook the work despite his strong disagreement with al-Razi on a number of philosophical and religious issues. The *Fihrist* is divided by subject; some of the various headings include medicine, the natural sciences, logic, mathematics, astronomy, commentaries and summaries by al-Razi of predecessors, works, metaphysics, alchemy, and heresiography.

Among al-Razi’s works on the natural sciences al-Biruni mentions the *al-Shukuk ala Jalinus* (Doubts concerning Galen).<sup>15</sup> Unfortunately only three manuscripts of this valuable work have survived; all three, moreover, seem to be descended from one copy. Nor has the *al-Shukuk*, despite its importance for the history of medicine, ever been published. It is my aim in

this modest essay to bring al-Razi’s critique of Galen to the attention of scholars of the history of medicine.

It is first necessary to point out that the Arabic term “shakk” (Lit: “doubt”) contained in the title is equivalent to the Greek term “aporia” which gives the sense of “difficulty, hardship, confusion.” In philosophical dialectics it indicates a difficulty, problem, or enigma. The addition of the Arabic preposition “alā” (here parallel to the Greek “pros”) further indicates objection and critique.<sup>16</sup> Thus al-Rāzi, brings up certain “doubts” or “objections” to problematic points in which Galen has apparently entangled himself in his writings.

Galen himself was born several centuries before al-Rāzi, in the year 130 C.E. in the town of Pergamon (known to the Arabs as “Farghāmus” or “Farghāmun”) in Asia Minor. He died in Sicily in 200 C.E., leaving behind numerous treatises not only on medicine and philosophy, but on many other subjects as well. He also compiled an autobiographical work, called in Arabic “Finaks”<sup>17</sup> or “Binaks”,<sup>18</sup> from the Greek “pinax” meaning “catalogue”, along with another treatise laying down the proper order in which his books were to be studied.<sup>19</sup> After his death his fame only increased. His students had a great following; they travelled to many lands and taught in various schools and centres of religious learning. As time passed the Greek originals of Galen’s works became hidden away in the corners of the academies, where they lay for centuries nearly forgotten. By this time, however, most had been rendered by Muslim translators either into Syriac or Arabic. In the Middle Ages they were subsequently translated from Arabic into Latin,<sup>20</sup> and finally in the Renaissance with the renewed influence of Greek thought further into Latin and then into other European languages.

Many translators shared in the Arabization of Galen’s works. Chief among these was Hunayn ibn Ishāq al-‘Abādī, known as “Hunayn the Translator”

(d. 260/856-57).<sup>21</sup> Hunayn's translations of Galen are listed in one of his own treatises, and it was through these that Galen became known in the Islamic world. His name finally became synonymous in the Islamic literatures with perfection in the art of medicine. The well-known Arabic poet al-Mutanabbi says:

When I found the cure for my illness with my beloved;

Even Galen seemed to me little in comparison.<sup>22</sup>

Although many Islamic scholars studied Galen and used his writings, al-Rāzi was probably the most learned among them. He even makes mention of several of Galen's works listed neither in Hunayn ibn Ishāq's bibliography nor that of Galen himself.<sup>23</sup> His admiration for Galen is obvious: he followed the Greek physician not only in his medicine, but also in his philosophy and ethics. It is no wonder then that he begins the *Kitāb al-shukuk* with the following declaration:

[In writing this book] I am faced with opposing one who is in my eyes the greatest of men, and who has benefitted me more than any person. It was through him that I was guided; I trod in his footsteps, and drank of his knowledge as if from an ocean! I am faced with this knowing that the slave must not oppose his master, nor the student his teacher, nor he who receives grace the one who granted it.<sup>24</sup>

We also see that the titles of several of al-Rāzi's works coincide with those of Galen's, for example "*al-Burhān*" (The Demonstration); "*Fi-mā ya'taqiduhu ra'y(an)*" (On the Beliefs Held [by Galen]); and "*Fi manāfi-a'dā*" (On the Usefulness of the Parts of the Body).<sup>25</sup> Al-Rāzi also summarizes a number of Galen's important works: thus his "Summary of the Greater Book of the Pulse" (*Ikhtisār kitāb al-nabd al-kabir*) and "Précis of the Stratagem for Recovery" (*Talkis li-hilat al-bur*), the "Précis of Causes and Accidents" (*Talkhis al-ilal wa-al-a'rād*) and the "Precis of Painful Members" *Talkhis al-a'dā' al-ālimah*.<sup>26</sup>

Al-Rāzi states in the *al-Shukūk* that Galen is, in his opinion, even greater than Aristotle:

There was in the City of Peace [that is Baghdad] a certain man who used to read the works of Galen with me. He himself favoured Aristotle. Whenever he came across passages [in which doubts could be applied against Galen] he would vigorously censure me for setting him above Aristotle. God knows that I was many times quite put to shame by the elegance of his arguments on such occasions.<sup>27</sup>

It is worth mentioning here that al-Rāzi sided with Plato rather than Aristotle concerning many of the questions on which Galen himself agreed with Plato. Examples of these are the problem of pain and pleasure, and the three souls. Thus al-Sā'id al-Andalusi (d. 462/1069-1070) says concerning al-Rāzi: He strongly disagreed with Aristotle, censuring him for splitting from his teacher Plato and others of the ancient philosophers in the matter of many of their beliefs.<sup>28</sup>

Thus having read all of Galen's important works and finding a number of inconsistencies and dubious points, al-Rāzi set about composing his *Kitāb al-Shukuk*. Al-Biruni calls the book *al-Shukuk alā Jālinus*<sup>29</sup> while Ibn Abi Usaybi'ah gives it a longer title: *al-Shukuk wa-al-munāqadāt allati fi kutub Jālinūs* (Doubts and inconsistencies in the Books of Galen).<sup>30</sup> The manuscript which I have used (described below) bears a longer title still: *Kibāb al-shukuk li-Rāzi alā kitāb fādil al-attibā Jālinus fi al-kutub alladhi nusiba ilay(hi)* (AL-Rāzi's Book of Doubts Concerning the Treatise of the Most Eminent of Physicians, Galen, on the Works Attributed to Him).<sup>13</sup>

It should be recalled here that Alexander of Aphrodisias (fl. early 3rd C.A.D.) also opposed certain of Galen's beliefs<sup>32</sup> before al-Rāzi; thus Yahyā al-Nahawī al-Iskandarāni (John Philoponus, fl. c.A.D. 490 -c.570) also wrote a work which he called "Doubts", in which he clarified what he believed to be Galen's errors.<sup>33</sup>

The Ismā'ili philosopher Muhammad ibn Surkh al-Nishāburi (fl. A.H. 4th or 5th C./A.D. 10th or 11th C.) also mentions al-Rāzi's *Shukūk* in a book which he wrote as a commentary on the *qasidah* of his contemporary Abu al-Haytham al-Jurjāni-going on to note that another man living at the time wrote a book which he called "Doubts Concerning Muhammad ibn Zakariya." It is reported that when al-Rāzi saw the latter book he said, "It seems that he holds me in the same high regard as I do Galen himself" he then proceeded to confess his own errors.<sup>34</sup> The story may be apocryphal. It is certain, however, that Ibn Abi Sādiq,<sup>35</sup> Ibn Ridwān al-Misri,<sup>36</sup> and Abu al-Alā ibn Zuhr<sup>37</sup> each wrote a book called "Solution to al-Rāzi's Doubts Concerning the Works of Galen" (*Hall shukuk al-Rāzi alā kutub Jālinus*). Ibn Maymūn al-Qurtubi ("Maimonides", d. 601/1204-1205) also mentions Ibn Ridwān's and Ibn Zuhr's refutations of al-Rāzi's Book of Aphorisms *Kitāb al-fusū*.<sup>38</sup> Ibn Abi Usaybi'ah actually had Ibn Ridwān's treatise in his possession<sup>39</sup>, but it is unfortunately lost to us. Ibn Zuhr's work, however, is existent, in the form of a manuscript in the library of the Madrasat Nawwāb in Mashhad<sup>40</sup>. The title reads *al-Bayān wa-al-tadyin fi al-intisār li-Jālinus* (Explanation and Elucidation in support of Galen). Ibn Zuhr thinks that either one of the Islamic "sceptics" (*al-Sufastā'iyah*) contrived the work and then fathered it

on al-Rāzi, or that al-Rāzi wrote it either when he was still young and had not yet properly understood Galen, or at the end of his life when he was preoccupied with alchemy and had been overcome by the fumes of arsenic and sulfur.<sup>41</sup>

Al-Rāzi himself begins the *al-Shukuk* with the following comment “I know that many people will think me ignorant for writing this book...”<sup>42</sup> He then goes on to defend himself: “The practice of science and medicine does not allow that one surrender, as it were, to its pre-eminent practitioners, or simply accept what they say. One should not defer to them and refrain from questions-nor does the [true] philosopher approve of such an attitude on the part of his students”. He then replies to those who reproach him as follows:

As for those who censure me and call me ignorant for having produced this Book of Doubts - I do not consider them philosophers. They have turned their backs on the way of the philosophers. They have taken up the ways of ignorant upstarts, blindly imitating (*q-l-d*) authority and refraining from raising any objection against it. Aristotle says: Plato and the Truth are at odds, and both are friend to me - but the Truth is a friend dearer still than Plato.<sup>43</sup>

Al-Rāzi continues:

Asked why modern scholars should attach [such critiques] to [the works of] the ancients, I cite several reasons. Among these is that error is inherent in human beings; and that sometimes passion overwhelms reason. For passion may perhaps affect the steady gaze of reason in the case of a certain man concerning some matter or other, to the extent that he may pronounce an error in regard to it, whether he be aware of that error or not. Thus it may be that when another man free from prejudice carefully examines the statement of such a person he may not come to the same conclusion, and the passion which motivated the first man will not lead him [to that error]. Another reason I cite for such critiques is that the sciences continually grow and are refined as time passes... If it then be said that this is tantamount to claiming that modern scholars are better than the ancients, I reply: that I do not see that this statement is valid except on condition that the moderns improve on that which has been laid down by the ancients.<sup>44</sup>

Al-Rāzi brings up “doubts” relating both to Galen’s medicine and philosophy. Maimonides objects in his *Book of Aphorisms* that he has devoted all his efforts to philosophy, and consequently neglected medicine.<sup>45</sup>

Maimonides’s observation, however, must be rejected, for Galen himself also enquired in his medical works into questions of philosophy such as createdness and pre-existence, generation and corruption, time and place, matter, and plenum and void. The ancients believed that medicine and philosophy complemented each other. Some even said that medicine was “the philosophy of the body” and philosophy “the medicine of the soul.”<sup>46</sup> Galen himself wrote a book with the title: “That the Good Physician must be a Philosopher.”<sup>47</sup> The Islamic physicians took the same view: they discussed philosophical questions in their medical works on the principle that they affected the medicine of the body and the soul. We see this approach in the *Firdaws al-hikmah* (“Paradise of Wisdom”) of Ali ibn Rabban al-Tabari (d. after 895/1489-1490), and also in the *Kitab al-mu’alijat al-Buqratiyah* (“Book of Hippocratic Treatments”) of Abu al-Hasan al-Tabari.

It is interesting that on one occasion in the *Shukuk* al-Rāzi makes an objection to a doctrine of Galen concerning language, thus stepping outside the realm of both medicine and philosophy. He reports Galen’s statement that, “The language of the Greeks is the sweetest, while those of some other peoples resemble the squealing of pigs and the croaking of frogs.” Al-Rāzi replies: This is a statement such as a common person would make! For the pronunciation of words of any language become light and sweet through habituation. The Arabic language seems to the Arabs as does Greek to the Greeks; and the language of the Byzantines seems gross to the Arabs just as that of the Arabs seems gross to the Byzantines.<sup>48</sup> Ibn Hazm has this to say in reply to Galen: “This is extreme ignorance; anyone who becomes aware of a language not his own which he does not understand will see it in the way Galen describes, and no differently.”<sup>49</sup>

The works of Galen to which al-Rāzi applies his doubts are some of his most important, among them the “Opinions of Hippocrates and Plato”; the “Ethics”; the “Simple Drugs”; the “Elements (*ustūqussāt*) according to Hippocrates”; the “Types of Fever”; “Painful Members”; “Foods”; “Critical Illnesses”; “The Crisis”; “The Demonstration”; “Medical Experience”; “The Treatment of Healthy Persons”; “Anatomy of Animals”; “Commentary on Hippocrates”; “Book on the Nature of Man”; “Commentary on the Book of Aphorisms”; “Preface to knowledge”; “The Movement of Muscles”; “Strategem for Recovery”; “Atrophy”; “Tremors and Shivers”; “The Lesser Practicum”; “Causes and Symptoms”; “Qātājānus”; “The Natural Faculties”; “That the Faculty of the Soul follows on the Temperament of the Body”; “On the Opinions [of Galen]”; “The Temperament”; “The Usefulness of the Members”; “the Semen”; “al-Mayāmir”; and The Greater Book of the Pulse.

Al-Rāzi mentions the views on nature and philosophy of Greek thinkers such as Plato, Aristotle, Hippocrates, Themistius, Theophrastus, Chrysippus, Empedocles, Diocles, Thales, Asclepiades, Dioscurides, and Erasistratos. Among Islamic scholars he names Hunayn ibn Ishāq and Muhammad ibn Musā<sup>50</sup>; he also mentions, without giving his name, a prominent man and noble friend who used to read the works of Galen with him.<sup>51</sup> In the course of his discussion of Galen, al-Rāzi also records the names of a number of his own works no longer existant. These names allow us to at least determine the subject-matter of the lost treatises. In one passage, for instance, he mentions the *Sam al-Kayyān*, evidently from its title an essay on the oral teaching of the natural sciences: "I have devoted a chapter of the *Sam al-Kayyān* to the opinion of those who assert that changes are either hidden or apparent. Whoever reads it will become convinced that this doctrine has shortcomings".<sup>52</sup> Other titles of lost works of al-Rāzi are:

"*Refutation of al-Sarakhsi on the Matter of Bitter Taste*" (*Fi al-radd alā al-Sarakhsi fi amr al-tam al-murr*). In the course of a discussion of proof that the efficacy of a medicine may be determined through its taste al-Rāzi writes: "I have discussed these matters in a treatise which I have devoted to refutation of Ali Ahmad ibn al-Tayyib al-Sarakhsi (d.286-899) concerning bitter taste".<sup>53</sup>

*That the Source of Cold is the Center of the Earth* (*Fi anna markaz al-ard yanbugh al-bard*). Galen, says al-Rāzi, held that the source of cold was at the centre of the earth. This, however, would necessitate that the earth be absolutely cold and there is nothing colder than absolute cold. Thus it would be colder than ice, which is contrary to the sense [of touch]. Much discussion would be needed to solve this problem, to which I have devoted a whole treatise.<sup>54</sup>

*On the Mechanism of Sight* (*Fi kayfiyat al-absār*). Al-Rāzi says in the *Shukuk*: I have devoted a very large treatise to this matter. It is evident that sight results through the projection of shapes onto the eye. Galen is extremely partisan in what he has to say concerning this matter, both in the Book of Proof and his other works but I will only state here that which is relevant to the discussion at hand.<sup>55</sup>

*On Seasons and Climates* (*Fi al-azmina wa-al-ahwiyah*). In setting out Galen's view that some natures are better in summer al-Rāzi comments: The doubts which may be raised as to Galen's statements on seasons may not be discussed here, for they are many. We would need many times the space of this book to cover them. In fact I do intend (success depending on God alone) to write a book devoted to the subject of seasons which I would enquire exhaustively into this doctrine of Galen and his book on climates, God willing.<sup>56</sup>

*On the Climate of Underground Passages* (*Fi jaww al-asrāb*). Al-Rāzi writes: I have explained in a separate treatise that the warmth which we feel in the winter in the water which comes from springs and from the air in deep places does not result because it is of itself warmer at that time than in summer. Rather we feel it is so because of the cold of our bodies - just as well feel tepid water to be cold after being in the bath because of the heat of our bodies. If you should wish to inform yourself of all I have stated concerning this matter, then read [the appropriate] treatise.<sup>57</sup>

*Greater Book of the Soul* (*al-Nafs al-Kabir*). Al-Rāzi writes: Many doubts may be raised against Galen's refutation of Chrysippus concerning the accidents of the soul. It is not necessary to prolong discussion of them here, since I intend to write a book which will treat the subject thoroughly, God willing, and in which I will also discuss the objections which may be made to Galen's Ethics.<sup>58</sup>

Thus al-Rāzi's *Kitāb al-Shukuk* allows us to gain knowledge of the contents of some of his works which are no longer existant - even if, in many cases, he does not specifically mention the titles of such works.

I have only been able here to give a glimpse of this important treatise of Muhammad ibn Zakariyā al-Rāzi, The Physician of the Arabs. I would recommend to those interested in the works of Galen and al-Rāzi and their medical and philosophical thought to pay particular attention to this work. For my part, I hope to eventually edit and publish the *Kitāb al-Shukuk*; it should be of great use for the history of Islamic science.

## Endnotes

- 1- See Ibn Abi Usaybi'ah, *Uyun al-anbā fi tabaqāt al-attibā*, ed. Nazār Ridā Beirut, 1963-65), p.415.
- 2- See al-Qifti, *Akhbār al-hukamā* (Leipzig, 1903), p.271.
- 3- Ibn Taghribardi, *al-Nujum al-zāhirah fi akhbār Misr wa-al-Qāhirah*, ed. J. Shayāl & F.Shaltut (Cairo, 1348-1369 A.H.), vol.3, p.209.
- 4- Nāsir-i Khusraw, *Zād-i musāfirin*, ed. Muhammad Badhl al-Rahmām (Berlin, 1941), p. 98.
- 5- Ibn al-Nadīm, *al-Fihrist*, ed. Flugel, p.299.
- 6- al-Qifti, *Akhbār al-hukamā*, p. 231.
- 7- Ibn Juljul, *Tabaqāt al-attibā wa-al-hukamā* ed. Fuād al-Sayyid (Cairo, 1955), 77. Māristān is an abbreviation of Bimāristān, that is hospital in Persian.
- 8- Ibn al-Murtadā, *Tabaqāt al-Mutazilah*, ed. Susana Dival-Vilzar (Beirut, 1380/1961), p.88.
- 9- al-Masudi, *al-Tanbih wa-al-ishrāf* (Beirut, 1965), p.342.
- 10- Ibn al-Murtadā, *Tabaqāt al-Mutazilah*, p.93.
- 11- Yāqut al-Hamawi, *Mu'jam al-buldān*, ed. Wustenfeld (Leipzig, 1866), vol.2, p. 168.
- 12- Yāqut al-Hamawi, *Irshād al-arib*, ed. Margoliouth (Cairo, 1924), vol.1, p.158.
- 13- Maudisi, *al-Bad wa-al-ta'rikh* (Paris: 1899-1919), vol.5, p.124.
- 14- First published by Paul Kraus as *Risālat Abi Rayhāh fi fihrist kutub al-Rāzi* (Paris: 1936); more recently by Mehdi Mohaghegh, under the title of *Fihrist kitāb-hā-yi rāzi va-Biruni*,

- with the *al-Mushāṭah li-risālat al-Fihrist* of Ghadanfarr al-Tabrizi (Tehran: 1987).
- 15- al-Biruni, *al-Risālah*, no.88 (in both editions).
  - 16- see Abd al-Hamid Sabrah, *al-Shukuk 'alā Batlamyus li-Ibn Haytham* (Cairo, 1971), p. *mim*.
  - 17- Hunayn ibn Ishāq, *al-Risālah li-ʿAlī Ibn Yahyā*, ed. Bergstrasser (Lepzig, 1925), p.2.
  - 18- Ibn Abi Usaybiah, *Uyun al-anbā*, p.134.
  - 19- This was known in Arabic as *Fimarātib girā at kutub (ihi)*, and in Latin as *De Ordine Librorum*.
  - 20- See R.J. Durling, "A chronological Census of Renaissance Editions and Translations of Galen." *Journal of the Warburg and Courtauld Institute* 24, 3-4 (1961): 233.
  - 21- According to Ibn Nadim he died in 260, but according to Ibn Abi Usaybi'ah in 264. Ali ibn Rabbān al-Tabari gives him the title of The Translator [*par excellence*]; see *Firdwas al-hikmah* (Berlin, 1928), p.8.
  - 22- *Diwān al-Mutanabbi*, ed. Dietrici (Berlin, 1891), p.94.
  - 23- Ibn Abi Usaybi'ah lists a book by al-Rāzi entitled: On Works of Galen supplied by al-Rāzi, but mentioned neither by Hunayn nor the Autobiography (*Uyun al-anbā*, p.424).
  - 24- al-Rāzi, *Kitāb al-shukuk 'alā Jālinus*. Tehran, Malik Library, 4573, p.1.
  - 25- Ibn Abi Usaybi'ah, *Uyun al-anbā*, nos.2, 190 & 191 of the works cited of al-Rāzi. See also Hunayn ibn Ishāq, *al-Risālah*, nos.49, 113 & 115 of the works cited of Galen.
  - 26- al-Biruni, *al-Risālah*, nos.108,109,110 & 111 of the works cited of al-Rāzi. See also Hunayn ibn Ishāq, *al-Risālah*, nos.14,15,20 & 26 of the works cited of Galen.
  - 27- al-Rāzi, *Kitāb al-Shukuk*, p.16
  - 28- Abu al-Qāsim al-Sād ibn Ahmad al-Andalusi, *Tabaqāt al-umam* (Beirut, 1912), p.33.
  - 29- al-Biruni, *al-Risālah*, no.88.
  - 30- Ibn Abi Usaybi'an, *Uyun al-anbā*, p.422.
  - 31- MS. in the Malik Library in Tehran, referred to above, p.1.
  - 32- Ibn Abi Usaybi'ah attributes to Alexander an Essay in Refutation of Galen Concerning the Eighth Discourse of his Book of the Demonstration (*Maqākah fi-al-radd alā Jālinus fi-al-maqākah al-thāminah min kitāb (ihi) fi al-burhān*), the Essay in Refutation of Galen Concerning his Attack on the Doctrine of Aristotle which states that all that moves is set in movement by a motive force (*Maqālah fi-al-radd alā Jālinus fi-mā ta'ana alā al-qawl Aristātālis anna kull mā yataharrak fa-innamā yataharrak an muharrik*), and an Essay in Refutation of Galen concerning the Matter of Possible Existents (*Maqālah fi al-radd alā Jālinus fi māddat al-mumkin*). See *Uyun al-anbā*, p.106.
  - 33- Ali ibn Ridwān al-Misri writes in a letter to Ibn Butlān al-Baghdādi: I am much astonished to see that Yahyā al-Nahawi has written a book which he calls al-Shukuk in which he clarifies what he asserts to be the errors (*ughlutāt*) of Galen (*Khams rasāil Ibn Butlān wa-Ibn Ridwān*, ed. J.Schact & M.Meyerhof [Cairo: 1937], p. 75).
  - 34- Muhammad ibn Surkh al-Nishāburi, *Sharh qasidat Abu al-Haytham Ahmad ibn Hasan al-Jurjāni*, ed. H. Corbin & M. Muin (Tehran, 1955), p.52.
  - 35- Abu al-Qāsim Abd al-Rahmān ibn Abi Sādiq lived in the fifth century of the Hijrah. Ibn Abi Usaybi'ah says in his biographical notice that He wrote a Solution to Rāzi's Doubts concerning the Works of Galen in his own hand (*Uyun al-anbā*, p.461).
  - 36- Ibn Abi Usaybi'ah attributes to Abu al-Hasan Ali ibn Ridwān al-Misri (d.453) a work called On the Solution of al-Rāzi's doubts concerning the Works of Galen (ibid., p.567).
  - 37- Abu al-Alā Zahar ibn Marwān (d. 525/1131) was known in Latin as Avenzoar. Ibn Abi Usaybi'ah also attributed to him a Solution of al-Rāzi's Doubts Concerning the Works of Galen (ibid., p.519).
  - 38- See J.Schacht and M.Meyerhof, Radd Musā ibn Maymun al-Qurtubi alā Jālinus fi-al-falsafah wa-al-ilm al-ilāhi, *Majallat kulliyat al-Adāb bi-al-Jāmi'ah al-Misriyah* 5, 1(1937):77.
  - 39- *Uyun al-anbā*, p.429.
  - 40- See the notice in the *Majallat Asitān-i Quds-i Radawi* (Mashhad), 7, 1, p.116.
  - 41- Ibn Zahar in his *al-Bayān wa-al-tabyin* has the sceptics say, instead of al-Rāzi says (Mashhad ms., p.1)
  - 42- P.1. Al-Rāzi here in fact imitates Jābir ibn Hayyān, who begins his *al-Tajmi* and also his *al-Sirr al-maknun*: There will be people who will think me ignorant... See Paul Kraus, *Jābir ibn Hayyan* (Cairo: 1942-43), vol.2, p.252.
  - 43- Ali ibn Ridwān al-Misri relates the same statements in his Ephistle to Ibn Butlān, but also adds the words of prophery: It would be easier for us to kill our fathers than to accept false beliefs (*Khams rasāil*, p.76).
  - 44- *al-Shukuk*, pp.<sup>12</sup>.
  - 45- *Radd Musā ibn Maymun al-Qurtubi*, p.77.
  - 46- See O.Temkin, Studies on Alexandrian Medicine, *Bulletin of the History of Medicine*<sup>3</sup> (1935):418.
  - 47- See Hunayn ibn Ishāq, *al-Risālah*, no.103. The book was published in Goettingen in 1966, along with a German translation.
  - 48- *Kitāb al-shukuk*, p.29.
  - 49- Ibn Hazm al-Andalusi, *al-Ahkām fi usul al-ahkām* (Cairo: Matba'at al-Imām), vol.1. p.32.
  - 50- This is Muhammad ibn Musā al-Munajjim; see Ibn Abi Usaybi'ah *Uyun al-anbā*, p.283. Al-Rāzi calls him, The Philosopher of the Arabs (al-Shukuk, p.16).
  - 51- Ibid., pp.8, 16 & 28.
  - 52- Ibid., p.10.
  - 53- Ibid., p.17.
  - 54- Ibid., p.17.
  - 55- Ibid., p. 5.
  - 56- Ibid., p.25.
  - 57- Ibid., p.23.
  - 58- Ibid., p.24.

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