

## AN ARABIC SOURCE FOR THE HISTORY OF ANCIENT INDIAN MEDICINE

M. S. KHAN

Flat No. 304, Wellesley Mansion,  
44A, Wellesley Street, Calcutta-16

Ibn Abī Uṣaybi‘a (d. 668/1270) devotes one full chapter (ch. XII) to the physicians belonging to India in his book ‘*Uyūn al-Anbā’fī Ṭabaqāt al-Aṭibbā’*<sup>1</sup> (*Sources of Information Concerning the Different Classes of Physicians*). This paper attempts to present a study of this chapter.

It opens with an account of Kaṅka, the Indian, and states that he was skilful and experienced in astronomy and medicine. Seven titles of his books are recorded, two of them on medicine and five on astronomy and astrology. Then Sanjhil and one of his books on *Nativities* are mentioned followed by names of other nine famous physicians of India, such as Bakhar, Raha or Rajah, Sakah, Dahir, Ankar, or Anku, Zankal, Jabhar, Inda and Jari or Ḥabara.<sup>2</sup> This is followed by the statement that Abū Bakr ar-Rāzī (865-925 A.D.) has cited from the *Caraka-Saṃhitā* in his book *al-Ḥāwī*.<sup>3</sup> Ibn Abī Uṣaybi‘a writes:—

“This book was translated by ‘Abdullāh b. ‘Alī from Persian into Arabic, for it was originally translated from the Indian language into Persian [ar-Rāzī also copied] from the book of Suśruta, containing ten chapters, which discusses symptoms of diseases, the manner of treatment and the medicines to be used for them. It was translated at the order of Yaḥyā bin Khālīd (the Barmakid Vizier). [He cited] a book entitled *Nidan* on the symptoms of four hundred and four diseases and the knowledge of them without the manner of treatment; a book called *Siddhi-shan* and its paraphrase *Kitāb Sūrat an-Najāh, The Way of Success*; a book on the points of differences between Indians and Greeks with regard to heat and cold, the power of medicine and the division of the seasons of the year; and the *Kitāb Tafsīr Asmā’ al-‘Iqār bi Asmā’ ‘Aṣharah*, a book in which ten different names are given to each drug; the *Kitāb Astankar al-Jāmi’*, the *Compendium Astankar*; the *Kitāb ‘Ḥūjāt al-Ḥibālī li’l-Hind*, a *Book on the Treatment of Pregnant Women*; the *Kitāb Mukhtaṣar li’l-‘Aqāqīr* or a short treatise on Indian drugs and the book by *Tuqash-tal* which contained one hundred diseases and one hundred medicaments and the book on the treatment of women by Rusa, the lady doctor of India and *Kitāb as-Sukr* or the *Book on Intoxication (Intoxicants)*; the book by Ray, the Indian,

on different kinds of vipers and their poisons, a Book of Imagination in Diseases and Infirmities by Abu Qabal the Indian.”<sup>4</sup>

The Indian physician Shānāq is mentioned whose expertise in the treatment of diseases is praised. Three titles of his books are recorded—one on poisons and the other on the veterinary art.<sup>5</sup> His third book is entitled *Muntaḥal al-Jawhar* written for the guidance of kings. As a specimen of his eloquence, Ibn Abī Uṣaybi‘a quotes a long discourse from this book which Shānāq addressed to the King<sup>6</sup>. After this, he mentions Jawdhar and one of his books on the subject of Nativities.

The following is a long notice of the physician Maṅka, the Indian.

“He was very learned in the art of medicine, skilful in the treatment of diseases and gentle in management (of the patient). He was one of the most distinguished philosophers in Indian sciences.” He knew the languages of India and Persia. It was he who translated the book of Shānāq, the Indian, on poisons from the Indian to the Persian language. He flourished during the time of Hārūn ar-Rashīd and travelled from India to Iraq in his time. He attached himself to him and cured him (of an ailment). I read in one of the books that Maṅka was a companion of Ishāq b. Sulaymān b. ‘Alī al-Hāshimī and he was engaged in translating from the Indian language into Persian and Arabic. I found in the *Kitāb Akhbār al-Khulafā’ wa’l-Barāmika* (*Book of the History of the Caliphs and the Barmakids*) that al-Rashīd was afflicted with a serious disease and although his physicians treated him he could not be cured. Then Abū ‘Amrū al-A‘jamī (a Persian) said to him that there was a physician in India named Maṅkah who was one of their philosophers to whom they were devoted. If the Commander of the Faithful called him, God might grant him cure through his treatment. Al-Rashīd therefore sent a person to call him and carry to him such presents as would induce him to undertake the journey. He came (to Baghdad) and treated al-Rashīd who was cured of his disease by his treatment and in consequence he granted him generous pension and bestowed upon him vast wealth.”<sup>7</sup>

After this Ibn Abī Uṣaybi‘a relates a story about Maṅkah who saw a quack in the *Khuld* quarter of Baghdad who was describing a patent medicine prepared by him which could cure all kinds of diseases. When the interpreter explained to Maṅkah as to what the drug pedlar was saying he remarked that the Arab King was a fool to bring him from India and to separate him from his family when such eminent physicians were already present at Baghdad. If the man was a quack, Maṅkah wondered why was he not put to death as this would stop the death of a large number of people due to the use of the trade medicine which he was selling.<sup>8</sup>

The last physician noticed is Šāleḥ bin Bhala, the Indian who is stated to be a skilful physician who had come to Baghdad in the days of Hārūn ar-Rashīd.

This chapter ends with a long story as to how Šāleḥ cured Ibrāhīm, a cousin of the Caliph Hārūn ar-Rashīd from epilepsy when Jibr'il, his Greek court physician had predicted imminent death of the patient.<sup>9</sup>

#### TRANSLATION OF INDIAN SCIENTIFIC WORKS

Although the Arab conquest of Sindh has been characterised as a triumph without results<sup>10</sup> yet it opened a new chapter in Indo-Arab cultural relations. It is recorded that as early as 154/771 a learned Hindu scientist most probably from Sindh brought an Indian astronomical work to the court of the 'Abbasid Caliph Abū Ja'far al-Manšūr (754-775 A.D.)<sup>11</sup> and Muḥammad bin Ibrāhīm al-Fazārī (d. 180/796) and Ya'qūb bin Tāriq (second half of the eighth century) translated it into Arabic by the order of the Caliph. It is not known whether or not an Indian book on medicine was also translated into Arabic at this time.<sup>12</sup> This fact has to be underlined here that a bureau of translation called *Bayt al-Ḥikmah* was established under Caliph Hārūn ar-Rashīd. Moreover, the members of the talented Barmakid family were of Indian origin. Naturally, they were interested in Indian sciences more than in Greek sciences. One of them, Yaḥyā bin Kḥālīd bin Barmak<sup>13</sup>, a tutor and Vizier of Hārūn ar-Rashīd invited several prominent Indian Pandits and Vayds to come to India and he had some Indian scientific books translated into Arabic. One of them was the Indian book on poisons<sup>14</sup> by Shānāq (Cāṇakya) which was translated into Arabic during the reign of Hārūn ar-Rashīd.

Ibn an-Nadīm (d. 385/995) records the names of two Indian translators Maṅka and Ibn Dhann<sup>15</sup>. In another passage he gives the titles of twelve Indian works on medicine which were translated into Arabic<sup>16</sup>. The truth of his statements has been attested by references to some of these books found in the works of three great physicians—'Alī bin Rabbān aṭ Ṭabarī (c. 850 A.D.), Abū Bakr ar-Rāzī (865-925 A.D.) and Ibn Sīna (d. 428/1037).

#### METHOD OF TRANSLATION

This chapter gives an idea as to how the translation was made from Sanskrit into Arabic. It was not direct but indirect as the translation was first made from the Indian language into Persian and then from Persian into Arabic. Similarly, the translation of Greek works into Arabic was also not direct as they were first translated into Syriac and then from Syriac into Arabic. The names of the translators may be mentioned here—'Abdullāh bin 'Alī translated the *Caraka-Saṃhitā* and Maṅka was the translator of the *Suśruta-Saṃhitā*. Abū Ḥātim al-Balkhī, 'Abbās bin Sa'īd al-Jawharī and Maṅka translated the *Book of Poisons* by Shānāq. *The Aṣṭāṅkar* and *Siddhāsan* were translated into Arabic by Ibn Dhann<sup>17</sup>.

#### ITS SOURCES

Ibn Abī Uṣaybi'a wrote the '*Uyūn* in the late 7th/13th century<sup>18</sup> when the golden age of Islamic culture had come to an end by about 1050 A.D. and the movement

of translation from foreign languages into Arabic was over. Therefore, a good number of source books bearing on Indian medicine might have been available to him. One passage of this chapter agrees fully with a passage in the *Ta'rikh* of *al-Ya'qūbi*<sup>19</sup> (d. 284/897) and the borrowing is quite evident. The statements concerning Indian medicine found in the works of *al-Jāhiz* (d. 868-69 A.D.) are not included in this chapter and some of the names of the Indian physicians mentioned by him are not listed by *Ibn Abī Uṣaybi'a*.<sup>20</sup> Without doubt, a substantial part of this chapter is based on the *Kitāb al-Fihrist* of *Ibn an-Nadīm*. As is usual with the Arab authors, *Ibn Abī Uṣaybi'a* does not specifically acknowledge his indebtedness to *Ibn an-Nadīm*.<sup>21</sup> He has cited from him but dropped the names of some Indian scientists and their works and made some additions from other sources, one of them, no doubt, is the *Ta'rikh al-Ḥukamā'* of *al-Qifṭī*<sup>22</sup>. He has mentioned one of his sources, i.e. the *Kitāb al-Ḥāwī fi' t-Ṭib* of *Abū Bakr ar-Rāzī*. It is, however, surprising that he does not mention *ar-Rāzī's* teacher 'Alī bin *Rabbān at-Ṭabarī* and his *Firdaus al-Ḥikmah* which contains a summary of the theories, philosophies and practices of Indian medicine, in thirty-six chapters.<sup>23</sup> *Ibn Abī Uṣaybi'a* gives the impression that he knew a book of *Shānāq* (*Cāṇakya*) entitled *Muntaḥal al-Jawhar (The Essence of Reality)* which contained counsels for the guidance of kings. The book on poisons by *Shānāq* (*Cāṇakya*) was perhaps available to him. As stated by him, he also used a historical work *Kitāb Akhbār al-Khulafā' wa'l-Barāmika* but he does not specify its author's name and it does not seem to be extant.

*Al-Qifṭī* is the source of the long story found at the end of this chapter which has been referred to above. But the '*Uyūn* is a late work and it is difficult to find out the source of every bit of information contained in it.<sup>24</sup>

#### INDIAN PHYSICIANS AND THEIR WORKS

Nineteen physicians and twenty-five titles of books are mentioned in this chapter. But only five physicians and six titles could be identified. Most of the names of physicians and the titles of their books cannot be read correctly due to three main reasons. First, they are of Sanskrit origin and the Arab writers in general had no knowledge of this language. It has to be admitted that *al-Birūnī* is a rare exception. Secondly, scribes could neither read, nor understand nor copy them correctly, so that they have become corrupt beyond recognition. Thirdly, the subject-matter, i.e. Indian medicine was generally not known to the scribes. For these reasons, the present writer could not identify all these proper names and titles of books. In order to study this chapter correctly and thoroughly one should possess not only a good knowledge of Arabic and Sanskrit but also a fair acquaintance with the history of ancient Indian medicine.<sup>25</sup> Moreover, substantial material bearing on Indian medicine is preserved in Arabic manuscripts in the libraries of the world. Some of these remain even uncatalogued. A survey has not yet been made so that it may be known as to what translations of books on Indian medicine are available in Arabic. The present

writer has good reasons to believe that this survey may lead to the discovery of some Arabic manuscripts of the translation of medical works which are not available in original Sanskrit.

Of the physicians mentioned, there is no difficulty in identifying the two of the great triads belonging to ancient India namely Caraka and Suśruta whose names appear in different forms and different transcriptions in the Arabic manuscripts and printed books. A physician named Saleh bin Bhala, the Indian, can be correctly identified. Saleh may be Sali, not a son, but a descendant of Bhela the well-known author of the *Bhela-Saṃhitā*, who was one of the six students of Ātreya along with Agniveśa.<sup>26</sup>

The author of the book on poisons, *Shānāq*, is to be identified as *Cāṇakya*, Chandragupta's minister, called also Kauṭilya, the author of the *Arthaśāstra*. Ibn an-Nadīm states that *Shānāq al-Hindī* wrote about both warfare and ethics which means that the contents of the *Arthaśāstra* were vaguely known to him. Moreover, it has been stated in this chapter that he wrote the book<sup>27</sup> *Muntahal al-Jawhar* for the guidance of the kings. Generally speaking, in a broad sense, *Arthaśāstra* is also a book to be included in the category of "Mirror for Princes". Therefore, this *Shānāq* cannot be any other person than *Cāṇakya*. The only difficulty is that the Indian king Ibn Qumānus for whom he wrote the *Muntahal* cannot be identified because his name has not been read correctly. It is to be added here that his book on poisons is not apocryphal as was once believed.<sup>28</sup> It has been analysed and some passages contained in the *Arthaśāstra* are also found in it.<sup>29</sup> This book has been cited by Ibn al-Wahshīyah (end of the 3rd/4th century.) in his *Kitāb al-Filāḥa an-Nabaṭīyah or Nabatean Agriculture*.<sup>30</sup>

The physician mentioned as Sanjhil is actually *Sāṇḍilya* belonging to a family of Brahmans who was the author of *Bhakti-Sūtra*.<sup>31</sup> One Sanjhal is also mentioned by al-Birūnī as a Hindu scholar.<sup>32</sup>

The identification of *Kaṅka* presents certain difficulties. It has been suggested that he was *Kaṅkāyana* who has been mentioned in the *Caraka-Saṃhitā*.<sup>33</sup> He cannot be *Kaṅka* of the Arabic authors who lived at Baghdad at the court of *Hārūn ar-Rashīd*. The astrologer *Abū Ma'shar al-Balkhī* who is quoted on *Kaṅka* in this chapter states clearly that he belonged to the "ancient times".<sup>34</sup> So, this *Kaṅka* might be *Kaṅkāyana*. Then the possibility of a second *Kaṅka* living at Baghdad during the reign of *al-Rashīd* cannot be ruled out.

*Kaṅka* has not been mentioned by al-Birūnī but he mentions one *Garga* who was an astronomer-astrologer<sup>35</sup> and an author of a book on Nativity. *Yuḥanna bin Masawayh* (777-857 A.D.) has quoted him in his book on ophthalmology.<sup>36</sup> Other Arabic authors frequently mention a great Indian astronomer called *Kaṅka*. Modern researches have, however, shown that *Kaṅka* was the name of an astro-

loger who lived at Baghdad in the reign of Hārūn ar-Rashīd. Recently a manuscript has been discovered at Ankara of an astrological history of the Caliphs entitled *Kitāb Kaṅka al-Hindī* which stops in the reign of al-Ma'mūn, (813-833 A.D.).<sup>37</sup>

Another important Indian physician who lived at Baghdad is called Maṅka, whose correct Indian name might be Māṅikya. He was also a translator of Sanskrit medical works into Persian. The information about him given in this chapter leads to the conclusion that he did not know Arabic. He has been mentioned as the translator of the *Kitāb as-Sumūm (Book of Poisons)* in its introduction. Al-Jāḥiẓ has stated in his *Kitāb al-Hayawān* that he had embraced Islam at Baghdad. He has also been mentioned by al-Jāḥiẓ in his *Kitāb al-Bayān wa't-Tabayīn* and by Ibn Qutayba in his *Kitāb 'Uyūn al-Akḥbār*<sup>38</sup>. Ibn an-Nadīm adds that he was attached to the central hospital at Baghdad and he translated the *Suśruta Saṃhitā*<sup>39</sup>. He is sometimes identified as the same person as Kaṅka.

It seems surprising that the Arabic authors bestow fulsome praise on the three famous physicians of India, Kaṅka, Maṅka and Shānāq, but they are not mentioned as authors of Sanskrit medical works and they do not find any place in the history of Indian medicine or in the history of Sanskrit literature. This opinion is based on preliminary research. Unless and until these three physicians and others mentioned in this chapter are found in the Sanskrit sources, their identification will always remain doubtful. It cannot be assumed that they were so famous in the Arab world but unknown in India itself.

About Ibn Dhann it has been stated : "This name may be Dhanya or Dhanin, chosen probably on account of its etymological relationship with the name Dhanvantari the name of the mythical physician of the Gods in Manu's law-book."<sup>40</sup>

Other physicians mentioned in this chapter cannot be identified with certainty but some suggestions might be offered. Bākhar<sup>41</sup> or Bajhar may be Bhāskar but he cannot be Bhāskara author of *Siddhānta Śiromaṇi* who flourished in the middle of the twelfth century because he has been mentioned by Ibn an-Nadīm who wrote in the tenth century. It is not possible to find out the correct Indian names and to establish the identity of Raha or Raja, Sakah, Dahir or Dahar (Sri Dhara ?), Ankar or Anku, Zankal, Jabhar, Inda, Jari or Jabarah, Jawdhar (Yeshodhara ?), Rusa, Ray and Ibn Qabal. Modern researches also do not help us in identifying the proper names of these Indian physicians and the King of India Ibn Qumānus.

Among the titles of medical works the two major books of Caraka and Suśruta are well known<sup>42</sup>. But it is difficult to ascertain as to how the *Suśruta-Saṃhitā* contained ten books as stated in this chapter. The original *Suśruta* actually contains eight books only. It may contain ten books, if two books on Materia

Medica and Pharmacy are added to it. The book *Nidan* is actually *Nidān* written by Mādhava mentioned in the *Firdaus al-Ḥikmah* of 'Alī bin Rabbān aṭ-Ṭabarī. It was a book on pathology and prognostication. The *Siddhāsan* is actually *Siddhayoga* which means *Elixir of Success*. This book was translated by Ibn Dhann into Arabic. The *Kitāb Astankar* is actually *Aṣṭāṅgahrdaya*<sup>43</sup> whose author was *Vāgbhaṭa*. A reference has been made to this book in the *Firdaus al-Ḥikmah*. The *Kitāb as-Sumūm wa't-Tiryāq* of Ṣhānāq has already been published. No other title of the books mentioned in this chapter could be identified.

There are other Arabic authors who give information about ancient Indian medicine. They are al-Jāḥiẓ (255/868/69), al-Ya'qūbī (d. 284/897), 'Alī bin Rabbān aṭ-Ṭabarī (fl. c. 855 A.D.), Abū Bakr ar-Rāzī (d. 320/923), al-Mas'ūdī (d. 346/957), Ibn an-Nadīm (d. 385/997), al-Birūnī (d. 440/1048), Ibn Sina (d. 428/1037), Qādi-Ṣā'id al-Andalusī (d. 462/1070), al-Qifṭī (d. 646/1248), Ḥājji Khalifah (d. 1658 A.D.) and others. Their works are also bio-bibliographical in character. It is only 'Alī bin Rabbān aṭ-Ṭabarī who gives informative account of the theory and practice of Indian medicine in thirty-six chapters. Ar-Rāzī and Ibn Sina refer to several Indian drugs.<sup>44</sup> Some Indian physicians are mentioned by ar-Rāzī, such as Athursugus, al-Qahlaman and others who could not yet be identified<sup>45</sup>.

In discussing the merits of this chapter, it has to be pointed out that it contains the most complete account of the Indian physicians and their works found in Arabic. The author praises the Indian physicians highly and their expert knowledge about the art of healing. They were held in high esteem not only by the 'Abbasid Caliphs but also by their Viziers. He records two stories in order to show that some persons considered the Indian physicians superior to the Greeks.

It gives information that the Indian physicians were considered so important that they were employed at Baghdad in three different capacities: they served as the personal physicians to the Caliphs and their Viziers; they acted as the Superintendent of the 'Abbasid hospital at Baghdad and they were engaged in translating the Indian medical works into Arabic.

The titles mentioned include some on Indian *Materia Medica* and *Pharmacology*. In fact, these sections of Indian medicine were best known to them.<sup>46</sup> The major Indian physicians mentioned here studied philosophy, astronomy and medicine. They were also interested in astrology. Without doubt, this chapter contains small original information on Indian physicians and their works.

One of the demerits is that it deals with the lives and works of Indian physicians and gives no information whatsoever about the theory and practice of Indian medicine. The author has derived information mainly from the *Ta'rikh* of al-Ya'qūbī and the *Kitāb al-Fihrist* of Ibn an-Nadīm with some additional information borrowed from other sources specially the *Ta'rikh al-Ḥukamā'* of al-Qifṭī. But

it would be wrong to judge this chapter on the basis of the information we possess about the history of Indian medicine today.

This chapter shows that the Indian physicians visited Baghdad at the invitation of the Barmakid Viziers and enjoyed their patronage. With the fall of the Barmakids, the appointment of Indian physicians at Baghdad completely stopped. Then from the time of al-Ma'mūn (198-218/813-833) onwards, the Greek system of medicine (*Ṭibb Yūnānī*) became predominant in the Islamic world.

Before this study is brought to an end, two points are to be underlined. First, it is true that the Arabian medicine is mainly derived from Greek medicine and follows its theory and practice closely. But it does contain some elements of Indian medicine in so far as Pharmacy, Therapeutics and Materia Medica are concerned. They are quite important and they cannot be ignored. Secondly, it is correct to state that there may not be original information about the political history of India in Arabic sources which have remained either neglected or unknown. But the present writer would like to point out that the Arabic sources are rich in so far as the cultural history of India is concerned, specially concerning its astronomy, medicine and mathematics. The time has not yet come to pass value judgement on these sources because they have not yet been investigated and studied. Many Arabic manuscripts bearing on Indian sciences are either uncatalogued or even if catalogued they have not yet been published. Therefore, any assessment of the Arabic sources of the history of Indian sciences in general and of medicine in particular<sup>47</sup> will be incomplete and immature at the moment.

#### NOTES AND REFERENCES

- <sup>1</sup> Edited by August Müller, 2 vols. (Königsberg, 1884) pp. 32-35 of vol. II. See a cheap reprint of this book by Nizār Raḡā (Beirut, 1965) pp. 473-77. Regarding the author see al-Zireklī, *Qāmūs al-A'lām*, 2nd ed. (Beirut, 1389/1969) I, 188. 'Umar Raḡā Kaḥḥālā, *Mu'jam al-Mua'llifin* (Damascus, 1376/1957) vol. II, pp. 47-48. It was dedicated to the famous learned Amīn ad-Dawlah bin at-Tilmīdh Vizier of Malik Šāliḥ the son of Malik 'Adil the Ayyubid ruler of Damascus.
- <sup>2</sup> The text of this chapter has been published by August Müller in the *ZDMG* vol. 34 (1880) pp. 472-493 in which the variations of these proper names are given.
- <sup>3</sup> Twenty-five volumes of the text of this book have been published so far by the *Dā'irat al-Ma'ārif* of Hyderabad and its publication is in progress.
- <sup>4</sup> Borrowed from the *Kitāb al-Fihrist* of Ibn an-Nadīm ed. by G. Flügel (1872) p. 303. The last name is read as *Tuqashtal*.
- <sup>5</sup> *Kitāb al-Bayḡār*. This was translated into Arabic. See al-Kḥwārazmī, *Mafātīh al-'Ulūm*, p. 167.
- <sup>6</sup> A free English translation of this discourse has been published by M. Z. Siddīqī, *Studies in Arabic and Persian Medical Literature*. (1959). pp. 39-40 and August Muller published its German translation in the *ZDMG*, *op. cit.* pp. 477-478.
- <sup>7</sup> Kaūka and Maūka were two different persons but they have been confused by Bayard Dodge. See his English tran. of the *Kitāb al-Fihrist* of Ibn an-Nadīm (New York, 1970), vol. II, p. 1027.
- <sup>8</sup> '*Uyūn al-Anbā' fi-Ṭabaqat al-Aṭibbā'* by Ibn Abi-Usabi'a. It is perhaps due to the presence of



such quacks that as early as the days of al-Mə'mūn and al-Murtaṣim the pharmacists of Baghdad had to pass some kind of an examination.

- <sup>9</sup> Sami K. Hamarnah writes : "He performed a remarkable, medical and surgical feat in the presence of the Caliph that won him the favour and respect not only of the palace but the public at large as well. See his "India's Contribution to Medieval Arabic Medical Education and Practice" in the *Studies in History of Medicine*, I/1, (March, 1977), p. 28.
- <sup>10</sup> S. Lane-poole, *Medieval India Under Mohammadan Rule* (A. D. 712-1764), (London, 1910) pp. 11-12.
- <sup>11</sup> Al-Bīrūnī, *Kitāb al-Hind* (Hyderabad ed.) p. 351 but Qāḍī Sā'id al-Andalusī, *Ṭabaqāt al-Umam* (Beirut, 1912) p. 49 states that this incident took place in the year 156/773, and he quotes the *Nizām al-Iqd* of Ibn al-Adamī as his source.
- <sup>12</sup> Some Greek medieval works were perhaps translated into Arabic before this. See M. Z. Ṣiddīqī, *op. cit.* p. 12 note 1.
- <sup>13</sup> See M. S. Khan, "Āryabhaṭa I and al-Bīrūnī" in the *Indian Journal of History of Science*, XII/2 (Nov. 1977), p. 242 note 8. See also al-Jahshiyārī, *Kitāb al-Wuzarā' wa'l-Kuttāb* (Cairo, 1938), pp. 169-78; 224-246 and *passim*.
- <sup>14</sup> Gustav Flügel, Zur Frage über die ältesten Übersetzungen indischer und persischer medicinischer Werke ins Arabische in the *ZDMG*, Vol. XI (1857) pp. 148-153; 325-327. The Berlin MS of this Book Petermann II, 187 has been published by August Muller with a German translation in the *ZDMG* (1880) pp. 503-535. The MS is dated 661/1262.
- <sup>15</sup> *Kitāb al-Fihrist* ed. cited. p. 245.
- <sup>16</sup> *Op. cit.* p. 303.
- <sup>17</sup> Further investigation will reveal the names of other Indian translators into Arabic.
- <sup>18</sup> Al-Zireklī, *loc. cit.*, states that the first draft of the 'Uyūn was completed in 643/1245 but the final recension was made in 667/1268; see J. Vernet, *Enc of Islam*, new ed. Vol III (1971), 693-694
- <sup>19</sup> Dār Sader Beirut ed. (1379/1960) I, 94.
- <sup>20</sup> See *Rasā'il al-Jāhīz* pp. 81-82 translated by M. Z. Ṣiddīqī—, *op. cit.* 32-33; *Kitāb al-Bayān wa't-Tab'īn* (Egyptian ed.) p. 40 quoted by Syed Sulaymān Nadwī, 'Arab wa Hind ke Ta' alluqāt (1930) p. 131.
- <sup>21</sup> See ed. cited pp. 245; 270-71 and 303.
- <sup>22</sup> Nahaq and Arikal, two Indian physicians mentioned by Ibn an-Nadīm are omitted by him. J. Vernet (*loc. cit.*) states that Ibn Abī Uṣaybi'a borrowed from the work of al-Qifṭī.
- <sup>23</sup> *Firdaus al-Hikmah fi't-Tib*, ed. by M. Z. Ṣiddīqī, (Berlin, 1928) pp. 620 and 557-593. Alfred Siggel, Die indischen Bücher aus dem Paradies der Weisheit über die Medizin des 'Ali bin Sahl Rabbān aṭ-Ṭabarī, übersetzt und erläutert Von A. Siggel in *Abh. de. Akademie der Wissenschaften und der Literature geistes und sozialwiss. Klasse.* (1950) p. 1102.
- <sup>24</sup> Ibn Abī Uṣaybi'a has borrowed the story from al-Qifṭī (d. 646/1248); see his *Ta'riḫ al-Ḥukamā'*, ed. by J. Lippert (1903), pp 215-216.
- <sup>25</sup> The text of this chapter poses textual problems peculiar to it and difficult to solve.
- <sup>26</sup> This work of Bhela was known to Ibn Sinā. Fu'at Sezgin, *Geschichte Des Arabischen Schriftums.* Band III (1970), p. 201. Girindranath Mukhopadhyaya, *History of Indian Medicine*, vol. III (1929) pp. 528-546; P. Kutumbiah, *Ancient Indian Medicine* (1969). II, XVIII, XXVIII. No book is attributed to Saleh bin Bhala.
- <sup>27</sup> *Op. cit.* p. 315; Shānāq al-Hindī (wrote) about the administration of war, the men whom the king must enlist, the horsemen, the food supplies and poison, "Bayard Dodge, Eng. tran. II, 738. Fu'at Sezgin, *op. cit.*, III, pp. 193-197.
- <sup>28</sup> Max Meyerhof, "On the Transmission of Greek and Indian Science to the Arabs" in the *Islamic Culture*, II (1937) pp. 17-27, at p. 26.
- <sup>29</sup> Bettina Strauss, *Das Giftbuch des Shānāq, Ein literaturgeschichte*, Untersuchung in the *Quell. und Stud. Zur Gescn. d. Nat. Wiss. u.d. Medi in.* 4 (1935) pp. 89-152 and 64 pages of Arabic text. The question of the identity of Shānāq of the Arabic authors has been thoroughly discussed by Fu'at Sezgin, *op. cit.* III, 193-196. M. Meyerhof, *loc. cit.*
- <sup>30</sup> Ibn al-Wahshiyah's *Kitāb as-Sumūm* is also based on the book of Shānāq. Martin Levey's

- book *Medieval Arabic Toxicology*, The Book of Poisons of Ibn al-Wahshiyah (Philadelphia, 1966) is not available to the present writer.
- <sup>31</sup> Girindranath Mukhopadhyay, *op. cit.* II, (1926), p. 502.
- <sup>32</sup> Al-Bīrūnī mentions "Sankhal" as one of the Hindu scholars. see his *Kitāb al-Hind*, ed. cited, p. 122.
- <sup>33</sup> Girindranath Mukhopadhyay, *op. cit.* II, 463-66; One Kaṅka is mentioned in *Saravali* of Kālyanavarman (Cl. 800 A. D.); see also E. Sachau. *Indica*, Eng. trans. of al-Bīrūnī's book on *India*. Intro., p. xxxii; Fu'at Sezgin, *op. cit.* III, p. 202.
- <sup>34</sup> This quotation from al-Balkhī is also found in the *Ṭabaqāt* of Qāḍī Sā'id al-Andalusī. pp. 14-15 who mentions his source as *Kitāb al-Ulūf*. The present writer's note no. 102 on p. 384 in his paper published in the *Prof. H. K. Sherwānī Felicitation Volume* (1975) may be treated as cancelled.
- <sup>35</sup> See *op. cit.* pp. 121; 288; 321; 327-28; 424; 435; and 537. The Arabic form is *Kark*.
- <sup>36</sup> Fu'at Sezgin, *op. cit.* III, 202, mentioning an article by S. C. Pruffer and M. Meyerhof.
- <sup>37</sup> David Pingree, "Kaṅka" in the *Dictionary of Scientific Biography*, vol. VII, (1973) pp. 222-224 where it is stated that he flourished c. 775-820.
- <sup>38</sup> For exact references to these original sources see Fu'at Sezgin, *op. cit.* III, pp. 200- 01.
- <sup>39</sup> *Op. cit.* pp. 245, 303.
- <sup>40</sup> E. Sachau, *op. cit.*, XXXii, referring to A. Weber, *Indische Literaturgeschichte*, pp. 284, 187.
- <sup>41</sup> One Bājhar is mentioned by Ibn an-Nadīm (*op. cit.* p. 315) as an expert on the signs of swords.
- <sup>42</sup> Al-Bīrūnī mentions only these two Indian works in his *Kitāb as-Saydana* (*Book on Pharmacy and Materia Medica*) edited with Eng. trans. by Hakīm Moḥammad Sa'id. Vol. I (Karachi, 1973); pp. Arabic text 430; Eng. trans. pp. 376; Vol. II, *Introduction Commentary and Evolution* by Sāmī K. Hamarneh (Karachi, 1973); pp. 152.
- <sup>43</sup> See M. Z. Siddiqī, *op. cit.* pp. 40-41; Fu'at Sezgin, *op. cit.* III, pp. 198-199.
- <sup>44</sup> But ar-Rāzī does not actually mention the titles of Indian medical books he has used. He frequently writes : And from the Indian book etc.
- <sup>45</sup> M. Meyerhof *op. cit.* in *Islamic Culture* (1937).
- <sup>46</sup> It may be stated here that the Arab physicians knew about 250 Indian drugs and medicinal plants and almost all the Indian minerals were used in their medicine. See Martin Levey, *Early Arabic Pharmacology*, An Introduction based on Ancient and Medieval Sources. (Leiden, 1973), pp. 187 at pp. 10 to 19.
- <sup>47</sup> As early as 1841 W. Cureton and H. H. Wilson studied this chapter and tried to identify the physicians and titles of their works but could not achieve much success. See Extract from the work entitled '*Uyūn al-Anbā'* by Ibn Abī Uṣaybi'a in the *JRAS*, Vol. VI (London, 1841) pp. 105-119.