

Ibn Al-Quff's Writings on Hygienic Regulations and the Preservation of Health

In the land of Jordan (Transjordan), from the Greco-Roman period up to modern times, no star in the history of medicine, surgery and hygiene shone brighter than that of Amīn al-Dawlah Abū'l-Faraj (because of deliverance from the Crusaders' domination) b. (for ibn) Muwaffaq al-Dīn Ya'qūb b. Ishāq (630–685/1233–1286). He was also known as Ibn al-Quff (in reference to *Tall al-Quff* a mount south of al-Karak; rugged highlands and plateaux with spacious fields, attracting the Arabians to them in bountiful years; the back of something; strawbag; the short, thin man; the withered, dry tree; or the dry, parched land)¹. We are not sure for which of the above meanings he was thus nicknamed. He was also known as al-Karakī, and that was definitely in reference to the city of his birth, al-Karak (Qīr Moab), which at the time was one of the most fortified cities of the Syrian region and the capital of the Ayyūbid King, al-Nāṣir Dāwūd, son of the King

al-Mu'azzam 'Isā of Damascus². Ibn al-Quff was further called al-Masīḥī al-Malakī since he belonged to the Orthodox faith of the Antiochan Apostolic Church, a Christian denomination that adhered to the Chalcedon Ecumenical Council of AD 451, which still survives with millions of adherents in the Middle East and elsewhere³.

During the Arabic Golden Age, one country after another, from Transoxiana, Iran and Iraq in the eastern part of the Islamic empire, to Egypt, al-Maghrib and al-Andalus in the West, produced great men in the various fields of learning. But in the small, often overlooked land east of the Jordan river, Ibn al-Quff stands unique. We know of no comparable physician throughout this entire period. He was a genius in

¹ Jamāl al-Dīn b. Manzūr (630–711/1233–1311), *Lisān al-'Arab*, vol. II, Cairo, Būlāq edition pp. 195–7.

جمال الدين محمد بن مكرم الأنصاري المعروف بابن منظور، لسان العرب، طبعة بولاق، ج ١١: ٩٧٠-٩٧١ والذي ولد بنفس السنة التي ولد فيها ابن القف يعرف كلمة القف أو القفة بأنها الزنبيل من الخوص، أو الذي على هيئة قرعة تجعل فيه المرأة قطنها أو غزلها أو المسافر زاده وثمره، أو هي الشجرة اليابسة البالية أو ييس الأرض وجفافها وتناثر حب وورق بقلها، أو هي صفة الرجل القصير القليل اللحم، والقفة هي الرعدة أو قشعريرة الحمى، وهي ظهر الشيء أو ما ارتفع من الأرض وغلط، أو هي الاكام أو البلاد العريضة الواسعة مع رياض وقيعان اذا أخضبت ربت العرب فيها لسعتها وكثرة عشبها. ويتفق هذا مع ما أورده محمد الفيروزبادي (١٣٢٩-١٤١٤)، القاموس المحيط، القاهرة، ج ٣: ١٩٢-٩٣؛ والمنجد في اللغة والأدب والعلوم، المطبعة الكاثوليكية، طبعة ١٥، ١٩٥٦.

² The Crusaders' influence extended to Al-Karak (Le Crac de Montreal or Petra Deserti) to consolidate their gains in Jordan during the reign of King Baldwin I (1100–1118). Its citadel was built by Payen le Bouteiller, Lord of Karak and Monte Reale الشوبك in 1142. Several attempts by Nūr al-Dīn Zinkī and Salāh al-Dīn (Saladin) stopped short from restoring Islamic authority over the region. When the fortress and fief passed in 1177 to Prince Renauld de Châtillon the threat to Muslim security reached its highest pitch. In 1188, however, all of Jordan was recaptured by the Muslim army. Under the Ayyūbid King al-Nāṣir Dāwūd (1229–1249), son of al-Mu'azzam 'Isā (1218–1227), al-Karak reached its first climax in Arab hands as al-Nāṣir's capital city. See Richard Hartmann, 'Die Herrschaft von al-Karak', *Der Islam*, 2(1911), 129–142; Gerald Lankester Harding, *The Antiquities of Jordan*, rev. ed., New York, F. A. Praeger, 1967, pp. 52–60 and 110–112; and Wolfgang Müller-Wiener, *Burgen der Kreuz Ritter in Heiligenland*, München-Berlin, 1967, pp. 11–19, 47–59 and 67–69.

³ The Melkite Rite الملكية، so-called because it had the support of the Byzantine Emperor and the Patriarchs of Constantinople and Antioch. Its roots go back to the first century when the centre of gravity for Christian missionary activity moved from Jerusalem to Antioch of Syria (Acts, 11: 19–26, 13: 1–5, 42–52, and 15: 30–41). Melkites participated in the Nicean and Chalcedon Ecumenical Councils and had a large loyal number of followers in al-Karak under the Islamic rule. This city became in 1263 a seat of a Melkite Bishopric. The name Melkite was later taken over by the Eastern Catholic Rite which, in preserving its original liturgical ceremonies and traditions under the general supremacy of the Pope of Rome, served as a link between eastern and western Christianity. See Harry Luke and Edward Keith-Roach, *The Handbook of Palestine and Transjordan*, 3rd ed., London, MacMillan, pp. 39–50;

ومحي الدين ابن عبد الظاهر، الروض الزاهر في سيرة الملك الظاهر، تحقيق فاطمة صادق، جامعة أكسفورد ١٩٥٦ حصص ٣٣-٥٣، محمد عدنان البخيت، مملكة الكرك في العهد المملوكي، عمان، ١٩٧٦، ٢١-٢٧، وصالح الحمارة، «المسيحية في أرض الشام في أوائل الحكم الاسلامي» المؤتمر الدولي لتاريخ بلاد الشام، عمان، الجامعة الأردنية، ١٩٧٤: ٥٤٩-٥٥٧.

the teaching and practice of the healing arts. The contributions he made during his short life place him among the greatest Arabic physicians of his time⁴.

Academic medicine comes to Al-Karak-Jordan

From the Fātimid dynasty in Egypt (969–1171) on, Jordan played an important role in the political, social and economic life of the region. This coincides with the peak period of the Crusaders' penetration of the area. Its role became even greater during the time of the Ayyūbids and the Mamlūks⁵. As regards the field of health, the thirteenth century (7th AH) witnessed the most commendable performance, particularly in the works of Jordan's loyal son, Ibn al-Quff. The timing was ripe in Jordan for his outstanding accomplishments. This is especially true when we consider how exciting and lively was that era socio-politically and intellectually⁶.

The first attempts to encourage and promote the teaching and practice of Arabic medicine at the highest levels were instigated by the Ayyūbid King al-Nāṣir Dāwūd, Ṣāhib al-Karak, after the death of his father, King al-Mu'azzam 'Isa, in 625/1227. Al-Nāṣir reigned in Damascus first. But, forced by his rival relatives, he relinquished that city and moved the seat of his kingdom to al-Karak, where he reigned from 627–646/1229–1249. Thus al-Karak became for the first time during the Islamic era, the renowned capital of a prosperous kingdom. With him, King al-Nāṣir brought to al-Karak as his court physician the renowned philosopher al-Shaykh Shams al-Dīn 'Abd al-Hamīd Khusrū-shāhī. The latter thus became the first academically trained physician, historically known to us in Islam to have served the medical field at the highest professional level, in Jordan. Khusrū-shāhī, however, was a native of Khusrūshāh, a town near Tabriz (Azerbaijan in

Iran). He later returned to Damascus and made it his home, where he lived most of his productive life and where he died in 653/1256⁷.

Another physician who served the profession for a short interval in al-Karak was 'Imrān b. Ṣadaqaḥ of Damascus. He came only for a season because of the ill health of King al-Nāṣir Dāwūd. He returned to the Syrian capital after the recovery of his patron⁸.

The third historical figure in chronological order to serve in Jordan was Sadīd al-Dīn Abū Maṣṣūr b. Ya'qūb b. Ṣaqlāb, the son of a famous physician of Jerusalem, Palestine. During the early 1230s, the father arrived at al-Karak to enroll his son for private tutoring in the natural sciences, medicine and logic under Shaykh Khusrū-shāhī. On completion, the son, Sadīd al-Dīn, remained for a season, and as he advanced in his medical knowledge and experience, he succeeded the two above-mentioned practitioners as the court physician⁹.

At this time, Abū'l-Faraj ibn al-Quff was born and reared in al-Karak, which became by now a respected capital, not only as a fortified city but also as an intellectual and commercially progressive center. As a teenager, Ibn al-Quff moved with his parents to Syria where he pursued and completed his studies in medicine, philosophy, mathematics and the natural sciences. In addition, he seems to have had a good bedside training at the al-Nūrī al-Kabīr, al-Qaymarī, and other hospitals in the Syrian capital¹⁰.

Medicine comes to 'Ajlūn-Jordan

In 1263 all of Jordan, including the fortified cities of 'Ajlūn and al-Karak, became part of the kingdom of King al-Zāhir Baybars (reigned 1260–1277). This Mamlūk period has been adequately covered in the most useful work of Professor

⁴ Lucien Leclerc, *Histoire de la Médecine Arabe*, vol. 2, Paris, 1876, pp. 203–4; Carl Brockelmann, *Geschichte der Arabischen Literatur*, vol. 1, Leiden ed., p. 649 and *Supplement*, 1: 899; E. Wiedemann, 'Beschreibung von Schlangen bei Ibn Quff', *Sitz. Phys.-Med. Soz. Erlangen*, 48(1918), pp. 61–64; George Sarton, *Introduction to the History of Science*, vol. 2, pp. 1098–1099; Manfred Ullmann, *Die Medizin in Islam*, Leiden, Brill, 1970, pp. 176–177; and S. Hamarneh, 'Ibn al-Quff', *Dictionary of Scientific Biography*, vol. 11, New York, Scribners, 1975, pp. 238–239.

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البخيت؛ مملكة الكرك ص ص ٨٥، جمال الدين أبو المحاسن بن كبرى بردى، النجوم الزاهرة، القاهرة، ١٢١:٧–١٨٥، سعيد عاشور، «المجتمع الاسلامي في بلاد الشام في عصر الحروب الصليبية»، المؤتمر الدولي لتاريخ بلاد الشام، ١٩٧٤، حصص ٢١٩–٢٣، وأبي بكر بن عبد الله بن أبيك الدواداري، الدرر الزكية في أخبار الدولة التركية، ج ٨، القاهرة، ١٩٧١ تحقيق أ. هارمان، ص ص ٩٤–١٠٣.

⁶ N. A. Ziadeh, *Damascus Under the Mamluks*, Norman, Univ. of Oklahoma Press, 1964, pp. 3–30, 54–60;

سعيد عاشور، الظاهر بيبرس، أعلام العرب رقم ١٤، القاهرة، ١٩٦٣، ١٠٦–١٣١، شمس الدين بن خلكان، وفيات الأعيان، تحقيق احسان عباس، ج ٣ بيروت، ١٩٧٠، ٤٩٤–٩٦، سبط بن الجوزي، مرآة الزمان في تاريخ الأعيان، حيدرآباد، ١٩٥٠، ٢: ٧٩٣.

أبو محمد شمس الدين عبد الحميد بن عيسى الخسروشاهي، (١٢٥٤–١١٨٤/٦٥٢–٥٨٠). أنظر موفق الدين بن أبي أصيبعة، عيون الأنباء، طبعة بولاق، ٢: ٢١٣، ٢١٩، ٢٥٩–٧٣، وخير الدين الزركلي، الأعلام، طبعة ثالثة، بيروت، ١٩٦٩، ٣: ٤٩، وأيضاً ٤: ٥٩.

⁸ أوحده الدين عمران بن صدقة الاسرائيلي ولد بدمشق ١١٦٦/٥٦١ وتوفي بمصر ١٢٣٩/٩٣٧ خدم الملك العادل والناصر داود وأيضاً في قلعة دمشق والبيمارستان النوري الكبير مع الشيخ مهذب الدين عبد الرحيم الدخوار وعليه درس الطبيب ابن أبي أصيبعة، عيون الأنباء، ٢: ٢١٣–١٤، ٢٣٩–٤٦.

⁹ المرجع السابق، عيون الأنباء، ٢: ١٢٣–٣٠، ٢١٤–١٥.

¹⁰ Ziadeh, Damascus, op.cit. pp. 54–56, 60–65;

البيمارستان القيمري بالصالحية في دمشق بناه الأمير الكردي سيف الدين القيمري وقد أشار اليه ابن جبير في رحلته، طبعة بيروت، دار التراث، ١٩٦٨ ص ص: ٢١٠–١٨، ٢٣٠–٣٩، ٢٤٥–٤٦.

al-Bakhīt of the University of Jordan¹¹. In view of the king's concern for the wellbeing of his soldiers a need arose for an academically trained, in-house physician-surgeon to shoulder the medical responsibilities for the Muslim army stationed at the 'Ajlūn (al-Rabaḍ) citadel. Ibn al-Quff was the willing, able, and trustworthy doctor to take charge of such an important post. There, from about 1263, he apparently served with distinction for almost a decade. Here it seems very probable that he wrote his first great encyclopedic medical manual, *K. al-Shāfi fī al-Ṭibb* (completed on the 10th of Sha'bān, 670/1271). Thereafter, he was promoted and transferred to the Citadel of Damascus where he also taught the healing arts, until his untimely death at the age of 52. His fame drew many students from far and near to attend his lectures and be trained under him.

It was here, at the Syrian capital, that he wrote the rest of his works. Some later ones, however, were inscribed only in a first draft and he died before he actually completed them¹². Nevertheless, he left behind an impressive medical legacy although a great portion of it has been lost since. The remaining extant writings contain original and penetrating ideas and personal observations of great historical importance¹³.

For an adequate coverage of Ibn al-Quff's contribution to Arabic medicine and surgery, this writer conducted a search to collect on microfilm copies of as many available writings of his as possible, but has not yet succeeded in collecting all that are known or reported. In this paper, an attempt will be made to briefly evaluate Ibn al-Quff's contribution to health preservation as the father of hygienology. It will also give an assessment of his concepts of the medical regulations, dietetics, diagnoses, and environmental ecology valued and applied at that time for the promotion of good health. The study will focus on his three earliest writings, especially the third, *Jāmi' al-Gharad*, devoted to preventive medicine, insisting that hygiene is a definite and specialized area of the healing arts.

A comprehensive text on the healing art

From internal evidence and documentary citations, it seems very probable that Ibn al-Quff's first major medical work was his *Kitāb al-Shāfi fī al-Ṭibb*. It is an encyclopedia on the theories and practical aspects and applications of the healing

arts based on the Greek and other ancients' legacies, with many ramifications and additions by Arabic authors, as well as some theories and ideas introduced by our author himself¹⁴. Three copies of this work are known, two of which this writer was able to secure on microfilm. One is housed at the Vatican Apostolic Library (Arab. no. 183), containing the first seven treatises out of a total of twelve¹⁵. A second is housed at the British Library in London (Hamarneh no. 224, Or. 9006). It contains treatises eight to eleven, but defective at the beginning and end with several folios missing¹⁶. The third is reported in India, which I have not yet been able to obtain¹⁷.

Al-Shāfi is a great accomplishment by itself and ranks among the best classics of Arabic medical encyclopedias—with Rāzī's *al-Manṣūri*, al-Majūsī's *al-Malakī*, al-Zahrāwī's *al-Taṣrif* and Ibn Sīnā's *al-Qānūn*¹⁸. It gives a comprehensive coverage of the major known topics of the healing arts that were taught and debated at that time. Interestingly, it was Ibn al-Quff's first known written work, and was completed when he was only 37 years of age. It needs a separate study to be adequately evaluated since the scope of this short paper will not permit that. A synopsis of its contents only can be given here.

In its introduction, the author praises the medical profession as the foremost among all other professions and sciences. Prophets and eminent sages have agreed as to its utility to the human race, and thus have approved and promoted its teaching and practice. He reiterates: 'I spent so many years of my life in acquiring all that I could learn about its teachings, in its generalities and minute and detailed doctrines, being convinced of its utility as a noble calling and the prudent demands on those that practice it. Therefore I endeavoured to gather all the needed data for the purpose of compiling this compendium. It is, in my judgment, the first of its kind in this field. In it, I focused attention on matters overlooked by my

¹⁴ The 'Ajlūn Citadel was built by the Ayyūbids under the leadership of Prince 'Izz Al-Dīn in 1184–1185 for the protection of routes between Syria and Arabia. Here Ibn al-Quff completed *al-Shāfi* in 670/1271, the first known Arabic medical book to be published in Jordan. The title and introduction revealed the author's intentions and satisfaction in his work which fulfilled the need at that time in the teaching and practice of medicine.

مصطفى حاجي خليفة، كشف الظنون، طبعة اسطنبول، ٢: ١٠٢٣؛ وابن شداد، الأعلاق الخطيرة في ذكر أمراء الشام والجزيرة، تحقيق سامي الدهان، بيروت، ١٩٦٣ ص ص ٨٦–٩١.

¹⁵ Bibliotheca Apostolica Vaticana Arabo 183. A 14th century copy apparently came from Damascus. It is written in large legible, partly vowelised Naskh script in 259 fols., 19 to 23 lines per page, copied by a certain Christian physician scribe Dāwūd b. Ya'qūb presumably from the author's autographed copy.

¹⁶ This British Library copy seems to be a continuation of the Vatican 183 because of handwriting similarities. See Hamarneh, *Catalogue of British Library*, pp. 189–193.

¹⁷ Bankipore iv: 88.6 not yet received. Other copies may turn up in libraries in India, Iran, Turkey and North Africa which will make its editing and evaluating easier and more rewarding.

¹⁸ Since the maturing of Arabic-Islamic medicine in the ninth century, several eminent physicians wrote medical encyclopedias, such as Abū Bakr al-Rāzī (d. 925), 'Alī b. 'Abbās al-Majūsī (d. 944), and Ibn Sīnā (Avicenna, d. 1037) in Iran, and Abū'l-Qāsim al-Zahrāwī (d. ca. 1013) in al-Andalus.

¹¹ (C.N.J.), 'Medieval 'Ajlūn', The Quarterly of the Department of Antiquities in Palestine, vol. 1, 1932, pp. 21–33;

البخيت، مملكة الكرك، ٥: ٦، وسعيد عاشور، الظاهر بيبس،

٣٧–٥١، ١٠٦–٧، ١٤٠–٥١.

¹² Hamarneh, The Physician, Therapist and Surgeon Ibn al-Quff, Cairo, Atlas, 1974, pp. 83–149.

¹³ Hamarneh, Catalogue of the Arabic mss. at the British Library, 1975, pp. 189–193; and D.S.B., vol. 11 (1975), pp. 238–239;

صلاح الدين المنجد «مصادر جديدة عن تاريخ الطب عند العرب»

مجلة المخطوطات العربية، ٥ (١٩٥٩)، ٢٦٦–٧.

predecessors. I explained points that were hidden from and misunderstood by them. I also illucidated ambiguous concepts, uncertainties, and vague statements, and harmonized what appeared to be conflicting recording. I further corrected errors in the best way I could. . . I have called the book *al-Shāfi fī al-Tibb* because it will satisfy the reader to the point that he will need no other manual besides¹⁹. Fortunately, this was his gift to readers at large and not to a particular patron as was the custom. He felt that none deserved it more than the avid reader and the industrious student of the healing art.

K. *al-Shāfi* is divided, like other medical compendiums of the period, into two parts: Theory, consisting of the first four treatises and concerned with what affects the human body, what is or is not appropriate for it, and what it loses under normal and abnormal circumstances; and Practice, concerned with the prevention of diseases, preservation of health and how to cure illness, comprizing the last eight treatises

(الجزء النظري والجزء العملي)

The following is a summary of the table of contents of the twelve treatises:

- I General principles and definitions of the healing arts, natural things and phenomena, including elements, temperaments, humours, faculties, spirits, as well as human anatomy and physiology.
- II On causes for good or ill health based on the proper or improper use of the six hygienic principles and their qualities, including the air we breathe, diet, work, the use of enemas and vomit-inducing drugs, psychological impulses and tendencies, seasons, living conditions and places, and natural and contranatural changes. Interestingly, he defines causes as the factors monitoring and controlling body conditions in cases of both sickness and good health.

السبب هو الأمر الموجب أو الحافظ بالذات لحالة من أحوال البدن التي هي الصحة أو المرض وما بينهما

- III On the body's requirements (اللوامز) for the preservation of good health, including sex, age, bodily constitution and facial appearances, types and classifications of diseases, as well as natural, animal, and psychic responses, reactions and retroactions.
- iv On symptoms, diagnoses, indications and signs (الدلائل) concerning sickness and health, including physiognomy, prognostics, urinalysis, pulse indications and crises, especially in fevers.
- v On dermatology, with useful discussions of skin diseases, including ulcers, sores, swellings and phlegmonous abscesses.

¹⁹ Ibn al-Quff's assuring statements demonstrated his determination to speak his piece whenever he was persuaded that his observations differed from traditional concepts. He seems to be confident that he has a lot to offer too. A separate and more detailed investigation of this work, in my judgment, appears to be justified.

VI On poisonous products from animal, mineral and vegetable origins, symptoms, pharmacological effects and theories of poisoning, toxicology, treatment of animal bites, including mad dogs and poisonous beasts, the theriacs and antidotes²⁰. It ends with a chapter on poisonous animals, and potent drugs that cause soporific, hypnotic, somnificant and depressant effects, and substances which are sedatives, calmatives, tranquilizers and analgesics, or those agents that stupefy and torpify senses (المحدرات). It lists potent drugs affecting the nervous system, including narcotic drugs of botanical origin such as opium²¹; common mandrake (*Mandragora officinarum* L., family Solanaceae)²²;

black nightshade (*Solanum nigrum* L., of the same family); وعنب الثعلب *Datura metel* L.; (نوع من البنج) hemlock (*Conium Maculatum* L., Of the Umbelliferae fam), and Henbane as well as camphor and ice water.

VIII On mental and emotional diseases and psychotherapy and epilepsy.

IX On ailments of the thoracic and the respiratory systems.

²⁰ Toxicology seemed to have developed in view of hostilities against people in high places at the time, as witnessed by the number of treatises written on this subject. Compare with M. Steinschneider, 'Die toxicologischen Schriften der Araber bis Ende XII Jahrhunderts' *Archiv fuer pathologische Anatomie und Physiologie und fuer klinische Med.*, Berlin vol. 52 (1871), 340-375, and 476-503; and the Princeton Garrett 566H entitled

المنقذ من المهلكة في دفع مضار السموم المهلكة للحسين بن أبي

ثعلب بن المبارك حوالي سنة ١٠٩١ م.

²¹ This brief chapter indicated that the author's knowledge of anesthetics is not beyond the general expectations of his contemporaries. They used mainly plant sedatives with a short duration effect, helpful in minor surgical manipulations. See Hamarneh, 'Pharmacy in the Medieval Islam and the History of Drug Addiction', *Medical History*, 16 (1972) pp. 226-237.

²² *Mandragora*, mentioned by Dioscorides, became known in Arabic pharmaceutical literature. It was mentioned by the tenth century al-Tamīmī of Jerusalem. They recognised its similarity to a human figurine with two feet and two hands, and with reddish fruit hard to pick. Because of this they attributed to it magical curative virtues. To pull the shrub out, the tying of a dog to its trunk was used, not only in the East but more so in the West.

ابن البيطار المالقي، جامع مفردات الأدوية والأغذية، طبعة بولاق ٣: ١٠-١٢ يذكر العقار تحت اسم البيروج، الوقار وسراج القطرب، شجرة الصنم، في صورة صنم قائم ذي يدين ورجلين، وشجرة سليمان، كان منها تحت فص خاتمه، وبها كان يصنع العجائب، أو الشجرة المباركة نافعة لكل داء، مطلع ورقه وقضيه فوق الأرض في وسط رأس الصنم، ويزعمون أنه لا يمكن قلعه، فانتشر التقليد حول ربطه في عنق كلب عند جذبه وقلعه حيث يسقط ميتا «وأما أنا فأرى ذلك محالا وباطلاً».

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السيكران (أو الشوكران أو الشيكرا) هو البنج أنظر ابن البيطار، الجامع، ١: ١١٧-١١٩، وابن سينا، القانون في الطب، ج ١، طبعة بولاق، ١: ٢٧٣.

- x On dystrophy and the diseases and treatment of the digestive system, nourishment and dietetics.
- xi On diseases and treatment of the sex organs, sexology, gynecology and obstetrics²⁴.
- xii On diseases and treatment of pains of the joints, gout, and sciatica—topics that captured the special attention of Arabic authors from the ninth century on, as seen in the early works of Thābit b. Qurrah and Abū Bakr Muḥ. b. Zak. al-Rāzī²⁵.

Sharḥ Kullīyāt Al-Qānūn

Ibn al-Quff's second medical manual was his commentary on the *Kullīyāt of al-Qānūn* of al-Shaykh Abū 'Alī ibn Sīnā (980–1037), completed in Damascus between 1273–74. Until now, I have only been able to secure a microfilm of an incomplete, but rare copy, housed in Damascus (Hamarnēh no. 57 T, or General no. 7802)²⁶ thanks to the directorship of the Zāhirīyah National Library for allowing me a micro-filmed copy for this research.

Originally in six volumes, this commentary is the author's largest known work, and seemingly one of the most exciting in view of its comprehensive coverage of medical philosophy, theory, anatomy and physiology²⁷. From this and other writings of his, Ibn al-Quff seems definitely to be a great admirer of Ibn Sīnā as a physician-philosopher, probably more so than one would expect. This admiration, however, did not prevent our author from expressing his disagreements and criticism of several of Ibn Sīnā's theories and recorded speculations. He thus tried to correct errors wherever he spotted them, and brought to mind many observations overlooked or undetected by Ibn Sīnā. These valuable, personal theories projected by Ibn al-Quff throughout this Commentary seem important and worthy of future evaluation. The available portion of it, housed at the Zāhirīyah (about one seventh of the total), confirms this optimistic assessment concerning the historical significance of this Commentary when the total work is found and studied. For example: his eloquent discussions on meteorology; environmental ecology; the physiology of the optic nerve, and his interpretation of

theories of color, vision, and picture formation; certain functions of the nervous system, and the coordination found between the spinal cord with its motor nerves and the brain with its sensory nerves; and, noteworthy definitions of sickness and health²⁸.

In this Commentary the author goes into further detail to explain other anatomical and physiological matters, among which are the relationship and connection between arteries and veins. This also he did in a later manual, *al-'Umdah*, on surgery; as well as the four outlets of blood and pneuma vessels from the left and right chambers of the heart which, it seems, Ibn al-Quff was sure of, but he compromised with Galen and Ibn Sīnā on a third chamber. He further pointed to the four locations of the cordial valves: the aortic, metral, pulmonary and the tricuspid, and the directions of their opening and closing for the flow of blood and pneuma (animal spirit) in and out of the heart. In this presentation he demonstrated what may be considered the first complete and detailed explanation of their function. It surpassed any previous anatomical interpretations, whether by Greek or Arabic authors. Interestingly, Ibn al-Quff mentions blood flow from the heart to the lungs through the pulmonary artery, leading one to sense his grasping of a new physiological truth which was shortly to be taken up by his contemporary, 'Alā' al-Dīn Ibn al-Nafīs (c. 1210–1288)²⁹.

It must be stated that Ibn al-Quff, like other Arabic authors of the period, adopted Galen's anatomical theories and concepts. This is especially true as regards the direction in which the veins carry the thick blood from the liver to the heart and the entire body, while the arteries carry the pneuma, the quickening spirit, and heat that emanates from the heart penetrating to other parts of the body. Nevertheless, finding inconsistencies in these speculations by the ancients, Ibn al-Quff tried to record and inject his own interpretations and observations with a limited measure of freedom³⁰.

Hygienology and preventive medicine

On hygienics, Ibn al-Quff excels with new ideas and determination in his third medical work entitled *Jāmi' al-Gharad fī Ḥifẓ al-Ṣiḥḥah wa-Daf' (Bur') al-Maraḍ*, on the preservation of good health and the prevention of diseases. Comprising sixty chapters, it was completed in one condensed compendium about 675/1276. Although written so late, it was

²⁴ Ibn al-Quff divided his *al-Shāfi* into two parts: theoretical medicine, treatises one to four; and practical medicine, the remaining eight, including causes and treatment of diseases. He added useful information in the field of gynecology and obstetrics. See Hamarnēh, 'The physician and the health professions in medieval Islam', *Bulletin of the New York Academy of Medicine*, 47 (1971), pp. 1101–1110; and H. Schipperges, 'Die arabische Medizin als Praxis und als Theorie', *Sudhoffs Archiv*, 43 (1959), pp. 317–328.

²⁵ Thābit wrote on pains of the joints and gout (one manuscript is known). For al-Rāzī see Hamarnēh, 'Early independent treatise on gout', *Physis*, vol. 20 (1978), pp. 31–48.

²⁶ According to I. A. Usaybi'ah, 'Uyūn al-Anbā, 2: 273, this commentary comprised six volumes (a total of about 1600 fols.). The Zāhirīyah incomplete copy is in 290 fols., 16.5 × 24.5 cm. size, 19 lines per page, in elegant partly vowelised Naskh script, and with marginal notes comparing the original text. It contains discussions not covered in Ibn Sīnā's original text and comprises pp. 48–82 of volume one in the Būlāq edition. See Hamarnēh, *Index of Arabic mss. on medicine and pharmacy at the Zāhirīyah Library*, Damascus, Arab Academy, 1969, pp. 325–329. Let us hope that other more complete copies come to light to make possible a more adequate evaluation of this important medical commentary.

²⁷ During the twelfth and thirteenth centuries' revival of medical activities in Arab countries there had been a renewed interest in Ibn Sīnā's writings. It was, however, an objective interest, rational and critical, as evident in the works of Ibn al-Tilmidh, Ibn Jumay', Ibn al-'Ayn Zarbī, 'Abd al-Laṭīf al-Baghdādī and Ibn Zuhr.

²⁸ In the work of Ibn al-'Ayn Zarbī and this section of Ibn al-Quff's commentary we find significant continuing progress in interpreting processes and concepts of the central nervous system and mental health. See Hamarnēh, 'Ibn al-'Ayn Zarbī and his definitions of diseases and their diagnoses', *Proceedings of the First International Symposium for the History of Arabic Science*, vol. 2, Aleppo, I.H.A.S., 1979, pp. 313–315.

²⁹ Ibn al-Quff and his contemporary Ibn al-Nafīs (ca. 1210–1288) seem to have tackled similar medical problems independently. They both wrote commentaries on Ibn Sīnā's first and third books of *al-Qānūn*. Ibn al-Nafīs' discovery of the pulmonary circulation is now acknowledged worldwide. Writings of these authors still deserve further investigation for new findings.

³⁰ About 680/1281 Ibn al-Quff published his better known work *al-'Umdah* on surgery. A year later he published his commentary on the Hippocratic Aphorisms, *al-Uṣūl*

الأصول في شرح الفصول In both publications we find added important data on anatomy, physiology and the theories of health and disease.

translated into Latin, and thus had a wide circulation in the West. In it we find our author considering hygiene as a specialist field of the healing arts, giving it its own separate identification and analysis in a manner that no other before him had done. Such innovation indeed entitles him to be considered the father of hygienology and preventive medicine in Islam, as we shall show in this paper³¹.

The *Jāmi' al-Gharāḍ* was written for the compelling reason and in the best possible manner to help and preserve the good health of the author's patron, Fakhr al-Dīn Muḥammad. Then it was dedicated to the 'prosperous library' of his father, al-Ṣāhib Bahā' al-Dīn 'Alī b. Muḥammad b. Ḥinnā of Egypt, the grand Vizier (chancellor) to the Mamlūk Sultan al-Zāhir Baybars (reigned 659–676/1261–1277) and his son, King al-Sa'īd. At the time, King al-Zāhir had two royal residences: one in the Citadel of Cairo, and the other at Damascus, and he moved between the two capitals freely, especially after the partial defeat of the Crusaders and the Mongols. Significantly, Ibn al-Quff in Damascus dedicated his important book on hygiene to the grand Vizier's library in Cairo, which suggests strongly that he might have visited the Egyptian capital at about that time, hence the repeated reference to Egypt in his writings³².

This writer examined the two known copies of *Jāmi' al-Gharāḍ* housed in London: one at the British Library (see Hamarneh, no. 223, Or. 3690) in 180 folios; and the second at the Wellcome Historical Medical Library (WMS. Or. 116) in 216 folios³³. It is quite evident, from the introduction to this compendium and elsewhere, that Ibn al-Quff was deeply concerned about the importance of the study of hygienics. Since the statements are brief, precise and explicit, I thought it appropriate to simply make a free translation of the relevant

³¹ Almost ninety years later another Arab author, Lisān al-Dīn b. al-Khaṭīb (1313–1374), wrote a similar text, though shorter, on the preservation of health, four copies of which I examined in Morocco.

الوصول لحفظ الصحة في الفصول أكمله لسان الدين بن الخطيب

عام ٧٧١ هـ

³² Ibn al-Quff was loyal to Bahā' al-Dīn Ibn Ḥinnā of Egypt (d. 677/1278) to whom he dedicated this book.

أنظر الدواداري، الدرة الزكية، ج ٨، ١٩٧١ ص ٣٢، ٧٠،
١٠٣–١١٥، ١٧١–١٧٢، ٢٢٢–٢٤٤، ابن شاعر الكتبي، فوات
الوفيات، القاهرة، ٢: ١٥٢–٥٤، ابن اياس، بدائع الزهور في وقائع
الدهور، القاهرة، ١: ٩٨–٩٩، والمقريري، السلوك لمعرفة دول الملوك،
ج ١ قسم ٢: ٤٣٨.

³³ For further description of the first two copies, see A. Z. Iskandar, *Arabic Manuscripts of Medicine and Science*, London, The Wellcome Historical Medical Library, 1967, pp. 113–114, and Hamarneh, *Ibn al-Quff*, 1974, pp. 100–105. The Rabat incomplete copy D783 is in 20 fols. 18.5 × 26 cm., 21 lines per page in fair Maghribī script containing the first fourteen chapters (out of 60). Incipit:

الحمد لله مقدس الصفات والأسماء، مقدر الداء والدواء، محيي
الأموات، مميت الأحياء، خالق الأغراض والجواهر، المنزغن الكذب
والمظاهر، الذي عم الحيوان برزقه، وخص الإنسان بفضيلة نطقه.

parts of the introduction to give the reader a feeling of the author's enthusiasm and devotion to this most important department of the medical sciences. He writes:

'I had convincingly conceived of and envisioned the importance of the rôle played by a healthy body in the worship of God according to the dictates of practiced traditions. These can expeditiously and adequately be observed and realised only when the body is healthy and its physical faculties are sound and well (for it is in being well and wholesome that one can best worship God). This explains why I resolved and promoted the concept that hygienics and preventive medicine are very important for all. Because of their real need, teaching these areas (of the healing arts) becomes a necessary requirement for everyone concerned with protecting, preserving and restoring healthy living. Therefore, despite other pressing demands and time-consuming duties, I worked hard, collecting data from materials I studied or information I observed, examined or experienced, to undertake the task of compiling this brief manual on hygiene and preventive medicine. It is small in size but loaded with very useful medical information and hygienic regulations. Hopefully, it will be sufficient for the study of hygienics, being the first and so far the only available text of its kind which is exclusively devoted to these topics. It will thus serve the need of each practitioner concerned with the healing art. Intentionally the text was brief, since I rejected any unnecessary detail, so that instead of becoming boring it would rather be enjoyable to the reader, the tutor and the listener³⁴.

«رأيت أن حفظ الصحة ضرب لازب لأن ما يوصل الى الواجب الا
به فهو واجب. فأحججت من الخاطر ما أبقتته صروف الزمان وجمعت
مستفرقة بقدر الامكان ووضعت مختصرا في حفظ الصحة، قل حجمه وجل
علمه واستقرت قواعده وعمت فوائده يقتصر في علم حفظ الصحة عليه...
جعلته في نهاية الاجاز خوف الملالة... وكان الداعي اليه والمحرض عليه
شدة الرغبة في حفظ صحة مولانا ملك الوزراء وسيدها فخر الدين محمد
ولد المقر العالي المولوي بهاء الدين علي خرق الله العادة في بقاءه....
وجعلت ذلك برسم خزانته».

Embryology and life stages

Ibn al-Quff believed that both parents have a part in the genesis of their baby, through their seminal fluid. He explained the function of the male sperm, but was not clear regarding the fact that it is a testicular secretion. He was, like his predecessors, completely unaware of the role of the reproductive cell, the ovum from the mother, and only spoke of a seminal fluid in general terms. However, he was emphatic

³⁴ Of further interest in these introductory statement which I freely translated, is Ibn al-Quff's invocatory plea beseeching God for supernatural intervention to give his patron a long life. خرق الله العادة في بقاءه He lived 74 years.

about the fact that the fluid from the woman could not be considered a semen for reproduction. Yet he recognised that somehow there is a semen that comes from the mother by which she has a definite and equal part in the creation of the new life. No mention whatsoever was made of the monthly release of the female egg. Ibn al-Quff thought that conception simply results from the mixed seminal fluid produced by the two parents. The exact technicalities on how fertilisation and conception take place were not clearly known at the author's time. From this point on, Ibn al-Quff seems to be on surer ground. He writes that 'the formation of tissues which look like faint streaks over the semen resemble the mildew over mouldy bread. In its multiplication this newly forming tissue attaches itself gradually to the gritty layers of the womb (*al-naqr*), forming a cleavage between its wall and the embryo. Like a small disk it turns into oval shape like an egg without a shell hung to the cervix. At about the end of the first week or the beginning of the second, 'the changing power' acts on the 'impregnated mixed semen' to form what may seem to resemble froth or foaming substance which pulls towards the heart. Thereupon it is puffed into two directions with two whiffs—one to the right towards the liver and the other to the top towards the brain. After about fourteen more days it becomes like a clot, a thick coagulated mass (*'alqah*). After about thirteen more days this develops into a morsel which looks like a chunk of meat (*madghah*). In forty three days, or thereabouts, the various major organs (heart first, being the source and origin of all body's faculties, then head, shoulders and limbs, etc.) begin to appear and can be discerned. It is at this time that the embryo receives the intelligent, living soul which takes care of it³⁵.

وفي مثل هذا الوقت (حوالي ستة أسابيع) يفاض على الجنين النفس الناطقة فتتولى حفظه.

Thereafter, the author goes on to explain in detail the position of the foetus in the womb. It is surrounded by three membranes, the outer being the membrane lining the internal part of the womb through which arteries and veins enter to join their counterparts within the foetus to supply it with food, nourishment and air. The other two are termed the *shifā* and the *sillā* membranes (one surrounding the foetus and the other containing the amniotic fluid). At the end of seven months all organs seem complete, according to our author. At parturition the foetus ruptures these membranes, the head coming out first with hands stretched forward on its thighs in normal birth. In addition he reports a pregnancy in Tripoli (Ṭarāblus al-Shām), a septet (seven foeti), all born alive.

Ibn al-Quff, like other Arabic-Islamic authors before him, divides the span of life after birth into four stages. He gives a detailed description of each and the changes and powers at

work in them, especially regarding 'the animal heat, humidities, and the natural soul'. These are:

- I The stage of growth (*al-namā'*) involving a life span from birth to 30 years of age, encompassing infancy, childhood, boy and girlhood, teenage and adolescence (*al-ghulāmīyah*), and young adults (*al-futuwwah*).
- II Youth (*al-shabāb*), from about 30 to 40 years of age, which involves the meridian of life—full growth and consistent vitality.
- III Man or womanhood (*al-kuhūlah*), from about 40 to 60 years—the maturity and adulthood stage.
- IV Old age or seniority (*al-shaykhūkhah*) beyond 60 years—time of ripe age to natural death. At this stage the body's humidity and natural heat begin to dry out in preparation for physical life cessation³⁶.

Six essential hygienic principles

The author mentions certain things relative to the preservation of and the restoration to good health, or that which may lead to sickness, depending on how one behaves towards them. At the same time, considerations are given to age, sex and temperament of each individual, as well as places, season, habits, and general body constitution. These are the essential six principles which had already been referred to. They were first outlined by Galen, then translated, modified and elaborated on by Abū Zayd Ḥuyayn b. Isḥāq al-'Ibādī, and subsequently copied by later Arabic and European medical authors throughout the Middle Ages and up to the Renaissance³⁷. These principles are: the air we breathe; the kinds of foods and drinks we take in; normal work and rest; wakefulness and slumber; vomiting, and the use of enemas; emotional and psychological influences and reactions; other bodily outputs. If undertaken or applied wisely and moderately in quantity and quality at the proper time, and as deemed necessary, health will be kept or restored; if such measures are abused, sickness occurs. Immoderation makes body constitution a target for change and possible 'corruption' from within or without—hence sickness and death.

Here also Ibn al-Quff defines health as the condition of the body in which all its functions are basically sound and wholesome.

الصحة حالة البدن الانساني بها تكون أفعاله سليمة بالذات

Explaining all this, our author moves progressively to launch his already determined efforts in being the first known physician during this period to establish hygiene and preventive medicine as a fully identified and recognised specialty among the healing arts. He precisely states that, 'the profession of hygiene involves preventive and remedial medical

³⁵ Ibn al-Quff apparently believed in conception, although to him the embryo becomes a living soul medically only at the end of six weeks. As regards abortion rights, most physicians of the time opposed abortion after that period of weeks.

³⁶ For centuries, in the West as in Islam, life expectancy was compared with the lamp and the wick. See Peter H. Niebyl, 'Old age, fever, and the lamp metaphor', *Journal of the History of Medicine and Allied Sciences*, 26 (1971) pp. 351–368.

³⁷ E. J. Rather, 'The six things non-natural', *Clio Medica*, 3 (1968), pp. 333–347; Saul Jarcho, 'Galen's six non-naturals: a bibliographic note and translation', *Bull. Hist. Med.* 44 (1970), 372–377; and Hamarneh, 'Some aspects of medical practice and institutions in medieval Islam', *Episteme*, 7 (1973), pp. 15–20.

treatment for protection against the prevalence of such conditions that cause untimely and improper rapid dryness, atrophy and exhaustion of the body's resources and vitality. It also aims at lessening, disposing of and ridding the body of foreign humidities. Thus, if more of the same have already been produced and multiplied, it gets rid of them. Likewise, preventive medicine (prophylaxis and hygienics) warns and guards against all kinds of poisons, chilblains, frostbite, and other incidents that inflict internal or external injuries to the body'.

«فصناعة الصحة صناعة تتضمن اصلاح التدبير المانع من استيلاء الأسباب المعجلة للتخفيف دون الواجب له، وذلك مثل تقليلات الرطوبات الغريبة ودفعها عن البدن أو ما يمنعها عن التوليد و باخراجها من البدن بعد التولد ومثل الاحتراز من أنواع السموم والبرد المجمع».

In defending the need for such a specialisation, the author recounts that, 'these advantages of preventive medicine and hygiene, however, do not prevent causes of inevitable withering away, degeneration and dryness from occurring, or guarantee deliverance from death, nor do they promise unlimited longevity to each individual—for these considerations vary from one to another according to each particular constitution'.

فهذه الفائدة من صناعة حفظ الصحة لا انها تمنع الأسباب الواجبة من التخفيف. ولا انها تتضمن الأمان من الموت، ولا أنها تبلغ كل شخص غاية طول العمر بحسب الانسان مطلقا فان ذلك يختلف باختلاف الأشخاص في تركيبها.

It is a fact of life that decline in old age comes faster than in one's earlier years. The author explains in detail that the body's 'nutritional faculty' could not supply the same vitality to young people as to the old. This is imperative since wasting away, degeneration and deterioration of vigor at old age are of much longer duration, leading eventually to natural death. Thus its effect on the elderly will be so much greater than degeneration in the prime of life. The author, therefore, speaks of two kinds of alimentation and food value: the nourishment in faculty (*al-ghidhā' bi'l-quwah*), which is the taking of food generally; and the real nutrition (*bi' l-Fi'l*), as when that food is completely altered and fully assimilated by the appropriate organs of the body. This is the reason, according to Ibn al-Quff's interpretations, why hot diet is given to patients who shiver from chill or from being cold, and cold diet to those with high temperature and fever³⁸.

He then concludes that healthy living and well-being can be of two types: ideal good health, which all people aspire to possess and which should be preserved, as emphasized in this entire work; and that which is less than wholesome and needs

dietary or remedial treatments to balance and bring it to normality.

والذي أقول في هذا البحث أن الصحة على ما عرفت على نوعين: صحة في الغاية وهي القرية من المتوهمة، وصحة دون الغاية.

This once more confirms what has been already said of the right usage of the six essential principles for preserving health and preventing body's vitality from deterioration and change for the worse. Nonetheless, Ibn al-Quff wondered, expressing his feelings in statements similar to those recorded and revealed in the Hippocratic Corpus, who and how many will be able to afford such luxury or meet such meticulous requirements and demanding hygienic standards! He lists the five following measures as a means for their implementation:

- 1) One has to be acquainted with the rules and regulations of the healing art in order to be able to identify the harmful and avoid it, and know the useful and beneficial and apply it.
- 2) That he be a highly placed official or self-employed individual who can have the time and convenience to comply—for an employed person or one under orders will find it extremely difficult to fulfil and adjust to these regulations.
- 3) One should have self-control and self-discipline for abstinence, and not be greedy or voracious.
- 4) One ought to be a wealthy heir, or a well-to-do person, for the poor would not be able to meet these criteria for lack of means and extra financial expenses.
- 5) One must be generous, munificent and unsparing of his wealth to attain his goal, for the stingy and miserly would not have the willingness to do what he ought for fear of spending more money than he thinks he should. Thus he loses his opportunity to attain a wholesome living. Indeed, how few there are at any time who can meet these standards for maintaining good health. Still fewer are those who can reach or get near to the 120 years of maximum age. Of course, many die unnatural deaths.

These, nonetheless, are the bases for ideal living. In them our author, seemingly, went beyond and projected more than his Greek predecessors ever did, yet very precisely, without philosophical ramifications³⁹.

Management of mother, child and grownup

The author here appropriately defines and distinguishes true from false pregnancy. He then elaborates on the measures to be taken for securing the necessary care, especially during the mother's last three months of pregnancy. These measures include the regulation of her diet, exercise, cleanliness, sleeping time and association. At parturition, the author recommends the use of the 'delivery chair', and gives detailed instruction to the midwife regarding her function and duties

³⁸ Ibn al-Quff preferred prevention over cure, and defined hygienology as a specialty. Aware of progressive disease conditions, he projected vague ideas regarding germicides and disease-causing humidities which are foreign to a healthy body.

³⁹ The *Hippocratic Corpus* debated such issues related to wholesome living and how a healthy man should live in order to remain healthy. See O. and L. Temkin (Editors), *Selected Papers of Ludwig Edelstein*, The Johns Hopkins Press, 1967, pp. 302–306.

during and after delivery. Regarding the care of the new babe, the author gives instruction regarding the preferred breast feeding, two or three times daily; cleanliness; clothing; bed, and sleeping place; and habits⁴⁰.

In some children, Ibn al-Quff explains, teeth begin to appear when six or seven months old. Walking should be gradual, aided with an instrument to help it walk, and so should weaning at two years of age or younger. Substitution or supplementation of feeding ought to include soups of rice and poultry, cereals with milk and sugar, and apple syrup. In cases of sleeplessness, adding a little dosage of poppy to milk feeding is recommended. The moral side of the child's life must never be neglected. He should be instructed not to be easily angered, too forward, greedy or selfish. Avoid giving him wine, and teach him to say easy words, adding others as he goes along. At this stage allow him to play with mates whom he chooses, and at the age of six send him to school or to a tutor. Allow enough time for play and fun until twelve years old, then give him normal exercises. Train him according to the trade or profession that he chooses for life vocation, but above all insist on the highest possible moral character⁴¹.

During teenage and youth, music and adequate food is recommended, and a balanced diet, exercise (including bathing), rest and sleep should be observed. As to senior citizens, adequate warm abodes, together with light diet, is recommended, with avoidance of anger, worry, fear and sorrow.

Further, the author considers regulations concerning convalescence, and preservation of health for travellers on land or sea. Considerations are directed also towards clean water supplies (with warning against water and air pollution, and how to purify drinking water by boiling and distillation), and towards care from sun heat or lunar stroke. He also mentions types, colours and makeup of clothing, and the merits of each, and how to keep legs and feet warm, as well as hands and fingers safe. He recommends for the first time possibly in Islam, as reported in medical writings, the use of woollen gloves with fur lining to keep hands warm and free from chilblain. This is followed by instructions of prophylactic rules to prevent sickness and to keep the body as a whole healthy, as well as the head (with its organs, such as eyes and teeth); chest, including lungs; digestive system, and joints⁴².

Although the author recommends wines for pleasure and bodily vigour and vitality, according to quantity, age and constitution, nonetheless, he warns against drunkenness and the dangers of alcoholism. No mention is made of any dietary value to alcoholic beverages. Yet he adds that, 'too much drinking will corrupt the mind and dull the senses, quench and drown away real warmth and natural vitality, and may lead to coma, heart-stroke, convulsion, paralysis, abnormal

palpitation, chest-spasm, trepidation, tremor, and sudden death'.

For further preventive medical measures he recommends good sleep and moderate exercise. The latter preserves healthy living by helping to dissolve and excrete wastes, revive and empower natural heat, enhance and assist normal digestion, improve general bodily condition, strengthen muscles, sinews and tendons, and give a cheerful and lively outlook. 'Taking heed of these matters makes much drug medication unnecessary'⁴³.

He philosophises with medical authority on the motives, origins, extension and effects of psychological and emotional reactions as in the case of anger, joy, worry, anxiety, grief and distress. He goes beyond his predecessors in his profound analysis and assessment of emotional reflections, actions and retroactions, both in body and soul. For example, anger is defined as 'a psychological condition accompanied by a sudden, violent movement of the human spirit and an inborn instinctive heat to the external part of the body without. This outside movement seeks revenge from an injurious adversary. The fact that it is sudden is for taking advantage of the available opportunity for revenge before losing it; and that it is violent is for the sake of gaining the upper hand'⁴⁴.

The author's chapter on preservation of health by bathing is of interest, giving important medico-technical information. He states that the best bath is that which is housed in a well ventilated and lighted construction that proved its adequacy over the years, supplied with good, fresh water, and visited by fine, socially pleasant customers. It should be heated by burning good wood. He divides baths into two kinds; the wet, which uses only water for bathing; and the dry, which uses steam heat for sweating. Three bath constructions were known in Islam: first, the cool-wet structure that is used in hot summer months, second, the hot-wet used in winter months for a longer stay than those of the summer, third, the hot-dry in which hot air and water are often used to aid in the application of rubbing and massage, after good exercise and sweating. This was applied during the cold seasons.

As for dress: silk and wool in winter; and cotton and linen in summer are recommended. He finally warns against indulgence, excessive use of laxatives and enemas, with consideration as to age and body constitution, as well as moderation in vomit-inducing drugs and blood-letting⁴⁵.

⁴³ *Ibid.*, fols. 139–164. Compare with Littré, *Hippocrates*, Vol. 6, *De Salubridiaeta*, pp. 72–86.

⁴⁴ *Ibid.*, fols. 167–168. Several emotional and psychological reactions are physiologically and philosophically interpreted.

الغضب كيفية كبحية نفسانية تصحبها حركة الروح والحرارة الغريزية الى ظاهر البدن دفعة مع فوران، أما حركتها الى خارج البدن فلاجل انتقام من المؤذي، وأما دفعة فخوفا من الغوث وأما مع فوران فطلباً للغلبة.

⁴⁰ The delivery chair and similar processes were described in the *Hippocratic Corpus*. It was mentioned by al-Zahrāwī in *al-Taṣrīf*, treatise 30, the second section.

⁴¹ This coincides in the Wellcome copy with fols. 61–72. See also fols. 106–109.

⁴² *Ibid.*, fols. 87–105 and 110–128.

⁴⁵ Greek-Roman, Islamic and western medicine relied extensively on the use of purgatives and vomit-inducing drugs, as well as on bloodletting and cupping for the treatment of various fevers and diseases up to early modern times. Several books and treatises were written on these topics, such as Ibn al-Tilmidh's treatise on phlebotomy (6/12 th.C.).

Habits, diets, drugs and antidotes

The author believed that it is important to consider individual habits and behaviour insofar as the medical profession is concerned. This is not only of value in the case of hygiene and preventive medicine, but in medical treatment of diseases as well. It is because of habit, therefore, that if one is accustomed to a certain ailment, it will be of less hazard to him even if the attack is worse, than to another who is not accustomed to that kind of disease.

فان من اعتاد مرضا ما كان خطره أقل من خطر المرض غير المعتاد
وان كان أردأ منه

In other cases and conditions this may lead the practitioner to diagnose the disease and identify it. It may further lead to differentiating one disease from another which has similar symptoms (الأمراض المتشابهة الأعراض) but which at the beginning are not easily distinguishable from each other; for example, pain of the kidney stone versus colic ailment⁴⁶. Another important point is that of habit-forming as regards matters of eating, drinking, sleeping, waking, bathing, moving and resting. If good habits in these are acquired, they should be encouraged. If not, then a gradual change from worse to better customs seems necessary, for hurt from bad habits inevitably will sooner or later occur.

فالعادة الردية وان لم تضر في العاجل ضرت في الآجل.

This is all too obvious in matters of dieting, exercising, bathing, blood-letting, cupping and vomiting. It is, therefore, incumbent on the prudent and competent physician to inquire about his client's habits as far as his health is concerned so as to know what to recommend or how to treat him.

Following this discussion, Ibn al-Quff deals with those subjects related to dietetics. They include detailed descriptions of meats, their kinds and nutritional values; animal organs, such as kidneys and brains; fishes, dairy products; spices; colouring matter, vinegar and pickles; orange, grape and lemon juices; eggs, which nutritionally are a substitute for meats and represent a very good and balanced nutrient⁴⁷; honey; البيض يقوم مقام اللحم في التغذية وهو مليء بالأغذية الجيدة، cereals; seeds, berries and legumes; fruits, herbages and vegetables; and wines, beverages, and beers.

Since this is a manual on preventive medicine and general hygiene, the author gives only little space to drug therapy. His emphasis is rather on how to keep well through natural, conventional and dietary means—for prevention is by far

⁴⁶ Moslem physicians gave useful exposition and careful diagnoses of diseases, such as the differentiation between colic and pain caused by kidney stones, as evident in the writings of al-Rāzī and Ibn al-'Ayn Zarbī.

سامي حارنه «الطبيب العربي ابن العين زربي وأبحاثه في العلل
والعلاج» أبحاث الندوة العالمية الأولى لتاريخ العلوم عند العرب، جامعة
حلب، ١٩٧٧، ج ١: ٦٥٣-٦٦٩

⁴⁷ Wellcome manuscript fols. 244-248. Moslem authors wrote extensively on dietetics and influenced their counterparts in the West.

better than medical treatment⁴⁸. Here he briefly mentions simple and compounded drugs and medications. His contribution to pharmacy and materia medica is little. He appears to be more of a compiler than an observing, experimenting therapist, listing the pharmaceutical forms already known and used in Arabic medicine; the robs, conserves, electuaries, decoctions, syrups, ointments and liniments, and dentifrices. On antidotes and treacle (theriaca), he recounts what was already known in Arabic medical literature since the time of Hunayn, if not earlier. He mentions how the famous theriaca, *al-Fārūq* (because it differentiates between body's nature and that of the poisons), came into use, and the stages of revision it passed through as to contents and methods of preparation. According to tradition, the preparing of theriaca started with Andromachus the Elder against poisons and snake bites⁴⁹. The main ingredients were laurel berries, gentian, myrrh and Arabian costus, mixed together in honey. Other ingredients were added later: pepper, cinnamon, cassia, anise and squill, and gradually up to some sixty or more ingredients. The ancient sages who contributed to the formula were: Empedocles, Philagrios, Phiracles, Pythagoras, Marinus, Magnes of Homs, Andromachus the Younger and Galen. Their elaborations and ceremonial connections are associated with many amusing anecdotes. During the Arabic-Islamic period, many tried to perfect it for use in a variety of ailments, among them al-Tamīmī of Jerusalem and Abū'l-Hasan al-Anṣārī of Moorish Spain⁵⁰.

After devoting short chapters to perfumes, medicated cosmetics, aromatic plants, hair dyes, medicinal precious stones, and weight-reducing medications, the author concludes his book with a chapter on physiognomy and the determination of human mental and moral character, behaviour, reactions and conducts from countenance and other bodily organs and temperaments. This kind of discussion is comparable to similar ones debated during the period in many other Arabic medical encyclopedias, pandects, or separate texts on the topic.

Concluding remarks

It is only in recent years that special attention has been given to the works of Ibn al-Quff and his contribution to Arabic-Islamic medicine. In 1937 (1356 A.H.) his two-volume

⁴⁸ Numerous compendiums on drugs and therapeutics were written in Arabic. Ibn al-Quff devoted his attention more to surgery and preventive medicine instead.

⁴⁹ Original Dioscorides copies as well as Arabic versions (e.g. the Vienna State Library, 13th century, A. F. 10, and the Istanbul copies) depict in miniature form the nine sages who developed the theriaca from Andromachus to Galen. Hunayn seems to have translated Galen's two treatises on the theriaca besides adding personal explanations. Their impact on Arabic medical literature was tremendous. See Max Meyerhof, 'Esquisse d'histoire de la pharmacologie et botanique chez les Musulmans d'Espagne', *al-Andalus*, 1935, 3, 1-41.

محمد بن اسحق ابن النديم، الفهرست، مطبعة الاستقامة بالقاهرة،
١٣٤٨/١٩٢٩، ص ٤٢٤، وابن أبي أصيبعة، عيون الأنباء،
١٩٧: ١ - ٢٠٠، ٨٧: ٢ - ٩٠.

⁵⁰ Hamarneh, *Origins of Pharmacy*, op. cit., pp. 37-64, and 101-115.

manual on surgery، العمدة في صناعة الجراحة was published at Hyderabad, India. This edition made the study and evaluation of such an important work more available and easier to undertake, especially when we consider that it is the second-best known Arabic surgical text written during this entire medieval period⁵¹. The other extant works of his still await further investigation, and should be encouraged in view of the discoveries made through this and other brief preliminary studies.

Ibn al-Quff gave the first clear and detailed objective description of the locations and functions of the four cordial valves. He also depicted the connection between arteries and veins in the human body, as well as the arteries and veins of the mother in relation to those of the embryo in pregnancy. His attempts to explain blood and pneuma flow between heart and lungs are noteworthy⁵². It was shown further that he appreciated teeth care, orthodontics, prosthetics and general oral hygiene⁵³. Along with other Arabic authors, he added new important data to urology in his time⁵⁴.

It has been precisely demonstrated that Ibn al-Quff was the first in Islam to call attention to the establishment of a pan-arabian system for regulating, controlling and standardising all units of weights and measures used in the practice of medicine and pharmacy. His objectives were clearly to secure more precise amounts and dosages of prescribed drugs and materia medica supplied by physicians, and more accurate pharmaceutical and remedial preparations for public safeguard, and the wholesome living and well-being of the individual⁵⁵.

In this paper it is demonstrated that our author had prepared the ground, as no other Arabic author had ever done

before him, for preventive medicine and hygienics as a new specialised health field for teaching and practice. He explained the need, value and urgency of such a specialisation for a happier, longer and more prosperous life. He gave precise and appropriate definitions with methodology and regulations for application by doctors and clients. In pointing to the importance of such a health specialty, he considered his *Jāmi' al-Gharad* as a cornerstone text for professional teaching and practice. Translated into Latin, it no doubt influenced similar development in Western medicine.

The Greeks wrote eloquently on the preservation of health, as did many Arabic authors. Specific topics were tackled in the East and West relative to public and community health, and prevention and treatment of plagues, as well as treatises on longevity and similar health problems. To my knowledge, Ibn al-Quff played a pioneering role in defining the scope, objectives and methodology of hygienics and preventive medicine, insisting on its establishment as a fully recognized field among the healing arts. He regulated procedures and implanted precepts, with the declaration that the key to good health is prevention, and not therapy and reliance on drugs, in accordance with the saying, an ounce of prevention is worth a pound of cure.

In addition, Ibn al-Quff here discusses other relevant health issues. In embryology, for example, he interprets conception as resulting from male and female seminal fluids; followed by multiplication of spongy tissue layers to form the embryo. Despite the presence of a cleavage, they are implanted on the gritty layers of the endometrium near the cervix of the uterus. At parturition the foetus ruptures the surrounding membranes on its way out. Then, speaking of life's four stages, he attributes premature death to processes of drying out, degeneration and atrophy. He points to the measure of independent individual resistance to diseases, and the role played as a result of being accustomed to certain habits or conditions.

In describing multiplication and rapid increase of the 'foreign humidities' that threaten a body's safety, he comes close to a vague notion of germ behaviour in certain ailments. This may seem farfetched in view of the difficulty of seeing evidence of microorganisms and viruses, and their pathological effects, with the limited medical technology of the time.

Finally, Ibn al-Quff gives an excellent assessment of the emotional and psychological reactions, and their definitions and influences in the maintenance of a wholesome way of life.

⁵¹ This surgical text comprising twenty treatises is the largest of its kind in Arabic and the most important after al-Zahrāwī's. See George Sobhy, 'Ibn al-Kuff, An Arabian Surgeon', *Journal of the Egyptian Medical Association*, 20 (1937), pp. 349–357, and O. Speis and Hans-Jorgen Thies, 'Die Propaldeutik der arabischen Chirurgie nach Ibn al-Quff', *Sudhoffs Archiv*, 55 (1971), pp. 372–391. The Cairo copy of *al-Umdah* No. 67 Tibb, fols. 272–274 contains important biographical information.

⁵² Hamarneh, 'Thirteenth-century physician interprets connection between arteries and veins', *Sudhoffs Archiv*, 46 (1962), pp. 17–26; and *Ibn al-Quff, op. cit.*, 1974, pp. 94–100.

⁵³ Otto Speis, 'Beitraege zur Geschichte der arabischen Zahnheilkunde', *Ibid.*, 46 (1962), pp. 165–176, and Elias Khalifah and Sami Haddad, 'Dental gleanings from Arabian medicine', *Journal of the American Dental Association*, 24 (1937), pp. 944–945.

⁵⁴ Speis and H. Mueller-Buetow, 'Drei urologisch Kapitel aus der arabischen Medizin', *Sudhoffs Archiv*, 48 (1964), pp. 248–259.

⁵⁵ Hamarneh, 'The first recorded appeal for unification of weights and measure standards in Arabic medicine', *Physis*, 5 (1963), pp. 230–247.