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INSTRUCTIONS TO AUTHORS

1. Journal of the International Society for the History of Islamic Medicine (Journal of ISHIM), published twice-a-year, accepts material for publication as follows:
 - Original Articles: Papers reporting a research in the History of Islamic Medicine and Islamic Medical Ethics.
 - Letters to the Editor: Views on papers published in Journal of ISHIM, and other current topics and short reports of reader's own original findings. Letters should not exceed 400 words, 3 authors and 10 references.
2. Papers submitted to the journal are only accepted with the understanding that they are subjected to editorial revision and that they have not been or will not be submitted to any other journal. All authors are responsible for the scientific and ethical contents of their papers.
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EDITORIAL

It is our pleasure to provide October 2004 Issue of the Journal of International Society for the History of Islamic Medicine (Journal of ISHIM). We know that Journal of ISHIM is an academic journal devoted to the History of Islamic Medicine and Ethics research and scholarship. Also, this issue like the earlier ones represents diversified studies in the History of Islamic Medicine and Medical Ethics which stimulate thinking and raise certain questions. So, it also tries to provide solutions to thorny and sensitive problems and the ensuing understanding helps in enlarging one's perception and intellectual horizon.

JISHIM is indexed to History Journal.De and IMEMR. Acknowledgment about IMEMR is at the end of editorial. It is our pleasure to tell you that we have received the attached message from WHO, telling us that our ISHIM Journal is selected to be one of the sources of input of the IMEMR.

This issue contains some scientific articles, in which, we can see both important biographies and valuable original studies on History of Islamic Medicine and Medical Ethics. These articles are from famous scholars of many countries of the world. So, this journal helps to the development of researches on the History of Islamic Medicine and Medical Ethics. Papers of this issue are seen as two types: Review and Research. After 14 papers, news of some scientific meetings are present.

The first paper by Sharif Kaf AL-GHAZAL is on The Influence of Islamic Philosophy and Ethics on the Development of Medicine During the Islamic Renaissance. The second paper by Nurdeen DEURASEH is about Ahadith of the Prophet (s.a.w) on Healing in Three Things (al-Shifa'fi Thalatha): An Interpretation. Third paper by Moshen NASERI and Mohammad Reza Shams ARDAKANI is on The School of Traditional Iranian Medicine: The Definition, Origin and Advantages. The fourth paper by Haitham IDRIS is on History of Genetics in Islam: About Colour, Stature and Camels. The fifth paper by Abdul Nasser KAADAN is on Albucasis and Extraction of Bladder Stone. The sixth paper by Aysegül DEMIRHAN ERDEMIR is on A Medical Ethics Perspective to Laws in Public Health in Turkey. The seventh paper by Farouk MAHMOUD is on Islamic Medical Ethics in Assisted Conception. The eighth paper by Plinio PRIORESCHI is on Medical Ethics in Medieval Islam. The ninth paper by Rolando NERI-VELA is on Some Notes About the Influence of Arabian Medicine in New Spain. The tenth paper by Radhi Jawad BAKIR is on Al-Razi and Gastrointestinal System Diseases. The eleventh paper by Kathem K. AL-RUBIAY is on Control Project of Bejel (Endemic Syphilis) Disease in Iraq. The twelfth paper by Mostafa SHEHATA is on History of Endoscopy. The thirteenth paper by Kathem K. AL-RUBIAY is on The Story of Bejel Disease in Iraq: Bejel (Endemic Syphilis) Among the Euphrates Arab Bedouins. The last paper by Rosanna GORINI is on An Andalusian Muslim Scientist: Ibn al-Baytar.

Wishing October 2004 Issue of the Journal of ISHIM, to be beneficial to all readers and colleagues.

Editors in Chief

Dr. Aysegül Demirhan Erdemir

Dr. Abdul Nasser Kaadan



14 February 2005

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This is to acknowledge with thanks, the receipt of issues 04 volume 02; 2003 and 05 volume 03;2004 of “**ISHIM-Journal of The International Society For The History of Islamic Medicine**” which you have kindly forwarded to us.

I am pleased to inform you also that “Journal of The International Society For The History of Islamic Medicine ” has been selected to be one of the sources of input of the IMEMR. Therefore, we would appreciate your sending us a complete collection of the Journal to ensure its complete indexing in the IMEMR.

We would like to inform you that the contents of the Index Medicus are available on the Internet and are updated regularly on

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The Influence of Islamic Philosophy and Ethics on The Development of Medicine During the Islamic Renaissance*

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Summary

I will take Medicine as an example and I will highlight the reasons of such good success of those Muslims in the field of Medicine and as medical ethics is one of the hottest issues in medicine these days and ethics can be described as a sub-branch of applied philosophy that seeks what are the right and the wrong, the good and the bad set of behaviours in a given circumstance. I will shed the light on the influence of Islamic medical ethics on the advancement of medicine during that Islamic golden era.

Key Words; Islamic Medical Ethics, Islamic Philosophy, Islamic Renaissance.

Introduction

Although Islamic philosophy is of great diversity and richness, it is characterised by certain features that are of special significance for both an understanding of it and for an appraisal of its impact on the world at large.

One must remember that this philosophy existed at a time in which strict obedience of the Islamic religion was customary.

Islamic philosophy was also concerned with the basic issue of the harmony between human reasoning and the revelations provided to the Muslims in the holy Quran. As a result all sorts of sciences were studied in order to determine that relation between the universe and the human being in one hand and the creature of that universe, Allah (SWT), on the other hand.

The impact of Islamic philosophy on the Renaissance was enormous. First and foremost, Islamic philosophy originates from a time when Islam had a great influence on everyday life. The mere fact that Islamic philosophy was able to operate in such a fundamentalist environment greatly effected the Renaissance for it served as an example the thinkers of that time - how to present new, radical

ideas without angering religious fundamentalists, who were the church at that time. Without Islam's example, the Renaissance thinkers may have presented their ideas in a much more provocative form, setting them back hundreds of years due to widespread hate, distrust and non-acceptance of what people would perceive to be overly radical ideas.

Secondly, Islamic philosophy always lead to one main conclusion, that the power of Allah (SWT) was supreme and that his words were the absolute truth.

Thirdly, many of the ideas of Renaissance philosophy are based on ancient Greek, Persian and Indian texts, which the Muslims translated, as well as the philosophy of the Muslims themselves. The Muslims were responsible for creating the foundation for the "building" of philosophy that the Renaissance thinkers would later "construct".

Finally, Islamic philosophy greatly encouraged science, particularly mathematics and medicine. Without philosophy's constant encouraging of scientific development, the large number of discoveries made by the Muslims may never have taken place.

I will take Medicine as an example and I will highlight the reasons of such good success of those Muslims in the field of Medicine and as medical

ethics is one of the hottest issues in medicine these days and ethics can be described as a sub-branch of applied philosophy that seeks what are the right and the wrong, the good and the bad set of behaviours in a given circumstance. I will shed the light on the influence of Islamic medical ethics on the advancement of medicine during that Islamic golden era



So, what are the factors behind the success of the Muslim scientists and how Islamic philosophy encouraged them to be leaders in many branches of science, especially in the medical sciences

I. Islam and the Promotion of Science

As the Moslems challenged the civilized world at that time, they preserved the cultures of the conquered countries. On the other hand, when the Islamic Empire became weak, most of the Islamic contributions in art and science were destroyed. This was done by the Mongols who, out of barbarism, burnt Baghdad (1258 A.D.), and by the Spaniards, who out of hatred, demolished most of the Arabic heritage in Spain. The difference between the Arabs and these was the teachings of Islam. These teachings had played extensive roles by:

1. Stressing the importance and respect of learning. For example, the first word revealed to prophet Mohammad (PBUH) was "Read". In that time, a captured enemy was freed if he paid a ransom or taught ten Muslims writing and reading. In the holy Quran, the importance of knowledge has been repeatedly stressed as it says ***"Say (unto them, O Muhammad): Are those who know equal with those who do not know?" 39-9.*** Prophet Mohammad (PBUH) stressed learning by saying : ***"One hour of teaching is better than a night of praying."***

2. The general philosophy in Islamic medicine is that the healer is Allah (SWT) and the doctor is the instrument that Allah uses to heal the people. The doctor-patient relationship is stronger in Islam than it is in modern medicine as he has responsibilities which he will be asked about them by Allah in the day of judgment.

The relationship now in the west is medical/legal. The emphasis has become one that has slipped into more materialism. Because the relationship between doctor and patient has become one that is based more on money than before, the level of trust has been decimated between the doctor and his/her patients.

3. There is no censorship in Islam on scientific research, be it academic to reveal the signs of God in His creation, or applied aiming at the solution of a particular problem.

Freedom of scientific research shall not cause harm to any human being or even subjecting him to definite or probable harm, with holding his therapeutic needs, defrauding him or exploiting his material need.

Freedom of scientific research shall not entail cruelty to animals, or their torture. Suitable protocols should be laid upon for the uncruel handling of experimental animals during experimentation.

4. Islam provides laws and a basis for the protection and safeguarding of the human body as well as the spirit and seeks to prevent any hindrance to either body or soul. Holy Quran says: ***"and whoever saves a life it would be as if he saved the life of all the people"*** 5- 32 . Perhaps there is no better way to implement this concept than in the area of saving lives by transplanting donated organs to replace failing vital ones.

And the Hadith of the Prophet (PBUH) ***"Whoever helps a brother in difficulty, God will help him through his difficulties on the Day of Judgement."***

Islam provides rights and protections to all human beings at every stage and area of life. The holy Quran states : ***"Do not kill your children on account of want or poverty, We provide them sustenance for you and for them."*** 6:151.

5. Islam developed in Muslims the respect of authority and discipline. For example, realizing the scourges and terror of plague, prophet Mohammad (PBUH) decreed that **"No man may enter or leave a town in which plague broke out."** And to make this law all the more binding and effective, he promised the blessing of heaven to those who die of plague by stating that if a man died of plague he would be considered a martyr. Thus prophet Mohammed (PBUH) laid for the Muslims the laws governing them and made it work.

6. Tolerated other religions. The Islamic religion recognizes Christianity and Judaism and considers their followers to be people with holy books like Muslims. Moreover, they candidly treated the Jews at an era when the latter were persecuted in Europe. Dr. Jacob Minkin, a reputable Rabbi and scholar says "It was Mohammadan Spain, the only land of freedom the Jews knew in nearly a thousand years of their dispersion, while during the Crusades, the armoured Knights of the Cross spread death and devastation in the Jewish communities of the countries through which they passed, Jews were safe under the sign of the Crescent. They were not only safe in life and possessions, but were given the opportunity to live their own lives and develop a culture. So, there were many Christian and Jewish physicians who contributed in the Islamic renaissance (e.g. Jibra'il Ibn Bakhtashoo'e , Youhanna Ibn Masawaih, Ishaq Ibn Honain and Ishaq Ibn Moosa) . They were part of that "Golden Ages" !

II. The Attitude and Contribution of the State

The Islamic empire in the early 8th century were the inheritors of the scientific tradition of late antiquity. They preserved it, elaborated it, and finally, passed it to Europe. At this early date, the Islamic dynasty of the Umayyads showed an interest in science. It was the century that were, for Europeans, the Dark Ages, were, for Muslim scholars, centuries of philosophical and scientific discovery and development. The Arabs at the time not only assimilated the ancient wisdom of Persia, and the classical heritage of Greece, but adapted their own distinctive needs and ways of thinking.

One of the early Umayyad princes, Khalid Ibn Yazid (end of the 7th century), gave up his treasure

for the study of medicine and chemistry. He studied medicine under John the Grammarian of Alexandria, and chemistry under Merrinos the Greek. He also encouraged several Greek and Coptic medical books to be translated into Arabic.

The Abbasi Caliphs during the 8th century encouraged the Persian physicians to translate into Arabic the medical knowledge therein, to build medical centres in Baghdad, the capital of their empire, and to run newly built hospitals. With further expansion east, the Arabs through contacts with India and China, brought ideas and methods, not only in medicine, but also in mathematics, chemistry, philosophy, etc.

Characteristic Features of Hospitals in the Islamic Civilization

The Muslims played developed what would become the world's first hospitals. The Muslims eventually constructed 34 of these hospitals throughout their empire. These hospitals had different wards for the treatment of different diseases, special quarters for the insane, outpatient departments for the treatment of minor injuries and dispensaries, which provided virtually every kind of remedy then known.

These hospitals had specific characteristics:

a. Secular: Hospitals served all peoples irrespective of color, religion, or background. They were run by the government rather than by the church, and their Directors were commonly physicians assisted by persons who had no religious color. In hospitals, physicians of all faiths worked together with one aim in common: the well-being of patients.

b. Separate wards and nurses: Patients of different sexes occupied separate wards. Also different diseases especially infectious ones, were allocated different wards. Male nurses were to take care of male patients, and female ones were take of the female patients.

c. Proper records of patients: For the first time in history, these hospitals kept records of patients and their medical care.

d. Baths and water supplies: Praying five times a day is an important pillar of Islam. Sick or healthy, it is an Islamic obligation; of course physical performance depends on one's health, even he can pray while

laying in bed. Therefore, these hospitals had to provide the patients and employees with plentiful of clear water supply and with bathing facilities.

e. Practicing physicians: Only qualified physicians were allowed by law to practice medicine. In 931 A.D., the Caliph Al-Mugtadir from the Abbasid dynasty, ordered the Chief Court-Physician Sinan Ibn-Thabit to screen the 860 physicians-of Baghdad, and only those qualified were granted license to practice. It is worth mentioning also that the physicians in that era earned a high prestige. Although anyone, irrespective of his social status, can study medicine, yet the route was long and tedious. He had to finish Islamic studies, philosophy, astronomy, art, chemistry, etc. before being accepted as a medical student. Therefore, the physician was an an educated person who had wisdom and knowledge. In fact, the Arabic translation of a physician is "Hakim" which means sage. In the 9th and 10th century, the Court-Physician was in the protocol ahead of the Chief-Justice. Many eminent physicians, as we will discuss later, showed enough talent, social knowledge, political capabilities, and wisdom to be appointed by the Caliphs as prime ministers. Owing to the high prestige and connections of physicians, generous funds for hospitals were easily obtained.

f. Medical Regulation: Before the Muslims, medicine had been an unregulated profession, where one could easily fall into the hands of an unqualified doctor. However, the Muslims' introduction of regulation ensured that all doctors were qualified . Prophet Mohammad (PBUH) said (***He who practices medicine and is not therein versed is deemed like a guarantor***). The regulations also ensured that doctors did not cheat their patients when it came to drug composition. This concept affected the Renaissance's physicians for it set an example for them, leading them to found various medical associations and guilds for the purpose of regulating their profession too . Hence, one could say that the Muslims' regulation of medicine lead to a safer and more professional medical institution during the Renaissance, which doubtlessly saved countless lives that would have been lost due to medical incompetence.

g. Rather medical schools: The hospital was not only a place for treating patients, but also for educat-

ing medical students, interchanging medical knowledge, and developing medicine as a whole. To the main hospitals, there were attached expensive libraries containing the most up-to-date books, auditoria for meetings and lectures, and housing for students and house-staff.



h. Rulers' involvement in building hospitals: The Caliphs of the Islamic empire built magnificent hospitals for religious reasons, as Islam teaches that money spent on charity is a good investment for Judgment Day; and for political reasons when they showed their people that they cared, and were interested in them. Whatever the motive of the ruler, the population benefited and good hospitals were established.

i. Adequate financing to run the hospitals: The rulers set aside generous funds to run these hospitals. There was a special system called Al-Waqf. A person can donate part or all of this wealth to charity. The government takes care of such a donation, and its revenues help to maintain and build mosques, hospitals, and schools. Another source of funds and an important pillar of Islam is Al-Zakat (2.5% of property value).



Thus, the main Arabian hospitals were models for medieval hospitals built later in Europe. They were

rather medical schools to which those seeking advanced medical knowledge, from the East or West, attended.

III. Islamic Physicians

Medicine in Islam passed through three stages:

1. The first stage is the stage of translation of foreign sources into Arabic. It extended mainly during the seventh and eighth centuries.

2. The second stage is the stage of excellence and genuine contribution in which the Islamic physicians were the leaders and the source of new chapters to medicine. This stage extended during the ninth through the thirteenth centuries.

3. The third stage is the stage of decline where medicine, as well as other branches of science, became stagnant and deteriorated. The stage started mainly after the thirteenth century.

During the first stage, Syrian and Persian scholars did a marvellous job by translating honestly the ancient literature from Greek and old Syrian into Arabic. They translated different branches of science including philosophy, astrology, and medicine. The works of Hippocrates, Aristotle and Galen were among those translated from Arabic, the classic Greek literature was translated into Latin, then into Greek because most of the original scripts were lost and the only source was the Arabic translation. If the Arabs did only one thing, namely, preserving the ancient literature and handing it honestly to Europe, that would have been a sufficient contribution in itself. The Moslem rulers encouraged translation, e.g. Caliph Al-Mamun Al-Abbasi paid the translator the weight of his translation in gold. Among the eminent physicians who took part in the first stage were Jurjis Ibn-Bakhtashoo, his grandson Jibrail, Youhanna Ibn-Masawaih, and Honain Ibn-Ishaq; most of them were Christians, yet they were respected and well treated by the Moslem rulers.

The Impact of Some Muslim Physicians

Al Razi (Rhazes) was said to have written more than 200 books, with 100 of these books on medicine. Al Razi's work had a significant impact on the Renaissance. Firstly, Razi's discovery of smallpox

was the first differentiation of a specific disease from many eruptive fevers that assailed man. His methods of differentiation were to be utilized by the physicians of the Renaissance when they attempted to do the same with other diseases hundreds of years later. Additionally, his treatise of smallpox was used by Renaissance physicians to treat cases of this disease throughout the Renaissance, saving countless lives. His works on hygiene set an example that Renaissance physicians followed and attempted to improve on. The result was medical procedures that were much more hygienic, again saving countless lives that would have been lost through infection. Finally, his monumental book encyclopaedia (*Al Hawi*) offered striking insights for its time, and it had a huge impact shaping European medicine during the Renaissance and years after.

Ibn Sina (Avicenna), honored in the West with the title of "*Prince of Physicians*". Ibn Sina's works also had a significant impact on the Renaissance. Firstly, his *Canon of Medicine* was the most widely studied work of medicine in Europe from the 12th to the 17th century. It also served as a chief guide to medical science to European universities. Needless to say, the impact of this book on Renaissance science was enormous, as it was their primary source of medical information. Ibn Sina's discovery that certain diseases could be spread through water and soil affected the research of many Renaissance physicians. Since they knew how the disease was transmitted, it made their job of finding cures for diseases much easier. It also provided a base for their studies into how disease was spread.

Ibn Al Nafis who discovered the pulmonary circulation which was re-discovered by modern science after a lapse of three centuries. He was the first to correctly describe the constitution of the lungs and gave a description of the bronchi and the interaction between the human body's vessels for air and blood. Also, he elaborated the function of the coronary arteries as feeding the cardiac muscle.

Al Zahrawi (Abulcasis) The Spanish-born Muslim in the 10th century who wrote about the science of surgery. He was able to perform remarkably complex operations for his time, including cranial and vascular surgery, operations for cancer, delicate abdominal

surgery involving the use of drainage tubes, and the amputation of diseased arms and legs.

Ibn Juljul of Cordoba in 943 became a leading physician at the age of 24, compiled a book of special treaties on drugs found in al-Andalus.

Ibn-Masawayh wrote the oldest systematic treaties on ophthalmology. The book, titled *al-Ashr Maqalat fi al-'Ayn* (the ten treaties of the eye) was the earliest existing text book of ophthalmology.



In the curative use of drugs, some amazing advances were made by the Muslims. They have established the first apothecary shops, and founded the earliest school of pharmacy. The Muslims were also one of the first people to use anesthetics to render patients unconscious.

IV. Medical Ethics in Islam

Specific works written by Muslim physicians on the subject of ethics and medicine include the substantive work was a well respected specialty and its leaders kept it this way by laying down proper ethics. Ishaq ibn 'Ali al-Ruhavi (9th century CE) wrote a book entitled *Adab al-Tabib* or 'The Ethics of the Physician'. Al-Tabari, the chief physician in 970 A.D., described also the Islamic code of ethics in his book *Fardous Al Hikma* (The paradise of wisdom) stressing on good Personal characters of the physician, the physician's obligations towards his patients, community and colleagues . He stated:

"... The physician should be modest, virtuous and merciful... He should wear clean clothes, be dignified, and have well-groomed hair and beard.... He should select his company to be persons of good reputation.... He should be careful of what he says and should

not hesitate to ask forgiveness if he has made an error.... He should be forgiving and never seek revenge.... He should be friendly and peacemaker.... He should avoid predicting whether a patient will live or die, only Allah knows... He ought not loose his temper when his patient keeps asking questions, but should answer gently and compassionately... He should treat alike the rich and the poor; the master and the servant God will reward him if he helps the needy... He should be punctual and reliable... He should not wrangle about his fees. If the patient is very ill or in an emergency, he should be thankful, no matter how much he is paid... He should not give drugs to a pregnant woman for an abortion unless necessary for the mother's health. He should be decent towards women and should not divulge the secrets of his patients...He should speak no evil of reputable men of the community or be critical of any one's religious belief ... He should speak well of his colleagues.... He should not honor himself by shaming others.... "

So, although Bioethics took birth and developed in western world, consequently most of the philosophical bases of bioethics are derived from concepts of western philosophies. In last 25 years the Islamic world has felt the need to introduce courses in Islamic bioethics in order to study the Islamic ethics in the medical field which has been established hundreds of years ago and also to appreciate what shari'a'h has to say about the predominant bioethical issues (informed consent, abortion, IVF, euthanasia, and organ transplantation, and many others). It is essential that one is introduced to the tenets of Islamic legal philosophies and theories.

At the end of this article It is worth mentioning that the First International Conference on Islamic Medicine held in Kuwait in January 1981 published the oath of Muslim doctor which says :

"I swear by God ...The Great .. To regard God in carrying out my profession... To protect human life in all stages and under all circumstances, doing my utmost to rescue it from death, malady, pain and anxiety. . To keep

peoples' dignity, cover their privacies and lock up their secrets ... To be, all the way, an instrument of God's mercy, extending my medical care to near and far, virtuous and sinner and friend and enemy. .. To strive in the pursuit of knowledge and. harnessing it for the benefit but not the harm of Mankind. .. To revere my teacher, teach my junior, and be brother to members of the Medical Profession .. and to join in piety and charity... To live my Faith in private and in public, avoiding whatever blemishes me in the eyes of God, His apostle and my fellow Faithful... And may God be witness to this Oath."

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Ahadith of the Prophet (s.a.w) on Healing in Three Things (al-Shifa' fi Thalatha): An Interpretational*

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Summary

Attempts will be made to interpret and evaluate the authentic ahadith of the Prophet Muhammad (s.a.w) on healing in three things (*al-Shifa' fi Thalatha*) namely by a gulp of honey (*al-'asal*), cupping (*al-hijamah*) and cauterization (*al-kayy*). The study is extremely interesting and important because it throws light on the conditions of Muslims in the time of Prophet (s.a.w) i.e., how did they treat the disease, if somebody was sick. It seems from the ahadith on healing in three things that the treatment of diseases, in the time of the Prophet (s.a.w), was also based on the cause of disease and thus, given the level of scientific knowledge that existed at that time. Several companions of the Prophet (s.a.w) had been successfully treated of certain disease after following the medical advices and instructions of the Prophet (s.a.w).

Key Words; Medicine of the Prophet; Healing is in three things: a gulp of honey (*al-'asal*), cupping (*al-hijamah*) and cauterization (*al-kayy*).

Is Healing in Three Things?

The *ahadith* of the Prophet (s.a.w) on healing in three things were reported by Imam Bukhari (194-256/810-870), in his *Kitab al-Tibb* (book of medicine), *Bab al-Shifa' fi Thalatha* (chapter on healing is in three things) (1). Two of them were reported by Ibn Abbas and another was by Jabir b. Abd Allah. First: "Healing is in three things: a gulp of honey, cupping, and branding with fire (cauterizing), however, I forbid my followers to use branding with fire (cauterization) (*al-Shifa' fi thalatha: sharbat `asal, wa shartah mihjam, wa kayyah nar, wa anha ummati `an al-kayy*)." Second: "Healing is in three things: cupping, a drink of honey and cauterization (branding with fire) but I forbid my followers to use cauterization (*al-Shifa' fi Thalatha: fi Shartati Mihjam, aw Sharbat Asal, aw Kayy bi Nar, wa Anha Ummati an al-Kayy*)." In another version, it was narrated by Jabir bin Abdullah that he heard the Prophet said: "If there is any healing in your medicines, then it is in cupping, a drink of honey or branding with fire (cauterization) that suits the ailment, but I don't like to be (cauterized) branded with fire." (1).

In his interpretation of the above ahadith, Ibn Hajr al-`Asqalani (773-852/1372-1449) reminded us that the treatment of disease does not predestine only

three methods of healing namely a gulp of honey, cupping, and branding with fire (cauterizing). In trying to answer the question, why did the Prophet (s.a.w) mention only three methods of healing?, Ibn Hajr clarified that the Prophet (s.a.w) mentioned only three methods of healing mainly because they were *usul al-'ilaj*, the principle of treatment of disease. In addition, it was widely known among the Arab in that time. It is possible that this belief was the result of Muslim's discoveries during that time that the cause of disease was mainly blood (*damawi*) or yellow bile (*safrawi*) or black bile (*sawdawi*) or phlegm (*balghi*) (2). This implies that the Arab in that time viewed the nature of disease in terms of philosophy and looked upon it as a disturbance in the equilibrium of the body's blood, yellow bile (*safrawi*), black bile (*sawdawi*) and phlegm (*balghi*). Thus, the disease, which is caused by one of them should be treated either by *hijamah* (taking the impure blood from the body) or honey. If we failed to treat a disease by the mentioned method, then, it must be treated by cauterization or surgery as in our time. The latter could not be more than a last option to which physicians had to consider when a gulp of honey, cupping and dietic and pharmaceutical treatments failed.

When we pondering this method of treatment of disease, one finds that the treatment of disease, in the time of Prophet (s.a.w), was basically according to the nature of disease and to know its treatment, they were advised to know its cause and symptom (*ma`rifatuhu bitahqiq al-sabab wa al-alamah*). That is why before commenting the method of healing as highlighted in the hadith, Ibn Hajar had to clarify two types of diseases namely material disease (*mard madiyah*) and non material disease (*mard ghayra madiyah*). The former is referred to the disease caused by hotness (*al-hararah*), coldness (*al-bari-dah*). The latter is divided into wet (*rutbah*), dry (*yabisah*) and compound (*murakkabah*). The non material disease, according to Ibn Hajar, is treated by what has been said in the hadith 'fever is from the heat of Hell, so abate fever with water.' (2).

In the light of this evidence, we feel much more confidence to say that the body and the soul of mankind have the possibility to be healthy or sick, balanced or imbalanced. Imbalance of the body is like fever, headache and other physical illness, while that of the soul is like anger, anxiety, sadness and similar symptoms. The former diseases should be treated through the medical methods involving the use of honey, cupping and cauterization, while the latter should be treated by spiritual method of treatments. In certain cases, one was encouraged to use the spiritual treatment rather than physical treatment for many reasons. First, in seeking to be healed from the disease of the body, the patients bear the bitterness of medications, the suffering of cauterization as well as spending large sums of money for medical treatment and care. On the other hand, the care and refinement of the soul which is far more important, is more pleasant and rewarding and less costly to treat and restore (3) . Secondly, if the disease was caused by the *Jinn* and evils, therefore, the ordinary medical therapies were insufficient. Instead, it has to be cured by giving the effort that may help to end the evil spirit's influence i.e., by strengthening faith in God. This is because, if a persons' soul was fortified with strong faith, the evil spirits could not easily influence a Muslim. In other words, the spiritual disease is appeared as a result of the lack of faith and misery of the soul. In this case, the spiritual disease has to be cured by spiritual treatment.

A. Honey: Healing for Men (*Shifa' li al-Nas*)

In Islamic medical system, as in most other medical systems, honey is considered as healthy drink. We are not surprising Imam Bukhari entitled chapter four of his *Kitab al-Tibb* (book of medicine) as "*al-Dawa' bi al-Asal wa Qawlihi Ta`ala 'Fihi Shifa li al-Nas* (treatment with honey and the statement of Allah: where is healing for men)." At this place, Imam al-Bukhari mentioned three ahadith on honey together with its value which is emphasized in many verses of the Quran. In *Surah al-Nahl* verses: 68-69, Allah (s.w.t) describes honey as *Shifa' li al-Nas*: "And thy Lord taught the bee to build its cells in hills, on trees, and in (men's) habitations; Then to eat of all the produce (of the earth), and find with skill the spacious paths of its Lord: there issues from within their bodies a drink of varying colors, wherein is healing for men: verily in this is a sign for those who give thought." In view of this benefit, it is worth to mention one of the most well known hadith, in regard to the medical benefits of honey, that has been mentioned by Imam Bukhari in his *Sahih Bukhari* in *Kitab al-Tibb* (book of medicine), *Bab al-Dawa bi al-Asal waqawl Allah Ta`ala fihi Shifa li al-Nas* (chapter on treatment with honey and the statement of Allah: where is healing for men). Accordingly, the Prophet (s.a.w) said: "A man came to the Prophet and said: "My brother has some abdominal trouble." The Prophet (s.a.w) replied to him "let him drink honey." The man came for the second time and the Prophet replied to him, "let him drink honey." He came for the third time and the Prophet replied, "let him drink honey." He returned again and said, "I have done that". The Prophet (s.a.w) then said, "Allah has said the truth, but your brother's abdomen has told a lie (*sadaqa Allah wa kadhiba Batn Akhika*). Let him drink honey. So he made him drink honey and he was cured." (4).

From the above hadith, the treatment of disease was very simple. May be because the Prophet (s.a.w) knew what made the patient sick because he was aware of the well-known method of treatment of diarrhea. In that time, diarrhea was treated by making the patient vomit or by giving him laxative medicine to increase the flow by taking honey. In relation to this,

the hadith is concerned about a man who came to the Prophet (s.a.w) and said that his brother was suffering from dysentery (*istatlaqa batn*). To cure this disease, the Prophet (s.a.w) recommended honey. He came back and reported honey had done no good to his brother. The Prophet (s.a.w) was again advised to take honey. He came back the third and also the fourth time and said he had seen no improvement. The Prophet (s.a.w) said: "The statement of God is true and the stomach of your brother lies (*sadaqa Allah wa kadhiba Batn Akhika*)." (4).

Apparently, the brother's patient claimed that he had followed the instruction of Prophet (s.a.w), but it was no consequences. Thus, we cannot conclude the discussion on this hadith without giving a few words about the meaning of the saying of Prophet (s.a.w): "The statement of God is true and the stomach of your brother lies (*sadaqa Allah wa kadhiba Batn Akhika*)." (4).

It is important to understand the hadith especially the Prophet's statement, "The statement of God is true and the stomach of your brother lies." Before we give the correct interpretation of this statement, there are two major remarks, which derive from the hadith, that we have to put into consideration. First, the Prophet (s.a.w) was aware of the disease and the cure that was suitable for the patient since he was surely belief of the benefit of honey for patient. It is the nature of honey to expel whatever is left of whatever has collected in the stomach and the intestines. Secondly, the Prophet (s.a.w) instructed the patient to take honey for many times to make sure it may cure positively the disease. The patient should not lose patience for his suffering of illness because, sometime, certain diseases take many years to cure and in natural way can take at least months (3).

Now, after giving remarks on the above hadith, it is worth to give the view of commentators in regard to the saying of Prophet: "The statement of God is true and the stomach of your brother lies." Some of them, i.e., Ibn Mas'ud, Ibn Abbas, al-Hasan and al-Qadi `Ayyad, viewed that honey is not only the factor of healing because all are connected with God who is a Healer (*huwa al-shafi*). This mean that, in any medical treatments, doctors are only attempting to cure, it is Allah who cures, *Allah huwa al shafi*. This interpretation is a reminder that men should not be arrogant

by attributing cure to themselves and not Allah (s.w.t). Thus, if we relate this idea with the statement, "the statement of God is true and the stomach of your brother lies," we may conclude that sometimes the measures that humans take to cure a disease may not be sufficient on their own to alleviate and ease the condition; it is Allah's divine intervention and mercy that brings about the complete cure (3).

Of course, there is no sharp different between the above view with the following. It is equally obvious that the commentators of hadith seem to agree that the hadith referred to a particular kinds of stomach disease namely diarrhea. It is mostly occurred when mucus (a liquid produced in parts of body such as in nose) clings to the bowels and interferes with the process of absorption. With this illness, it is honey that expels the excess moisture. Because, the moisture is driven out and expelled downwards when honey is eaten. In *Umdah al-Qari*, Ibn Ahmad al-Ayni expressed and recognized that drinking honey may open up the obstructions of the blood vessels, dissolve the excessive food by evacuating the stomach and intestines and clear the chest and liver (3). Furthermore, al-Baghdadi was of the opinion that honey, which contains a variety of sugar and mineral, is good to purify what in the veins and stomach. Consequently, it is a potential to make the blood to circulate better and provide more air to areas of the body such as the brain (2).

It is clear from the above discussion that we cannot understand the Prophet's prescription of honey as the way for treatment of disease unless we know what disease he was fighting. It is necessary to define what type of diarrhea of patient before giving honey. In relation to this, al-Kahhal b. Tarkhan, an earlier author of the medicine of Prophet (*al-tibb al-nabawi*), had written that Prophet (s.a.w) was well aware that diarrhea was caused by indigestion (*tukhma*) resulting from overeating. Thus, he gave the correct treatment by asking the patient to drink honey. The reason why the Prophet had said the patient's stomach lied was that he knew that the dosage had not been sufficient, because it had not staunched the diarrhea and the Prophet (s.a.w) wanted to stress that honey was the correct cure but in this case it had to administer several times (5).

While it seems quite certain that honey is the most suitable prescription for the patient, as mentioned in the hadith, now, if someone are facing similar problem, can honey be used effectively? This needs the clarification and understanding the other part of hadith, "*fihī shifā li al-Nas* (in it (honey) is healing for men)." This is because some people believe that honey is beneficial for all kinds of diseases and for all people. To answer this claim, Ibn Hajar clarified that the statement, "*fihī shifā li al-Nas*", did not mean that honey is suitable to use for all people because the words "li al-Nas" designated that honey was only suitable for "some people" and not for "all people". This means that honey is possibly harmful for some people who live in hot region (2). In other words, honey cannot be cured for all kinds of disease.

B. Cupping (al-Hijamah)

In a number of medical systems, from Greek to Malay traditional medicine, illness believed to be caused by harmful and dirty blood must be treated by taken out the dirty blood. Under this influence, people believed that wherever part of the body, from head to toe, become ill, *hijamah* can be used as the right measure for treatment. Therefore, if we wish to know the history of treatment of disease in the light of *al-Tibb al-Nabawi*, we must study *hijamah* because it was widely practiced by the Prophet (s.a.w) and his companions and this method of healing is still alive in many Muslim countries.

We were told that the Prophet (s.a.w) and his companions always had practiced *al-hijamah* in several occasions from the time he was at home to the time that he was in the state of Ihram. It is very regrettable that we do not have very clear rational explanation why cupping was so popular in the time of Prophet, but one fact is nevertheless clear that *hijamah* is very easy to practice, just using a jar or a similar material. A jar is attached to the skin surface, so that the dirty blood, air, toxic and other harmful substance flow to the surface of the skin. Then, harmful substance may remove from the body. Secondly, it is because the dwellers of the Arabian peninsular and countries of hot climate are the most suitable people to be cupped. This is because the blood of people who dwell in that region is thinner (*raqiq*) and is drawn closer to the surface of the skin (*tamil ila zahir al-abdan*) (2).

As we expected, many ahadith would be recorded in *Kitab al-Tibb of Sahih Bukhari*. They were recorded from chapter eleven to chapter fifteen of kitab al-tibb. One of these five chapters is *Bab al-Hijamah min al-Da'* (cupping as a treatment for disease). In this chapter, Imam Bukhari mentioned that Jabir bin 'Abdullah narrated that he visited al-Muqanna while he was illness. Jabir said, "I will not leave till he gets cupped, for I heard Allah's Apostle saying, "There is healing in cupping." Secondly, Imam Bukhari reported that Allah's Apostle was cupped on the middle of his head at Lahy Jamal on his way to Mecca while he was in a state of Ihram. Thirdly, Imam Bukhari reported that: "Allah's Apostle was cupped on his head. Lastly, al-Bukhari reported that the Prophet commanded the cupping to be used and said: "There are no remedies comparable to cupping and blood letting." (6).

While interpreting the above *ahadith*, there are two general remarks that we may draw. First, there is no specific time to practice cupping because the Prophet (s.a.w) was cupped at day and night and sometime during *Ihram*. However, we have to keep in mind that if blood cupping is done in the wrong place and times or when it is not needed, then it weakens the faculties and it remove both healthy humors as well as harmful ones. That is why medical doctors advise, for safety purpose, that cupping should be avoided by those who is suffering from enteritis, by whoever is on the road to recovery, by whoever is very old, weak liver or stomach, who suffers from palsy of the face or feet and by women who are pregnant or who have just given birth or who are menstruating.

Secondly, it seems quite certain that the Prophet (s.a.w) was cupped on his head. That is why Imam Bukhari entitled one of the chapters of his *kitab al-tibb* as *al-hijamah ala al-ra's* (cupping on the head). In truth, the view that headache was caused by dirty blood in the head was widely spread among the ancient people, and sucking of harmful blood was therefore a chief method of treatment. We are not surprising to hear that the Prophet (s.a.w) was cupped on his head to treat headache and similarly when a man who complained to the Prophet (s.a.w) about a pain in the head, the Prophet (s.a.w) recommended him to get cupped (2).

With advance of method of treatment, people have observed that the use of leech, as a means of sucking

blood from the affected parts of human body, was similar to cupping (*hijamah*). In other words, the use of leech and other modern methods of healing can be regarded as a substitute for cupping. In Graeco-Arab medicine, leech-therapy occupied an important place. Ibn Sina and al-Baghdadi, for example, wrote specific section to leech in their *al-Qanun fi al-Tibb and al-Mukhtarat fi al-Tibb* respectively. According to Ibn Sina, the application of leech is more useful than cupping in letting off the blood from deeper parts of the body. Treatment by the use of leech is desirable in skin disease. For al-Baghdadi, the use of leech was the best way for skin disease, wet and chronic ulcers. Leech is also used for reducing the weight of fatty and fleshy people. They can be used repeatedly, but one should be aware of the risk of cross-infections. Leech may also be used as a means of cleaning the tissues especially after micro-surgical operations. Since there is possibly risk over using leech, al-Baghdadi and other Muslim physicians suggested that the leech was needed to be cleansed. The dirt or dust clinging to a leech should be wiped off before application. When leech has sucked out the blood and tend to drop down, salt should be sprinkled on the affected part of the human body. The following is al-Baghdadi's words:

"When they are to be used, they should be kept away for a day and then applied. If a leech does not stick, fresh blood should be poured or thoroughly smashed and pounded clay sprinkled over the affected part and if the affected part is free of any wound, the part should be rubbed till it becomes red" (7).

C. al-Kayy: Branding with Fire (Cauterization)

Al-Kayy is another method of treatment of disease in the time of Prophet (s.a.w) and even after. In relation to this, it is worth to mention that the process of destroying tissue by heating or freezing it is known at the present as electrocautery. It is done by using a small tool which has an electric current running through it. So that it is able to cauterize or burn the tissue. Normally, this method of treatment, electrocautery, is a safe procedure and is routinely used in surgery to burn unwanted or harmful tissue. Sometime, a small electrode is applied to the skin near

the surgery site. This is used to collect the electricity from the body and safely discharge it back to the machine. A grounding pad is placed on the person's body (usually the thigh) before the surgery starts to protect the patient. Of course, it causes a patient in painful and menace compared to a gulp of honey and cupping. In the time of Prophet, *al-kayy* or hot metal was used as a way to burn a wound to stop the blood or stop it becoming infected (2). The question now arises, is forbidden (*haram*) to use *al-kayy* for medical purpose? If not, why did the Prophet discourage his *Ummah* to use cauterization even though he had known that it might give many medical benefits. While commenting the ahadith on *al-kayy*, some commentators of Sahih Bukhari like Ibn Hajr al-Asqalani, Ibn Ahmad al-Ayni and al-Qastalani had attempted to give the reasons behind the wisdom of the Prophet (s.a.w)'s words "I forbid my followers to use (cauterization) branding with fire (*'wa `anha `an ummati an al-kayy'*)" as recorded in the following ahadith: The Prophet (s.a.w) said, "If there is any healing in your medicines then it is a cupping operation, or branding (cauterization), but I do not like to be (cauterized) branded." (8). In another version, Imam Bukhari reported that the Prophet (s.a.w) said, "Healing is in three things: cupping, a gulp of honey or cauterization, (branding with fire) but I forbid my followers to use cauterization (branding with fire)." (1).

Though some commentators of hadith understood that the Prophet (s.a.w) prohibited his followers to use cauterization, however, Ibn Hajr did not interpret the words "*wa anha an ummati an kayy* (I forbid my followers to use cauterization)" as prohibition (*al-nahy*) but abhorrent or undesirable (*makruh*). He argued that it is undesirable to use cauterization if it may cause the pain and menace to a patient (2). It is quite reasonable to accept this reason because by nature cauterization (*al-kayy*) may cause the patient in pain, menace and produce the side effect. This is the reason why the Prophet (s.a.w) did not like *al-kayy* (cauterization) as the right method of healing.

In order to give further evidence that cauterization is not prohibited in Islam, Ibn Hajr quoted the hadith which was reported that the Prophet (s.a.w) had himself cauterized the wound of Sa`d b. Mu`ad (2) and also the wound of As`ad b. Zarah in order to stop the

bleeding (*anna al-nabiy (s.a.w) kawa As`ad b. Zararh min syawkihi*) (2). Also, Ibn Hajr mentioned that Ibn Umar (r.a) used to use cautery for treating facial palsy. This is according to the report of Abu Zubayr who said: "I saw Ibn Umar one day, and he was branding the forehead of a man who had a slight facial palsy." From all these evidences, Ibn Hajr concluded that the prohibition against utilizing cautery applies for as long as completed trust in Allah (s.w.t) is lacking. During Prophet's time, there were people who they think that it is the cauterization itself which cures the affliction. In other words, they believed that if cautery had not been used, then the patient would have perished. This kind of cauterization practiced, according to Ibn Hajr, is prohibited. On the other hand, cautery is permitted when it is perceived as being the appropriate means to affect a cure, but not the essential cause of the cure because Allah (s.w.t) alone cures and grants good health and not cauterization. This means that humans try, but it is Allah who cures, *Allah huwa al Shafi*. Humans should not be arrogant by attributing cure to themselves and not Allah (s.w.t). Of course, human cannot refuse to take measure to cure disease claiming that Allah (s.w.t) will take care of it. This is because, it is true that Allah cures but in some cases that cure operates through the agency of humans. Sometimes the measures that humans take to cure a disease may not be sufficient on their own to alleviate the condition. It is Allah's divine intervention and mercy that brings about the complete cure (2).

Ibn Ahmad al-Ayni viewed the hadith, i.e., healing is in three things: cupping, a gulp of honey or cauterization, (branding with fire) but I forbid my followers to use cauterization (branding with fire), as preference from one thing over another. This means that as long as medicine conceived disease in terms of philosophy and looked upon it as a disturbance in the equilibrium of body's humors, cauterization could not be more than a last resort to which physicians had to recourse when the treatment by honey and cupping failed. In this case, the Prophet (s.a.w) preferred honey, blood letting over cauterization and it does not mean that cauterization is prohibited (*haram*) in medical treatment (3).

Although al-Qastalani was aware that Ibn Hajr and al-Ayni's interpretation of the hadith are harmony with the Islamic law, he, in his *Irshad al-Sari li*

Sharh Sahih al-Bukhari, did not hesitate to add that al-kayy was not as other ways of treatment as far as side effect is concerned. In case of cauterization (al-kayy), it might give medical benefits and harmful as in the case of al-khamr (intoxicating drink) which according to the Qur'an, it might give both beneficial and harmful for mankind, but harmful is more (2,9). Al-Dhahabi took a similar attitude to the tradition concerning the prohibition of cauterization. He claimed that the cautery of bleeding wounds was permissible especially when it was known to be the best possible cure for a particular illness but it was forbidden as a preventive measure.

For those who said that cauterization is forbidden in medical purpose are mainly based on the hadith related by Ibn Abbas that the Prophet (s.a.w) said: "If the cure ultimately depends on either scarification, or drinking honey or cauterization with fire, then I absolutely forbid cauterization." It is regrettable that this school of thought does not give further explanation and justification of the hadith.

From the above analysis, it would be a great mistake to prohibit the cauterization today. If it is forbidden in Islam, the surgery should be also forbidden. Therefore, it is right to conclude that it is perfectly correct to recommend *al-kayy* (cauterization) as the method of treatment of disease when all other remedies i.e., a gulp of honey and cupping have failed. In other words, it is fully permitted when there is no other alternative or no other remedy has proved successfully. In this case, there can be no objection to use cauterization so long as it is done cautiously and we remain aware of its negative effects.

Conclusion

The study of *ahadith* of the Prophet on healing in three things is extremely interesting and is important for various reasons. First, it throws light on the conditions of Muslims in the time of Prophet, how did they treat the disease, if somebody was sick. Another reason is that the treatment of disease was mainly based on the cause of disease. These remarks lead to the conclusion that we should not use *al-tibb al-nabawi* (medicine of the Prophet) without empirical research because of changes in medicinal plants and environment as well as the meaning of linguistic

terms. Thus the conditions for which these remedies were prescribed in the first century of hijrah may not be exactly the same as the conditions we are dealing with today. Therefore, if we wish to have a complete account of Prophetic medicine, we shall not be satisfied by referring to the writing of traditionalist scholars in the past without referring to the new discoveries made by the researchers after the demise of Prophet (s.a.w).

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The School of Traditional Iranian Medicine

The Definiton, Origin and Advantages

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Summary

Traditional Iranian Medicine (TIM) consists of the sum total of all the knowledge and practices used in diagnosis, prevention and elimination in Persia from ancient times to now, from generation to generation relying exclusively on practical experience and observation handed down from generation to generation. TIM roots go back to over 2000 years ago and it is not too bold to go even further and claim that the Persians taught the Greeks the elements of that system of medicine, which has been known ever since as Greek medicine. Traditional medicine has special advantages with respect to all the imported medical systems; since it is considered as part of the people's culture; and has a significant role in solving some of the cultural issues of health. Simply, traditional medicine can be a good assistant and help to the scientific and universal medicine. Introduction, development, and promotion of traditional medicine are a respect and honor to the culture and heritage of the people all around the world.

Key Words; Traditional Iranian Medicine, Iran, Persia.

The School of TIM

TIM (1) is a school that views the world as a good and seeking discipline created by the wise and omniscient Almighty (2); and has named the physician a Hakim due to his dominance and proficiency in different sciences, and adequate comprehension of the world. The school of TIM, which its roots go back to over 2000 years ago; as quoted by Cyril Elgood, the English medical historian "was more advanced than that of Assyria. It is not too bold to go even further and claim that the Persians taught the Greeks the elements of that system of medicine, which has been known ever since as Greek medicine" (3). According to Ibn Khaldoon, Among Persians, rational sciences had a high status. Such sciences had a vast scope since Persians' governments were majestic and long-lasting. Words have it that after Darius' murder by Alexander and the occupation of Kelikiyeh, and access to the countless Persian books and sciences, such sciences were passed to the Greeks (4).

The stars of Islamic and Iranian medicine as Ibn Sina, Razi, Ali Ibn Abbas Raban Tabari, Majoosi Ahwazi, Ibn Abi al Sadegh Neishabouri, Seyed Ismail Jorjani held the leadership of medical schools in west and east at least for 5 centuries. Dr. Norman

Howard-Jones has written in the World Health Organization (WHO) magazine of 1972 "the most important editor of medical books in Islam was Abu Ali Al Hosein Ibn Sina.... His medical book is named Ghanoon; and up to now never a book has been so famous; and it has been taught for a period of 500 years in the European and Asian medical schools" (4). Gustav Lobonne (1841-1931 AD) has written in his book about Islam and Arab Civilization "up to 15th century, the European scientists did not consider any quotation that was not quoted from the Arab authors as documented. All the European colleges and universities were in working order on these translations and the circle of our knowledge were just the Muslim sciences for five to six hundred years; and in some fields of science like medicine, we can say that it has remained up to the current period; since the writings of Avicenna has remained in France up to the end of the last century and some comments have been written about it (5). In their book History of Medicine, Meyer Steinegg and Karl Sudhoff have written "the effects of the Razi medicine in the European medicine was prevailing for consecutive centuries. His great book Alhavi fetteb has been translated into Latin and for a long period it was the reference for the scholars of medical sciences" (6).

TIM not only transmitted the medical sciences of the ancient civilizations in a modern and compiled manner to the next generations; rather, the scientists of this school were the founders and pioneers of the observation method and scientific experiment. Avicenna explained the importance of clinical trials in addition to animal studies as proof of efficacy of drug. Ex professor Nayyar Wasti, who was one of the leaders of Pakistan traditional medicine has written about the importance of the role of Iran in the development of traditional medicine in the world: "Therefore, traditional medicine is Middle East medicine, specially Persian medicine; since a number of the expert and famous professors in the field were from Iran; and the medicine has been developed and promoted more in Iran and has been expanded all over the world by these authors. In the semi-continent of Pakistan and India, the books of Razi, Ibn Sina, and Molla Nafiss are still being studied in the medical courses; and day and night the names of these proficient and competent Iranian physicians are repeated; and thousands of thousands of patients are treated and cured by this method. Therefore, the government of Pakistan has approved some laws to promote and develop this technique" (7). Furthermore, Hakim Syed Zillur Raman has written about the role of Iranian physicians and scientists in the development of medical sciences in India: "A number of great Iranian physicians such as Abu Fateh Gillani, Fathollah Shirazi, Jallaldin Ardestani, Einolmalek Shirazi, Ali Gillani, Bagher Tabrizi, Mohammad Hashem Shirazi, Seyed Mohammad Asfar, Hossein Esfehni who had resided in India, brought about the progress of Islamic medicine in India" (8).

Definition of Traditional Medicine

Since 30 years ago, in order to implement the slogan "Health for Everybody up to 2000", WHO has considered the development of traditional medicine. The decision is based on 2 foundations; first, lack of access of a great number of people to primary health/medical services, which in some countries covers up to 80 per cent of the population; and second, dissatisfaction from the treatments of modern medicine, specially in relation to chronic diseases and the side effects of chemical drugs (9). On this basis, WHO published a declaration regarding the

development of traditional medicine in 1978. In this declaration the brief definition of traditional medicine is as follows: "The sum total of all the knowledge and practices, whether explicable or not, used in diagnosis, prevention and elimination of physical, mental or social imbalance and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing" (10). In 2002 AD, WHO has described traditional medicine with more details as: "Traditional medicine is a comprehensive term used to refer both to TM systems such as traditional Chinese medicine, Indian Ayurveda and Arabic Unani medicine, and to various forms of indigenous medicine. Traditional medicine therapies include medication therapies- if they involve use of herbal medicines, animal parts and/or minerals- and non-medication therapies - if they are carried out primarily without the use of medication, as in the case of acupuncture, manual therapies and spiritual therapies-. In countries where the dominant health care system is based on allopathic medicine, or where Traditional medicine has not been incorporated into the national health care system, Traditional medicine is often termed complementary, alternative or non-conventional medicine" (9). Considering the above definitions, we can divide TIM in to two sections:

A- Written Traditional Medicine:

This section includes the books and papers of Iranian scientists. That sums up to thousands of volumes. This huge collection contains different books about anatomy, principle of medicine, description of disease, materia medica, pharmacopoeia, diagnosis, and treatment. Some of them are: "Ghanoon fe Teb" by Ibn Sina, "Sharhe Asbab va Allamat" by Nafiss Ibn Avaz Kermani, "Alhavi" by Mohammad Ebn Zakaria Razi, "Al Eghraz Al Tabibeh" by Seyed Ismael Jorjani in Persian, "Ketab al Maleki" by Ali Ahvazi, "Al Abnieh An Haghayegh Al Advieh" by Heravi in Persian, "Kholasseh Al Tajareb" by Baha al Doleh Razi Tarashti, and "Ferdows Al Hakameh" by Ali Ibn Raban Tabari; and also professional papers about special subjects such as "Ressaleh Dar Nabz" by Ibn Sina in Persian and "Ressaleh Atfal" by Razi, and "Ressaleh Afyoonieh" by Emadaldin Shirazi in Persian about specialized issues for treatment of addiction to opium,

and "Ressaleh Atashak" by Emadodin about syphilis. This valuable heritage is a written treasure for the researchers in Iran and the world; and by the power of God, the value and importance of it will be more and more cleared for the humanity.

B- Verbal Traditional Medicine:

Includes the experiments and information that has been transmitted, heart to heart from a generation to another generation and contains different health and treatment methods (11). Since Iran has a long historical background and civilization, different races, languages, and climates, it is a country full of verbal medical experiments, opinions, and views; specially among the tribes and the residents of this country, that due to geographic reasons were difficult to pass; utilization of these medical experiments and treatment methods were integrated part of the life of people and the adequate recognition of the untrue and transfer of the experiments to the next generation was vital and essential. Compiling this part of TIM that nowadays is considered by the people of the world as native botany (Ethnobotany), native pharmacology (Ehtnopharmacology), and native medicine (Ethnomedicine) has special significance; and delay and hesitation in collecting and documentation of them; results in loss of parts of this valuable experiments; experiments that may contain the key for solution of some of the medical intricate questions (12-14).

Reasons for Restoration of TIM

1- Economic Role

In many developed countries, certain CAM (Complementary Alternative Medicine) therapies are very popular. Various government and non-government reports state that the percentage of the population that has used CAM is 46% in Australia, 49% in France and 70% in Canada. The budgets allocated for traditional and CAM are also considerable; so that In Malaysia, an estimated US\$ 500 million is spent annually on TM/CAM, compared to about US\$ 300 million on allopathic medicine. In the USA, total 1997 out-of-pocket CAM expenditure was estimated at US\$ 2700 million, which was comparable to the projected 1997 out-of-pocket expenditure for all

physicians' services. In the United Kingdom, annual CAM expenditure is estimated at US\$ 2300 million respectively (9). In Canada, it is estimated that a total of US\$ 2400 million was spent in 1997-1997 on CAM. The global market for traditional therapies stands at US \$60 billion a year and is steadily growing (19).

In Iran, the general statistics regarding the range of application of traditional medicine and different schools of supplementary medicine are not specified. However, the studies that were conducted in Isfahan in 2000 indicate that during the last 5 years, about 62.5% of the individuals have applied the supplementary medicine methods, at least once a year. Utilization of herbs, prayer-therapy, cupping, and acupuncture with 76.6, 10.1, 9.5, and 5.5 percent, were considered more than other methods, respectively. The sale of herbal medicine in Iran was about 7 billion Rials in 1997, which has raised to 37 billion Rials in 2000 (Fig. 1). Since about 50 % of the visits made by the physicians does not need any drugs, if we use other treatment methods, the consumption of chemical drugs will be reduced and by exporting drugs we could place the country in a beneficial path and by this means decrease our dependence; since, there are newer chemical drugs that are certainly becoming more expensive on a daily basis ... while our country is the origin of traditional medicine and variety of herbs with lots of medical features, variety, and high quality are considered as our valuable capitals (17).

2- Simple Access and Low Cost

There is a good drug variety in TIM; and usually there are a number of medicine for each disease, as prophet Mohammad (S) says "God didn't put any disease, but put for it many drugs" and this originates in the mercy of God, so that the servants would not be in trouble to maintain a drug, which is a genuine need and God says at Quran "and gave you all of you need exactly" and if a drug is not found in a region and or the patient annoyed a medicine; he could get advantage of other available medicine with the least expenses; and also if the nature of the patient is used to a drug and the medicine is no more effective, it would be possible to take advantage of other drugs (18). Drugs, quite often are materials that are avail-

able, including botanic, mineral, and animal substances that are available in the surroundings of the environment; and usually could be accessible with little expenditures and is not comparable with the excessive costs of chemical drugs.

3- Reliance on Moral Aspects

The roots of TIM could be found in Darolhekma and Hozehelmyeh (House of the science and scientists) and was considered as a means for earning a low living. A large number of scientists and thinkers, were learning the beneficial science of medicine along with studying different sciences to maintain their own and other people's health; since according to the Prophet Mohammad "The best of you are who benefit more the people" and rendered their efforts in its propagation to the seekers of science; and believed that its moral reward will be their provisions for the road to the afterlife.

4- Finding new Medicines and Treatment Methods

Utilization of traditional experiments increases the probability of finding of effective medicine materials up to 40%; this range is about 1% in random researches. Medicines such as Canabinoides, Vincristine, Artemisinin, Opioids and Colchicine, Pilocarpin, Cantharidin, Spinal-Z (22), or other treatment methods such as acupuncture, general anesthesia, application of traction instrument in replacing the dorsal vertebra of spinal columns, and using catheters for charging and discharging material in to the vesica, take out the fetus by the hydrocephalus that creates dystochia? application of gold filament for fixing the mobile tooth and using the dental prosthesis that has been sculptured from the tooth of the cow are undeniable testimonies of this subject.

Reasons for the Promotion of Traditional Medicine

WHO believes (10) there are three points that have resulted in the development and promotion of traditional medicine:

A- Intrinsic qualities: Traditional medicine is already the people's own health care system and well accepted by them. It has certain advantages over

imported systems of medicine in any setting because, as an integral part of the people's culture, it is particularly effective in solving certain cultural health problems. It can and does freely contribute to scientific and universal medicine. It's recognition, promotion and development would secure for a people's culture and heritage (10).

B- Approach-unique and holistic: Traditional medicine has a holistic approach, viewing man in his totality within a wide ecological spectrum, and of emphasizing the viewpoint that ill health or disease is brought about by an imbalance, or disequilibrium, of man in his total ecological system and not only by the causative agent and pathogenic evolution. (10).

C- Operational factor: There are some of the main reasons why traditional medicine needs to be promoted and developed. Perhaps, from the operational point of view, the most cogent reason for the radical development and promotion of traditional medicine is that it is one of the surest means to achieve total health care coverage of the world population, using acceptable, safe and economically feasible methods, by year 2000. (10).

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History of Genetics in Islam: About Colour, Stature and Camels*

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Summary

Human Genetics is a science that studies inheritance of traits, e.g. within human beings. It is useful for understanding what is called genetic basis of certain diseases, lineages and inherited traits within a population. It has also been used in matrimonial issues such as assertion of parenthood. I wondered how long Muslims (of this nation) have been aware of this science. During my research I identified two narrations for the Messenger of Allah, peace be upon him that speak of his knowledge of this science. These narrations comment about hair colour in camels, skin and eye colour as well as stature in humans. This article looks at the two Hadeeths in relation the modern science of molecular genetics.

Key Words; History of genetics, Islamic medicine.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Know my learned friend that Allah almighty knows everything and that Allah Subhānahu Wa Ta'ala taught man what man knew not, Allah said in the Qura'an:

(علم الإنسان ما لم يعلم) (1)

Also know, that the Messenger of Allah Muḥammad, peace be upon him, knew more than any

human being and that he talked about certain matters in detail and other matters in principle and left the door of valid interpretations open to learned Muslims. Thus, it was sufficient for him to mention certain matters in general terms. This is one reasoning Imam Abul Ḥassan Al-Ash'ari used to defend his use of ^Alm Alkalam (2). It is also noteworthy that learned Muslims understood the Hadeeth of the messenger of Allah, peace be upon him, in different ways or had different levels of understanding, commensurate with the saying of the messenger of Allah, peace be upon him:

أخبرنا أبو الحسن علي بن محمد المقرئ ثنا الحسن بن محمد بن إسحاق ثنا يوسف بن يعقوب ثنا سليمان بن حرب ثنا حماد بن سلمة ثنا سماك بن حرب عن عبد الرحمن عن عبد الله بن مسعود : (أن النبي صلى الله عليه و سلم قال : نضر الله رجلاً سمع منا كلمة فبلغها كما سمع فإنه رب مبلغ أوعى من سامع).

رواه البيهقي(3)

This means:

“May Allah beautify he who heard from us a saying and conveyed it as he heard it, for how many a man reports a Hadeeth to one who has better understanding of it.” *Narrated by Bayhaqqy (3).*

Muslims have a traditional and healthy interest in medicine and medical sciences. This has been encouraged by Islamic teachings, for example the Hadeeth of the Prophet:

حدثنا محمد بن المثنى حدثنا أبو أحمد الزبيري حدثنا عمر بن سعيد بن
أبي حسين قال حدثني عطاء بن أبي رباح عن أبي هريرة رضي الله عنه
عن النبي صلى الله عليه وسلم قال :

(ما أنزل الله داء إلا أنزل له شفاء).

رواه البخاري(4)

This means:

“For every Illness Allah created, Allah also created a cure” Narrated by *Bukharry (4)*.

The interest in medicine was reportedly further asserted by renowned scholars of Islam, such as Imam Muḥammad bin Idriss Ashshafiʿi, Imam of the Shafiʿi school of Jurisprudence and Imam Ahmad ArRifaʿi (d 578 Hijri), Imam of the Rifaʿi Sufi discipline.

Imam Moḥammad bin Idriss Shafiʿi, said to be the scholar of Quraish mentioned in a Hadeeth that was narrated about the Messenger of Allah, peace be upon him,:

عالم قريش يملأ الأرض علما
رواه أحمد (5)

meaning:

“The scholar of Quraish fills the world with knowledge”. Related by Imam Aḥmad and others in different versions (5).

Imam Ashshafiʿi was born in Gaza in 150 H and died and was buried in Cairo in 204 H. He was reported to have emphasised the importance of medical sciences, calling medicine, which is a communal obligation, the most honoured second to the knowledge of At-Tawḥeed and other similar obligatory Islamic sciences.

حدثنا يحيى بن قزعة حدثنا مالك عن بن شهاب عن سعيد بن المسيب
عن أبي هريرة :

(أن رجلا أتى النبي صلى الله عليه وسلم فقال يا رسول الله ولد لي غلام
أسود فقال هل لك من إبل قال نعم قال ما ألوانها قال حمر هل فيها من
أورق قال نعم قال فأنى ذلك قال لعله نزع عرق قال فلعل ابنك هذا
نزعه).

رواه البخاري(7)

Whilst recently lecturing on Human Molecular Genetics in London, it occurred to me to look at the awareness of genetics during the time of Prophet Muḥammad, peace be upon him. Molecular genetics is a science that addresses the mechanisms of passing traits between generations. It is useful for understanding many diseases that are classified as hereditary as well as for helping establish lineages and other matters. Advances in modern genetics was possible due to the discovery of cell divisions, chromosomes, DNA, chromosomal recombination, linkage and other significant molecular genetics mechanisms and other biological phenomena. I wondered when were Muslims of the Umma of Muḥammad, peace be upon him, possibly became first aware of the science of genetics. During my research I came across two narrations of the messenger of Allah, peace be upon him that indicated to me his knowledge of this science. The two hadeeths mentioned certain traits (colour) in Arabian Camels and stature in humans.

Allah (Subhanahu wa taʿala) said in the Quraʿan:

(افلا ينظرون الى الأبل كيف خلقت) (6)

In this verse of the Quraʿan Allah, Subhanahu wa taʿala, is telling us to look at how camels are born and use that as an example to strengthen our belief in His power.

The first prophetic narration in Saḥih ul Bukharry, was narrated by Abu Huraira, may Allah be pleased with them:

Abu Huraira narrated (herein stated in meaning):

A bedouin came to the Messenger of Allah, Muhammad (peace upon him) and said: "My wife has delivered a black child." The Prophet said to him: "Have you camels? He replied: "Yes." The Prophet said, "What colour are they?" He replied: "They are red." The Prophet further asked: "Are any of them gray in colour?" He replied, " Yes ". The Prophet asked him: "Whence did that grayness come?" He said, "I think it descended from the camel's ancestors." Then the Prophet said (to him): "Therefore, this child of yours has most probably inherited the colour from his ancestors" Narrated by Bukharry (7).

This hadeeth narrates the story of a man who was puzzled that his wife delivered a black child, whence apparently he was not black and he decided to seek fatwa from the messenger of Allah about the parental status of this child. Ibnu Hajar Al [^]Asqalani said, Imam Shafi[^]i said in Al-Umm (what means): 'the apparent saying of the Bedouin suggests that he accused his wife but since his statement had a face other than Qazef (accusing someone of fornication/adultery without valid proof). The messenger of Allah, peace be upon him, did not judge him with Qazef and did not carry upon him the penalty for Qazef (8).

Prophet Muhammad's response to this man was to ask him about one trait in his herd of camels, namely colour. He asked him whether in his predominantly red herd of camels there were camels that had a different colour, to which the man responded affirmatively. The messenger of Allah further quizzed the man as to where he thinks this varied colour came from and this man attributed this varied colour from the camels' ancestors (carried in their genes, as is said in modern terms). The prophet of Allah then taught this man to draw analogy between this observation in camels and what he observed in the newly-born sibling. This implied this child would be attributed to the man who came with the query, despite having a different skin colour than his.

There are many things that one may deduce from this Hadeeth of the messenger of Allah. Apart from the moral guidance and judicial content, we may learn the prophet's methodology in teaching his fol-

lowers how to draw analogy between two different living beings. Here the colour of camels was used to explain what geneticists call inheritance of skin colour in man. Additionally, one may deduce that traits which off-springs show, such as skin colour, may not necessarily be the same as their immediate parents, but may be carried, in what scientists call, the parents' genetic composition (DNA) that may manifest in later generations. This concept in modern genetics refers to genotypes, phenotypes, dominant and recessive traits, whereby parents may have a genotype expressed, but not necessarily, as a certain phenotype in off-springs. Parents may therefore act as carriers for traits that does not morphologically express in their siblings. A geneticist may interpret the hadeeth of the messenger of Allah, peace be upon him, that his companion was puzzled that a phenotypic trait (black colour) was different than his, but was not aware that he may be carrying the genes for it. Therefore, he implicitly asked the prophet whether the child was his. The messenger of Allah through a series of analogies, using camels as a model, taught his companion the black skin colour his child possessed may be inherited from his ancestors, even though the colour did not manifest in him (apparently or his wife), just like his predominantly red herd of camels had a Grey one in them. In other words, as geneticists say today the phenotype for black skin-colour was inherited from parents carrying genes for both black and non-black skin colour. Geneticists may think, when reading this hadeeth, about the concepts of inheritance, phenotype, genotype, recessiveness and dominance as pedigrees. The messenger of Allah, peace be upon him, showed us the guidelines in this hadeeth and left generations of human beings to work out the details (and Allah knows best).

It was not until several centuries after the narration of the aforementioned hadeeth that a Czech Christian monk by the name of Mendel described for Europeans inheritance of monohybrid and dihybrid traits in plants and alluded to the concept of recessiveness and dominance of traits. Mendel's work was based on observations of seven traits in peas that were crossed for a number of generations (Figure 1). He argued that traits were inheritable and may be genotypically carried, but may not necessarily mani-

fest phenotypically in the next generation. Others later said this may be extended to inheritance in humans, leading subsequently to the generation in our modern times of a database known as OMIM (<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM> <<http://www.omim.com>>). This database describes the traits that is said to be inherited in a Mendelian manner in humans. Skin colour is one trait

described in this database. Perhaps Mendel's work would have been more broadly applied during his time had he used camels as a model, although this may have been difficult as camels are scarce in the European continent.

The other Hadeeth that caught my interest when thinking about hereditary traits talks is also recorded in Sahih ul Bukharry:

حدثنا يحيى أخبرنا عبد الرزاق أخبرنا بن جريج قال أخبرني بن شهاب عن
الملاعة وعن السنة فيها عن حديث سهل بن سعد أخي بني ساعدة :
(أن رجلا من الأنصار جاء إلى رسول الله صلى الله عليه وسلم فقال يا
رسول الله أرأيت رجلا وجد مع امرأته رجلا أيقته أم كيف يفعل فأمر الله
في شأنه ما ذكر في القرآن من أمر المتلاعنين فقال النبي صلى الله
عليه وسلم قد قضى الله فيك وفي امرأتك قال فتلاعنا في المسجد وأنا
شاهد فلما فرغا قال كذبت عليها يا رسول الله إن أمسكتها فطلقها ثلاثا
قبل أن يأمره رسول الله صلى الله عليه وسلم حين فرغا من التلاعن
ففارقتها عند النبي صلى الله عليه وسلم فكان ذلك تفريقا بين كل
متلاعنين قال بن جريج قال بن شهاب فكانت السنة بعدهما أن يفرق بين
المتلاعنين وكانت حاملا وكان ابنها يدعى لأمه قال ثم جرت السنة في
ميراثها أنها ترثه ويرث منها ما فرض الله له قال بن جريج عن بن شهاب
عن سهل بن سعد الساعدي في هذا الحديث إن النبي صلى الله عليه
وسلم قال إن جاءت به أحمر فصبرا كأنه وحرة فلا أراها إلا قد صدقت
وكذب عليها وإن جاءت به أسود أعين ذا إلتين فلا أراه إلا قد صدق عليها
فجاءت به على المكروه من ذلك).

رواه البخاري(9)

The above Hadeeth, narrated through the companion Ibn Juraij, may Allah be pleased with him, states that: "An Ansari man came to Allah's Apostle and said, 'O Allah's Apostle! If a man saw another man with his wife, should he kill him, or what should he do?' So Allah revealed concerning his affair what is mentioned in the Holy Qura'an about the affair of those involved in a case of Li'an. The Prophet said, 'Allah has given His verdict regarding you and your wife.' So they carried out Li'an in the mosque while I was present there. When they had finished, the man said, "O Allah's Apostle! If I should now keep her with me as a wife then I have told a lie about her. Then he divorced her thrice before Allah's Apostle ordered him, when they had finished the Li'an process. So he divorced her in front of the Prophet ." Ibn Shihab added, "After their case, it became a tradition that a couple involved in a case of Li'an should be separated by divorce. That lady was pregnant then, and later on her son was called by his mother's name. The tradition concerning

their inheritance was that she would be his heir and he would inherit of her property the share Allah had prescribed for him." Ibn Shihab said that Sahl bin Sad As'Saidi said that the Prophet said (in the above narration), "If that lady delivers a small red child like a lizard, then the lady has spoken the truth and the man was a liar, but if she delivers a child with black eyes and large buttocks, then her husband has spoken the truth." Then she delivered it in the shape one would dislike (as it proved her guilty)'. Narrated by Bukharry (9).

In the aforementioned Hadeeth there is clearly a companion concerned that his wife may have cheated on him and that the child may not be his, which his wife denied. Having undergone the process of Li'an, whereby each party declare in public that they are telling the truth, the man decided to divorce his wife. Subsequently, the messenger of Allah declared what possible physical attributes (traits) the child may

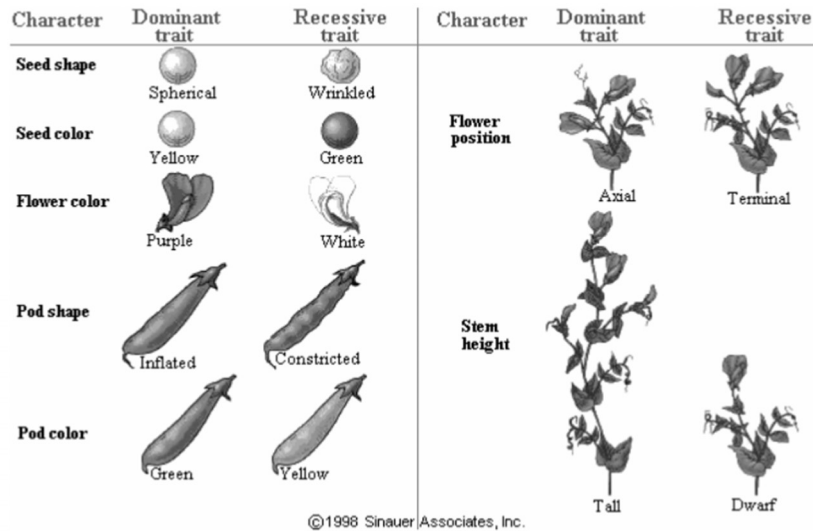


Figure 1. A diagram showing the seven traits in peas studied by Mendel.

have and advised us which of these would confirm the husband’s or the wife’s allegations. In genetical terminology one may say, he mentioned certain phenotypes the child may have and advised which phenotype may be inherited from the husband and which clearly may not. Therefore, red colour and small size would indicate inheritance from the husband. Yet a child with black eyes and large buttocks would indi-

cate the wife had conceived pregnancy through extramarital intercourse, which apparently proved to be the case.

This Hadeeth portrays the knowledge that messenger of Allah had about hereditary which made him able to deduce phenotypic possibilities that would manifest in the child had he been conceived through a marital or extramarital affair, having seen the husband and presumably knew of the third party. Apart from the matrimonial judicial aspects of this hadeeth,

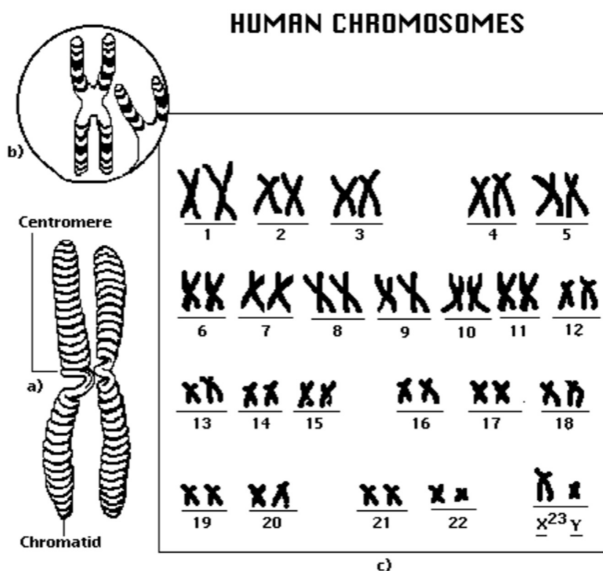


Figure 2. An illustrative diagram showing a karyotype of chromosomes from a human cell. The cell nucleus consists of 23 pairs of homologous chromosomes (one from each parent), giving a total of 46 chromosomes. The last pair of chromosomes is said to define sex (XX in females and XY in males).

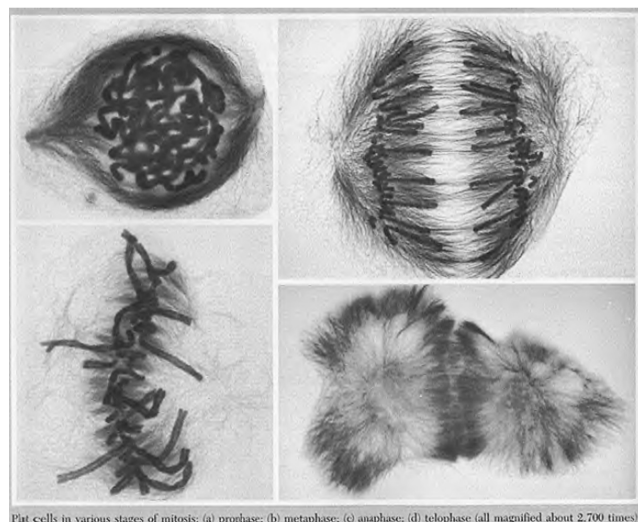


Figure 3. A diagram of a eukaryotic cell undergoing mitotic cell division. The homologous chromosomes are stained dark blue and are shown to clearly separate on the red stained microtubule spindle.

♂ Ss	x	♀ Ss	♂ Ss	x	♀ Ss
SS Tall Stature Homozygote		Ss Short Stature Heterozygote	SS Tall Stature Homozygote		Ss White Heterozygote
Ss Short Stature Heterozygote		SS Short Stature Homozygote	Ss Short Stature Heterozygote		SS Short Stature Homozygote
♂ SS	x	♀ SS	♂ SS	x	♀ SS
SS Short Stature Homozygote		SS Short Stature Homozygote	SS Tall Stature Homozygote		SS Tall Stature Homozygote
SS Short Stature Homozygote		SS Short Stature Homozygote	SS Tall Stature Homozygote		SS Tall Stature Homozygote

Figure 4. Punnet squares depicting possible simple monohybrid inheritance of short stature genes. Stature genes are said to be located on the sex genes (Gene map locus Ypter-p11.2, Xpter-p22.32) and are described to be inherited pseudoautosomally. Short (s) is said to be normally dominant to Tall (S).

scientific aspects can be understood from it. The hadeeth to learned geneticists alludes to inheritance of traits, but this time relates to polyhybrid inheritance (inheritance of more than one trait). Further one may deduce that certain traits may be inherited concomitantly, e.g. red colour and body size or eye colour and hip size. This in modern genetics is called linkage, whereby genes tend to be co-inherited due to their physical closeness on a chromosome (the genetical aspect of cells).

In our modern times, geneticists define the genetical material as made of DNA, which in humans is carried within 2 sets of 23 chromosomes (1 set from each parent), and which is carried over to off-springs during meiotic cell division and fertilisation (Figures 2,3). Skin colour is due to the expression of the

melanin pigment carried over on chromosome. Expression of Pheomelanin produces red/yellowish melanin, whilst that of eumelanin produces darker melanin. This occurs through the induction of tyrosinase and TYRP pathways respectively (reviewed in 10). It is beyond the scope of this article to work out all the combinations of parental genes that would produce a gray camel from heterozygote red ancestors or black child from heterozygote white ancestors, alas to say that it is possible to compute the probabilities and frequencies of this occurring and from what I read of the two aforementioned hadeeths, the messenger of Allah, peace be upon him, stated that accurately and one of the morphologies he described did show in the newly born child. Probabilities for genetic transmission of a single trait (e.g. short stature) in a Mendelian fashion is depicted in the Punnet square shown in Figure 1 for illustrative purposes.

In conclusion, the two hadeeths of the messenger of Allah (peace be upon him) stand as a reminder of the knowledge of Muhammad, peace be upon him, and that he was the most knowledgeable human being.

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Albucasis and Extraction of Bladder Stone*

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Summary

In the sixtieth chapter of the thirtieth treatise of Al-Tasrif book, Albucasis wrote on stone extraction from the urinary bladder. Albucasis invented a new lithotomy scalpel with 2 sharp cutting edges and he made a drawing for it. The innovation in the technique of perineal cystolithotomy, introduced by Albucasis, was of considerable practical anatomical significance. The aim of this paper is to shed light on the contribution of Albucasis in the field of Bladder Stone extraction.

Key Words; Albucasis, Al-Zahrawi, History of Medicine, Bladder stone.

Albucasis (Al-Zahrawi) is Abul-Kasem Khalaf Ibn Abbas Alzahrawi, believed to have been born in the city of Al-Zahra, six miles northwest of Cordoba, sometime between 936 and 940. It was here that he lived, studied, taught and practiced medicine and surgery until shortly before his death in about 1013, two years after the sacking of Al-Zahra.

Little is known about Albucasis. He was first mentioned by the Andalusian scholar Abu Muhammad bin Hazm (993-1064), who listed him among the great physician- surgeons of Moorish Spain. The first known biography of Albucasis, however, appeared in al-Humaydi's *Jadhwat al-Muqtabis*, completed six decades after Albucasis death.

It is clear from Albucasis life history and from his writings that he devoted his entire life and genius to the advancement of medicine as a whole and surgery in particular. He wrote a medical encyclopedia spanning 30 treatises which included sections on surgery, medicine, orthopedics, ophthalmology, pharmacology, nutrition etc. This book is entitled *At-Tasrif Liman Ajiza Anil Taalif* (The book of enabling him to manage who cannot cope with the compilations) and contained data that Albucasis had accumulated during a career that spanned almost 50 years of training, teaching and practice.

In *At-Tasrif* book Albucasis insisted on compliance with ethical norms and warned against dubious practices adopted by some physicians for purposes of

material gain. He also cautioned against quacks who claimed surgical skills they did not possess.

In the section on pharmacology and therapeutics, he covers areas such as cardiac drugs, emetics, laxatives, cosmetology, dietetics, materia medica, weights and measures and drug substitution.

Albucasis had a tremendous influence on surgery in the west. The French surgeon Guy de Chauliac in his 'Great Surgery', completed in about 1363, quoted *At-Tasrif* over 200 times. Albucasis was described by Pietro Argallata (died 1423) as "*without doubt the chief of all surgeons*". Jaques Delechamps (1513-1588), another French surgeon, made extensive use of *At-Tasrif* book in his elaborate commentary, confirming the great prestige of Albucasis throughout the Middle Ages and up to the Renaissance.

The last, thirtieth, treatise of this book, which is related to surgery, is the most famous and important. This treatise was translated into Latin by Gerard of Cremona in the second half of the twelfth century. In France there is a Hebraic translation with surgical instruments schemes. The first edition of Albucasis book was published in Venice in 1497, then more than twenty editions appeared in many different European cities. In the fifteenth century a Turkish translation was made by Sharaf al-Din ibn Ali al-Hajj Ilyas, and characterized by its beautiful pictures. The first modern edition with a Latin translation appeared at Oxford in 1778 by John Channing. While French translation appeared

in Paris in 1861. Arabic edition was published in 1908 in Lucknow. English translation was accomplished in 1973 by Spink and Lewis from welcome institute for history of medicine in London. Lastly Russian translation performed by Zea Uddin Bavlove.

In the sixtieth chapter of the last treatise of Al-Tasrif book, Albucasis wrote on stone extraction from the urinary bladder. He said:

"I have already mentioned, in the "Classification" the types of stones, their medical treatment, the difference between the stone borne [formed] in the kidney and the stone borne in the bladder together with signs of all of them. I also pointed out that the need for operative intervention particularly arises in that stone formed in the bladder and that which gets impacted in the urethra. Hereby, I will briefly, but clearly, describe that technique".

"قد ذكرنا في التقسيم أنواع الحصاة وعلاجها بالأدوية وذكرت الفرق بين الحصاة المتولدة في الكلى وبين الحصاة المتولدة في المثانة وعلامات ذلك كله وذكرت الحصاة التي يقع فيها العليل باليد والشق وهي الحصاة المتولدة في المثانة خاصة والتي تتشب في الإحليل وأنا واصل ذلك بشرح بيّن واختصار".

Albucasis refers, here, to the second treatise of Al-Tasrif book devoted to the classification of diseases as well as their symptoms and treatment. This concern for establishing the correct diagnosis is a continuation and further development of the efforts of the famous physician, Mohamed Ibn Zakaria Alrazi (Rhazes) (841-926 AD) who was the first to give prime importance to clinical observations and differential diagnosis.

Extraction of stones from the urinary bladder is considered one of the oldest surgical operations in history. The operation was done through a perineal incision down to, then through, the bladder neck to reach the stone and extract it. Comparing the description of the operative technique as done during ancient Indian civilization (Charaka in the first century and Susruta in the fifth century AD) and during the Greek Civilization in Aegean Sea Greece (Paulus Aegineta, 625-690 AD) with the description given by Albucasis in this chapter, clearly shows how Albucasis remarkably improved the technique of this operation and reduced its risks. Albucasis modifications and innovations spread to Europe in Middle Ages and remained widely adopted until the beginning of the 18th century which witnessed the beginnings of the

modern method using the suprapubic, instead of the perineal, approach for the removal of bladder stones.

Albucasis continues:

"I would like first to mention that this type of stone occurs mostly in boys. Among its symptoms is that the urine passes out of the bladder similar to water in its thin consistency with the appearance of gravel in it. The patient often keeps scratching and playing with his penis that often dangles down then becomes erect and the rectum may prolapsed in many of them. The cure of bladder stone is easy in boys up to the age of fourteen, difficult in the elderly and midway in-between in young men. The treatment is easier in the patient whose stone is larger whilst with a small stone it is the opposite of that. When we start to undertake the treatment, the patient, in the beginning, should have an enema to clear out all the stools from his bowel because it may prevent locating the stone during the search for it. Then the patient should be held by his legs and jarred to and fro and shaken downwards to bring the stone down to the bladder neck or, else, he could jump from a height several times. Then you seat him upright facing you with his hands beneath his thighs to make the whole bladder tilted downwards. Then you search him [for the stone] by palpating him externally. If you feel the stone in the lumen cut upon it right away".

"أقول إن الحصاة المتولدة في المثانة أكثر ما تعرض للضمان ومن علاماتها أن البول يخرج من المثانة خفيفاً بالماء في رفته ويظهر فيه الدم، وشك ذكره وبعث به وكثيراً ما يتدلى ثم ينشر وتبرز معها المتعددة في كثير منهم، وسهل رؤؤ الضمان منها إلى أن يبلغوا أربع عشر سنة، ويعسر في الشيوخ، وأما الشبان فمتوسط فيما بين ذلك، والذي يكون حصانه أعظم يكون علاجه أسهل والضعف بصد ذلك، فإذا مسرنا إلى العلاج فيسعي أولاً أن ينفض العليل شفة شرح جميع الرزل الذي في معائه فإنه قد يمنع وجود الحصاة عند النفس ثم يؤخذ العليل برجله فيمض ويبرز إلى أسفل ليرول الحصاة إلى عنق المثانة أو تنب من موضع مرتفع مرات ثم تجلسه بين يديك منتصباً ويده تحت فخذه لتصير المثانة كلها مائلة إلى أسفل ثم تقبسه وتسهه من خارج فإن أحسست بالحصاة في المضاء فادر من ساعتك بالحق عليها".

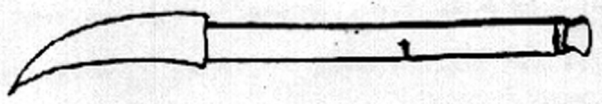
This preoperative preparation of the patient by an enema was not known in the Ancient Greek or Roman medicine. It was Al-Razi who first described it. In his book "Al-Hawi (The Contienens) he says: "Because stools in the rectum may render palpating for and locating of bladder stones difficult or impossible, it is essential that the patient should be given an enema beforehand. When the bowels empty out its content the feeling for the stone, also the abdominal palpation becomes easier".

It is to be noted here that most of the patients during that period were young children in whom the uri-

nary bladder is usually easily palpable in the abdomen because of their small pelvic cavity. In those days, also, the stones were usually large in size.

Albucasis says:

“But if the stone does not come at all under your [finger] touch, then lubricate, with oil, the left index, if the patient is a child, or the middle finger if he is a fully grown adolescent and insert it into his anus and search out for the stone, until when it comes under your finger you move it little by little to the bladder neck. Then you press upon it with your finger pushing it outwards to the place where you wish to make your incision. And request an assistant to squeeze the bladder with his hand and another assistant to extend away the testicles with his right hand and use his other hand to stretch the skin beneath the testicles away from the place where the incision will be made. Then you take the Al-Nashl scalpel whose picture is the following:



And incise in the area between the anus and the testicles not in the mid-line but to the side of the left buttock.⁵ The cutting down is made directly on the stone itself while your finger in the anus is pressing it outwards. The incision is made oblique, wide externally but narrowing inwards to a size just enough to allow the exit of the stone, not larger, as your finger in the anus may have already pressed on the stone during making the incision thus leading to its extrusion without difficulty”.

“إن أحسبت بالحصاة في الغشاء فإدر من ساعدك بالنسق عليها فإن لم تقع تحت لسك اليد فيعي أن تمسح الأوسع الساية بالدهن من اليد اليسرى إن كان العليل مسياً أو الأوسع الوسطى إن كان غلاماً تاماً فتدخلها في معدته وتنقب عن الحصاة حتى إذا وقعت تحت إصبعك تغتلبها قليلاً قليلاً إلى عنق المثانة ثم تكبس عليها بإصبعك وتدفعها إلى خارج نحو المكان الذي تريد شقه وتأمّر حادماً أن يعصر المثانة بيده وتأمّر حادماً آخر أن يعد بيده اليمنى الأنتين إلى فوق ويده الأخرى الذي تحت الأنتين ناحية عن الوضع الذي يكون النسق فيه، ثم تأخذ المصغ السهل الذي هذه صورته. وتنقب فيما بين المعدة والأنتين لا في الوسط بل إلى جانب الألية اليسرى ويكون النسق على نفس الحصاة وإصبعك في المعدة وأنت تضع عليها إلى خارج مورباً ليكون النسق من خارج واسعاً ومن داخل ضيقاً على قدر ما يمكن خروج الحصاة به لا أكثر فرمما منعطت الإصبع التي في المعدة الحصاة عند النسق فتخرج من غير عسر”.

The choice of the finger to be used for rectal examination is determined by the size of the anal orifice according to the age of the patient. This is achieved by the assistant’s hand pressing downwards

on the supra-pubic area. Keeping the bladder squeezed will prevent the stone from dislodging away from the surgeon left index finger already situated in the rectum trapping the stone unto the bladder neck. The recruitment of an assistant to perform that step leaves the right hand of the surgeon free to perform the remaining steps of the operation. With the left hand of the surgeon occupied in the per rectal fixation of the stone, a second assistant is also needed to keep the testicles away and stretch the skin at the site of the incision.

This scalpel is an innovation invented by Albucasis. It is different from the lithotomy scalpel in use during the Greco-Roman era. Albucasis invented a new lithotomy scalpel with 2 sharp cutting edges and, being a novel instrument not known before him, he made a drawing for it. The scalpel called “Novacula” used by the Italian surgeon “Marianus Sanctus” in the 16th century, and the scalpel used by the English surgeon “Shelsden” in the 18th century, were very close in shape to Albucasis scalpel.

In the ancient and Greco-Roman texts before Albucasis, there is no such emphasis on avoiding the midline incision. That innovation in the technique of perineal cystolithotomy, introduced by Albucasis, was of considerable practical anatomical significance. In Europe, during Renaissance, most of the well-known lithotomists such as the Italian “Marianus Sanctus” (16th century AC), the French “Jack De Beaulieu” (17th century AC), and the English “Shelsden” (18th century AC), were using Albucasis lateral approach incising on the left side.

Albucasis Says:

“You should know that some of the stones might have angles and edges that make their extraction difficult. Some are smooth like acorns and rounded and, therefore, come out easily. In case of those with angles and edges, you need to slightly extend the incision. If still the stone will not come out then you should maneuver it either by holding it with a strong forceps having a rasp-like [serrated] end to get a tight hold of the stone so it shall not slip out; or else you introduce underneath it a slender instrument with a curved end. If you, still, cannot manage the stone out, widen the incision a bit; and if some bleed-

ing disturbs you, stop it with vitriol. If more than one stone is encountered, first push the largest to the bladder neck, then you cut down upon it; then push the small stone next and continue doing the same if they are more than two. But if the stone is very large, it is utter ignorance to cut down upon, using a very large incision, because this will subject the patient to one of two outcomes: either he may die or suffer from permanent incontinence because the wound site will never heal. Rather you should try to manipulate the stone out or, else, maneuver breaking it with the Kalaleeb so that you can deliver it out piecemeal”.

”واعلم أنه قد يكون من الخصة ما لها زوايا وحروف فيعسر خروجها لذلك، ومنها ما يساء تنسه البلوط ومدحرجه فيسهل خروجها فما كان منها ما زوايا وحروف فتريد في الشق قليلاً فإن لم تخرج هكذا فيسعي أن تتحلى عليها إما أن تنقض عليها تحت محكم يكون طرفه كالمرد ليصط على الخصة فلا تفلت منه وإما أن تدخل من تحتها آلة لطيفة بعنفة الطرف، فإن لم تستطع عليها فوسع الشق قليلاً فإن غلقت شيء من الدم فاقطعه بالزجاج، فإن كانت أكثر من واحدة فادفع أولاً الكبيرة إلى فم المثانة ثم شق عليها ثم ادفع الصغرة بعد ذلك وكذلك تفعل إن كانت أكثر من اثنين، فإن كانت عظيمة جداً فإنه خيّل أن يشق عليها شقاً عظيماً لأنه يعرض للعليل أحد أمرين إما أن يحدث له نظير البول دائماً من أجل أنه لا يلتحم الموضع البتة ولكن حاول دفعها حتى يخرج أو تحلى في كسرها بالكلاليت حتى تخرجها قطعاً”.

Albucasis was the first to use a forceps to extract a bladder stone. Before him, extraction of the stone was by an instrument similar to a small spoon that goes around the stone and scoop it out. Accurate description of that new instrument and its use is given in the text. The use of Albucasis stone forceps spread to Europe during the Middle Ages and Renaissance. The drawing of stone forceps shown in Marianus Sanctus book (the middle of the 16th century) is exactly the same as the description and drawing of Albucasis forceps.

The details about how to deal with multiple bladder stones were not mentioned in the works of the ancient or Greco-Roman scholars. Albucasis is the first to describe a technique and an instrument to crush a large stone inside the bladder, thus, enabling its piecemeal removal. That innovation by Albucasis was an important landmark in the development and evolution of bladder stone surgery because it helped to decrease the mortality and morbidity of the operation. He vividly warned that death or permanent incontinence may result if a very large incision was resorted to for extracting an intact very large stone. He condemned that procedure and considered it utter ignorance. Both of Spink and Lewis and Kirkup consider Albucasis innovation of crushing a stone inside

the bladder, to enable its piecemeal extraction, as the foundation of the lithotripsy principle. They described his instrument Al-Kalaleeb as a primitive lithotrite. The technique attributed to Ammonius of Alexandria (Second century BC) and described in Celsus book (50 BC) (introducing a scoop behind a large stone and then a chisel-like instrument is driven into the other side of the stone by the blow of hammer in order to split the stone) is not well documented. The famous book of Paulus Aegineta (seventh century AD), known to have summarized all previous Greek and Ancient medical and surgical knowledge, did not contain any mention of Ammonius or of any technique of splitting or breaking up a large stone in the bladder. On the contrary, it is documented that lithotomists, up to the 4th century AD, abhorred and warned against any attempt to fragment a stone inside the bladder before its extraction.

It was Al-Razi who first doubted the belief, prevalent among the ancients, that breaking of the stone inside the bladder during or before its removal endangers the patient’s life. In his book Al-Hawi, after citing that Antylus, the Greek (2nd century) adhered to that belief, Al-Razi commented: “*This is to be looked into, God willing*”. However, Al-Razi, realizing before Albucasis, the dangers of resorting to a large incision to extract a very large bladder stone, described a technique in which the sides of the stone were made to protrude out through the small perineal incision, then they were pinched off, one after the other, with the Kalbatayn forceps which is similar to the Arrows Extracting forceps; that repeated breaking away of the stone sides outside the bladder was continued until the stone became small enough to come out without the need to fragment it inside the bladder. That technique of Al-Razi was an important advance in the evolution of bladder stone surgery which was soon followed by the breakthrough innovation of Albucasis mentioned before.

The use of Albucasis lithotrite Al-Kalaleeb spread to Europe during the Middle Ages and Renaissance; its impact on European Surgery remained till the eighteenth century. The lithotrite introduced by Andreas a Cruce in the early eighteenth century was, in fact, a modification of Albucasis lithotrite in which the manual compression on the handle was replaced

by a screw action. However, instead of Albucasis forceps, Andreas a Cruse used the scoop to extract the fragments. The metallic cylindrical canula was used to control bleeding by inserting it in the perineal wound at the end of the operation.

Then in the 19th century more important modification were successively added to Albucasis lithotrite when Amussat in 1822 managed to apply the principle transurethrally without the need to go through a perineal cystotomy. Eventually by 1832, Albucasis principle of a pair of jointed serrated blades to crush (Al-Kalalib) was replaced by the modern principle of parallel non jointed blades, introduced first by Heurtloup and then rapidly developed to become the mechanism used in the modern lithotrites.

Albucasis says:

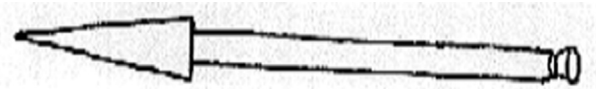
"And when you finish operating, pack the wound with frankincense, aloes and dragon blood then bandage it tightly and cover it with layers of cloth soaked in oil and syrup or in oil of roses and cold water to reduce the hot swelling. The patient, then, lies flat on his back and do not remove the bandage until the third day. When the bandage is removed, spray the area with plenty of water and oil; then treat it with palm ointment and basilicon ointment until it heals. If undue hot swelling and spreading gangrenous suppuration develops in the wound or anything similar, like blood clotting in the bladder causing retention of urine, the sign of which is the passage of blood with urine, then introduce your finger in the wound and evacuate that [clotted] blood; because if it remains inside it will lead to dysfunction and sepsis of the bladder. Then wash the wound out with vinegar, water and salt and apply, for each development, the appropriate treatment for until it heals. Also, it is essential, at all times during the application of treatment to fasten the two thighs and bind them together to keep in place the medications applied to the area".

"إذا فرغت من عملك فاحس الخرج بكندر ومصر فوفه حرقاً مبلولة بزيت وشرب أو بدهن ورد وبماء بارد لسكنى الورم الخار ثم يستلقي العليل على قنائه ولا تزل الرباط إلى اليوم الثالث فإذا تزل نظمت الموضع بماء وزيت كثير ثم تعالجه بالمرهم الحنطلي والمرهم الساسليقون حتى يبرأ، فإن عرض في الخرج ورم حار زائد وأكّال وشح ذلك مثل أن يجمد دم في المثانة ويمنع منه البول ويعرف ذلك من خروج الدم مع البول فأدخل إصبعك في الخرج وأخرج ذلك الدم فإنه إن بقي دعا إلى فساد المثانة وعفونها، ثم اغسل الخرج بالخل والماء والملح وفامل كل نوع بما شاكله من العلاج إلى أن يبرأ، وسعي في أوقات العلاج كلها أن تربط الفخذين وتضمعيما لتنت الأدوية التي توضع على الموضع".

The Arabic word used in the original text is kandar which is the solid gum of a tree with the same name. The Arabic word used in the original text is Sabr: which is the juice of Sabbar tree. The Arabic word used in the original text is Shian (known also as Dammul Alakhwain). Hot swelling refers to the wound oedema due to reaction to the physical inflammation. The Arabic word used for the verb spray is the verb "Nattal" i.e. used the nattulat which are medicinal compounds locally applied by spraying or rinsing in jets or as douches. Undue hot swelling refers to excessive oedema due to wound infection. The Arabic word used in the original text is Aakelah which means cancrum.

Albucasis says:

"And if the stone is small and moved to the penile passage and got impacted therein preventing the urine from coming out, deal with it in the way I am going to describe before you resort to cutting upon, for often with this treatment, I managed without the need to cut on the stone. I did try [have experience in] this [procedure]1. You take a Mishaab [drill] made of Foulaz [stainless steel] with a shape like this:



Its end is triangular and sharp and it is fixed to a wooden handle. Then take a thread and tie it around the penis below [ahead] of the stone so that it may not return back to the bladder. Then gently introduce the iron end of the Mishaab until it reaches the stone itself and then, with your hand, revolve the Mishab, little by little, upon the stone itself aiming at making a hole in it until you perforate through to the other side. Then, the urine will be immediately released. Then with your hand on the outside of the penis, squeeze what remains of the stone, it will crumble and be passed out with urine and the patient, Allah willing, will be cured".

"إن كانت الحصى معبرة ومبارت في شحرى القضيب ونسبت فيه وامتد البول من الخرج فعاالجها بما أنا وامعه قبل أن تصير إلى الشحى فكثيراً ما استعيت بهذا العلاج عن الشحى فقد حررت ذلك وهو أن تأخذ مشعاً من حديد التولاد تكون هذه مسورة، مثل الطرف حاد معزز في عود، ثم تأخذ حيطاً وتربط به القضيب تحت الحصى لتلا ترحع إلى المثانة ثم تدخل حديد الشحى في الإحليل برفق حتى يصل الشحى إلى نفس الحصى وتدير الشحى بيدك في نفس الحصى قليلاً قليلاً وأنت تروم نفسها حتى تمدها من الجهة الأخرى فإن البول ينطلق من ساعته ثم ترمّ يدك على ما بقي من الحصى من خارج القضيب فإنها تنفت وخرج مع البول وبرا العليل".

This statement confirms the wide personal experience and originality of Albucasis. It shows his ability to invent new instruments and introduce, and test, new techniques. Accordingly, he was not a mere compiler but also a very skilled innovative surgeon. This procedure was not described by any of the ancient or Greco Roman scholars. It is therefore an original contribution by Albucasis. It laid the foundation for the principle of lithotripsy; an important landmark in the evolution of urology. Albucasis procedure became widely recognized in Europe until the 19th century which witnessed a period of ingenuity on the part of surgeons and surgical instrument makers. Therefore, by the notion of getting at the stone while actually within the bladder, Albucasis idea of drilling by Al-Mishaab which was introduced in the bladder along a metal cannula was the foundation of the litholepte of Fournier de Lempdes (1812), the instrument of Gruithusien (1813), Civiale's trilabe (1818) and the brise coque of Rigal De Galliac (1829). Then the final modification to Albucasis idea of drilling was in the replacement of al-Mishaab with a rotating burr as in Leroy d' Ettiole lithoprione (1822) and Civiale's lithontripteur (1823).

Albucasis says:

"But if this treatment was not feasible for you because of an impeding obstacle, then tie a thread below [ahead of] the stone and another above [beyond]; then you cut down on the stone in the penis itself between the two ligatures and deliver the stone out then undo the ligature and clear away the clotted blood that formed in the wound. It is a must to tie the thread below the stone so that it may not return to the bladder and the other ligature from above is needed so that when it is undone after removing the stone, the skin will return back to its place and, thus, covers the wound. It is for that reason that when you tie the upper ligature you should pull the skin upwards so that, when you finish [the procedure] it will recede back and covers the wound as we just mentioned".

"إفان لم يتسأ لك هذا العلاج لعائى معوفك عن ذلك فأرط حيطاً تحت الحصى وحيطاً آخر فوق الحصى ثم تنس على الحصى فى نفس القصب بين الرطين ثم ترحبها ثم تشل الرباط وتغى الدم الجامد الذى صار فى الخرج، وإنما وجب ربط الحيط تحت الحصى لئلا ترجع إلى الشاة والربط الآخر من فوق لكما إذا حل الحيط بعد خروج الحصى يرجع الخلد إلى مكانه فيعطي الخرج ولذلك ينبغي لك إذا ربطت الحيط الأعلى أن ترفع الخلد إلى فوق ليرجع عند فرأناك ويعطى الخرج كما قلنا".

This technique aims at decreasing the chance of forming a fistula by avoiding incising the skin and the

corpus spongiosum at the same level. It was described before by Paulus Aegineta in the 6th century AD. However, Albucasis description of the technique is different from that of Paulus who recommended pulling tightly on the foreskin then fixing it that position by applying a ligature around it at the tip of the glanz penis. Contrary to the Greco Roman scholars, Albucasis was dealing with circumcised patients and this explains the difference in his technique from that described by Paulus. This again shows the originality and wide personal experience of Albucasis and confirms that he was not a mere compiler.

Conclusion

Albucasis remarkably improved the technique of this operation and reduced its risks. His modifications and innovations spread to Europe in Middle Ages and remained widely adopted until the beginning of the 18th century which witnessed the beginnings of the modern method using the suprapubic, instead of the perineal, approach for the removal of bladder stones. Albucasis invented a new lithotomy scalpel with 2 sharp cutting edges and, being a novel instrument not known before him, he made a drawing for it. Albucasis is the first to describe a technique and an instrument to crush a large stone inside the bladder, thus, enabling its piecemeal removal. That innovation by Albucasis was an important landmark in the development and evolution of bladder stone surgery because it helped to decrease the mortality and morbidity of the operation.

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A Medical Ethics Perspective to Laws in Public Health in Turkey

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Summary

Today, in Turkey, we see some laws on Public health. We can review them from the point of view of the medical ethics. These laws contain some articles. Ethical dilemmas on public health can be solved with their helps. For example, 52th and 112th articles of the Turkish Law of Protection of Health and with the number of 1593 is about immunization campaigns. These campaigns are compulsory for necessary persons. Here, public health doctor can explain this condition to identifying persons as emphatic. We know that one duty of all who conduct immunization campaigns is to ensure that everybody is aware of the risks. Moreover, other laws such as Turkish Law of Patients' Rights, Law of Socialization of Health Services, Turkish Agreement of Medical Ethics etc. Try to solve ethical problems on public health.

In this paper, laws on public health in Turkey are pointed out from the point of view of the medical ethics and some results are obtained.

Key Words; Medical Ethics, Public Health, Laws on Public Health.

We know that, ethics is the set of philosophical beliefs and practices concerned with distinctions between right and wrong; with values, human rights, dignity and freedom; with duties to others and society. We all distinguish between what we regard as acceptable (“right”) and unacceptable (“wrong”) conduct, although standards and criteria of right and wrong vary greatly (1).

Values are what we believe in, what we hold dear, what binds us to others of our kind; values are the foundation of morality. The law, which is based on morality, tells us what we are allowed to do; ethics tell us what we ought to do. The distinctions between ethics, morality and law are based on the intellectual and emotional level at which we accept or abhor behaviour; whether we regard conduct as “right” or “wrong” depends upon our ethics. Societal values are the basis for many laws, whether enacted by legislation or based on decisions in a law court (2).

The developments in the science of public health caused the modernization of ethics of public health. In Turkey, we see some laws on public health. One of them is very important. This is **Law of Protection of Health with the date of 1930 and with the number**

of 1593. In this law, we find many important articles. According to the third article of this law, Ministry of Health should prevent the diseases of children, conduct immunization campaigns to prevent contagious diseases. Ministry of Health applies these services with public health workers. These are public health doctors, nurses and officers. Today, in Turkey, the developments in public health led public health doctor to suggest a necessary sequence for the control of any public health problem (3).

The developments of public health are present in the faculties of medicine in many universities of Turkey. The specialists of public health who are trained in these departments can work in health dispensary. Moreover, practitioners can also serve as public health doctor in Turkey. Every doctor should protect the health of persons. But, some ethical problems on public health can be seen in Turkey.

In this article, we can explain them. Thus, according to the 29-56. articles of this law, foreign persons with contagious disease are quarantined. General Management of Turkish Coasts applies quarantine. We know identifying persons with communicable diseases means that they are labeled, and this can

stigmatize them. We know that the isolation and quarantine restrict freedom. Individuals, families, even entire communities may be identified and stigmatized, isolated, or quarantine and shunned by their neighbors.

Identifying and isolating cases is an accepted feature of communicable disease control, held to be necessary to protect the population. The need to protect society has been recognized as a higher imperative than the rights of an individual patient or contact. When smallpox, cholera, polio, typhoid, diphtheria and other contagious diseases were prevalent, few people questioned the actions of public health authorities who notified and isolated patients and quarantined contacts, often severely infringing the freedom and dignity of entire families.

According to 52-102. articles of the **Turkish Law of Protection of Health**, immunization campaigns are compulsory for necessary persons. Here, public health doctor should explain this condition to identifying persons as empathic. So, the beneficence of the society is very important in Turkey. Moreover, one duty of all who conduct immunization campaigns is to ensure that everybody is aware of the risks as well as having the benefits clearly explained to them; in short, informed consent is essential. This is very important when children are not admitted to school without evidence of immunization; that is, when immunization is mandatory rather than voluntary.

Today, in Turkey, risk-benefit calculations are required for all forms of mass medication. The possibility of adverse effects or idiosyncratic reaction always exists. Opposition to fluoridation of drinking water is based in part on the unfounded fear that fluoride can cause cancer or some other dread disease. Epidemiologic analysis shows no association between fluoridation and cancer. Opposition to fluoridation is more a political than a public health issue, in which the catch-phrase of the antifluoridation movement, “keep the water pure”, is difficult to rebut. Another political argument is that fluoridation is a paternalistic measure, imposed on the population whether they like it or not. According to the ethical principle of respect for autonomy, individuals in a free society should have the right to choose for themselves whether they want to drink fluoridated water.

Responsible adults can choose, but for infants and small children, fluoridated drink water makes the difference between healthy and carious teeth. Applying the ethical principle of beneficence, public health officials argue that infants and small children should receive fluoride to ensure that their dental enamel can resist cariogenic bacteria.

Proponents of computerized medical record storage and retrieval systems assert that computerize records are more secure than paper records, but if unauthorized access does occur, many people’s privacy, not just one person’s, can be violated. Moreover, computers can “crash” and a whole library of records may be lost or become inaccessible (4,5).

Applying the principle of beneficence, it is desirable not only to maintain data files of health-related information, but to expand them; available ideas as well as available information should be used for the common good. Statistical analysis of health-related information has been so convincingly demonstrated to be in the public interest that there is no rational argument against continuing on our present course and further expanding the scope of these activities. This argument applies with particular force to the use of linked medical records, potentially the most powerful method of studying diseases that are rare or have long incubation times, or both (6,7,8).

Health workers have an ethical duty to protect the confidentiality of the records that they use. Irresponsible disclosure of confidential details that can harm individuals is not only unethical but can arouse public opinion against collection and use of such material. Properly used, health statistics and the records from which they are derived do not invade individual privacy (9,10,11). According to the **Turkish Law of Patients’ Rights** with the date of 1998, the patient has the right of privacy (12).

The process and procedures for obtaining informed consent should be clearly understood by all health workers. The process consists of transfer of information and understanding of its significance to subjects of medical interventions, followed by explicit consent of the subjects (or responsible proxies) to take part in the intervention (13). According to the **Turkish Law of Patients’ Rights**, the informed

consent of persons is necessary in many areas of public health.

Health promotion is the process of enabling people to increase control over and improve their health. Health advocates regard it as a step toward autonomous decision-making for people who were formerly passive recipients of public health measures like purifying drinking water, mass vaccination programs, dietary additives, tuberculin tests, and other routine public health interventions (14).

What could be more beneficent than spreading information about risks to health and actions that can be taken to reduce these risks? Health education encourages all to take greater responsibility for their own health (15). Economic interests in communities dependent on the alcohol and tobacco industries, it is argued, also must be considered when deciding how to deal with public health problems associated with tobacco and alcohol use and abuse. These are complex economic, political and ethical questions. The ethical principles here are beneficence and justice (16). According to the **Turkish Law of the Control of Narcotic Matters with the date of 1928**, the prevention of tobacco and alcohol use and abuse is necessary. Here, beneficence of community is very important from the point of the medical ethics.

National population policies range from encouragement of couples to have or refrain from having children (often with related laws on access to and use of contraceptives) to vaguely visualized policies implied by the appearance in newspapers and women's magazines of articles on birth control that contain statements about the efficacy of contraceptive methods (17). According to the **Turkish Law of Family Planning with the date of 1983**, curettage can be applied up to the 10th week with the desire of woman. Birth control drugs and apparatus can be used with the prescription of physician.

In a free society, public health workers have an ethical duty to consider each patient or client as an individual with her own unique life situation, problems, and requests - not as a "case" to whom the official policies necessarily apply. The aspirations of women and couples to have or refrain from having children are powerful and very personal (18). Staff

members of family planning clinics have an ethical duty to offer advice and treatment, and an equally important duty not to enforce their own or official views on individual clients in Turkey.

Public health is inherently concerned with social justice, with fair and equitable distribution of resources to protect, preserve and restore health. Public health workers therefore frequently become advocates for health care systems that provide access to needed services without economic or other barriers. The principles of equity and justice go further. The allocation of health care budgets is often based on political or emotional grounds and on the ability of eloquent spokespersons for high-technology diagnostic and therapeutic services to promote these interests. Funds sometimes are allocated for expensive equipment and devices, while much - needed public health services such as water purification plans is need of renovation or logistic support for immunization programs, go without funds. It is an ethical imperative for public health workers to be as aggressive as circumstances require in obtaining an equitable share of resources and funds for public health services (19-21). **Law of Socialization of Health Services** with the date of 1961 provides that every citizen make use of social services equally. Justice principle is provided with this law. Health dispensaries provide health service for everybody.

Beneficence is the dominant ethical principle of public health in Turkey. The aim of public health services ought to be to enlighten people about risks to health and to assist people in gaining greater control over environmental, social and other conditions that influence their own health. We have an ethical duty to work with people, empowering them, doing whatever may be necessary to promote better health-doing things with, not to, people (22). However, it is beneficent for public health workers to strive for economic, environmental, social and political conditions that will maximize good health.

Reactions to human immunodeficiency virus (HIV) disease have been different. It is important to protect the privacy of HIV-positive persons and to safeguard the confidentiality of their medical records to minimize the risk of disclosing information that could harm them or members of their families.

Health workers have an ethical duty not to discriminate against persons infected with HIV. In Turkey, AIDS cases are few. In these kinds of cases, doctor should respect to privacy principle and should inform this case to necessary administration places according to the **Turkish Agreement of Medical Ethics**, with the date of 1960. Here, the beneficence of community is necessary.

Moreover, health insurance shows modern characteristics in Turkey. But, we see some ethical problems in health insurance from the point of view of the medical ethics. Modern insurance laws are present, today. We know two kinds of health insurances in Turkey. One of them is the health insurance with regard to the Official Foundations. Another one is the special health insurance. Ethical dilemmas between patient, insurance company and hospital can cause to some difficulties in the patients' therapies. For example, the hospitals of social insurances are very crowded in Turkey. The physicians cannot have the time for the therapies of the patients. Sometimes, physicians cannot behave as emphatic because of their economical, social and professional problems. Some modern laws try to prevent these problems (9,10).

There are laws or regulations aimed at protecting people against tainted foodstuffs, unsafe working conditions, and unsatisfactory housing. Moreover, in Turkey, community values and standards have lately shifted toward greater control over environmental hazards to health, reflecting growing concern about our deteriorating environment. Turkish Law of Protection of Health has some articles on this topic.

In this paper, all of these topics are stressed from the point of the medical ethics and laws in public health in Turkey and some results are obtained.

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Islamic Medical Ethics in Assisted Conception*

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Summary

A brief history of Islam and Islamic jurisprudence (Fiqh) is outlined with an overview of the evolution of Islamic medicine. Islamic medical care is conceptualized within the framework of Islamic medicine and Islamic medical ethics; medicines, techniques and technologies of assisted conception are scrutinised for compatibility with the guidelines of the Sharia. This article is mainly centred on assisted conception, and the areas where these methods pose problems and conflict with Islamic thought and the Sharia, are discussed with an emphasis on how Muslims could derive benefit from modern technologies and yet not contravene the principles of Islam. The article concludes with glimpses into the future and examines the Islamic viewpoint on technologies, mainly reproductive techniques, in the horizon but yet to enter the realm of medical practice such as therapeutic cloning, gene therapy and stem cell technologies.

Key Words; Islamic Medical Care, Islamic Medicine, Islamic Medical Ethics, Reproductive Medicine, Assisted Conception.

Introduction

Islam, the empire of religion, spread its faith across the globe and bequeathed to the world, a rich intellectual heritage, fashioned, sculpted and imbued with an Islamic mould, from the origins of Greek, Persian and Indian heritage.

Islamic medicine being eclectic, chooses the best of available medical technology, compatible with the spirit of the Sharia and the Islamic community. Medical ethics in Islam may be defined as the practice of medicine keeping within the ethos of Islam, satisfying both, the criteria of autonomy, beneficence, non-maleficence and justice and the principles and precepts of Islam.

Assisted methods of conception do provide solace and hope for the barren couples but they also pose special problems from a religious perspective. Islam transcends ethnic, religious and cultural barriers and all Muslims by their definition, submit to Allah's will and therefore to the Qur'an and the Sunna of the Prophet. Their actions are governed by the Sharia and this applies equally to methods of assisted conception they would choose. The Qur'an is immutable and so are the authentic religious Sunna but Islamic jurists (Mujtahidun) are empowered to resort to Ijma (consensus), Qiyas (analogical reasoning), Istihsan (juris-

tic preference), Istislah (public or community benefit) and Urf (custom), where the Qur'an and Hadith do not provide a solution. At present, controversial issues related to reproductive medicine are referred to Islamic jurists, Fuqaha and Muftis for a fatwa and more recently these issues are addressed by Fiqh academies composed of Islamic scholars, doctors, lawyers, scientists and other persons with expertise in different fields.

To appreciate Islamic medical ethics in reproductive medicine, one has to be cognisant with the background of Islam and the evolution of Islamic jurisprudence and these have been described, albeit briefly, followed by the methods of assisted of conception with an integrated synthesis with Islamic values.

Islam - A Historic Background

Islam, the youngest of the religions of the Abrahamic faiths, was promulgated by Prophet Muhammad (saws) in 610 C.E., who preached the new religion in the Arabian peninsula. The subsequent blossoming and expansion of Islam has been hailed as unprecedented and unparalleled. In the wake of these new conquests, came power, wealth and affluence and while the rulers basked in the extravagance and splendour of the new empire and promoted aesthetically beautiful architecture, there emerged

alongside, a thirst for knowledge. Both the Qur'an and the Sunna of the Prophet espoused the acquiring of knowledge.

There was therefore, enthusiasm among the ruling hierarchy to contribute towards this noble project. Caliphs, Grand Viziers and others all vying for a place, showering their wealth towards furthering education. An important subsidiary source of wealth was the waqf, a trust fund bequeathed for charitable purposes, be it a mosque, learning institution, hospice, Sufi lodge or for the needy. This new zeal and clamour and sponsorship of knowledge reached its zenith at the time of Caliph Ma'mun (son of Harun al-Rashid), who was notable for inaugurating the Bayt ul hikma (house of wisdom). Following on his father's and predecessors' footsteps, he encouraged and sponsored the acquisition of knowledge from Greek, Persian, Indian and Chinese sources. A large contingent of scholars, engineers, philosophers, doctors and other scientists from the Academy in Jundishapur (near present-day Isfahan in Iran), mainly Nestorian Christians, who fled from Edessa and Antioch to escape the persecution of Emperor Justinian, were enticed and wooed to migrate to Baghdad. Institutions of higher learning, libraries, medical schools, hospitals were built, almost with a frenzy, in all Islamic lands, in Baghdad, Damascus and later in Egypt and Andalusia, Samarkand, Moghul India and the Ottoman states.

Evolution of Islamic Jurisprudence

This article deals with Sunni Islam and does not include the Shias', who differ in some respects from mainstream Islam. Sunni Muslims form one-fifth of the population, totalling almost a billion people. Islamic law or Sharia is mainly derived from the Qur'an (containing the divine revelations) and also ahadith, a narrative of the Prophet's sayings (Sunna al-Qawliyya), acts (al-Sunna al-Fi'liyya) and express or tacit approval (al-Sunna al-Taqririyya) referred to as the Sunna and constitute the primary sources. Ijma (consensus) of Islamic jurists, analogical reasoning (Qiyas), Istihsan (juristic preference), istislah (public interest or community welfare) and customs (urf) form the secondary sources of the Sharia.

Kufa (Iraq), Medina (Hijaz) and Damascus

(Syria) were the major centres in the early years. Out of many, four schools of Islamic thought survived. The Kufians under Imam Haniffa preferred to use their personal opinion (ahl al-ray) while the Medinites under Imam Malik tended to adhere closely to the Sunna (ahl al-Sunna); the former evolving into the Hanafi and the latter the Maliki school (madhab) of Islamic jurisprudence. Imam Shafi, was successful in synthesising and systematising the law and was acclaimed as the architect of Islamic jurisprudence and the Shafie school was named after him while the fourth madhab was named after Imam Hanbal. Islamic scholars and jurists continued to flourish but since the early 13th century, the gates of ijtihaad was closed and the scholars were denied the privilege of conducting Ijtihad. Their intellectual contributions, shackled and fettered, they were restricted to providing commentaries and supra-commentaries on the work of their predecessors.

However, since the 19/20th centuries, Ijtihad has re-emerged as the vehicle of expression by jurists and provide rulings (akham) on matters not explicitly or clearly stated in the Qur'an or Sunnah. The Jurists (Mujtahids) accomplish their task reaching an agreement (consensus or ijma) on issues not clearly defined by the primary sources by extracting legal precepts from the Qur'an or Sunnah or by resorting to Qiyas, Istihsan, Istislah or Urf.

In Islam, all actions are categorised into obligatory, recommended, permitted, disapproved and forbidden. In Islam, under special circumstances, even the forbidden may be permissible.

Evolution of Islamic Medicine

Medicine had always taken pride of place, espoused both in the Qur'an and by the Prophet, but the blossoming period of Islamic medicine was in the era of the Abbassids, particularly Caliph Harun al Rashid and his son, Ma'mun. The doctors from Jundishapur who formed the core of the medical profession, complemented by the local Muslim, Persian and Indian physicians, were responsible for the inauguration of the most extra-ordinary advances in medicine and hospital architecture. The next few centuries produced some of the finest physicians, translation of medical literature from Greek, Persian and

Indian sources into Arabic, directly or via Syriac and the organisation and establishment of both civil and army hospitals, mobile clinics and caravans, prison medical services, hospices, medical schools. The Muslims adopted an eclectic approach, choosing the best and what was appropriate and compatible for Islam and ignoring the rest. Thus evolved Islamic medicine, a brand of medicine which was totally acceptable to Islam and conforming to Islamic ethics.

Assisted Conception

An analysis of the assisted methods of conception in practice today, shows that artificial insemination and intra uterine insemination, utilising the husband's sperm poses no problem for Muslims. However, procurement of the semen by masturbation and even worse, the use of erotic films to facilitate the success of the procedure, is repugnant to say the least and is frowned upon by Islam. More recently, 'male packs' which utilise spermicide-free, special condoms and coitus with the wife to produce the sample, obviates this.

In Vitro Fertilisation (IVF)

In 1978, for the first time, the fallopian tubes were by-passed in conception and in vitro fertilisation became a reality; the egg was fertilised outside the body (in vitro) and the resulting embryo was transferred into the womb of the mother. In vitro fertilisation, poses no special problems for Islam, as there no infringements of Islamic principles. Though it appears to contravene God's design and interferes with his plans for conception and creation, the scholars have approved this on the grounds that the success of these new technologies are only by the will and barakah (grace) of Allah.

Foetal Reduction

As a consequence of transferring multiple embryos, particularly in the U.S.A., triplets, quadtriplets and higher-order multiple pregnancies creates a problem of extreme prematurity and maternal distress. Foetal reduction can by invasive means under ultra sound, reduce the number to a single or twin pregnancy. While Islam may sanction this for saving the mother's life, it should and could be avoided by curtailing the number of eggs and more impor-

tantly, the number of embryos transferred to a maximum of two.

Sperm Donation

Donation of sperms and sperm banks have been in existence for a long time and creates an ethico-religious problem, in that it brings in a third party into the process of conception who contributes half the genetic make-up. Fortunately, artificial insemination with donor sperm has been relegated to the background since the advent of intra cellular sperm injection (ICSI) in 1992., the sperms could be aspirated or extracted from the epididymis or testes and ICSI provides fertilisation, even in cases of severe sperm abnormality.

Ovum Donation

Infertility due to a failure to produce healthy eggs remains a problem in anovulatory and older women, premature menopause, fertilisation failure and in those with recurrent miscarriages. Ovum donation gives hope for these unfortunate couples. Islam however prohibits the mixing of genealogy and confusion of family lineage and therefore ovum donation is unacceptable. But in cases of polygamous marriages, could one co-wife donate to the other; strictly speaking, there is no mixing of genes outside the marriage, no confusion of family lineage, the conception is still within the marriage contract, albeit in a different sense, the mother is the woman who nurtures and delivers the baby and the father is the same; which are the reasons normally given for its non-acceptance. This issue remains unresolved; so does the issue of a Muslim woman donating eggs to a non Muslim.

Embryo Donation

Embryo donation is necessary where the husband has no sperms and the wife has no eggs, or where one or other has no gametes and the available gamete is fertilised by a donor sperm or egg, and the resulting embryo is transferred into the womb of either the wife or surrogate. This is prohibited because of mixing of genes and family lineage. What then is the position in a polygamous relationship? Can a co-wife donate the egg, have it fertilised by the common husband and the embryo transferred to the other wife,

who will nurture and deliver the baby? The recipient of the embryo who nurtures and delivers the baby will be the mother, in concordance with the following verse.

“None can be their mothers except those who gave them birth” Q: 48:2

The pregnancy would be within the ‘family’ and under the ‘marriage contract’ and the mixing of genes and family lineage are restricted to the ‘extended’ family. These are intricate and difficult questions for which answers are still awaited; the same holds for a Muslim couple who wishes to donate surplus embryos to other

Unused Embryos

It is common practice for surplus embryos to be either donated, discarded, destroyed, stored or used for research according to the wishes of the couple. To date Islamic Fuqaha (jurists) have paid little heed to this aspect of reproductive medicine and the status of the embryo. Are embryos living beings, do they have any rights and are they entitled for protection from harm? Islam considers any part of the human body as precious and sacred. It is surprising that the product of the union of sperm and egg, producing a living ‘potential’ human, albeit a miniature one, has received scant respect and attention by the jurists, to date. Embryos are stored away encapsulated and frozen in steel cylinders, perhaps, never to see the light of day; evoking Huxleyan nightmares of little genies, hibernating in hatcheries all over the globe.

The concept of ‘pre embryo; which has been proposed to salve the conscience hardly solves the ethical issue. From a pragmatic viewpoint, it has to be conceded that an embryo is different to that of a growing foetus in utero. It is also true that there is no guarantee of implantation and growth into a foetus.

While this may be true, the embryo has at least the status of a potential human and therefore, merits some respect and dignity. Maybe the answer is to permit all surplus embryos to be donated to infertile non-Muslim couples. If this is not permissible, perhaps, the number of eggs produced should be tailored to give two healthy embryos. If despite this, there are surplus embryos, indefinite storage should be dis-

couraged and a time limit should be imposed. Embryos should be destroyed in the event of a divorce or death. Whether embryos could be donated for research is another issue which awaits the Fuqaha’s response.

Surrogacy

Where the mother has no womb or a womb which cannot nurture a pregnancy, the embryo is transferred to the womb of a surrogate, who would hand over the baby to the ‘contracting couple’. Surrogacy may be partial where the husband contributes the sperm and gestational or full, where the surrogate provides no gametes which are derived from the husband and wife. Though gestational surrogacy was permitted, this permissibility has since been withdrawn by the jurists. The reason is possibly that nurturing and delivering the baby confers motherhood, rather than biological, genetic contribution and procreation is outside the marriage contract. This caveat notwithstanding, there is some justification for considering surrogacy as a form of adoption. It is true that Islam does not recognise adoption in the conventional sense, stipulating that the genetic father or his name, must be retained as the father. Of course in gestational surrogacy, the sperm comes from the father and therefore he is the genetic, biological and the rearing father. So there should not be a problem of the commissioning couple ‘adopting’ this baby from the surrogate mother. Also. What is the situation of a co-wife in a polygamous relationship being the surrogate. After all, the conception is within the marriage contract; modified perhaps but still within the same family. If the co-wife is agreeable, she is like a ‘wet nurse’ who provides succour to the foetus in-utero.

Pre Implantation Genetic Diagnosis (PGD)

PGD is an ingenious technique whereby the early embryo is tested for chromosomal or genetic abnormalities, and the normal embryo chosen for transfer. It is an excellent alternative to conventional pre-natal diagnosis and obviates the necessity of an abortion.

“... the stage is set for a revolution in functional genomics and human genetics ...Central to this revolution will be the gene chip, with the potential to iden-

tify genetic variation ...Continual development and improvement of existing gene chip technology will enable ... to identify the genetic basis of male and female infertility... The identification of an individual's genetic blueprint at birth will provide the clinician with powerful tools to assess disease risk ...” (1).

From an Islamic perspective, this pro-active technology is desirable but poses two problems. There is potential damage to normal embryos and does the discarding of affected embryos create an ethical problem. This is another area the jurists are yet to comment. It must be emphasised that though this technique affords sexing, Islam prohibits choosing of the sex.

“... He creates what he wills. He bestows female (offspring) upon whom he wills and bestows male (offspring) upon whom he wills. Q 43:49

Cloning-Islam - Baby from Both Man and Woman

In cloning, the nucleus from a somatic cell, is injected into an enucleated egg and thus an embryo is artificially created. The nucleus could be obtained from the husband, albeit a skin cell (not from the sperm) and injected into the enucleated egg of the wife and the zygote is transferred into the womb of the wife. Genetically, the offspring will be identical to the father, for the mother contributes no genetic material except mRNA and mitochondrial DNA from the cytoplasm. There is no mixing of genes, no confusion of family lineage and the pregnancy occurs under the sanctity of marriage and the mother nurtures and delivers the baby.

Though the wife takes part in the genesis of the offspring it does not contribute any genetic material. Although ethically, human cloning is not acceptable, what is the Islamic perspective? Also, can these clone embryos be used for research purposes? The concept of cloning poses an interesting, or rather, tantalizing dilemma for the jurists of Islam.

Stem Cell Technology

Stem cells which are totipotential could be obtained from the inner cell mass from surplus IVF embryos or generated by cloning adult cells. “Stem

cells ... ability to generate additional stem cells ... generate differentiated cell types with specific functions ... a substantial amount of reprogramming between cell fates is possible”(2)

The therapeutic potential is enormous; damaged or diseased organs could be replaced viz. spinal cord injury, diabetes mellitus, Parkinson's disease, cardiomyopathy, stroke victims, arthritis and others. In the field of research, it could provide a window for observing embryogenesis, teratogenesis and embryotoxicity. Does Islam permit the use of surplus IVF embryos for research.

Discussion

The aim of this article is to address the question of alleviating the anguish and grief of the barren couples who need one or other of the newer technologies of assisted conception. The infertile couple look towards assisted conception as their last resort and do deserve sympathy and understanding of their need to procreate It is important to recognise that the religiosity of the couple would dictate the need for religious blessing of a particular method of assisted conception. Also, we are aware that among those who cross borders to overcome legal restrains in their 'home states', some are Muslims. However, among Muslims it would be true to say that even non-practising members would still lean towards a Sharia-compatible method to salve their conscience. Some Sufis who would adopt a passive stance and leave it in the hands of Allah but the Prophet (SAWS) promoted the seeking of a cure with the following statement

“For every disease (except old age), God has provided a cure”.

While it is true that despite what man attempts to do, Allah determines the final outcome

“... Allah may grant to mankind, none can withhold it; and whatever He may withhold, none can grant it thereafter ...” Q 35: 2

Therefore Allah will grant progeny or leave barren as He wills. The Qur'an and the Prophet certainly promote procreation and so does the Prophet. “Marry, procreate and abound in number”. It has been suggested that assisted conception, particularly in vitro

fertilisation methods, interfere with nature and God's work. But this has been refuted with the argument that when man succeeds, it is because of Allah's barakah (grace).

The Qur'an is immutable and so are the authentic ahadith. Therefore, the jurists have to find answers to resolve reproductive issues in the Qur'an or hadith; if this is not available, Ijma, Qiyas or istihsan, istislah or urf may help arrive at a solution.

A Fatwa is not binding and a Muslim could get a second or third opinion (fatwa). While this is generally desirable, as a form of independence of Islamic thought, it does leave room for variance and non-uniform resolutions. Perhaps, after the preliminary deliberations by individual jurists, a final resolution in a central global, Fiqh academy may lead to uniformity.

Conclusion

This article highlights some areas of reproductive medicine which are not in concordance with Islam. Cryo-storage of embryos serve a useful function in maximising IVF whereby the yield of a single attempt could be used for transferring embryos many times over and as and when one wishes to. Moreover, embryos or gametes (sperm and ova) could be preserved prior to radio or chemotherapy. Notwithstanding

this, the status of embryos remains in limbo, as a means to an end. Though polygamy may provide an acceptable solution to the question of ovum donation or surrogacy, it is not an answer that would be welcome today; the author certainly would not advocate it and even Muslim countries are making it illegal, except in special circumstances. Polygamy has been mentioned above as an intellectual exercise, rather than a solution. Does Islam permit the donation of surplus ova and embryos to other infertile couples, non-Muslim of course; after all, it is a potential life and why not some other barren couple be denied the joy and happiness it could bring?

Finally, what is the Islamic position regarding the use of surplus embryos for purposes of research? Being eclectic, Islamic medicine utilises the research done by others. Why should we not contribute towards it?

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Medical Ethics in Medieval Islam*

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Summary

The author discusses medical deontology in medieval Islam. After reviewing the work of al-Ruhawi and other Islamic ethicists, he notes that in medical ethics, as in medicine and other sciences, Islamic civilization, at the time, reached levels unsurpassed anywhere.

Key Words; Islamic Civilization, Ethicists, Medieval Islam.

As we have seen elsewhere (1), society confers on the physician special trust and privileges (e.g., knowledge of confidential information, examination of the most intimate parts of the body), but it requires in return that he adhere to principles of behavior expressed in codes which are common to many cultures. In the Western World, such a code was (and, to a certain extent, still is) (2) the Hippocratic Oath.

The Islamic world was no exception and treatises of medical ethics were common. (2) The Islamic physician also recognized the validity of the Hippocratic Oath, which was translated and adapted to the Islamic religion (in the same way it was modified in the West to reconcile it with Christianity (3)). The Arabic version of Usaybia reads:

I swear by God, Master of life and death, giver of health and creator of healing and every cure, and I swear by Asclepius, and I swear by all God's saints, male and female, and I call on all of them as witnesses that I will fulfil this oath and this condition.

I believe that he who instructs me in this sciences takes the place of my fathers. I will let him share in my livelihood and, should he need money, I will give it to him and let him participate in my income. I will consider the generation of his descendants as equal to my brothers and I will instruct them in this science, should they need to learn it, without payment and without condition. I will allow my children and my teacher's children and the pupils who have accepted

this condition and are sworn to the medical *nomos* (1) to participate together in exhortations and learning and all that has to do with the science, but for nobody else will I do so.

During the entire treatment, I will strive, as far as it is possible for me, to benefit patients. Things that may harm them and do them wrong I will avoid to the best of my judgment. I will not give a lethal medicine if asked for it nor give such counsel. Similarly, I do not believe that I may give women an injection [i.e., give a drug or perform a procedure] to induce abortion. In my treatment and my science I will keep myself pure and clean. Also, I will not make an incision for someone who has a stone in his bladder, but will leave it to those who perform this operation professionally.

All the houses that I enter, I will enter for the benefit of patients, being in a condition far removed from injustice, wickedness and voluntary and deliberate corruption in general as well as in respect of sexual intercourse with women and men whether free or slaves. Things concerning people's activity which I observe or hear during the treatment of patients and at other times and which ought not to be discussed outside I will avoid, since I believe that one should not talk about such matters.

He who keeps this oath and does not corrupt it in any respect will be privileged to perfect his treatment and his science most excellently and beautifully and will be constantly praised by all men in future. The

opposite applies to him who breaks it (Nomos is “the rule to follow,” “the law,” “the guiding norm.” In this case, the rules mentioned in the Oath).

The reference to Aesculapius, at first surprising, must be understood in the light of the fact that in the Islamic world Aesculapius was not a god, as he was among the Greeks, but simply the legendary originator and discoverer of medicine (4). It is to be underlined that Usaybia, like al-Ruhawi, interprets the prohibition to perform surgery as limited to the cutting for the stone and not to surgery in general (see below).

The oldest known surviving work in Arabic on medical ethics is al-Ruhawi’s *Adab al-tabib*, (“Practical Ethics of the Physician” or “Practical Medical Deontology”), (5) which is based to a great extent on Hippocrates and Galen.

Al-Ruhawi’s place of origin was most likely Ruha (al-Ruhawi means “the one from Ruha”), which was the old Edessa and is today Urfa (Turkey). A physician, he was a converted Christian, (6) who practiced in several cities of the Islamic world including Baghdad. He wrote several works of which only the *Adab al-tabib* survives.

In it, he underlines the qualities that the physician is expected to have and the vices and evils that he should avoid. The work also deals with every aspect of the physician-patient relationship, e.g., respect and confidentiality and developing mutual trust. Its content is summarized by Hamarneh:

1. The physician ought to be always “*hasib*”, that is honest, generous, noble of character, and righteous who seeks God’s favor and mercy.
2. He should be “*alim*,” that is proficient, learned, savant, capable and skillful.
3. He ought to be “*wari*,” a pious and God-fearing devotee or a deeply religious person.
4. To be “*ghayr ajul*,” that is to take his time and not to be in a rush but rather be congenial. The physician further must possess three traits:
 - A. “*Aql*,” to have a sane mind, reason, common sense and intelligence;
 - B. “*Razanah*,” that is having self-control, sober, calm and composed, sedate and serious; and finally,

C. “*Iffah*,” to possess abstinence, chastity with purity and decency with integrity and modesty.

He should protect himself against the following vices, evils, malpractice and wickedness:

1. “*Al-fujur*,” meaning debauchery, licentiousness or fornication.
2. “*Al-khubth*,” which means in Arabic malevolence and malice.
3. “*Al-danaah* or *al-danawah*,” meaning lowliness, vileness and meanness or dishonest.
4. “*Al-ghadab*,” wrath, anger or indignation.
5. “*Al-jaza*,” anxiety, anguish and apprehension or uneasiness.
6. “*Al-Shahwah*,” craving, greed, carnal appetite and lust or sexuality.

In addition, the author listed the six following virtuous traits that the physician should possess:

1. The physician ought to be “*miqdam*,” that is to be bold, daring, fearless and audacious.
2. He must be “*shuja*,” courageous, brave and valiant as a hero.
3. Be “*afif*,” chaste, decent, modest and pure in heart.
4. Be “*sabur*,” patient or long-suffering, forbearing and forgiving, steadfast, tolerant and persevering.
5. “*Mutamassik bil-haqq*,” to be always just and fair, unprejudiced, equitable, straightforward and candid.
6. Finally to be “*waqur*,” dignified and stately, venerable and reputable (6).

The following is a quote about inducing abortion:

... you must not mind the impatience of a woman whom you see distressed and afflicted due to her gestation, and not pity her or give her a remedy to make her fetus fall. Whoever does so has no fear of God...

As to a bad mother, do not show any compassion for her so that her shame will cause the improvement of many other women. Beware of giving things [i.e. abortifacients] like these; they are prescribed only if you fear the death of the pregnant woman or the fetus. There is no difference whether you administer the drug or you buy it. Before deciding on the drug treatment, it is essential that you read the book of

Hippocrates in regard to his oaths to carry out his word. You must adhere to his oaths and go along with his beliefs from which the oaths are derived since these belong to the art of medicine. These must be observed under all conditions (7).

And this about quacks:

Since medicine is the greatest in value of the arts for the benefit of man, its legitimate practitioners are of a noble and high rank, respected by the people. Further, this art is confined to a private group; it is not possible for everyone who seeks it to enter it. People, by their nature, like to be in the upper class and to be applauded; in this, there is no art above that of medicine. It attracts the jealousy of those who have succeeded into the high rank by the unsuccessful ones who have evil complexions and error in their inborn dispositions. Thus, they return to [the use of] cunning against the people with many kinds of deceit.

You may see them in dress and garb like legitimate physicians; the same is true for the way they speak and in most of their affairs. They embellish their offices and exhibit their instruments to hunt for people as in setting a trap or a net for beasts. Because of this calamity which intrudes in this art among its practitioners, there arises doubt of some of them. As a result, they are exposed to evil opinion by many people. Galen, in his book, *On Wonders in the Superiority of Knowledge* said, "As to what many physicians see, O Efhanes, it is impossible for one to proceed to warn about what happens to the ill, one by one. This is because, the busier a physician is, the further his conjecture is from the truth. This is a fact not only in medicine but in other arts." (6).

There are people who set out to become famous. They learn to speak well, act well, incline toward pleasure, blandishment, and permission with bowing and submission every day to the wealthy and the city authorities; they escort them from region to region, go out to meet them when they come to the country, and use cunning and laughter in groups. Some of these people are not content with these things but they also attempt to convince the public that they deserve expensive dress, beautiful rings, many companions, and silver vessels... Their purpose in general is to conduct themselves like legitimate physicians

both in action and appearance so that people will be convinced... There is no honesty in their treatment of the ill or in the maintenance of [the health of] well people; on the contrary, their activities cause illness of healthy ones. As was stated previously, some of them practice splitting, cauterization, etc., forcibly handling organs when it is unnecessary. They cause illness in the healthy so that treatment and curing are necessary for a long time - even to the point of death. This is not among Galen's known works and the name Efhanes is not found in Galenic literature.

Concerning remuneration, al-Ruhawi suggests that the rich should be charged enough for medical treatment to allow the poor to be treated for a small fee or none at all (6).

It is of interest to quote al-Ruhawi's interpretation of the passage of the Hippocratic Oath about surgery (6,7):

It is necessary that you obtain the advice of Hippocrates who gave this admonition, "I do not visit one who has a calculus in his urinary bladder; on the contrary I leave him to one whose area is this specialty." It is not necessary for you to do this except in a case of calculus distress. In similar ailments as that of the eye [this is also true]. There are people who specialize in these occupations so that you need not practice what is not in your field; this would only harm the ill (1).

It is evident that al-Ruhawi, like Usaybia, clearly realized that the Oath's prohibition about surgery referred only to the cutting of the stone and not to surgery in general (6). In addition, it is worth noting that the prohibition against the cutting of the stone is interpreted by al-Ruhawi as an exhortation for the physician to seek the help of the more skilled unless the patient is in acute distress.

Very often, the ethical rules for the physician were associated with the ideal physical characteristics that the physician was supposed to possess. Ibn Hubal (1117-1213), (1) in his *Kitab al-Mukh tarat fi l-tibb* ("Book of What is Best in Medicine," also referred to as "Anthology of Medicine"), described the desirable physical characteristics of a doctor:

Regarding what should be desired in a student of this profession, he should be of attractive appearance

and shape. He should be in good spirits, neither frowning nor scowling. People should look forward to seeing him, smile when speaking with him and when flocking to him. He should be of moderate stature, neither fat nor lean, If not, leanness is better. He should have a light rosy complexion if he is from a country where such a complexion is found. His forehead should be wide in proportion to his face and there should be a wide area between his eyebrows. His eyes should be bluish black and appear as if they are laughing or always looking at something pleasant. They should be of moderate size, neither protruding nor indented. If not, indentedness is better. A person with such eyes should seem mild and not overbearing. His tears should not be visible. Such a person should have facile cheeks, a small jaw, and sparse beard of moderate length which is neither curved nor inclined to the shoulders. He should have long upper arms, large hands with delicate edges and little flesh on the palms and long fingers. He should have smooth buttocks, moderately fleshy thighs, straight legs, and discernible arches in his feet. His feet should point exactly in the direction that he walks and he should have a light deliberate walk (8,9).

As we have noted elsewhere (10), Ibn Abi Usaybia wrote similar normative rules (including desirable physical characteristics) for the physician. In essence, all authors dealing with medical ethics emphasize those qualities that society expected from physicians, which are similar to those expected by other societies in other times (1).

As for medical fees in Islamic medicine, the subject has not been systematically investigated. We know that physicians were, in general, relatively affluent and that their average income was probably comparable, as mentioned above, to that of the affluent merchant and shopkeeper. On the other hand there was the possibility for prominent physicians to accumulate considerable fortunes. This, of course, led to ethical dilemmas concerning the medical profession and money, especially in view of the fact that Islam enjoined the charitable treatment of the poor. According to Ibn Ridwan, a man should study medicine with the intent of acquiring the art and not money, but this did not mean that he should neglect the possibility of making money:

When a doctor treats the ailments of the wealthy and they are in severe pain, he can make what financial conditions he likes, and when he knows that his patients will carry out their bargain, it is then his responsibility to produce the cure. The money that he earns should be spent on such useful ends as befits him. I mean on the assistance of relatives, charitable acts and the purchase of drugs suitable for curing disease. Nor should he refrain under any circumstances from tending the poor and associating with them (1).

Al-Ruhawi holds approximately the same views and asserts that the physician should earn enough so that he does not need to do anything other than practice medicine, and so that he can marry, afford proper food, clothes and housing (11). As we have seen above, he also states that the wealthy should pay sufficient fees so that the physician may take care of the poor.

In spite of all that, accusations of greed on the part of physicians are fairly common in medieval Islamic literature (6). The accusations may not have been completely unfounded, as Ibn Ridwan's criticisms of his colleagues indicates (12). A story in *The Arabian Nights* relates that a doctor, when told in the middle of the night by his servant that a patient waiting downstairs to see him was prepared to pay a quarter (of a dinar), became so excited that he sped down the staircase without taking a lamp and in the darkness ran the patient over and killed him (or, rather, believed he had killed him) (13).

This brief review of medieval Islamic medical ethics (14) indicates that, as in medicine and other sciences, the Islamic civilization, at the time, reached levels unsurpassed anywhere.

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Some Notes About the Influence of Arabian Medicine in New Spain

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Summary

New Spain was a viceroyalty of Spain between 1521 and 1821. In this three centuries, the practice and the teaching of medicine had a great influence from Arabian medicine, because of the action of Arabs in Spain from VIII to XV centuries.

I will try to do some reflections about it.

Key Words; Medicine, Arabs, Avicenna, New Spain.

New Spain was a viceroyalty, part of the great Spanish empire during three centuries, from 1521 to 1821. Its territory was occupied for part of the actual United States, Mexico and Central America.

When Hernán Cortés conquered the Aztec kingdom, began a new life into the medicine, because European medicine was mixed with aboriginal. The Spanish science, in that times, was mostly medieval, and so, was medicine. The medical, surgical and pharmacological practice were in delay if we compare it with the northern medicine of Europe. (1)

Surely all Spanish physicians who crossed the ocean carried in their luggage the essential bibliographical material for their profession., all of them faithful to the knowledge of Avicenna.

In the same books that edited Mexican presses we can know which one were. Francisco Bravo, who arrived to New Spain after he had studied in Alcalá de Henares and Osuna universities, in Spain, wrote the first medical book edited in America, named *Opera Medicinalia*, and cite, between others, authors like Galen, Avicenna, Rhazes, Hippocrates, Thucydides, Valles and Fracastoro. The works of Galen, Hippocrates and Avicenna were indispensable books for all medical doctors, and were edited many times.

About the works from Avicenna that came to New Spain, we have a few notices. Avicenna was an author cited for all who wrote medical books in the

Viceroyalty, and at the same time, it is rare the book from Renaissance that didn't include the Avicenna theories in its texts.

Bravo didn't say which of the Avicenna editions consulted although he pointed treatises and chapters of the work *Canon*, the most well known work from Avicenna was, between XVI century. Spanish medical doctors, an important work of consult, that was interpreted and informed in medical schools, simultaneously with Galen and Hippocrates.

There were many editions, but incunabula were twenty, almost elaborated about the classical translation from Gerard of Cremona, in XII century.

At the beginnings of the XVI century, in 1523 was published at Venice *Praesens maximus codex est totius scientiae medicine principis Alboali Abinsene*, monumental typographical work, and the most commented edition from the Persian physician, in whose interpretation supervised the most noted Italian doctors of that times. It was an important book and arrived to almost Spain medical centers. A copy of this work was used in the ceremonies at Alcalá de Henares to point out the themes for the grade exam.

During the XVI century there were in Spain the *Epitome* or *Compendium* from Avicenna that was drafted by Miguel Capella, and *Prima primi canonis Avicena section*, written by Miguel Jerónimo de Ledesma, Valencian lecturer, that although only

translated and commented the first book from the Arabian author, was successful.

Probably this two works arrived to New Spain, for the teaching of medicine at the Royal and Pontifical University, founded in 1553, and its Faculty of Medicine, that opened his doors in 1582.

Fifty years ago Dr. José Joaquín Izquierdo, a very distinguished Mexican physician, found in the National Library of Mexico, which is managed by the National Autonomous University of Mexico actually, a copy of *Liber canonis de medicinis cordialibus et cantica*, from Avicenna, edited by Joan Hervagios in 1556. The frontispiece is shown in this article, as well as a page about ocular disorders (figs. 1 and 2). The existence of this book in Mexico could illustrate about the "Avicenna" used in the XVI century by New Spain's doctors. Another book from Avicenna, *Disputatione medicae*, printed by Pedro García Carrero at Alcalá de Henares in Juan Graciani's press, in 1611, was founded by Izquierdo, too., in the same Library.

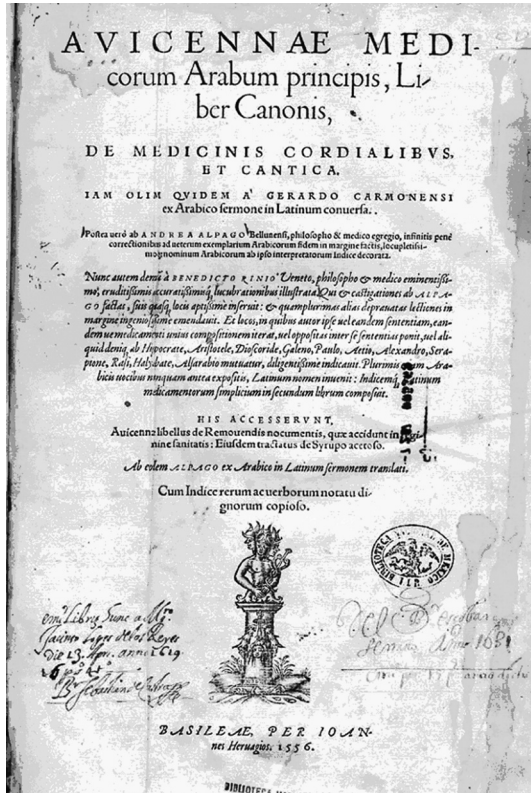
It is important to point out that the National Library of Mexico was integrated during the XIX

century, when the properties of Catholic church changed owner, being the Mexican government the proprietary of the monasteries so all the monks' books were then part of the State. But returning to our theme, the New Spain authors included the teachings of Arabian masters in their works.

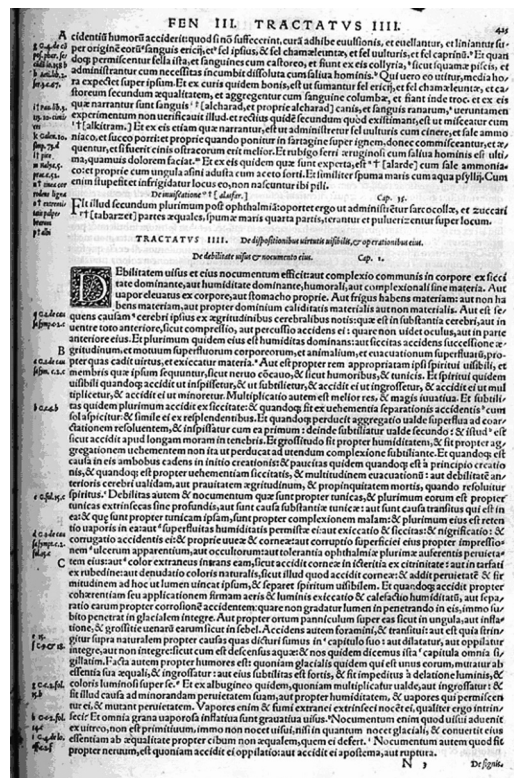
Juan de Cárdenas in his work *Primera parte de los problemas y secretos maravillosos de las Indias* (1591) is sparing in appointments, but he names the classics, Avicenna, between them.

Agustín Farfán wrote in 1592 *Tractado Brebe de Medicina*, and in this work he quoted Galen, Hippocrates, Rhazes and Avicenna., in an abstract tone and without interest..

The anatomy was studied in his work from the works of Avicenna, complemented with the old authority of Galen, commented by Rhazes. Supported in the authority of the great philosopher and Arabian-Spanish scientist, Farfán said in his *Tractado* that the bones of the human body are 148, and the muscles 531. In addition, students should studied, during the third year, the ninth book of Rhazes Almanzorem.



Frontispiece of Liber canonis..., by Avicenna.



Avicenna, op. cit, chapter dedicated to ophthalmology.

We have to remember that the medieval therapeutic methods were purges, cupping-glasses, draughts, plasters, cauterizations and various infusions. Then, in those times was used the called soliman water, to cauterize a sweet sublimate of mercury diluted in water, insipid and which first known prescription is founded in *Summa perfectionis* written by, Geber, Arabian alchemist whose work was known by Avicenna., and too, in New Spain. Another Islamic knowledge used by doctors in New Spain was the *bezoar* stone, effective antidote.

In New Spain, Enrico Martínez, astronomer, but no physician, wrote *Repertorio de los tiempos, y historia natural desta Nueva España* in 1606, and in the fourth chapter he treats about the applicability of astrology, and in his book he mentions Avicenna and his Canon.

By the sea, sometimes arrived to American coasts ships with boxes full of books; some works were forbidden by the Holy Inquisition, but some medical doctors had got some of them. In a list of the year 1576, Alonso Losa, a bookseller, received two copies of *Exposición sobre las preparaciones de Mesue*, published in 1569 by Antonio de Aguilera from Alcalá de Henares, in which the author explains the book of Juan Mesue, the Arabian physician whose works were used till the end of the XVIII century. Mesue is named with profusion in Juan de Barrios' book, *Verdadera medicina, cirugía y astrología*, published in 1607.

There is other incunabula in the National Library of Mexico, that is a latin translation of the works of Serapione, *Liber serapionis agregatus in medicines simplicibus translato Symonis Ianuensis interprete Abraan iudeo tortuosiensi de arabico in latinum inquit Serapion*, published in 1473 at Parma by Antonio Zarotum.

In 1648 Juan de Correa, an anatomist in the Real y Pontificia Universidad de México wrote *Tratado de la qualidad manifiesta, que el mercurio tiene...*, in which he treated about the life into the mines, and the poisoning with sulphur. To do this book, he read Avicenna and Geber.

In XVI century New Spain, the texts for the Faculty of Medicine were the books of Hippocrates, Galen, Ali Abbas, Hunain Ibn Ishaq, Avicenna,

Rhazes, Averroes and Mesue. In the third year of studies the students had to study the ninth book of *Ad almanzorem*, from Rhazes.

Later, when medievalism was substituted for the modernism in the Spanish universities, they continued with the lectures from Avicenna (2, 3).

To finish these notes, I will mention some ideas from the book *Verdadera Medicina, Astrología y Cirugía*, from Juan de Barrios, published in Mexico in 1606.

Juan de Barrios arrived to New Spain in 1590, after attending the universities of Alcalá, Salamanca and Valencia, and his work is, probably, the most important monument of New Spanish medicine, writing in dialogue form. In the chapter number 17 of the third treatise of his book, de Barrios illustrates about the headache and hemicrania. saying that Avicenna thought that this disease was so terrible and ferocious that the joins of the head looked dilate, and it opened the head, and it was so tyrannical that sometimes it killed (4). When de Barrios treats about cataracts, in chapter 28, mentioning Avicenna, says that to heal it the physician must use warm and dry air, the patient must not drink wine, only cinnamon or honey water, and they can eat hen, kid, and they must not drink milk nor eat fish (4).

So, I had expose briefly the influence and the utility of Arabian medicine in America's medicine, pointing out some of the authors that had more authority on physicians during the three centuries Colonial Mexico.

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Al-Razi and Gastrointestinal System Diseases

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Summary

This is a review of the theories and opinions proposed by a well scientifically recognized doctors at the time of Arabic-Islamic civilization era who paved the way to the modern scientific achievements and it is at the same time the continuation of the very old human heritage.

Al-Razi (865 A.D) the second greatest clinician after Galen in the history of medicine, had written some of the opinions about G.I.T illnesses (part of these are according to his own experiences) in his famous book Al-Mansuri, which was the text book in the Arabic-Islamic and European universities for several decades.

Key Words; Al-Razi, Gastro Intestinal Diseases, Al - Mansuri book.

Notes on Al-Razi Life

Abu-Bakir Mohammed Ben Zekria Al-Razi was born in Al-Rai (Persia) (1) (865 A.D). He studied banking, chemistry, music early in his life but his interest shifted to medicine, he studied, practiced and taught medicine in Baghdad and Al-Rai hospitals. He had the honor to help in the establishment of one of the earliest hospitals in Baghdad at the order of Abbasid Caliph (Al-Muatadh).

Al-Razi had many achievements in medicine and chemistry among them:

- * He was the first to differentiate clinically between measles and small pox against the old concept of being one illness.
- * He was the first to use diuretics and laxatives in treating ascites.
- * He was the first to use Coal of animal origin to blench colors (2).

Beside this he had left around (270) books (3) and articles in medicine, Chemistry, Astronomy, Philosophy, Religion and many other branches of science (4).

Al-Hawi was the biggest and most famous book, it was considered a reference medical book since that time to the seventieth century both in Arabic-Islamic and European universities (5).

G.I.T. Illnesses as Mentioned in Al-Mansuri Book

Al-Razi wrote about the anatomy of G.I.T in the first chapter and in the following way;

1. The esophagus: It is considered as route which start just below the end of the oral cavity and descend behind the trachea and in front of the cervical vertebrates, it is fixed by bands, after it pierce the diaphragm it bend to the left and dilate to form the stomach.
2. The stomach: It is tilted by it's head to the left and by it's end to the right it looks like (Pear), it is flat posteriorly and fixed by bands to the adjacent viscera for it's safety. The end passage is called the Door man as it control the passage of food to the intestine, it closes when the food and even water enter the stomach to keep it longer time for digestion. The wall of the stomach consist of three layers of fibers, longitudinal, transverse, and circular.
3. The intestine: It consist of two layers the inner one is viscous: it is divided into six parts: three are small intestine and the others are the large:
 - A. duodenum (athni-ashri)
 - B. jejunum (alsaam,_fasting): it has more pores than the other, from it the food transported to the liver.

- C. ileum (al dakik): it is coiled several times.
 - D. colon appendix (al -awar): it has one mouth (opening) and it is a sac on the right side of the body.
 - E. colon (it is the same nomenclature used in Arabic): it starts from the right goes up and then goes transversely to descend to the left.
 - H. rectum (al mastakeem -straight-): it is a hollow wide cavity to collect faeces and at its end the anus to defecate under the control of the human being.
4. The liver: It is situated under the right lower ribs to the posterior, it has a luminal figure with convexity to the side of the stomach to embed the right side of the stomach. it has 4-5 lobes, and it's concavity is next to the diaphragm, from the convexity of the liver a duct arise called the liver door , and looks like empty vessel it is the rudimentary umbilical vein. The vessel which arise from the liver divide several times some go to the stomach others to the duodenum but most of them go to the jejunum and to other intestine down to the rectum to collect food materials from them. After that these vessels come together again to reach the door of the liver , inside the liver it divide again to be as thin as the hair from which the blood goes to the vessel at the dorsum (concavity) of the liver which goes to the heart.
 5. The spleen: It is elongated and located at the left side with (membranes and ligaments) to fix it to the stomach from the posterior side of the ribs. From the spleen two ducts arise one to the liver the other to the mouth of the stomach.
 6. The gall bladder: It is located on the liver it has two (passages) one connected to the convexity the liver the other divide to reach the lower surface of the stomach and upper parts of the small intestine.

Diagnostic Criteria (signs and symptoms)

(N.B: the illnesses at that time were considered to follow the mood of the human which were four: (bloody, yellowish, black, phlegm), and the essences of the human being were four (wet, dry, hot,

cold) these two characters were to be identified to understand the nature of the illnesses and their prognosis and treatment).

These signs and symptoms include;

Appetite, decreased or increased appetite and to what type of food and who frequent.

Thirsty, headache, dizziness, angry or calm.

Belching; acidic or smoky.

Stool, increased or decreased wet or dry, who frequent.

Nausea and vomiting.

Increased bile with discoloration of the urine or stool.

Weakness, debility and wasting of the abdomen.

Pallor or dimness of the general looking.

Stomach Illnesses

1. Weak stomach with indigestion:
 - a. Indigestion with less thirsty and delayed passage of food with acidic belching and keeping in consideration the duration of the illness whether acute or chronic. (Treatment: the full description of treatment will not be mentioned as to be dealt with in another article but it is nice to say that in the treatment of some these illnesses he mentioned to practice sports before meal).
 - b. Indigestion with thirsty and lose of appetite and fetor belching.
2. Stomach aches:
 - a. Stomach ache with anorexia.
 - b. Stomach ache with frequent belching with hiccoughs, distended stomach with borborymy.
 - c. Stomach ache with fever with hot tender visible swelling: some time it may change to solid swelling.

These illnesses were treated in general by taking special diet, drugs, local ointment application, dressing over the stomach, venisection, exposure to cold or hot and practicing sports or the form of treatment.
3. Hiccough: This illness happens after heavy meals, or over drinking heavy liquor, or after fever subsidence, or with acute illness associated with nausea and thirsty ..it is nice here to say that he men-

tioned the valsalva maneuver as part of the treatment and also by sneezing.

Intestinal Illnesses

1. Intestinal colic (colonic):
 - a. Belly aches with constipation and nausea with or without fever.
 - b. Belly aches without constipation but with distended abdomen, gasses and borborygmi.
 - c. Bad intestinal colic, total constipation, anorexia and vomiting, the fetor odor belching, it may progress to faecal vomiting, this type of illness is fatal most of the times.
The treatment of these illnesses is by strict diet, drugs, baths. application of ointment over the abdomen, vein section, enema, suppositories.
2. Frequent motion, diarrhea:
 - a. Diarrhea with propulsion of food after meal with aches with thirst, with pus filled motions in between the meals.
 - b. As in a, but with out aches with viscid material motions.
 - c. Watery-soft diarrhea and it is of two types, with signs of liver weakness, or without signs of liver weakness.
 - d. Yellow color diarrhea with burn sensation at the anus with thirst and fever.
 - e. Diarrhea with intestinal ulceration with blood or without and with below umbilical pain.
Treatment of diarrhea as mentioned to be by diet, drugs, fluid intake, cold and hot exposure, local ointment application over the abdomen and by vein section .
3. Cholera (al hytha): This was considered in separate paragraph not included with other types of diarrhea, it is with a abdominal pain, with deterioration as vomiting and diarrhea is followed. Treatment was by giving fluid orally with cold sponging on the legs and foot with local application of ointments over the abdomen, with cupping the stomach by large cup.

Liver Illnesses

1. Hepatic pain with yellow discoloration of the skin with ill looking, dry mouth with sever thirst feeling, pain to the right side behind the lower ribs.

2. Hepatic pain with pallor and diarrhea.
3. Surgical illnesses of the liver.
4. Hepatic abscess; if the abscess is situated under the capsule of the liver it will open and pus will descend down to the site were the ascetic fluid collect and drained to the side of right inguinal region, if pus come out keep it on by making good drain incision. In another article written in Al-Hawi of Medicine book (6) Al- Razi has described a condition similar to hydatid cyst rupture: "when the liver get punctured pain will occur with itching in the mouth and posterior aspect of the head and the two first toes of the foot, and skin lesions as beams will appear on his back, this condition will lead to death with in five days."
5. Jaundice is a red discoloration of the urine and the bile will not pass to the intestine but will keep with in the blood and excreted through urine. Two types of Jaundice are mentioned.
 - a. Jaundice with fever.
 - b. Jaundice without fever.

It is nice to mention beside the different ways of treatment he mentioned he prescribed the eye lashes. Most of the methods of treatment were by diet, fluid, (cheese water), laxatives bathing beside other for of treatment.

Ascites

If the abdomen distended after liver pain and fever with evertion of the umbilicus and get whiter, thinner and smother, and if you shake the abdomen you will hear water trembles it is fluid form of ascites. If the ascites was accompanied by dark colored urine it means it is a fatal condition.

Types of ascetics:

- a. Fluid type of ascites; It is when fluid fill the abdomen.
- b. Drum type; When air fill the abdomen, it look like drum.
- c. Fleшы; When the whole body will be swollen including the face, eyelids, testes, it is diagnosed by pressure by a finger.

Treatment: In case of fluid, he used diuretics and laxatives in addition to the traditional ways of treatment. While in case of drum like he used discriminative drug and diet.

Spleen Aches

1. Spleen pain with fever with bloody urination.
2. Spleen pain with no fever.
3. Swollen spleen with crackles on pressing over it.

This was all what Al-Razi mentioned about G.I.T. diseases in his book Al-Manssuri, but the treatment to these illnesses were omitted and to be written in another article. To review these opinions is not only for curiosity but because scientific facts and theories are in chain and may need a revision at any time to solve unsettled questions.

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Control Project of Bejel (Endemic Syphilis) Disease in Iraq*

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Summary

Bejel, also known as endemic syphilis, is a chronic but curable disease, seen mostly in children. It is most commonly found in dry, hot climates countries of the Middle East (Syria, Saudi Arabia, Iraq), Africa, Central Asia. Bejel, is caused by *Treponema pallidum* similar to the one that sexually transmitted (syphilis) disease, but transmission is very different. It is transmitted by direct contact, with broken skin or contaminated hands, or indirectly by sharing drinking vessels and eating utensils. The skin, bones, and mucous membranes are affected by bejel commonly. Bejel was commonly found among Bedouin [Arab = desert dwellers], primarily nomad Arab peoples of the Middle East, where they form about 10% of the population.

The World Health Organization has worked in Iraq in 1951 to control this and other diseases by organized projects. Widespread use of penicillin has been responsible for reducing the number of existing cases, The teams of WHO recommended that the only way to eliminate bejel is by improving living and sanitation conditions.

Key Words; Bejel Disease, Endemic Syphilis, History of Medicine, Iraq.

Health Services in Early Twentieth Century in Iraq

Health services were poor in general, few small hospitals in Iraq at that time. Bejel was widespread amongst the tribes of the Western Desert and the south marsh area, in Iraq. Before the foundation of the Bejel Institute in 1951, patients with skin and venereal diseases were treated in the Department of Skin and Venereal Disease attached to a main hospital, 'Civil General Hospital' in Baghdad (1-3). This hospital was originally built in 1872 by 'Midhat Pasha' to commemorate the visit of Nasr Al-Din Shah. After the departure of the Turks in 1917 British troops entered Baghdad and the hospital was repaired and re-equipped. In 1920 there was a venereal disease dispensary which dealt with the sexually transmitted diseases. Reviewing the Annual Health administration reports of 1920 to 1949, I was unable to find any terminology related to Bejel despite the fact that the disease was prevalent in the region (1-4). It was reported in 1928 in the Syrian Desert (5), also in 1936 by Iraqi doctor Wadad (In Arabic) (6); in 1940 by Hoff and Shabby (7) and by Akrawi in 1949 (8). From annual statistics it appears that the Bejel

disease was either included in the same category of venereal disease or under the skin disease.

WHO Control Project

Campaigns were organized by the Regional Office in Alexandria (WHO) in 1951 (4). These included projects such as Bejel control. Malaria, Leprosy, T.B. and subsidiary projects. The details of the agreement for Bejel control was that; 'According to reports of the Iraqi and foreign experts to the WHO, concerning the prevalence of Bejel in Iraq, an agreement was signed in 1952 for controlling Bejel and V.D. The WHO would send specialized experts, UNICEF would supply medicine and other medical equipment. The Iraqi government would be responsible for providing medical staff, administration staff and all maintenance costs and expenses'. The incidence of Bejel was estimated to be not less than half a million.

The Institute of Bejel

The Institute of Bejel and V.D. was established in Baghdad in the summer of 1951. In its first year it was run by doctors from Iraq, Britain, France and

America, but Iraq is took over the administration of the Institute for the subsequent years (4). The Institute staff was comprised of a director, six assistant doctors, six nurses, six dressers and a number of laboratory technicians and X-ray staff. From these personnel three teams were organized. The first team was stationed in the northern area, the second team was stationed in the middle area and the third team was in the southern area. They were provided with transport, often a car, but in the Western desert horses and camels were used, boats were used in areas where rivers made water transport preferable. The Institute also ran two V.D. dispensaries in Baghdad. Specimens from the field were sent to a modern laboratory so the serological analysis could be carried out (4,9).

Foreign Medical Advisers For the Project

At the suggestion of WHO and the request of the Iraqi government, the first adviser to the Bejel project was Dr. Hudson who took up his residence in Baghdad in October 1950. After preliminary research, field work started on January 1st, 1951. The first two months were spent on the Euphrates River, then a few weeks with the nomads of the Western Desert. After that, two months were spent in the marsh area in the south. On June 1st, 1952, the teams began work on the northern part of the Tigris River. Dr. Hudson left Iraq in mid-June, and replaced by Dr. G.W. Csonka as Adviser for project. During that time he investigated 3000 cases and published his results in two papers, the first entitled 'Bejel. Childhood Treponematosi's' and the second entitled 'Clinical Aspects of Bejel (10,11). He was followed by Dr. L.G.G. Jones who became Chief Adviser for the WHO project in 1953. He reported a very rare case caused by Bejel (12) .disease under the name 'Mutilating Bejel

Achievements of the Institute

The Institute discovered that the best way for controlling Bejel was by attending the patients in their own remote districts, in spite of the great difficulties confronting the traveler, due to the very poor roads. On their visits to a village the teams considered the following:

1. Clinical cases of Bejel
2. Contacts
3. Infected pregnant women

During the early days of the project the team met with many difficulties due to the ignorance of the patients and their disgust at giving away some of their blood for the purpose of serological examination, and because of their attitude towards Bejel, which they considered a simple matter requiring no treatment (4). Those difficulties were eventually overcome. As a result, a large number of patients were cured. The normal treatment was penicillin, 1.2 mega units in a single injection for the early stage, but a double dose for the late stages (10). The Institute, apart from treating Bejel. also treated venereal diseases and other skin diseases. The Institute expanded gradually and in later years it became a place for teaching medical students. After the Revolution of July 14, 1958. The Institute was renamed the Unit of Dermatology and Venereology after the control project and was attached to the main hospital (9). The people however, still called it the Bejel Institute.

Results of the Project

During 1951 the investigation and control measures were restricted to certain Liwas (provinces). Work in other cities started in 1952 when three teams were formed. The control project started in early 1953 and continued until the end of 1955. It covered 11 province in Iraq except few provinces which were to be included in the control program of 1956. The team found the incidence of the disease to be very high (between 60 to 90%) especially 1n the villages near Deir-Ez-Zor -such as Tala'aFar and Sinjar (4,9).

In 1956 there was a follow-up of the same villages, and the incidence was found to be greatly reduced. In 1957-1958 the teams doing the control and follow-up operation covering all the villages, including cottages, and schools, found that the number of active cases became less, especially in schools. Factors contributing to the eradication in active cases included the opening of new schools, dispensaries, widespread ownership of radio, propaganda campaigns and large companies all influenced people to become more health conscious. The total number of

people investigated at follow up during 1959 were 33169 and in 1960 were 57139, but the teams found that the number of acute cases were very greatly reduced, apart from sporadic cases (9).

The conclusion of the teams that the Bejel disease was under control at that time. However, some cases remain in the village predominantly inhabited by the nomadic Bedouins. Control in these villages was not 100% effective because of their nomadic nature. The teams recommendation on the eradication of this disease was to improve the standard of living with the medical care for sporadic cases (9).

Discussion

It is clear that Bejel was a local name introduced by the Bedouin Arabs of the Euphrates. It has certain clinical and epidemiological aspects. The disease commonly affected children and adolescents, and was not related to sex; mainly it affected the mucous membrane, skin and bones.

Story of Bejel is significant from the standpoint of medical history and it is the subject of concern to all who are interested in the history of medicine, especially the history of syphilis, as it appears to be linked (13-17).

In 1982, I met Dr. R.R. Willcox, when he lectured on Tropical Treponematosis to students on the course of venereology, London. I asked him if he had any idea about the history of this disease and how it came to Iraq. His answer was that the subject was not studied with this point of view. There was no definite information, and he did not know how the disease came to that region. On inquiring from doctors R.D. Catterall and W.A.A. Griffiths, I was given the same answer. I have collected my information about this disease from previous literature and reports in Arabic and English, from personal connections. I feel the historical study of this disease is important because:

1. The relation of this disease to other treponematosis. This problem was not solved in spite of the fact that the disease had been considered eradicated completely. This point is clear if I mention what Dr. C.J. Hackett said, 'That still he found it difficult to visualize exactly what Bejel was like' also Dr. Hudson said 'There is no clear cut difference

between either Bejel and syphilis, or Yaw and Bejel (14,18).

2. The epidemiological point. This disease was prevalent amongst the Bedouins, the semi Bedouins, the inhabitants of the Euphrates and Tigris River basins and around the Arab peninsula (5,18).
3. The nomenclature of 'Bejel which is a local name used by Arabs, which as previously mentioned means 'sore'. From the time it was first reported in 1928 it was used in medical literature because of its significance both from a medical and epidemiological point of view. It was differentiated from venereal syphilis as far as the Bedouins were concerned (13,18).
4. The antiquity of the disease was puzzling but some villagers in Iraq used other names such as lowath, jirdam and these are mediaeval words used by Arab people. In view of the fact that some Bedouins used mercury for treating the disease, one can conclude that the disease existed in ancient time (13).
5. The significant of WHO work campaigns and the affect of penicillin in eradicating the disease by one or two injections (10).
6. It is interesting to note that several reported cases in other parts of the world have been made of a disease like Bejel but are not exactly identical to Bejel as found in the Arab world. The reports came from (1) South of Persia (Csonka, 1951); (2) South Rhodesia (Willcox, 1951) called Njovera; (3) East Africa (Manson-Bahr, 1941); (4) Turkey (Willcox. 1951); (5) Bechuanatand (Murry, 1935) called dichuchwa (15,19).
7. Lastly, we are not sure if the disease may relapse and appear in another form or it may occur as a modified version. As far as I am aware no further research has been carried out in Iraq and the present situation is such that the disease is under control.

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History of Endoscopy*

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Summary

Endoscopy by its different routes and techniques has very much widely opened the way to visualise all the body passages, cavities and hollow organs. It has come to the present state of excellence through the improved visual access into these dark areas.

Through the application of developments of the physics of optics, endoscopy has entered into a period of rapid expansion, new information and new therapeutic techniques. This made different lesions and foreign bodies well visualised and properly managed, with a high degree of efficiency.

Key Words; Endoscopy, History of Medicine.

Since early time, man tried hardly to visualise the inside of the human body, through the natural openings and passages of the body. Due to lack of sufficient anatomical knowledge, facilities and technology it was very difficult or even impossible.

Early History

Early trials appeared 5000 years ago in ancient Egypt during the process of mummification of the dead persons, where they used a rigid metal tube passed through the nose to its upper part to pierce the cribriform plate to the cranial cavity to evacuate its content (1).

The subsequent trial appeared 2000 years later when Hippocrates (460-377 B.C), the great Greek physician tried to help a poor shepherd suffering from respiratory distress due to a large peritonsillar abscess. He advised him to pass a hollow stick pipe to the oropharynx and breathe through it, till he evacuated the abscess. A procedure considered an early primitive rigid endoscopy for therapeutic purpose (2).

The 10th Century

Late in the 10th Century, during the early Islamic period a new endoscopic trial appeared. Avicenna (980-1034), the eminent physician of the middle age period advocated intubation of the larynx, using a curved metal tube made of gold, passed orally and

guided by the index finger to pass through the larynx. He aimed to help patients of stridor to have better respiration (2).

The 19th Century

Through the subsequent centuries and the European renaissance nothing was added to the progress of endoscopy. Early in the 19th century primitive metal endoscopic instruments appeared and were used for the diagnosis of the different lesions of the upper respiratory tract.

The earliest and the first endoscopic instrument were the laryngoscope. The primitive type was a simple silver tube illuminated proximally by a candle and the light is reflected by a mirror, invented by Philip Bozzini in Frankfurt in 1807 (3,16).

Benjamin Babington improved this in 1829 using reflected sunlight (4).

A modified instrument was later described by Ludvig Türk in Vienna in 1858, and Johann Czermak in Prague in 1858 and Adolph Kusmaul in 1869 (4,5).

Alfred Kirstein later perfected this in 1895, who developed the first direct laryngoscopy (3-5).

It should be noted that the study of diseases of the larynx and hypopharynx was greatly stimulated by the invention of the laryngeal mirror for indirect

laryngoscopy in 1855 by Manuel Garcia, a singing teacher in Spain who succeeded in examining his own larynx by the aid of two mirrors and the reflected sunlight (5).

Oesophagoscopy appeared slightly later, after an interesting observation of Adolph Kussmaul (an internist) in Freiburg, Germany, who observed carefully the demonstrations of sword swallowed and the extended neck position in relation to the trunk during its swallowing. In this way he performed the first oesophagoscopy in 1868, with the aid of reflected light (6).

Once, this progress was achieved in Europe, the first clinic of laryngoscopy was established in 1870 in Vienna, as the first clinic of this speciality in the world. Schrotter Von Kristelli was appointed the head of this clinic (17).

Gustav Killian, in Freiburg, Germany, demonstrated the first bronchoscopy in 1898 using a rigid modified oesophagoscope inserted through a tracheostomy wound (5).

A practical oesophagoscope with distal illumination was devised later and practised by Chevalier Jackson in 1902, and at the same time he presented also the distally illuminated bronchoscope introduced through the mouth (5). New endoscopic tubes with proximal illumination near the handle of the endoscope were presented by Haslinger while Saint Clair introduced a third type in which two lamps are set obliquely in the walls of the tube (14).

Endoscopy of the urinary tract started also very early in the 19th century, when Philip Bozzini, the urologist in Frankfurt, Germany, did his early trails for urethral examination in 1804.

Once Thomas Edison developed the electric lamp in 1878 it opened the way for illuminated endoscopes. Max Nitze was able in 1879 to present the first distally lighted cystoscope, utilising a platinum wire filament cooled by circulating water (5,6).

Felix Guyon and his pupil Albarron of the late 19th century invented the cystoscope for urethral catheterization, that has very much helped the progress of renal, vesical and urethral surgery (5).

The last discovery in the 19th century was the invention of the laryngeal stroboscope by Max Joseph Oertel in 1895, which helped the visualisation of the vibrating vocal cords, in a slow motion movement (17).

The 20th Century

Early at the beginning third of this century at 1902 Chevalier Jackson in America has clearly demonstrated all forms of distally illuminated rigid laryngoscopes, bronchoscopes and oesophagoscopes as well as the telescopes. This has opened the way for the clinical and pathological study of the different lesions and the removal of foreign bodies from the respiratory and food passages (5,6).

The early telescopes that were presented by Jackson consisted of a series of small lenses separated by air spaces to help increase in viewing angle and magnification.

Hopkins, the British optical physicist added the telescopic rod lens system, that allows more light, wider viewing and greater magnification (6). This allowed more endoscopic diagnostic and therapeutic procedures.

In few years Jackson had many skilled assistants and had very efficient staff who occupied six chairs in this speciality (5).

During the second third of this century the principles of Lamm, that developed in 1930 in the transmission of an image through the coherent bundle of small flexible glass threads had permitted the development of the early flexible endoscopes (6).

Hirschowitz and his associates applied the fiber optic principle to the gastroscope in 1958 (6).

Ikeda and his team as well as others applied it to bronchoscopy and oesophagoscopy in 1958 (6,7).

The advantages of the fiber-optic endoscopes are many. They added to the extent of visualization, washing brushings, curettage and biopsy. In bronchoscopy they carried examination further to the periphery of the lungs (6).

Endoscopic documentation appeared in 1942 when Holinger presented his camera, that can work through the bronchoscopes and oesophagoscopes (6,8).

Marsh contributed to early detection of bronchogenic carcinoma by photography through fiber - optic bronchoscope in 1973 (6,9).

Rayl's work, allowed coloured television documentation (6).

The best additions are those achieved by Ward and others using the Hopkins rod lens telescope with the surrounding fiber - illumination and an antifog airflow system (6).

Microscopic larygeal surgery, with the advantage of more magnification, excellent exposure, binocular vision, brilliant illumination and bimanual instrumentation was added in 1968, under the leadership of Kleinsasser, Ono, Saito, Jako and Strong (6, 10-12, 17).

Laser surgery of the larynx and bronchi has been introduced by Strong and Jako in Boston, America in 1972, with the advantage of the precise removal of lesions of the vocal cords, trachea and bronchi (13,17).

The last third of this century witnessed a great progress in the production of endoscopic material with new manufactural specifications, variable accessory instruments and efficient methods of documentation (18).

The endoscopic tubes and their instruments are no more named after the names of their inventors but carrying the trade name of the manufacturing firm.

Nowadays there are large leading companies producing the endoscopic equipment on a large commercial scale in Japan, Germany, United State of America, Britain, France, Italy and many other countries.

Surgical and medical indications for endoscopy are continuously increasing for diagnostic, medical and surgical purposes (18).

New fields for endoscopy have been introduced not only through the natural passages of the body but also through surgical openings in the abdomen, chest, skull and other different body organs.

Most of the present medical and surgical specialities consider endoscopy a good effective method in their field and is performed regularly in their medical practice.

The following shows an updated enumeration of the endoscopes used in the different medical specialities.

1. Otolaryngology: the pioneer speciality using endoscopy, rigid and flexible endoscopes. Laryngoscopes, Bronchoscopes, Oesophagoscopes, Nasopharyngoscopes, Stroboscopes, Sinoscopes and Oscopes. The last two are of the rigid types.
2. Chest Surgery: Rigid and flexible Bronchoscopes. Rigid Thorascopes and Mediastinoscopes.
3. Abdominal Surgery: Rigid and flexible Oesophagoscopes, Gastrosopes, Duodenoscopes, Colonoscopes, Choledochoscopes, Rectosigmoidoscopes, Proctoscopes, Labaroscopes. The last two are always rigid types.
4. Gynaecology: Rigid endoscopes as Hysteroscopes, Culdoscopes, Labaroscopes and Flexible Fallopioscopes.
5. Urology: Rigid and Flexible Cystoscopes, Urethrosopes, Ureterosopes, Nephrosopes and Labaroscopes.
6. Orthopaedic Surgery: Rigid type Arthroscope (= Jointscope).
7. Neuro-Surgery: Rigid type Encephaloscope.
8. Plastic Surgery: Rigid small endoscopes in face lift surgery.

By time more medical specialities are on the way to use the endoscopes for more efficient and careful diagnosis and treatment of the different body diseases.

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The Story of Bejel Disease in Iraq: Bejel (Endemic Syphilis) Disease Among the Euphrates Arab Bedouins*

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Summary

This paper is primarily intended for the historical aspect of Bejel (endemic syphilis) disease in Iraq. Bejel (the Arabic word for the disease) is an infectious disease a form of endemic syphilis which is not sexually transmitted and occurs in children. It was most commonly found in the Middle East (Syria, Saudi Arabia, Iraq), Africa, central Asia, and Australia. This disease was prevalent among the Bedouins of the West Desert and the peasants people of villages of the Tigris and Euphrates Rivers prior to the 1951 WHO campaigns in Iraq also among Bedouins of Syrian Desert. Bejel has many synonyms as sibbens (Scotland), radseyege (Scandinavia), siti (Gambia), therlijevo (Croatia), njovera (Southern Rhodesia), frenjak (Balkans), dichuchwa (Bechuanatand). The disease has other colloquial names in Arabic local languages as Bishal, Lowath, Balash and Jirdam, but amongst the medical profession it was known as "non-venereal syphilis" or "endemic syphilis".

The organism that causes bejel belongs to the same family as the that causes syphilis, named the treponema Bejel is characterized by the skin and bones lesions that begin in the mouth and progress gradually to the late stages which are the most severe. The disease is usually occur in childhood and spreads in a non-venereal way. It was believed that when the disease entered a village it spread, to all occupants of the village, suggesting an easily communicable disease. The Bedouins description of the disease was similar to measles (a common childhood disease). If a child escaped infection, then the likelihood of contracting it in adulthood was almost certain and the Bedouins were able to distinguish the Bejel eruption from those of chicken pox, small pox or measles. Dr. Hudson, who has the first notified of this disease in medical literature in 1928 from the city of Deir-Ez-Zor in Syria. Also it was widely believed that the disease was transmitted from Syria to Iraq.

I hope it will be of value to overview the historical story of this disease which is considered to have been theoretically and practically eliminated from Iraq as previous observers and writers have concentrated mainly in the clinical features, diagnosis and treatment of Bejel disease.

Key Words; Historical Aspect of Bejel, Endemic Syphilis, Iraq.

Background

This background information is necessary because Bejel is considered to be found mainly amongst the Arab Bedouins and has certain geographical distribution, climatic conditions, and life style considered to be important factors in the spread of the disease.

Iraq is situated on the South-western part of Asia and occupies the north eastern part of the Arab Homeland. Bordered by Turkey to the north; Iran to the east; Jordan, Saudia Arabia and Syria to the west; Kuwait and Saudia Arabia to the south. Mountains are in the north and north-east, while the south is mainly marshland. Western desert in the west (forming 60%) expanding towards the Syrian Desert and the Arab Peninsula. The climate of Iraq is hot and dry

in summer; cold and wet in winter. The two largest rivers are the Tigris and the Euphrates. The Euphrates passes through the Syrian Desert before entering Iraq through the West Desert to reach to the south of Iraq.

The peasants in the marsh area of Iraq at the beginning of this century were poor, simple and predominantly farmers and fishermen, boats are the main method of transport. They build their houses which were usually cottages or mud huts along the bank of the small rivers. On the other hand the Bedouins lived in 'black-tents' mainly in the Western Desert. They were poor; camels being the main form of transport. Drinking water came from the rivers or wells; their lifestyle differed radically from townspeople. There was no veneral disease as was in the towns, due to their customs and the fact that they

married at an early age, usually between 14 to 16 years old. The Bedouins move around many times during the year according to the weather. They go where the rain falls and where there is grass for their animals. The incidence of Bejel amongst the Bedouins at one time affected 90% of them. The Bedouins were similar to the peasants in that they had neither schools nor dispensaries and other diseases were prevalent, such as malaria, malnutrition and tuberculosis (1,2).

Deir-Ez-Zor is virtually an oasis in the Syrian Desert. It is important to mention these notes for two reasons: (a) It is situated near the Western border of Iraq. It was believed that the Bejel entered Iraq through the their tribes emigrating from Deir-Ez-Zor. (b) Bejel was first reported from this region in medical literature in 1928 (2-8). When the first clinic was opened by the 'American Presbyterian Mission' in Deir-Ez-Zor in 1924, Dr. Hudson, who was in charge of this clinic, studied this disease and he collected the knowledge about the disease from the patients who came to the clinic (3-5).

Discovery of Treponema

It may be useful to mention some of general considerations about the discovery of Treponema and the various forms of diseases caused by it. In 1905 Schaudinn with Hoffmann discovered the organism of syphilis (6-7). They named it *spirochaeta pallido* 'pale spiral hair'; but later he found that this name was also being used for other geneses of the same family. Finally, he chose the term Treponema twisted thread. Diseases caused by subspecies of the pathogenic treponemes are *Treponema pallidum* (syphilis), *Treponema pertenue* (yaws), *Treponema endemicum* (bejel or endemic syphilis), and *Treponema carateum* (pinta) (8-10).

Some considered Bejel the same as the yaws of subtropics. Indeed, this idea had been advocated by Wadad in 1936 of Basrah - Iraq (11), but no support was given to this idea. Other writers and observers considered Bejel as a form of endemic syphilis amongst the Arab Bedouins and peasants around the Euphrates, and is caused by *Treponema pallidum*. Also it is a disease found in primitive rural areas affecting all ages, mainly children, with no relation to sexual activity (3,8-10).

Origin of Bejel (Epidemiological Theories)

Medical historians of Bejel were puzzled by the absence of ancient information and writers failed to describe it in the old medical writings (5). The origin of Bejel is uncertain; whether it originated in the Arab area or whether the disease was brought from other regions by mass migration, slave trade, wars, commerce, or pilgrimage is unknown.

We know the first who mentioned Bejel as a disease in medical literatures was Dr. Hudson in 1928 under the title 'Treponematosis among the Bedouins Arabs' (3). The following theories and hypothesis may help to explain the nature of Bejel disease.

Unitarian Theory

This theory explains the evolution of treponematosis in the world and it states that all pathogenic treponemes have common ancestors, as free-living organisms adapted themselves to man as commensals and as a result of natural selection, climatic conditions, domestic life and may be slight mutation resulting from accidental fault in the DNA genetic code produce a variety of lesions (12-14). It was suggested by Hackett (1963) that the first disease was Pinta or 'the blue stain disease', this disease was distributed throughout the world (14). Further, Hackett considered that Pinta gave rise to Yaws in Africa and the disease was transmitted by "skin to skin" contact; the warm humid climate was a contributory factor to transmission. Further more, endemic syphilis (Bejel) evolved from yaws; the climatic conditions in the Arab world are such that it is warm during the day and cold at night and although the skin was protected by clothes. Spreading of the disease due to many factors such as kissing, communal use of eating and drinking utensils. The Arab Bedouins had similar customs lead to the result that the disease spread rapidly and involved mucous membrane, especially in the mouth. According to this theory, venereal syphilis evolved from endemic syphilis as socio-economic level and better hygiene, and the result was sexually transmitted.

Colombian Theory

This theory explains the spread of syphilis to Europe in 1494 from the West Indies. Members of the

crew of Christopher Columbus' ship acquired syphilis from local women and developed a rash called 'Indian Measles'. Some of the crews later became mercenaries in 1494 at the Siege of Naples, where a great epidemic broke out. However, this theory does not explain the evolution or origin of endemic syphilis (6,7,12).

Role of Wars and Pilgrimage

The first Crusade (AD 1096-1099) believed to have consisted of 250,000 fighting men with an equal number of servants, camp followers, and women captured Jerusalem and entered a Syrian Villages'. So marked an increase in leprosy was reported. But later archaeological evidence showed that many lepers were in fact suffering from syphilis (14,15).

Islamic conquest stretched throughout the world during and after the time of the Prophet Mohammed. These conquests extend from Spain to Samarkand. The first pilgrimage to 'Mecca' undertaken by the Prophet Mohammed in 632 AD. After that, Islamic pilgrimages attracted people from all over Africa, Asia, and other places. It also mentioned that Mecca had been an object of reverence for 200 years before the time of Prophet Mohammed, because of its sacred stone and its designations as the legendary site where Abraham dismissed his wife, Hajar and her son Ismael. Another mass migration by Mongols was to Mesopotamia where the Mongol troops sacked Baghdad in 1258 AD.

This process of migration through pilgrimages, Islamic conquests, and Crusades wars from all parts of the world in the course of time might have played a major role in the dissemination of Treponema.

Slave Trading and Commerce

Throughout the line of history there have been slaves and slave trading. Slaves were captured from various regions of Africa and shipped across oceans or driven across the Arab desert to Asia Minor and other countries. At the time of the pre-Christian era, Ethiopia was a collecting point for African slaves for Arabs. Migrating Arabs came from the east across the Red Sea to the Horn giving the Ethiopians horses, camels and grapes, and receiving in return coffee and Negro slaves. In Africa was also the richest ports for

exporting gold, ivory and slaves (12,16). After the Muslim conquest of Africa, slave trading continued and reached its peak at the end of the 7th century AD. The slave war which occurred in Iraq in 869 AD was called the revolt of the Zanj. This was a war between the Negro slaves from East Africa who were forced to work in the salt mines.

There was no evidence that slaves transmitted treponema to the Middle East, but one can conclude these mass migrations from regions of Africa where treponema was prevalent. Their transportation may have also transported the organism. The first treponema to be introduced to the Caribbean from Africa came in 1502 with the first Negro slaves. Its incidence increased after 1512 with the spread of slave trading and commerce. This may explain the role of slaves in spreading of treponema. It seems reasonable to apply this assumption to slave trading and commerce in the Middle East.

The Antiquity of the Bejel in Arab Homeland

The origin of Bejel is unclear, and there is no direct evidence but some considered Bejel the archetype of syphilis or the prototype of non-venereal syphilis in the ancient Arab homeland around the Euphrates region. The ancient world was predominantly rural; the majority of its habitants probably lived under conditions similar to those of Euphrates Arab in the early part of this century. It may be therefore that the Bedouins are presenting contemporary picture of syphilis as it existed in ancient time in non-venereal. Some support for this view comes from the WHO campaign in Iraq in 1951. The teams found that some villages used other names for Bejel disease. Some Bedouins in the West Desert in Iraq called it 'Lowath', other villagers in the south called it 'Jirdam', in other places in Iraq they called the disease just 'leprosy'. Both lowath and jirdam are ancient mediaeval words introduced in Mesopotamia and the meaning of these terms was leprosy and its use to describe chronic ulcerative lesion might also include Bejel disease. Leprosy was mentioned in the Bible, and in ancient medical records, it was prevalent throughout the world (6,7).

Four characteristics of ancient leprosy which

would include syphilis and other treponematoses suffering under the heading of leprosy are: (a) In ancient Mesopotamia it was said that "if lepers were kept away, people would not get the disease" (5). Also the Old Testament quotes the story of Naaman, 'the leper' who was told by Eli'sha to wash himself seven times in the River Jordan. Another point was, that lepers were segregated in leper homes, 'lazar', and buried in special cemeteries. From the above it is clear that the disease with which they were concerned was highly contagious; as we know leprosy is not highly infectious and needs long periods for many years, whilst the incubation period of syphilis ranges between 9 to 90 days; therefore, not all patients in ancient time were necessarily suffering from leprosy, perhaps some were cases of syphilis or other treponematoses. (b) During the Crusades, the concept of 'venereal leprosy' gradually developed and we since know that it is more true of syphilis, which is a sexually transmitted disease. (c) It was also mentioned that a child could be born with "leper" or congenital leprosy, this, like (b), is not true for leprosy but is true for syphilis. (d) The Arabs used mercury from the earliest time; mercury was a well known ancient remedy for leprosy and was recorded in ancient writing. Also reported in the early part of this century was the fact that the Bedouins in both the Syrian Desert and Arab Peninsula used mercury inhalation as a method of treating the Bejel (2). Mercury has no effect on leprosy, but has effect against treponematoses (5). This supports the longevity of Bejel in the Arab area.

Indigenous Idea

The physicians in Deir-Ez-Zor said that treponema was brought to the region by Egyptian troops under the command of Ibrahim-Ali in the 19th century; probably through troops having sexual relations in the city and as a result venereal syphilis occurred in townsmen and was called 'Franji'; this disease may have spread to rural areas, amongst tribes and the Bedouins in a non-venereal method and the result was a disease called 'Bejel, which locally means in Arabic, 'sore'. Iraqi physicians suggested that Bejel was brought to Iraq by tribes emigrating from Deir-Ez-Zor in Syrian Desert which a neighbor of Iraqi Bedouin in the West Desert to Iraq.

Summary of Clinical Aspect of Bejel

Bejel diseases a similar clinical feature of syphilis with few differences (8-10). The onset mainly during childhood, 25% of cases before the age of 6 years and 66% of cases before the age of 16 years. Sex ratio was female slightly over male 1.1:1. The incubation period unknown, other suggested that it was similar to syphilis. There is a possibility that insect vector may play a role in the transmission of this disease this was suggested by for two reasons; first, most cases were near the marshes, and second, fresh infectious cases appeared in spring and summer when insects and flies were numerous.

Clinical stages: this consist of the following;

- 1 - Early stage or primary lesion
- 2 - Latency stage
- 3 - Late stage

Early Stage: Mucous patches: commonly seen in the mouth. and may be the first manifestation. Skin lesion: generalised skin eruption, resembling the lesion in syphilis. Skeletal involvement mainly ostealgia and osteoperiostitis

The Latency Stage: The patient may become a symptomatic at any time especially within the first four years of the disease. The result of this stage is that one third of the patients become a symptomatic, and only serologically positive.

Late stage: The findings consist of skin gummata which is common manifestation. The nasopalatal destruction, resulting in the saddle nose, the skeletal changes as in early stage. Other rare findings like pigmentary change, juxta-articular nodules and hyperkeratosis. There were controversial questions not settled at that time. The questions were whether this disease could involve the cardiovascular system or the nervous system and whether congenital disease can occur as in venereal syphilis. Hoff and Shabby (1940) reported two cases from the Royal Hospital in Baghdad with nervous involvement (17).

Rhahim and Akrawi (1951) reported aortitis in a Bejel patient (18).

Lab Studies: Endemic syphilis should be suspected in persons with chronic skin or bone lesions who

Table 1. Showing the comparison between yaws, syphilis and Bejel.

Lesions	Yaws	Bejel	Syphilis
Global	Tropical	Local	World wide
Socio-economic	Low, rural	Like yaws	All grad
Climate	Hot, wet climate.	Hot a day,	All climate
Primary lesion	Extragenital	Like yaws	Usually genital
Mucous membrane	Not affected	Affected	Like bejel
Itching	Common	Like yaws	Rare
Alopecia	Unknown	Like syphilis	May occur
Eye	Not affected	Like yaws	Common
C.V.S.	Not	Like yaws	Affected
C.N.S.	Not	Like yaws	Affected
C.S.F	Negative	Often positive	Usually positive
Affect of mercury	No response	Response	Response well
Gongosa	Not rare	Like yaws	rare
juxta-articular nodule;	Not rare	Like yaws	rare
Depigmentation	Not rare	Like yaws	rare
Causative organism	T. pertenue	T. pallidum	T. pallidum

live in endemic areas. Confirmation of the diagnosis depends on dark-field examination and on specific and non specific serological tests for syphilis.

Treatments: Treatment is based on single-dose antibiotic therapy with benzathine penicillin. Treponemes are highly sensitive to penicillin, which remains the drug of choice for syphilis.

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An Andalusian Muslim Scientist: Ibn al-Baytar

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Summary

Spanish Muslims gave the greatest contributions to botany as an outgrowth of medicine. Abu Muhammad Abd Allah Ibn Ahmad Dhiya al-Din Ibn al-Baytar al-Malaki is considered, among them, one of the most important scientists. A brief profile of him is traced in this paper also with reference to *Kitab al-Jami' li-mufradat al-adwiyah wa-al-aghdiyyah*, one of his main treatises.

Key Words; Ibn al-Baytar, Botany, Pharmacology, *Kitab al Jami*

In the history of arabic science botany and agriculture, in the classification of sciences, have been for a long time considered as a single discipline. Given the prominence of plants in the treatment of illness, they are sometimes classed among the medical sciences.

Botany has progressively separated itself from agriculture, especially under the influence of Greek sources (e.g. Theophrastus (372-288A.D.), Dioscoride (ca. 40-90 A.D.)), translated into Arabic (1). Surely Arabs paid special attention to the Greek natural sciences such as botany and pharmacy and Greek *materia medica* was a major common basis for Arab Islamic medicine and pharmacy which in turn led to the modern pharmaceutical therapy (2). However, although "pharmacology in Medieval Islam is based on the ancient Greek tradition, the original Arabic contribution to the introduction and employment of new substances is undeniable" (3). Spanish Muslims gave the greatest contributions to botany, as an outgrowth of medicine and so far some of them are known as the greatest botanists and pharmacists of medieval times. Looking for rare botanical herbs they roamed about mountains, coastlines and in far lands. They classified plants into those growing from seeds, from cutting and those growing on their own accord. In this paper we'll try to outline a brief profile of one of the main Arab botanists and pharmacologists, Abu Muhammad Abd Allah Ibn Ahmad Dhiya al-Din Ibn al-Baytar (the son of the veterinarian) al-Malaki (born in Malaga), more often known as Ibn al-Baytar.

Ibn al-Baytar was born in the Muslim Spanish city of Malaga or in its neighbourhood, most probably at the end of the 12th century, between 1190 and 1197. He came from a family of a great scientific tradition which, coming from Granada, settled in Malaga. According to some authors he probably belonged to the family of the same name whose existence in Malaga is attested by Ibn al-Abbar or, according to F.J. Simonet, he came from a Spanish family, called Bono or Bueno. His grandfather Abu Marwan Abd al-Malik Ibn al-Baytar arrived very young in Malaga where he spent all his life. His father, Ahmad b. 'Abd al-Malik, a veterinarian, conveyed to Ibn al-Baytar, since his childhood, the passion for plants, animals and minerals together with the interest in the pharmacological use of the simples.

Ibn al-Baytar lived his first years in Malaga and probably, between 18 or 20, he moved to Seville. Here he studied with the best botanic teachers of the period, Abd Allah Ibn Salih, Abu-l-Hadjdjadj and particularly with Abu-l-Abbas al-Nabati (the botanist, nicknamed Ibn al-Rumiyya) with whom he started collecting plants and learnt to distinguish and identify their numerous species. In this period Ibn al-Baytar widened and improved his theoretic and practical studies in the field of botany, always concerning the pharmacological use of the simples (4). After the leaving of his teacher al-Nabati for Orient, Ibn al-Baytar spent few years in Andalusia and, in about 1220, he left Spain beginning a scientific travel toward the East herborizing and carrying out scientific observations and covering the same route previ-

ously covered by his teacher. He also gathered botanical materials in view of their possible pharmacological use. In this journey he was accompanied by Ibn abi Usaybi'a, one of the most valuable of his pupils who reports that, during their naturalistic travels, they brought with them the books of Dioscoride, Galen (ca. 130-200 A.D.), al-Ghafiqi (12th c.) and other similar authors. It is possible to reconstruct the itinerary of this travel from the informations given by the same Ibn al-Baytar in his treatises (5), also if it is not possible to know exactly the modes of his travel. He moved to Ceuta, in Morocco, and hence he arrived in Algeria, at Bugia. Then he moved again, arriving in Constantinople through Tunis, Tripoli and Barca. From the South coast of the Asia Minor, about 1224, passing through Iraq and Persia, Ibn al-Baytar moved to Syria and, later, to Egypt. Here, according to some authors, he observed for the first time hashish being eaten. The main users of the drug, he noted, were the Sufis. "People [i.e. the Sufis] who use it [hashish] habitually have proved its pernicious effect," he writes, "for it enfeebles their minds by carrying to them maniac affections and causing sometimes death." Ibn al-Baytar then adds: "I recall having seen a time when men of the vilest class alone dared to eat it, still they did not like the name *takers of hashish* applied to them (6, 7).

In Egypt he entered as "chief of the herbalists" the service of the Ayyubid Sultan al-Malik al-Kamil, who ruled over this country from 1238 to 1240 and in the same period over Syria. After the death of al-Kamil, Ibn al-Baytar lived a little longer in Palestina and Syria. Here he did some herborization on the mountains where the flora was more rich than in Egypt and after he returned to Egypt (8), where he continued to work with the son of the precedent Sultan al-Malik al-Salih who ruled from 1240 to 1249 and to whom he dedicated his main works (5).

Ibn al-Baytar died in Damascus between October and November 1248. Considered by some authors the greatest Muslim botanist and by others only the greatest compiler of pharmacological books in the Arabic world (9), Ibn al-Baytar devoted his very extensive literary production prevalently to botany and pharmacology. One of his most important books,

the Kitab al-Jami' li-mufradat al-adwiyah wa-al-aghddhiyah (The comprehensive Book on Materia Medica and Foodstuffs) gives a summary of the pharmacological knowledges of his time. It consists of an alphabetically ordered dictionary in which foods and simple medicaments from the animal, plant and mineral kingdoms are reported and can be considered the largest pharmacological encyclopedia still surviving at our times. In order to write this book Ibn al-Baytar based himself on many authors, especially Greeks authors as Dioscorides, Galen, Aristotle (384-322 B.C.), Hippocrates (460-377 B.C.), Oribase (325-403 A.D), Rufus of Ephesos (late 1st c. B.C-half 1st c. A.D.), Paul of Egina (625-690 A.D.) but also Persian, Indian, Sirian Chaldean and Arab Muslim authors, among which Razes (ca. 864-930 A.D.) and Avicenna (980-1037 A.D.). He also based himself on many botanic and agricultural works and on the work, today lost, of his teacher al-Nabati (13th c. A.D.) and of Abu Hanifa al-Dinawari (ca. 815-895 A.D.), considered by some historians the founder of the Arabic botany (1).

Kitab al-Jami' can be considered one of the main reference works for the history, the botany, the pharmacology, the medicine and also for the language of its time. It is of special interest for the linguists because, where possible, Ibn al-Baytar reports the Greek, Berber, Persian and Latin names of the plants (10). It seems important to underline that the cohesistence in this book of foreign languages represents an unprecedented occurrence among the Arab Muslim scientific works.

Ibn al-Baytar treatise can be considered the basis of many subsequent manuals concerning medicinal substances, as that written in the 18th century by the practitioner in India Muhammad Husayn ibn Muhammad Hadi al-Aqili al'Alavi (11). Even if Ibn al-Baytar has been known in the Western countries only in the 19th century, his works and mainly the work we have considered in this brief profile, have made possible to consider him as one of the most important scientists in the field of botany and medicine of his time and his contributions have exerted a profound influence on Eastern as well as Western science.

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CONGRESS AND SOCIETY NEWS

ABOUT INTERNATIONAL SOCIETY FOR THE HISTORY OF ISLAMIC MEDICINE AND ITS MEETINGS

International Society for the History of Islamic Medicine (ISHIM) provides the researches in the field of Islamic Medicine and supports the projects about the Islamic History of Medicine. Furthermore, it also studies the dilemmas of medical ethics in the Islamic countries. Journal of the International Society for the History of Islamic Medicine (JISHIM) is its publication organ and it is indexed to the History Journal.De, a German scientific index. This journal is published in English twice a year. The founder members of this society is well-known medical historians of the world.

The first meeting of ISHIM was held in Doha on December 2, 2000 in Dr. Hajar's office in Women's Hospital and attended by the following members:

Dr. H.A. Hajar Al-Binali
Dr. Abdul Nasser Kaadan,
Dr. Husain Nagamia
Dr. Faisal A. Latif Alnasir
Dr. Sharif Kaf Al-Ghazal
Prof. Dr. Nil Sari
Dr. Mostafa Shehata
Dr. Mehdi Mohaghegh
Dr. Rachel Hajar

The meeting was also attended by the treasurer Mr. Ali Al Suwaidi and the Public Relations Officer Mr. Salim Al Muhanadi.

The following issues were discussed and necessary actions taken:

1. Approval of the minutes of the first meeting.
2. Approval of By-laws
3. Approval of the Logo
4. Approval of the application form.
5. Opening Account with Qatar National Bank

Second Meeting of the Executive Board Members of ISHIM and a Symposium will be made during January 29-30, 2005 at Doha Sheraton Hotel in Qatar.

Following Executive Board Members will participate in this meeting.

H. E. Dr. Hajar Al Binali
Dr. Abdul Nasser Kaadan
Dr. Hussain Nagamia
Dr. Faisal Al-Nasir
Dr. Nil Sari
Dr. Mostafa Shehata
Dr. Mehdi Mohaghegh
Mr. Ali Al Suwaidi
Dr. Ayesgul Demirhan Erdemir - Chief Editor of ISHIM
Dr. Ibrahim Shaikh - Advisor for Islamic Medicine Museum
Dr. Khalifa Al Jaber

In this meeting, the date of future congress of ISHIM and its regulation will be discussed.

Moreover, a symposium will be made in Doha on January 30, 2005. The speakers of this symposium are as follows:

Dr. Husain Nagamia: Medical Education, Health Administration and Delivery of Health During the Early Islamic Period

Dr. Mostafa Shehata: Honoration of Physicians Through the Past Ages

Dr. Nil Sari: Foundation of the Medical History Museum

Dr. Aysegül Demirhan Erdemir: Traditional Treatments with Natural Drugs and Some Samples

Dr. Faisal Alnaser: History of Infant Feeding

Dr. Abdul Nasser Kaadan: Some of Arab and Muslim Physicians Achievements Attributed to Western Physicians

ABOUT SOCIETY FOR MEDICAL ETHICS AND LAW

Society for Medical Ethics and Law was established in Istanbul on December 3, 2004. Its regulation was accepted on February 11, 2005. This society aims to help the development of the scientific researches, to support the scientific activities, to help the modernization of the education of the medical

ethics and medical law and to provide the international scientific relations in the fields of medical ethics and medical law. The society has 17 founder members. Society's Logo with serpent and scales has been designed by painter Jale Yavuz.

Society has the international characteristics and in order to achieve these objectives, it shall perform the following activities:

- a) To follow and encourage the scientific research on medical ethics and medical law in Turkey and in the world.
- b) To help solving the problems of the medical ethics and medical law in the health foundations, to provide assistance to the official authorities and educational institutions about the subjects indicated in the aims section.
- c) To help to provide postgraduate education in the fields of medical ethics and medical law with the aim of helping the people working in the health branch to deal with the problems they may face when they are providing health services.
- d) To perform the national and the international scientific projects and researches in the fields of medical ethics and medical law.
- e) To provide the print of the international scientific journal as the publication organ if a financial source can be found.
- f) To provide the possibilities in order to train the researchers in the fields of medical ethics and medical law and to support the scientific projects of the researchers from abroad on Turkish medical ethics and medical law.
- g) To hold the national and the international congress, symposium, panel and meetings in the field of medical ethics and medical law.
- h) To provide the scientific relations with foreign societies, institutes and universities and to

coordinate the international meetings in the fields of medical ethics and medical law to transfer scientific developments in this field in foreign countries to Turkey and the related developments in Turkey to other countries when necessary.

- i) To cooperate and coordinate the scientific relations with other national and international similar and relevant entities to invite guest researchers in accordance with the 5th article and conditions of the Law for Associations and in the order projected by the regulations.

1. SYMPOSIUM ON MEDICAL ETHICS AND LAW (27 May 2005) WITH INTERNATIONAL PARTICIPATION

This symposium is the first activity of Society for Medical Ethics and Law. The aim of this society is to develop scientific researches, to support education of medical ethics and law and to provide international scientific relations in the field of the medical ethics and law. Society for Medical Ethics and Law will hold the symposium with the collaboration of Turkish Society for History of Medicine and Istanbul University, Medical School, Department of Medical Ethics, Cerrahpasa Medical School, Department of Medical Ethics, Uludag University, Medical School, Department of Medical Ethics, Istanbul University, Faculty of Law, Department of Penal Law and Criminal Procedure Law in Istanbul. The aims of this symposium are to enlighten all the colleagues on medical ethics, medical law and patients' rights. Known colleagues from Germany, Switzerland, Belgium and Croatia are to participate in this symposium.

SCIENTIFIC EVENTS

The First International Maimonides Conference on Medicine and Ethics

It will be held in Tiberias-Israel on March 20-24, 2005.

Contact Address:

1 Nirim Street (P.O.B. 9352)

Tel Aviv 61092, ISRAEL

Tel: +972-3-6384444

Fax: +972-3-6384455

E-mail: maimonides@ortra.com

Website: www.ortra.com/maimonides

The First Symposium on Medical Ethics and Law with International Participation

It will be held in İstanbul on May 27, 2005

Contact Address

Prof. Dr. Ayşegül Demirhan Erdemir

E-mail: ademirer@yahoo.com

The XXth Nordic Medical History Congress

It will be held in Reykjavik, Iceland on August 10-13, 2005.

Contact Address:

Iceland Travel Conference Department

Lagmuli 4 P.O. Box 8650

IS-128 Reykjavik- Iceland

Tel: +354 585 4300

Fax: +354 585 4390

E-mail: conferences@icelandtravel.is

Website: www.lis.is/saga

3rd Meeting of the International Society for the History of Medicine

It will be held in Patra, Greece on September 11-14, 2005.

Contact Address:

Conference Organizers

“Ermineia”, Gounary 37, Patra, 26 221, Greece.

Tel: +0030 226 530

Fax: +0030 226 530

E-mail: ishmgreece@hotmail.com

2nd Bursa Folk Culture Symposium

It will be held in Bursa, Turkey on October 20-22, 2005.

Uludağ Üniversitesi Rektörlüğü

Kültür Sanat Kurulu 16059 Nilüfer-Bursa-Turkey

Tel: (0.224) 442 80 067442 80 41

Faks: (0.224) 442 90 44

E-mail: uksanat@uludag.edu.tr

bhi@uludag.edu.tr

An International Joint Bioethics Congress Inter-Cultural Bioethics, Asia and West

It will be held in Sanlıurfa, Turkey on November 14-18, 2005.

Contact Address:

Assoc. Prof. Dr. Şahin Aksoy

HarranUniversity, Faculty of Medicine,

Department of History of Medicine and Medical Ethics, Şanlıurfa.

e-mail:saksoy@harran.edu.tr

9th National Congress on the Turkish History of Medicine

It will be held in Kayseri, Turkey on May 24-26, 2006.

Contact Address:

Dr. M. Mümtaz Mazıcıoğlu

Erciyes University, Faculty of Medicine

Department of Family Medicine

38039-Melikgazi/Kayseri-Turkey

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Sezer Erer

Uludag University, Faculty of Medicine, Department of History of Medicine and Medical Ethics-Bursa-Turkey

e-mail:sezistan@yahoo.com

**40th International Congress on the History of
Medicine**

It will be held in Budapest, Hungary on August 26-30, 2006.

Contact Address:

Hungarian Academy of Sciences Office for
International Cooperation

Ms Klara Papp

1051 Budapest, Nador u. 7 HUNGARY

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