

# Journal of the International Society for the History of Islamic Medicine (ISHIM)



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and Regional Country Reporting**

Hanzade DOĞAN

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  - 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.
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## EDITORIAL

It is our pleasure to publish April/October 2009-2010 Issues of the **Journal of International Society for the History of Islamic Medicine (Journal of ISHIM)**. We know that Journal of ISHIM is a scientific journal devoted to the **History of Islamic Medicine and Ethics** research and scholarship. Also, this issue like the earlier ones represents important studies in the History of Islamic Medicine and Medical Ethics which activate 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. The views of papers are always those of the authors, and it is important in a field like bioethics which encourages interaction and dialogue over scientific topics.

This issue contains some important scientific articles, in which, we can see and valuable original studies on **History of Islamic Medicine and Medical Ethics**. These articles are from famous scientists 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: Research and Review. After 23 papers, ISHIM news and news of some scientific meetings are present.

The first paper by Abdul Nasser KAADAN and Chadi KHATIB is on "Compound Drugs Used in Diseases Treatment in "Al-Mujaz Fi Al-Tibb" Book of Ibn Al-Nafis". The second paper by Suirati SARI is about "Healing through Complementary Therapy: The Qur'anic and the Sunnah Approach". Another article by Nurdeen DEURASEH is "Chapter: To Treat with the Urine of Camels" in the Book of Medicine (Kitab al-Tibb) of Sahih al-Bukhari: An Interpretation". The fourth paper by Murat CIVANER and Aysegul DEMIRHAN ERDEMIR is on "Republic of Turkey Prime Ministry Ottoman Archive: A Treasure for History of Medicine". The fifth article by Moustafa MAWALDI and Mais KATAYA is "History of Odor Removers and Anti-Perspirant in the Arabic Medical Heritage". Another paper by Salim AYDÜZ is about "Süleymaniye Medical Madrasa (Dār al-Tib) and its Importance in the History of Ottoman Medicine". The seventh paper by Arish SHERWANI, A.N. ANSARI, Ansari SHABNAM and Shagufta NIKHAT is about "Hijamat: The Renaissance Masterpiece of Medical Sciences in Unani System". The eighth paper by Khaled BASMAJI, Ahmad HOLOUBI and Omar ZEITON is on "Plant Pharmacology Used for Treating Ear Diseases in Pediatric Books and Letters between Third and Fifth Hegira Centuries". The ninth paper by Abdul Nasser KAADAN and Mahmud ANGRINI is on "Who Discovered Hemophilia?". Another article by Aysegul DEMIRHAN ERDEMIR is on "Laws on Medical Ethics in Turkey from the Past to Nowadays and Comments". The eleventh article by Abdul Nasser KAADAN and Mahmud ANGRINI is about "Blood Transfusion in History". The other one by Abdul Nasser KAADAN and Taleb Chalab CHAM is "Health Sustenance in Al-Qanun fit-tib Book". The thirteenth article by Aysegul DEMIRHAN ERDEMIR and Sezer ERER is about "Comments on a Book of Hulusi Behcet with the Name of the Therapy of Oriental Sore with Diathermy". The fourteenth article by Abdul Nasser KAADAN and Mohamed Nazem MAHROUSSEH is on "Cranial Nerves Anatomy in Al Qanun fit-tib". The other one by Mohammad SHAYEB is "Causes of Obstructed Labor as Written in the Complete Medical Art "Kamil al-Sinaa al-Tibbiya" by Ali Ibn al-Abbas al-Majusi". The sixteenth article by Abdul Nasser KAADAN and Latif Saeed ASADI is about "The Names of Hippocrates' Books and their Explanations that are Found in Arabic (Galen's Explanations)". The seventeenth article by İbrahim BAŞAĞAOĞLU and Nil SARI is on "Traditional Healing Methods of Thyroid Diseases in Turkey". The eighteenth article by Oztan ONCEL and Aysegul DEMIRHAN ERDEMIR is on "The Development of Neurology, Neurosurgery and Psychiatry in Turkey from the Ottoman Era to the Republican Period". The nineteenth article by Hanzade DOGAN and Aysegul DEMIRHAN ERDEMIR is on "Abortion from the Viewpoint of Islam and Ottomans". Another article by Hanzade DOGAN and Aysegul DEMIRHAN ERDEMIR is on "Organ Transplantation in the Republican Period of Turkey". The other article by Sharif Kaf AL-GHAZAL is on "Islamic Medicine – A Missing Chapter of The History of Medicine!". Another article by Arshiya SULTANA, Khaleequr RAHMAN and Shafeequr RAHMAN is about "Concept of Conception and Infertility in Realm of History". The last one by Husain F. NAGAMIA is on "A Museum and Library of Islamic Medical History: A new perspective".

Wishing April/October 2009-2010 Issues of the Journal of ISHIM, to be beneficial to all readers and colleagues.

Editors in Chief  
**Dr. Aysegül Demirhan Erdemir**  
**Dr. Abdul Nasser Kaadan**

# Compound Drugs Used in Diseases Treatment in “Al-Mujaz fi al-Tibb” Book of Ibn al-Nafis

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## Summary

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The new pharmacy includes the sciences of medicine, botany, and chemistry; so that the real indicator which can define the scientists in the field of pharmacy throughout the history, is the degree to which they take from these three sciences and apply them in the service of the science of pharmacy.

Ibn al-Nafis -the Syrian scientist- had largely used these sciences in his book “Al-Mujaz fi al-Tibb”; this was obvious through his mention of the rules of compounding drugs.

The pharmacopoeia “Akrabazin” which was included in his book “Al-Mujaz fi al-Tibb” and included the compound drugs, with an obvious description of the ingredients amounts, and the appropriate doses for each disease; was an obvious indicator to the great role of Ibn Alnafis in the development of the science of pharmacy in Egypt (especially during the Mamluk age), Europe, and the western countries that translated several books of Ibn Alnafis, so that Ibn Alnafis had a great role in the development of the international pharmacy.

**Key Words:** Islamic Pharmacy, Pharmacy in the Medieval Ages, Ibn al-Nafis, Akrabazin.

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## Introduction:

Since the dawn of history, ancient man have tried to discover everything surrounding him, and benefit from it.

The ancient man had tried to maintain his health, because he believed that health was the most important thing in the life.

Since the ancient man was created, he had an instinctive tendency to treatment, therefore, he had started looking for the single drugs, and he could recognize them, through his observations and experiences.

This science had developed, and the knowledge and experience regarding single drugs (animal, herbal, and metal) got better and better.

With the development of civilization and knowledge, and the appearance of new diseases, there was a really need for more active drugs.

The compound drugs which was composed of several single drugs, and compounded according to specific compounding laws (mentioned in specific books, or included into special medical books (Akrabazin)) were the solution for the new diseases which were challenging humanity.

## Ibn al-Nafis:

Ala al-Din Abu al-Hassan Ali ibn Abi-Hazm al-Qurashi al-Dimashqi commonly known as Ibn al-Nafis, who was born in 1213 in Damascus, Syria, and died in Egypt in 1288 CE.

Ibn Al-Nafis is most famous for being the first physician to describe the pulmonary circulation, and the capillary, and coronary circulations, which form the basis of the circulatory system, for which he is considered the father of circulatory physiology and “the greatest physiologist of the Middle Ages.”

- 1 He was also an early proponent of experimental medicine.
  - 2 He attended the Medical College Hospital (Bimaristan al-Noori) in Damascus.
  - 3 Besides medicine, Ibn al-Nafis was also learned in many other subjects, including Arabic literature, Fiqh (jurisprudence), Kalam (theology) and early Islamic philosophy.
  - 4 He became an expert on the Shafi`i school of jurisprudence and an expert physician.
- ‘Al-Shamil fi al-Tibb’ is the most voluminous of his books, which was designed to be an encyclopedia comprising 300 volumes, but was not completed because of his death.

- His book on ophthalmology is largely an original contribution and is also extant.
- The 'Sharh al-Adwiya al-Murakkaba' (Commentary on Compound Drugs) was a commentary on the last part of Avicenna's The Canon of Medicine concerning pharmacopoeia, which was written by Ibn al-Nafis sometime before he wrote his Commentary on Anatomy in Avicenna's Canon in 1242.
- The Commentary on compound drugs, however, did contain criticisms of Galen's doctrines on the heart and the blood vessels and dealt with the circulatory system to some extent.
- This work was later translated into Latin by Andrea Alpago of Belluno (d. 1520), who had lived in Syria for about 30 years before returning to Italy with a collection of medical Arabic books.
- Ibn al-Nafis' work on the pulse, where he criticized the Avicennian and Galenic theories and corrected them, was also translated into Latin by Andrea Alpago sometime before 1522 in printed in Venice in 1547.

Ibn al-Nafis was the first to refer to the importance of moderate consumption of salt, he talked in details about the risks of salt and its effect on hypertension.

Ibn al-Nafis was excellent in the subjects regarding the functions and anatomy of throat, respiratory system, and arteries.

In his book (Al-Mujaz fi al-Tibb), Ibn al-Nafis was excellent in the obvious and easy method that he used to mention the compound drugs compounding laws and classifications; because of the importance of this book which had been translated into Latin language, and was considered as an important medical and pharmacological reference, I will review the book index, and concentrate on the pharmaceutical section within it.

## **The contents of the book 'Al-Mujaz fi al-Tibb' A Summary of Medicine were listed as follows:**

### **Section I: General Principles**

#### **Subsection 1: Of the theory of medicine**

1. Normal.
2. Abnormal.
3. Etiology.
4. Symptoms and signs.

### **Subsection 2: Of the practice of medicine**

1. The science of maintaining health.
2. The science of treating illness: Ibn al-Nafis believes that treatment consists of 3 main parts:
  - **Management (dealing with the causes of the disease), and starting with "treatment with food".**
  - **Treatment, which yields to 3 procedures:**

**First:** recognition of the disease kind, and selecting the appropriate drug which has the ability to treat the disease depending on homeopathy way of treatment.

**Second:** Definition of the drug weight (dose) and strength (spectrum), depending on the recognition of the following:

- 1 Severity of the disease.
- 2 Organ type.
- 3 Gender.
- 4 Age.
- 5 Habit.
- 6 Work.
- 7 Country.
- 8 Season.
- 9 Face look.
- 10 Strength.

**Third:** Definition of the disease phase (beginning, distribution, end, recurrence - chronic)

- **The practical part (hand works).**

### **Section II: Medicaments & Diet**

#### **Subsection 1: Simple drugs**

1. **Generalities:** In this general introduction about single drugs, Ibn al-Nafis has classified single drugs -according to their efficiency- into:

- A. Moderate drugs, which have no effect on the normal body temperature.
- B. Non-moderate drugs, which have an effect on the body temperature, and they are divided into:

#### **& Single drugs, which are subdivided into:**

1. First class drugs: the effect isn't noticeable.
2. Second class drugs: the effect is noticeable, but it is not noxious.
3. Third class drugs: the effect is noticeable, noxious, but it is non-fatal.
4. Fourth class drugs (toxic drugs): the effect is noticeable, and fatal.

**& Compound drugs, which are subdivided into:**

1. Natural drugs: such as, yogurt (which is composed of water, cheese, and ghee phases).
2. Synthetic drugs: such as, the antidote, which is composed of several active substances.
  - Besides, Ibn al-Nafis has classified drugs -according to their site of action- into:
    - A. Drugs of external effect, such as: *Allium cepa*, which is used as an external packs.
    - B. Drugs of internal effect, such as: Lead ash.
    - C. Drugs of both, external and internal effects, such as: *Coriandrum sativum*.

- Ibn al-Nafis believes that drug strength can be recognized by:

1. **Experiment:** Experiment (clinical study...today) results are considered, when the experiment yields to the following:
  - Be done on human body.
  - The experienced drug does not have adverse reactions.
  - The experienced drug has got a constant, predominant, and rapid action.

2. **Comparison with other drugs.**

3. **Simple drugs alphabetically listed:** Ibn al-Nafis had mentioned 189 drugs, divided as follows:

A. **Herbal single drugs** (the whole plant, part of the plant -leaf, root, flower, seed, fruits, stem): 147 drugs.

B. **Animal single drugs** (the whole animal, part of the animal, animal products): 24 drugs.

C. **Mineral single drugs:** 18 drugs.

Subsection 2: Compound drugs

1. **On the rules for compounding drugs:** Ibn al-Nafis had used the compound drugs, just for the following states:

A. **To modify single drug characteristics** (taste, smell,...etc), which can be compared today, with the use of excipients which improve the shape, taste, and smell, and also with the different ways of coating (sugar, enteric,...).

For example, in an explanation of the manuscript copy of the Maronite library (in Aleppo), we can find the following: mix honey with *Crocus sativus* in order to hide the bad taste of *Ferula asafetida*.

B. **To strengthen a single drug**, which can be compared today, with: "FORTE", "PLUS" or "COMPOUND", (increasing the strength of the active substance by adding another active substance).

C. **To weaken a single drug**, which can be compared today, with the modifications and additions made to the active substance, which affect the stomach; For example, aluminum and magnesium hydroxides are added to the aspirin (non-steroidal anti-inflammatory) to weaken the acid effect on the stomach; besides, the addition of magnesium causes diarrhea, whereas the addition of aluminum causes constipation to modify the diarrheogenic effect of magnesium.

D. **To stabilize (prevent the permeability) a single drug with fast-permeability**, which can be compared today, with the addition of acetone to creams and ointments, in order to delay the permeability of the drug through the skin, in order to treat a superficial lesion; besides, the addition of probenecid in order to delay the antibiotic elimination, for treating urinary system infections.

E. **To increase the permeability of a single drug:**

1. In general (not to specific organ), which can be compared today, with the science of emulsions and colloids, which define the emulsion type in order to control its permeability through skin layers, by adding some kinds of was, and forming emulsions (water in oil).
2. To specific organ, which can be compared today, with the science of drug pharmacokinetics.
3. Only to the specific organ, which can be compared today, with the enteric coating which aims to protect the product of destruction by the stomach acid, so that the drug can initiate its action at the stomach.

F. **If the disease is complex (compound):**

Case 1- There is no drug which can treat both formers of the disease.

Case 2- There is a drug which can treat both formers of the disease:

1. The drug effect against one former of the disease is weaker than it is against the other former, so the drug is mixed with another drug in order to modify it.
2. The drug effect against one former of the disease is stronger than it is against the other former, so the drug is mixed with another drug in order to modify it.
3. The drug has equal effects against both formers of the disease, but one former of the disease is stronger than the other one, so that, the drug should be strengthened with another single drug which can handle for this difference in strength between the two formers of the disease.

This logical evaluation is considered now at the new European pharmacies, which compound and prepare the patient drugs with the least number of capsules, besides of studying their physical, and chemical drug interactions.

### **Definition of the active ingredients concentration into the compound drugs according to Ibn al-Nafis:**

The percentage of the single drug equals the percentage of the disease treated with that drug.

In the summary, Ibn al-Nafis said: “If you compound drugs, and you need a specific benefit of each drug, make the percentage of each take of each drug to the amount taken from the other drug, just as much as the percentage of the benefit of the first drug to the benefit of the other one; if the benefits were equal, just take of each one, a *soumian* (arabic word) amount for the number of the total drugs”

For example:

Number of the total drugs= x,

then the *soumian* amount for the number of total drugs = 1/x

### **Strength of the drug:**

Ibn al-Nafis had depended on a mathematical equation to calculate the degree of the final compound drug in its hotness and cold and also in the dryness and wetness; in the summary, Ibn al-Nafis said: (collect the hot and cold single drugs, then deduct the smaller one from the bigger one, and from the rest, just take a *soumian* (arabic word) amount for the number of the total drugs, it will be the degree of the compound.

For example:

When we prepare a compound drug from x and y single drugs

(Number of the hot single drugs = x, Number of the cold single drugs = y)

$$\frac{|x - y|}{(x + y)} = \text{Degree or strength of the final drug}$$

**2. Some examples of compound drugs:** Ibn al-Nafis depended on the mention of the famous compound drugs, which were not mentioned in the famous books, he did this after he had excluded the rare and strange compound drugs; Ibn al-Nafis had mentioned 13 drugs of the compound drugs (including their percentage and usage):

1. Sweet decoctum.
2. Ripe decoctum.
3. Sweet infusion.

4. Sour infusion.
5. Diarrheogenic infusion.
6. Fruit decoctum.
7. Aftimon decoctum.
8. Expectorant decoctum
9. Laxative shot (3 kinds).
10. A shot for colon problems.

### **Section III: Diseases of organs and systems:**

1. Head diseases (and the neurologic diseases).
2. Eye diseases.
3. Nose diseases.
4. Diseases of gingiva, teeth, and lips.
5. Face diseases.
6. Tongue diseases.
7. Ear diseases.

Here is a chapter dealing with discharging the ear or what is called Otorrhea in medical terminology.

Ibn al-Nafis was describing a condition similar in its symptoms and signs to outer ear canal infection (otitis externa), the ear was painful and tender, slightly swollen and producing a smelly coloured discharge, his patient had a degree of hearing impairment.

He was describing different preparations and remedies, and vinegar was one of them.

In this section he divided the condition into an early stage, what we call nowadays acute and later stage known as chronic.

This is exactly similar to modern day classification of ear diseases.

8. Throat diseases.
9. Diseases of the chest and lungs.
10. Heart diseases.
11. Breast diseases.
12. Stomach diseases.
13. Liver diseases.
14. Ass diseases.
15. Lien and gallbladder diseases.
16. Diseases of kidney and bladder.
17. Genital diseases.
18. Uterus diseases.
19. Limbs diseases.

It is important to mention that Ibn al-Nafis, when he mentioned ear diseases, he talked about “ear pain”, (called today otitis externa) which is caused –according to Ibn al-

Nafis- by a deep hot tumor (bacterial infection...today), and he used the milk with the sweet almond oil (a little of vinegar was boiled into each of them) to treat the disease.

**This was a complement of what was mentioned in Avicenna's book: "the law of medicine" "al Canon fi al tibb", and Al-Razi book " Al-Hawi", and Al-Tabari book " Fardos Al Hikmah" (which was written before Avicenna's book).**

Ibn al-Nafis explained the contents of vinegar in very simple words describing its chemical components with the limited chemistry knowledge of those days.

An Irish person came out with the idea of using vinegar to irrigate the external ear for a condition called Otitis externa where there was discharge and irritation within the external ear canal.

He did not claim the discovery for himself.; he knew at that stage that using vinegar was an old remedy but he was not clear about the historical background.

The use of such old remedies in the modern day treatment of diseases should always be ascribed to its first describer.

The vinegar was mixed with some milk and almond paste, and slightly heated before it was introduced drop by drop into the ear canal.

Ibn al-Nafis would not know that vinegar works by restoring and maintaining a low pH and hence an acidic environment which is not suitable for bacteria and fungus growth.

In his days, microorganisms like bacteria had not been discovered yet, and treatment was based on careful observation and trials.

Today vinegar is administered either as a diluted solution alone or as a salt in combination with antibiotics and mild local steroids, so that the topical Treatment: Once the external auditory canal has been cleansed as much as possible and a wick inserted if swelling is severe, topical antibacterial therapy should be started. Because topical agents can be placed in direct contact with the bacteria, simple acidification with 2 percent acetic acid is usually effective, and there are more preventive roles for vinegar in ear disease.

#### **Section IV: Diseases not specific for a particular organ**

1. Fevers.
2. Crisis and lysis.
3. Swellings, ulcers, leprosy, and the plague and how to avoid it.
4. Fractures, contusions, dislocations, falls and abrasions.

5. Cosmetics: which contains skin care, hair care and body weight control & diet system:

Ibn al-Nafis was distinguished for his interest with cosmetic drugs; he specified a special chapter for them, and classified them very well into:

##### A. Hair problems:

1. *Drugs for maintaining the hair* (mix of oils and plants).
2. *Drugs for head-hair falls, and the absence of beard hair.*
3. *Drugs for alopecia: its treatment is internal and external.*
4. *Drugs for excessive hair wrinkle.*
5. *Drugs that make the hair straight.*
6. *Drugs that make the hair curly.*
7. *Drugs that soften the hair.*
8. *Hair removers.*
9. *Drugs for Trichoclasia.*
10. *Drugs that make the hair longer.*
11. *Drugs that delays canities.*
12. *Tincture that make the hair black.*
13. *Drugs for treating baldness.*

##### B. body and skin problems:

1. *Drugs for chloasma and ephelis.*
2. *Drugs for ecchymoses and the black maculae.*
3. *Drugs for vitiligo and leprosy.*
4. *Drugs for subaxillary infection.*
5. *Drugs for pediculi.*
6. *Drugs for impetigo.*

##### C. Esthetic problems of the body:

1. *Drugs for excessive asarcia (obesogenous drugs).*
2. *Drugs for maintaining the weight.*
3. *Drugs for getting rid of the excessive weight:* Ibn Alnafis recommended with the following steps for diet:
  - a. Less consumption of food.
  - b. Taking showers.
  - c. Doing exercise while being hungry.
  - d. Sleeping on the land.
  - e. Wearing a tough clothes (which can be compared today, with the use of slimming belt)
  - f. Consumption of barely bread.
  - g. Consumption of hot spices.
  - h. Using laxatives to get rid of the food prior to benefit from it.

1. Using diuretic to get rid of the food prior to benefit from it.



**Figure 1: The opening page of one of Ibn al-Nafis's medical works. This is probably a copy made in India during the 17th or 18th centuries.**

## Results:

As we have seen from Ibn al-Nafis previous study about the Al-Mujaz fi al-Tibb book was encyclopedic & well aware of this topic with out any prolongation or wordiness, & this is from the factors that made this book one of the academic books in medicine & pharmacology during many centuries.

He described the diagnosis & the treatment for many of the pathological conditions related to the whole body, and he described the single and compound drugs, besides the role of compounding drugs. As he talked about the goal that we should reach during treating progress.

He also indicated the different causative factors for "ear pain", as we said (otitis externa) in logical sequence seems to be a very specific scientific classification similar to what we use nowadays, he also talked about using vinegar in the treatment of this case before the first western person who was using vinegar to irrigate the external ear for a condition called Otitis externa.

The classification of his books was very excellent and simple so that many Modern Historians reviewed the works of Ibn al-Nafis like:

Max Meyrholff, a distinguished scholar of Arabic historical medicine, stated:

*"... We have seen that Ibn al-Nafis, three centuries before Colombo, had already noticed visible passages*

*between the two types of pulmonary vessels."*

In the William Osler Medal Essay on the discovery of the pulmonary circulation, Edward Coppola said

*"...The theory of pulmonary circulation propounded by Ibn Nafis in the 13th century was not forgotten and that centuries after his death it may have influenced the direction of the anatomical investigations of Colombo and Valverde, who finally announced it to the Western world as a physiological fact susceptible to experimental proof."*

**Conclusion:** Ibn al-Nafis' works integrated the existing medical knowledge and enriched it, thus exerting great influence on the development of medical science, both in the East and the West.

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# Healing Through Complementary Therapy: The Qur'anic and the Sunnah Approach

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## Summary

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As the Al Quran and Sunnah are the main sources of the Islamic lifestyle, it only stands to reason that they should likewise be referred to in the matter of health and fitness. From our experiences, if we used natural sources alone like Homeopathic remedy not combination remedies, it insufficient to cure the diseases especially in chronic cases and natural sources alone better only for acute cases.

In this paper we explained that why we had chosen this method of treatment and gave some examples from our patients.

**Key words:** Complementary therapy, Al Quran, Sunnah.

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## Introduction

Muslim narrated in his Sahih that Prophet PBUH said: *“Every illness has a cure and when the proper cure is applied to the disease, it ends it, Allah willing.”*

Also narrated in the Sahihan that the Messenger of Allah said: *“Allah has not sent down a disease except that He has also sent down its cure”*.

As the Al Quran and Sunnah are the main sources of the Islamic lifestyle, it only stands to reason that they should likewise be referred to in the matter of health and fitness.

## Method of Treatment

Our method of treatment is by treating patients through body system symptoms with complementary medicine (Homeopathic, Ayurvedic herbs, herbs and honey). The whole body systems are related to each other and if one of them lack or imbalance of the efficiency, the body system will show the symptoms. The efficiency of the body systems only if it has complete vitamins, minerals, liquid, protein, carbohydrate etc. daily. The disease will show after all the symptoms of body system deficiency or imbalance.

The Prophet s.a.w used three types of remedies for various ailments: natural, divine and combination of both natural and divine. As for the remedies of the bodies, there is a part of the Prophet Sunnah that completes it and makes it whole. Through these ailments, focus of the treatment is also to the whole body systems symptoms deficiency or imbalance and look body systems as a whole not 'part by part'.

Since 1995, we have treated more than 30,000 patients suffering from chronic illness, such as: tumor of different

kinds and stages, asthma, renal failure, migraine and others illness, praise to Allah! The success rate was significantly high. The main approach taken is using a combination of homeopathic remedies in special formulation, herbs, honey and Ayurvedic herbs normally by seeking the help from Allah through 'solat Istikharah' and 'solat Hajat'. (To get special formulation, normally we give formulation that really effective to at least 300 patients and for tumor formula, we give the formulation that really effective to more than 2000 patients. To confirm the effective formulation that really effective for certain disease is through 'solat Hajat' and 'solat Istikharah'. From our experiences, if we used natural sources alone like Homeopathic remedy not combination remedies, it insufficient to cure the diseases especially in chronic cases and natural sources alone better only for acute cases.

Herbs, Honey, Homeopathic, and Ayurvedic are a group of natural sources. All these sources have no side effects and sometimes only aggravation of the medicines in certain cases. Since all these have no side effects, it can be given to the patients in the early stage until the symptoms disappear and the disease will cure. The process of curing takes quite slow depending on the deficiency of the body systems but most of the cases cured fast sometimes beyond expectation.

## Why We Choose this Method of Treatment

1. Prophet s.a.w used three types of remedies for various ailments: natural, divine and combination of both natural and divine. From that, we used natural sources of complementary medicine (herbs, Ayurvedic Herbs, Honey and Homeopathic). Hadith narrated by Ibn Majah and others: *“Make use of the two cures: Honey*

- and *Al Quran*". Honey has tremendous medicinal value, because it washes away the harmful substances that might be collected in the vein and the intestines. Honey also dissolves excess moisture; is beneficial as a drink and as an ointment.
2. Divine - Ibn Majah narrated in his Sunan that Abu Hurairah said, The Messenger of Allah s.a.w saw me while I was asleep suffering from a pain in the stomach. He said to me "*O Abu Hurairah! Does your stomach bother you, I said, Yes, O Messenger of Allah s.a.w! He said, "Stand up and pray, because the prayer is a cure,"*". Through our experience, patients who continuously solat tahajjud, reading Al Quran, sadaqah and tawakkal to Allah SWT will recover faster compared to those who do not.
  3. Body system symptom - The Prophet s.a.w used three types of remedies for various ailments: natural, divine and combination of both natural and divine. As for the remedies of the bodies, there is a part of the Prophet Sunnah that completes it and makes it whole. Through these ailments, focus of the treatment is also to the whole body systems symptoms deficiency or imbalance.
  4. Complex medicine - Now, life is more complex and the illness is also complex so that those whose diets are complex need medicines that are a mixture of several substances or ingredients, as these are the types of medicines that most suit their illness. The ailments of the people who live in the rural area or deserts are usually simple and thus simple medications are suitable for them. These arguments entail facts that are known in the medical profession. Those patients who cannot bear the pain, we advised them to take painkiller especially for Migraine, Rheumatism, renal stone etc. When patients take painkiller, they must wait for two hours before they take complementary medicine.
  5. Combination Natural source and divine - Hadith in the Musnad by Imam Ahmad: "*Allah has not sent down a disease except that He also sent down its cure; whoever knows it (the cure), knows it (the medicine) while those who are ignorant of it are unaware of it*" (An-Nasai'I, Ibn Majah, Al-Hakim and Ibn Hibban).

Also, it is narrated in the Musnad by Imam Ahmad and the Sunan of At-Tirmidhi and Ibn Majah that Abu Khuzamah said; "*I said, 'O Messenger of Allah s.a.w about the Ruqya (divine remedies – Islamic prayer formula) that we use, the medicine we take and the prevention we seek, does all this charge Allah's appointed destiny?' He said, 'They are a part of Allah's appointed destiny,'*"

The Prophet's statement that there is a cure for every disease might include both the curable and the humanly incurable diseases, for Allah may have hidden these type of cures from mankind and blocked their path to acquiring them. Allah knows best. The Prophet s.a.w said that the disease ends when the proper cure is applied to it, indicating that there is an opposite for every creation and thus there is an antidote for every disease. The Messenger of Allah s.a.w has stated that when the two opponents meet, meaning, the proper remedy and the disease, recovery from the illness occurs. When the medicine is given in a dosage higher than what is needed or when it is not the required medicine, it might lead the body to another type of disease. When the dosage is less than what is needed, it will not be sufficient to cure the disease. When the sick person and the disease are not treated with the suitable medicine, cure and recovery does not occur. Also, when the time is not suitable for the cure, or when the body is unable or unsuitable for the prescribed medicine, the cure will not be effective. When all circumstances are favorable, the cure will surely be effective. This is the best explanation available for these Hadith. - Imam Ibn Qayyim Al-Jauziyah

## Conclusion

Al Harith bin Kaladah said "Diet is the best cure; and the stomach is the residence of ailment; and give each body what it is accustomed to (of food and medicine)." Al-Harith stated that the stomach is the residence of the disease.

The stomach is indeed the residence of the ailment, it is the center of the digestion and maturing process of all food and drink. After that, the digested food descends to the liver and the intestines. Meanwhile, excess amounts of partially digested substances that the stomach was not able to completely digest remain, either because the amount of nourishment was excessive, spoiled or was not consumed in the proper order or all of these reasons. Some of this excrement remains in the stomach and the body is not able to completely discard them, and this is why the stomach is the residence of ailments. Al-Harith indicated the importance of eating less food and preventing the heart from fulfilling its desires.

All types of knowledge depend on knowing Allah, His commands and creations. The Messengers of Allah s.a.w are the only source that we can acquire such knowledge from, because they have the best knowledge of Allah, His Commandment and creation. The Messengers also have the best knowledge of the wisdom behind Allah's creations and Commandments.

This is why the remedies provided by the Prophet s.a.w and the followers are better and more efficient than the remedies of all others. The prophet s.a.w is endowed with

the best mind, purest way and deepest knowledge. How can anyone deny that the religion of he who was sent with the righteousness of this and the Next life also contains what preserves the body? How can anyone deny that the religion also directs us to the best methods of staying healthy, just as it directs to the best methods of preserving the heart and preventing sickness that might attack them?

## APPENDIX

### CASE EXAMPLES

#### 1. Asthma for children

Common symptoms asthma for children: Great rattling of mucus but very little is expectorated. Rapid, short, difficult breathing; seems as if he would suffocate; must sit up. Rapid and much or violent palpitation. Child is afraid to speak or move for fear of bringing on paroxysm of coughing. Nausea, vomiting or diarrhea immediately after eating or drinking. Bloating and hard abdomen. Involuntary urine at night.

Other common symptoms: Face looks pale, white and bluish about the mouth. Itching of nose all the times. Grits teeth during sleep. Skin rashes especially at elbows, knees, neck, upper front and back part of the body. Flu.

Focus of the treatment through body systems symptom:

1. Respiratory - Great rattling of mucus but very little is expectorated. Rapid, short, difficult breathing; seems as if he would suffocate; must sit up. Child is afraid to speak or move for fear of bringing on paroxysm of coughing.
2. Circulatory - Rapid and much or violent palpitation.
3. Digestive – Nausea, vomiting or diarrhea immediately after eating or drinking. Bloating and hard abdomen.
4. Urinary - Involuntary urine at night.
5. Integumentary - Skin rashes.

Medicine given: Usually we used homeopathic (Cina, Antimonium Tartaricum, Spigelia, Kali Arsenicum) as a major especially for infants and children. Patients are advised better to take honey.

#### Asthma for Adults

The symptoms of asthma and the focus of the treatment for adults and children almost same but for adults we use special formulation of Homeopathic remedies, Homeopathic Product from Dr Reckeweg, Germany and Ayurvedic Herbs (Koflet, Cystone or Renalka). For Ayurvedic herbs normally we used product from The Himalaya Drug Co., India. Patient is advised better to take honey.

#### 2. Disease – Unknown

Men, aged 38 referred to us with high fever, weakness, pale, his eyes and face looked yellowish with great depression. His urine is dark yellow and bloody. He lost appetite for several weeks. He likes to eat meat especially red meat, nuts, preserve, hot and spicy food. Water intake: more to sweet and carbonated drink but less plain water daily.

Focus of the treatment through body system symptoms:

1. Digestive - Liver ( Refer his blood test 15/6/200) and lost appetite.
2. Urinary - Dark yellow and bloody
3. Nervous - Great depression

Medicine given: Homeopathic (Special formulation and Dr Reckeweg Product) and Ayurvedic Herbs (Cystone and Biopure (Liv 52)).

Patient is advisable to take less protein, less hot and spicy food and take more plain water – 1.5 liter. He also advisable not to take any carbonated drink anymore.

After one week with medicine, patient looked healthy and all the symptoms mostly gone. But his wife realize, if her husband more active, less in plain water intake and consume more protein in his food, fever will come and his face look yellowish. These conditions reduced from time to time and until now, if he is too busy and consume lots of protein, less plain water intake likes in Eid, then he will get a fever but not high and weak as before.

Attached here, his blood test and medical report from KMC (Kedah Medical Centre) before he came to us and after 3 months received treatments with our method. Even his blood test showed lots of improvement but he is advised to continue this treatment for another 3 months until all the symptoms disappear and he feels healthy.



RADIOLOGY REPORT

Name : SHAARI BIN AWANG  
Age : 38Y  
Sex : Male  
MRN : 109167  
Exam. No./Date : 1242/ 18<sup>th</sup> JUNE 2006  
Referral Dr/Clinic : KLINIK EHSAN

Thank you for the referral.

ULTRASOUND ABDOMEN:

Findings:

Liver parenchyma shows diffuse reduction in parenchymal echogenicity. No evidence of a space occupying lesion or abscess. The intra and extrahepatic ducts are not dilated. The GB wall looks thickened, clear bile. No gallstones are detected. No pericholecystic oedema. Pancreas (head/body segment) shows normal echopattern, no obvious abnormality. The tail of pancreas is not visualized. Spleen is normal in size and echotexture. Normal appearances of the pancreas and spleen. Normal abdominal aorta. The kidneys are of normal size and shape with no evidence of a space occupying lesion, hydronephrosis or calculi. Bladder looks normal. No ascites.

Impression:

Changes indicating subacute inflammation of liver (?hepatitis).  
No sonographic abnormality in GB, pancreas, spleen, kidneys, bladder.

Kind regards.

*Dr Masrur Abd Hamid*  
Consultant Radiologist

DR MASRUR ABD HAMID  
MR (Ultrasonography) (Malaysia)  
Consultant Radiologist  
KEDAH MEDICAL CENTRE  
ALOR STAR, KEDAH

**KEDAH MEDICAL CENTRE** Pumpang, 05250 Alor Star, Kedah Darul Aman, Malaysia  
Tel : 604 710 8878 Fax : 604-733 2869 email : kmc@kedahmedical.com.my website : www.kedahmedical.com.my



His report from the Kedah Medical Centre (one of the Specialist Hospital).

FD 1301573



Lab No : BO 00129/0606 IC No: A0973466  
 Patient's Name : SHAARI BIN AWANG  
 Doctor's Name : DR. ISMAIL B. NAYAN  
 Clinic Name : KG20(A) - KLINIK EHSAN  
 Clinic's Address :  
 Specimen : BLOOD

Refer No:

Date of Report : 15/06/2006  
 Age/Sex : 38 / Male  
 Tel : 9764408  
 Fax :  
 Sampling Date : 14/06/2006  
 Date Received : 14/06/2006

Page 1 of 1

**LIVER FUNCTION TEST**

Total Protein	: 8.4	g/dl	(6.4-8.3)
Albumin	: 4.7	g/dL	(3.9-5.0)
Globulin	: 3.7	gm/dL	(2.1-3.6)
A/G Ratio	: 1.3		(1.0-2.2)
Total Bilirubin	: 1.8	mg/dl	(Up to 1.2) (less than 10.0 - NB)
Alkaline Phosphatase	: 95	U/L	(>15 yrs : 40-150 <15 yrs : <750)
SGOT	: 53	U/L	(8-37)
SGPT	: 149	U/L	(5-44)
Gamma Glutamyl Transpeptidase(GGT)	: 189	U/L	(M 12-64; F 9-36)

**HEPATITIS SCREENING PROFILE**

HBsAg : Non-Reactive  
 Anti-HBs : Non-Reactive

Note : Non-immuned, advice for vaccination.

\* Serum icteric.

*Ang Ley Khoo*  
 ANG LEY KHOON  
 B.Sc. (Hons) UKM

JAN CHEW GUAT  
 B.Sc. (Hons) UM

ONG CHIANG HOCK  
 B.Sc. (Hons) UKM, M.M.S., AMRC

LAI CHOY MUN  
 B.Sc. (MELBOURNE)

For further confirmation, please repeat test with another fresh specimen, if desired. Should you have further enquiries, please contact our nearest branch or Customer Service Dept. at customer@bphealthcare.com  
 No. 6, Jalan Jubli Perak, 01000 Kangar, Perlis Indera Kayangan Tel: 04-9711095 / 04-9773285 Fax: 04-9711096

Above his Liver Function Test and his start with our treatment from 30/06/06.

FD 2979040 

Lab No	: <u>BO 00081/1106</u>	IC No: <u>A0973466</u>	Refer No:	Date of Report	: <u>07/11/2006</u>
Patient's Name	: <u>SHAARI BIN AWANG</u>			Age/Sex	: <u>40 / Male</u>
Doctor's Name	: <u>DR. ISMAIL B. NAYAN</u>			Tel	: <u>9764408</u>
Clinic Name	: <u>KG20(A) - KLINIK EHSAN</u>			Fax	:
Clinic's Address	:			Sampling Date	: <u>06/11/2006</u>
Specimen	: <u>BLOOD</u>			Date Received	: <u>06/11/2006</u>

Page 1 of 1

**LIVER FUNCTION TEST**

Total Protein	: 8.0	g/dl	(6.4-8.3)	↑
Albumin	: 4.7	g/dL	(3.9-5.0)	↑
Globulin	: 3.3	gm/dL	(2.1-3.6)	↑
A/G Ratio	: 1.4		(1.0-2.2)	↑
Total Bilirubin	: 2.0	mg/dl	(Up to 1.2)	↑
			(less than 10.0 - NB)	↑
Alkaline Phosphatase	: 67	U/L	(>15 yrs : 40-150)	↑
			(<15 yrs : <750)	↑
SGOT	: 25	U/L	(8-37)	↑
SGPT	: 41	U/L	(5-44)	↑
Gamma Glutamyl Transpeptidase(GGT)	: 42	U/L	(M 12-64; F 9-36)	↑

\* Serum icteric.

  
 ANG LEY KHON  
 B.Sc. (Hons) UKM  
 For further confirmation, please repeat test with another fresh specimen, if desired. Should you have further enquiries, please contact our nearest branch or Customer Service Dept at customer@ophealthcare.com

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 B.Sc. (Hons) UM

ONG CHIANG HOCK  
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B P Clinical Lab Sdn Bhd (1527144). Address: 275 Jalan Kempas, 30250 Ipoh, Perak. Tel: 35-255 9340, 241 8184 Fax: 05-242 5488, 241 2226. E-mail: bpclinical@ophealthcare.com Website: www.ophealthcare.com  
 Consultant Hematologists: Dr. Lim Ee Jin, Associate Professor Dr. Isaac Hoo Tuck Suan, Dr. Jarius Bin Hanun, Dr. Norizan Bin Mohd Anuar, Dr. Jaka Murchan Bin Murchan Japa.

His Liver Function Test report after 3 months with our treatment – Showed lots of improvements.

### 3. Tumor

We had treated more than 3,000 patients with different kind and stages of tumor. A few patients with cancer and some of them had done chemotherapy or surgery. From our experiences, most of tumor patients consume lots of protein in their diets like red meat, chicken, eggs, junk/fast food and nuts or food in nuts based.

In the cancer cases, all the patient reports are in the General Hospital or Private Hospital so that we can't show the improvement for our cancer patient. We had only the patients reports from private clinics.

Medicine given for all the tumor cases are homeopathic with special formulation but if other symptoms appear especially at their body systems like constipation, bleeding, vomiting, etc, herbs or Ayurvedic herbs may be given. For all cancer patients besides homeopathic special formulation and Dr Reckeweg Product, our focus is to develop the body systems especially Digestive System – Liver (control the HB level), Urinary System and Respiratory System, also herb and Ayurvedic herbs are given (Biopure, Septailin, Abana and Cystone).

Those patients in Chemotherapy period, the medicine given are more than usual to help control their body systems or vital force. Chemotherapy not only destroys cancer cells but also attacks normal ones, including those of the bone marrow- the foundation of the immune system, the intestinal wall and hair follicles. Chemotherapy can drastically undermine the immune system's ability to fight off otherwise harmless bacteria.

Using this method of treatment; for the tumor cases the success rate was significantly high and for the cancer cases, if the patients really follow the advice given in the period of Chemotherapy and after; some patient only have hair fall at the last period. The patient also looks healthy and can go home at the same day after Chemotherapy. The success rate was significantly high for the cancer cases and they can live more than 4 years after the diagnosed whether after surgery or not. All tumor and cancer patient are advisable to take the medication at least 2 years intensively especially for tumor more than 3 cm in sizes.

#### Case 1

Before she got fibroid, she had breast tumor on the right. When she came, the breast condition is three times larger compare the left breast with swelling, red, tender and painful. In the third month under treatment, lots of improvement but the left breast became red, pain and tender but no swelling.

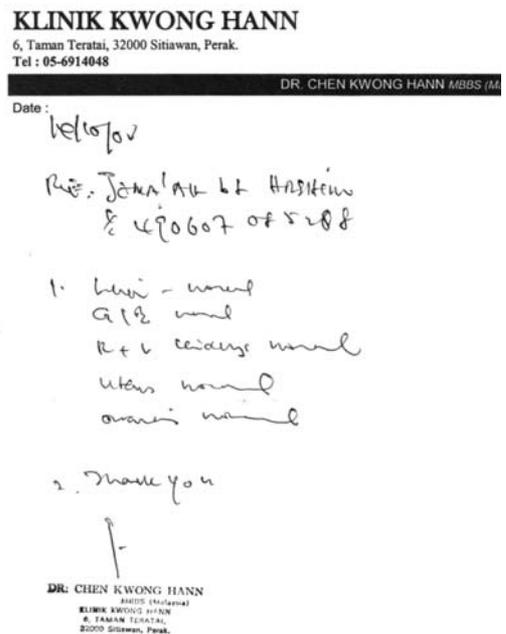
On the sixth month under the treatment, no more complaint about her breasts but her menses become problem – lots of big clots came out not as before. Ultrasound show, she had 5.9 cm fibroid. (Refer to the report below, 27/2/01)

She continues the treatments for another seven months, the report on 14/10/01 (refer to the report below) show the uterus become normal. She do another ultrasound to reconfirm one year later (Refer to the report below, 26/9/02), the uterus also normal even without any medication.

Medicine given: Homeopathic special formulation.



The ultrasound show, the fibroid 5.9 cm in size



After continues treatment for another seven months.

**KLINIK KWONG HANN**

6, Taman Teratai, 32000 Sitiawan, Perak.  
Tel : 05-6914048

DR. CHEN KWONG HANN

Date: 26/9/02 @ 911aw

Ref: JUMA'AH bt HASMIR

Uterus:

R & L ovaries: normal

Uterus: FATTY

Endometrium: normal

Adenomyosis: normal

Adenomyosis: normal

41

Reconfirm: Ultrasound show no more fibroid even after one year without medication.

**Case 2**

This patient comes with cannot pass her stool for about 10 days. Colonoscopy (done in General Hospital) show that her rectum swelling and blocked. After one week intensive treatment, her problem almost solve but she had menses problem for the last 2 years – clots and sometimes too heavy.

Ultrasound show, she had cystic in the left ovary - 6.4 cm x 4.2 cm (report on 15/03/03). We advised her to take prolong treatment, at least 2 years because she had swelling, blocked rectum and cysts in the left ovary. Her menses problem reduced month by month.

Ultrasound on 23 December, 2004 show, she had fibroids with 5.4cm and 4.2cm length but no more cystic in the left ovary. One year later after she continues her treatment, ultrasound show (29/1/06) her womb clear and no more cyst or fibroid.

Medicine given: Homeopathic special formulation, herbs (senekot) and Ayurvedic herbs (Biopure). Herbs and Ayurvedic herbs are given only for a few months – defecate and HB low.



Uterus: NS  
Cystic mass (L) ovary  
Marrinate ble Baker

First ultrasound, 15/03/03 show 6.4 cm x 4.2 cm cystic in left ovary.



Marrinate ble Baker 4.6 F-23/12/04  
580401-08-6613

Second ultrasound show fibroids 5.4cm and 4.2 cm in length, 23/12/04



Uterus: NS  
no more mass

Third ultrasound show no more cyst and fibroids, 29/01/06

Case 3

LAMPIRAN 'A'

KEMENTERIAN KESIHATAN MALAYSIA  
SURAT RUJUKAN

**RUJUKAN MESTILAH KEPADA PEGAWAI PERUBATAN / PERGIGIAN / PAKAR**

JABATAN / UNIT : Dr Sik marian Pakar O.G. Hgo SJ	<input type="checkbox"/>	SEGERA
NAMA PESAKIT : Maimurah Hashim	<input checked="" type="checkbox"/>	TIDAK SEGERA MENGIKUT KETETAPAN
NO. K/P : 581022-71-5198	UMUR : 47	JANTINA : F
TARIKH : 15 Dec 2005	NO. RUJUKAN :	
HISTORY :	MASA :	
47 years old lady Para 5. LCB 15yrs		
also recurrent episodes of		
EXAMINATION (FINDINGS) :	premenstrual syndrome	
- headache, vomiting, backache		
- scan uterus		
PROVISIONAL DIAGNOSIS :	uterus bulky 7cm in length	
+ echogenicity in the lining		
Ⓟ ovary enlarged		
RESULT OF INVESTIGATION :	↳ severe premenstrual syndrome	
TREATMENT :	cete brow every day	
PURPOSE OF REFERRAL :	for further assessment	
Thank you		

DARIPADA PEGAWAI

NAMA  
JABATAN

*hdfj*

TANDATANGAN:  
Dr. Mohd. Suzuki b. Abd. Rahman  
M.D. (USM) M. Med (UKM)

Report from General Hospital

**KLINIK FAIZAH**

32-34 Medan Syed Alwi, 01000 Kangar, Perlis.  
Tel: 04-9767366, Fax: 9777907, Email: squawk@pd.jaring.my  
Branch: 5, Taman Bahagia, Balai Baru, 02400 Beseri, Perlis. Tel: 04-9381366

Consultant Obstetric & Gynaecologist  
Medical Officer &

25-3-2006

Gynae clinic  
Hospital Tunku Fauziah  
Kangar  
Perlis

Dear Dr

Kep: Maimunah bt Hashim  
No: 581022-71-596

This 47-yr old lady G5P5 had PMS and was  
-Wld to have ? impl. ovary x 2 1/2 ago in Ipoh.

She had rpt yrs delay and found to have

? calcified fluid fundus uteri = 11.5 x 13.3 x 8.7mm

Both ovaries normal.

Please help see her and do needful

Thank you & regards



DR. HJH. FAIZAH AHMAD  
M.B.Ch.B (Alexandria)

KLINIK FAIZAH  
NO 32-34, Medan Syed Alwi  
01000 Kangar, Perlis  
TEL: 9767366 Fax: 977

Maimunah, 47 came to us with her report (15/12/2005) from General Hospital. She has 7cm of bulky uterus in length and left ovary enlarge also pre menstrual syndrome. After 3 months with our treatment, both ovarian are normal and her bulky uterus (calcified fibroid fundus uterus?) turn to 1.15 x 1.33 x 0.87 cm (Report from Faizah Clinic on 25/3/06). Her pre menstrual syndrome also lots of improvement.

Medicine given: Homeopathic special formulation.

#### 4. Headache or Migraine

Headache or migraine is a severe, throbbing headache that lasts anywhere from a few hours to several days. In some cases, the pain will spread to the other side, or alternate from one side the other. It is often accompanied by loss of appetite, nausea and vomiting, and increased sensitivity to light. Migraine triggers which vary from person to person include hormonal changes related to a woman's menstrual cycle, the weather, bright lights, stress, odors, alcohol, and chocolate and certain other foods.

Focus of our treatment to body system symptoms that normally effect with Migraine:

1. Digestive - Constipation, Gastric, food allergy, flatulence, colic
2. Urinary - Renal stone, blood in urine, frequent urine, infection
3. Reproductive - Pre menstrual syndrome, some cases of prolapse of uterus

Other symptoms:

1. Involved in chronic accident before

2. Tumor especially in brain and uterus.

3. Sinusities

Medicine given: Homeopathic with special formulation, herbs and Ayurvedic herbs depending on the symptoms. For all patients have Digestive system symptom are advisable to take honey daily.

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# “Chapter: To Treat With the Urine of Camels” in the Book of Medicine (*Kitab al-Tibb*) of *Sahih al-Bukhari*: An Interpretation

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## Summary

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This paper is an endeavor to interpret hadith of the Prophet (s.a.w) in *Bab al-Dawa' bi Abwal al-'Ibl* (Chapter: To treat with the Urine of Camels) of the Book of Medicine (*Kitab al-Tibb*) of *Sahih al-Bukhari*.

**Key Words:** Islamic Medicine, Medicine of the Prophet (*al-Tibb al-Nabawi*), Urine of the Camels.

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### Al-Jami` al-Sahih (Sahih al-Bukhari) of Imam Bukhari

*Al-Jami` al-Sahih*, known as *Sahih al-Bukhari*, is a recognized collection of hadiths of the Prophet (s.a.w).<sup>2</sup> It was compiled by Muhammad b. Isma`il al-Bukhari (194-256/ 810-870). The hadiths were arranged in 97 books (*kutub*, the plural of *kitab*) with 3,450 chapters (*abwab*, its singular is *bab*). They were classified according to subject matters on *Fiqh*. In addition, the other subjects such as theology, ethics and medicine are found as a separated *kitab* in *Sahih al-Bukhari*. The *Sahih al-Bukhari* is recognized by the overwhelming majority of the Muslim scholars to be one of the most authentic collections of the hadith or Sunnah of the Prophet (s.a.w).

Imam Bukhari spent sixteen years compiling the hadiths of the Prophet (s.a.w), and ended up with 2,602 hadiths (9,082 with repetition). *Sahih al-Bukhari* has been commented by many scholars. Among them are *al-'Alam al-Sunan fi Sharh Sahih Bukhari* by al-Kirmani (717-786/1318-1385); *'Umdah al-Qari* by Badr al-Din `Ayni (762-855/1361-1452); *Fath al-Bari* by Ibn Hajar al-'Asqalani (773 – 852/1372-1449); and *Irshad al-Sari li Sharh Sahih Bukhari* by al-Qastalani (851-923/1148-1518).

Al-Bukhari's criteria for acceptance of hadiths into his collection were amongst the accepted criteria of Muslim scholars of *hadith*. Each report in his collection was checked for compatibility with the Qur'an, and the veracity of the chain of reporters had to be painstakingly established. It is not merely its authenticity that makes this particular collection arising interested by Muslim scholars, but also the vital role it played in developing the concept of health, medicine, prevention and treatment of disease relevance to this age.<sup>3</sup>

### Chapter on Treatment of Disease With the Urine of Camels (Bab al-Dawa' bi Abwal al-'Ibl)

Imam Bukhari (194-256/ 810-870) made a special chapter on camel urine in his book of medicine named "*Bab al-Dawa' bi Abwal al-'Ibl* (Chapter: To treat with the urine of camels)". In truth, camel is among the animals that clearly mentioned in the Qur'an as a miracle of God. In surah 88, verse 17, Allah (s.w.t) says: "*Do they not look at the Camels, how they are made?*". When pondering this verse, one finds that studies about the nature of camel have a certain importance as the first step to know its medical benefits. Naturally, the camel is living in the desert and hot climate. That is why it was created with the ability to preserve water in his body. It does not overheat, can withstand water loss, and store fats in the hump for use in times of food and water deprivation. Modern medicine has taken a very clear stand when it accepts that camel is free from foot and mouth viruses as a result of its immune systems. Recently, discoveries in medical science was published, saying that the small size of camel antibodies would also allow them to penetrate deep into human tissue and cells that would not be otherwise accessible. Camel antibodies, by being transported from the desert sands into the laboratory test tube, have the potential to be a vital weapon against human diseases.<sup>4</sup>

Now the question arises: Why did the Prophet (s.a.w) ask some people from `Urayna who found Madinah noxious (*ijtawaw*) to drink the camel's urine? This advice becomes one of the most controversial issues in medicine of Prophet (*al-tibb al-nabawi*). It is impossible to answer the question with any degree of certainty. All we can do is giving medical benefits of camel urine as mentioned in hadiths of the Prophet (s.a.w). Obviously, there are many hadiths mentioning the benefits of camel urine in the different versions. All these hadiths are focusing the Prophetic prescription to the `Urayna Bedouins, who came to Madinah and found noxious to the point they

became jaundiced and their bellies became swollen. In this regard, Imam Bukhari reported the hadith of the Prophet (s.w.a) as follow:

“*an Anas (r.a): an na-san ijtawaw fi al-madinah, fa amarahum al-nabiy (s.a.w) an yalhaqu bi ra`iyah -ya`ni al-`ibl-fa sharibu min al-baniha wa abwaliha. Falahiqu bi ra`iyah, fa sharibu min al-baniha wa abwaliha hatta salahat abdanahum....*”

Narrated Anas (r.a): The climate of Medina did not suit some people, so the Prophet ordered them to follow his shepherd, i.e. his camels, and drink their milk and urine (as a medicine). So they followed the shepherd that is the camels and drank their milk and urine till their bodies became healthy.<sup>5</sup>

It is very regrettable that we do not find a clear comments either in Ibn Hajar’s *Fath al-Bari* nor *Umdah al-Qari* of `Ibn Ahmad al-Ayni, whether camel urine was good for treatment of disease or otherwise. However, Muhammad al-Akili, while translating Ibn al-Qayyim’s *al-Tibb al-Nabawi*, was of the opinion that the words “their urine (*abwaliha*)” in all the ahadith of Prophet (s.a.w) is a copyist’s mistaken rewording of the word “*alba`niha*”. Even this view has no foundation in whatsoever in the books of hadiths, however, he argued that the word *abwaliha* (their urine) is so rare in the hadiths. It seems that *abwaliha* (their urine) looks so much like *al-baniha*, “their milk”. Many Muslim scholars are of the opinion that it would be a quiet mistake to accept al-Akili’s suggestion because the compilers of hadiths unanimous on the *abwaliha* wording. Even it is so rare in the hadiths, the scholars of hadith (*Muhaddithun*) didn’t mind because they were aware that camel urine had a history of medicinal used among desert Arabs with which majority of the early scholars seemed familiar. Al-Shawkani in his *Nayl al-Awtar* admitted that there was, in the urine of camels and their milk, a cure for those with decaying stomach (*al-dharibati butunuhum*). The decaying of the stomach was defined as “a disease of the stomach that prevents it from digesting aliments.” Similarly, Dawud ibn `Umar al-Antaki (d. 1008) in his *Tadhkirat Ulil-Albab wal-Jami` lil-`Ajab al-`Ujab (Memorandum Book for Those Endowed with Hearts and the Encyclopedia of Wonders)* said:

Urine differs according to its animal origin but it all tends to heat and dryness provided it does not come from an animal devoid of bile such as the camel. In the latter case, its dryness is minimal because it is devoid of salinity since nothing breaks down salinity, with water, other than the bile. All urine types dispel the effects of diseases, cure the eye and the ear, chronic cough, difficulty in respiration, the spleen, and uterine pains, especially aged and/or congealed. The most effective types are human urine then camel’s.

## Conclusion

The above study reveals to us on the conditions of Muslims in the time of Prophet (s.a.w), how they treated disease, if somebody was sick. In regard to the treatment of disease with the urine of camels, it is advised that we should

## “CHAPTER: TO TREAT WITH THE URINE OF CAMELS” IN THE BOOK OF MEDICINE (KITAB AL-TIBB) OF SAHIH AL-BUKHARI: AN INTERPRETATION

not use it 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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- 1 This article is part of my “*Health and Medicine in the Light of the Book of Medicine (Kitab al-Tibb) in Sahih Bukhari*”. It was prepared while I was a Visiting Fellow at the Oxford Centre for Islamic Studies (OCIS). I would like to express my deepest thank to the Director of OCIS, Dr. F.A Nizami for giving me the golden opportunity to conduct my research at the Centre as well as for the funding that I received from the Centre. Currently, the author is a Senior lecturer at the Department of Government and Civilization Studies, Faculty of Human Ecology, University Putra Malaysia (UPM), 43400 UPM, Serdang, Selangor, Malaysia. E-mail: nurdeng@putra.upm.edu.my
- 2 Hadith (its plural is ahadith) is the sayings (*aqwal*), the actions (*af`al*) and the tacit approval (*taqrir*) of the Prophet Muhammad (s.a.w). In other words, the ahadith of the Prophet are divided into three parts: *al-qawl-iyah*, the traditions which are statements and sayings of the prophet; the second is *al-fi`liyah* that is the traditions that is derived from the deeds of the holy prophet, and third, *al-taqririyah* (the traditions of the tacit approval), is taken from the Prophet’s silence or tacit approval regarding deeds which had occurred with his knowledge. The collections of ahadith were officially began with Umayyad Caliph `Umar Ibn Abdul `Aziz (d. 101/720)’s instruction, for the first time to Abu Bakr b. Muhammad b. Amr b. Hazm, al-Zuhri and others to collect ahadith of Prophet (s.a.w). al-Zuhri was the first who recorded them. Later, in the third century of Hijrah, scholars of hadith devoted their life and energy in shifting the hadith examining the narrators and ensuring their authenticity for preserving the ahadith of Prophet (s.a.w). From the middle until the end of third century, there was a serious collection of ahadith. These collections were well-known with the successful compiled six textual collections of the ahadith namely of Imam Bukhari (d. 256/ 870), Imam Muslim (d. 261/875), Abu Dawud (d. 275/888), al-Tarmidhi (d. 279/892), al-Nasa’i (d. 303/915), Ibn Majah (d. 273/886) etc. (For details, see M.M. Azami, *Studies in Early Hadith Literature* (Indiana: American Trust Publications, 1978); M. Hamidullah, *Early Compilation of Hadith*, Islamic Review, May, 1949).
- 3 Unfortunately, there has been a lack of effort to study the medical aspect of Sahih Bukhari. Because, most of Muslim scholars have been repeated attempts at writing common aspects of Sahih Bukhari such as the study of fiqh (Islamic jurisprudence), *tafsir al-quran* (exegesis), *ilm al-kalam* (theology), ethics or manner (*akhlak*), *sirah al-nabawiyah* (history of Prophet), and *al-Isnad wa al-Matan* (narration and text of hadith).
- 4 [http://news.bbc.co.uk/2/hi/middle\\_east/1702393.stm](http://news.bbc.co.uk/2/hi/middle_east/1702393.stm). According to a report in the Gulf News, scientists have found antibodies in camel’s blood which have helped them to develop a successful treatment for colon cancer. Tests on colon tumours in mice registered a 100% success rate. Professor Serge Muyldermans, a researcher at the Vrije University in Brussels, told the first Conference of the International Society of Camels Research and Development in Al Ain, that the findings could lead to cures for other diseases. (see, <http://www.ameinfo.com/83132.html>).
- 5 *Sahih al-Bukhari*, Kitab al-Tibb, Bab al-Dawa’ bi Abwal al-`Ibl.

# Republic of Turkey Prime Ministry Ottoman Archive: a Treasure for History of Medicine

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## Summary

In this article, it was aimed to introduce the Republic of Turkey Prime Ministry Ottoman Archive briefly, to classify subject headings related to history of medicine and to illustrate some examples, and to list some keywords for researchers. The list of subjects related to medicine was constructed by the authors using a two-way method. First, some main keywords were selected to start searching documents related to medicine by using the computer network in the Archive building. Then new keywords were extracted from the documents found by the initial set of keywords, and were used for a new search. Keywords were used in different combinations in order to decrease the number of retrieved information, and some of the documents related to history of medicine were selected as the representatives of a certain subject. The subject headings for the classification of documents related to history of medicine are various such as abortion, quackery, health system organization, legal regulations, treatment methods, forensic medicine, trade of treatment methods, communicable diseases, professional practice, visits of foreign physicians, social state policies, Red Crescent Society, occupational health, public health, health institutions, medical education, mental health, health of the Sultan and palace residents, documents about minorities' health institutions, scientific innovations, and violation of professional codes and malpractice cases.

The subject headings are various enough to understand the daily practice of medicine, health organization and policies, and health problems of society. History of medicine studies would be deficient and poor unless taking into consideration the medicine and health in the Ottoman era.

**Keywords:** History of Medicine, Archives, Professional practice, Ottoman Era

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## A short introduction

Republic of Turkey Prime Ministry Ottoman Archive (the Archive), or "Treasure of Official Documents" (Hazine-i Evrak) by its old name, is undoubtedly the most richest source in the world for the researchers who are interested in the history of Ottoman Empire. It also offers the most comprehensive resources about the historical information for an era of nearly 600 years about today's 39 nations, placed in the Middle East, Europe, Caucasias, Central Asia, and Northern Africa [1], and it is the main archive for these countries in that manner [2].

There are more than 100 million documents in the Archive, 80% of them were classified and are accessible from the computers which are connected via intranet that was set up by General Directory of State Archives [3]. Also, nearly 5 million documents' catalog information are accessible online for free from the internet via the web site of the Archive [4]. The documents in the Archive are dated from the foundation of Empire to 1922. The number of documents belongs to the era between the foundation of the Empire and Suleyman the Magnificent is very limited [5]. But it increases gradually, and especially due to the foundation of ministries after Tanzimat, the number is so high after that period. There are many types of documents in the Archive, including official state documents, personal records, memories, military personnel registrations, publications, maps, plans, sketches, albums, photographs, and newspapers [5,6].

According to the regulation which states the conditions that should be met in order to be eligible to work in the Archive and to examine the archive documents, every Turkish citizen and foreign researchers can apply to the Archive administration with an application form, a photograph and a valid identification card [7]. Foreign researchers can also apply via Turkish consulates in abroad.

The above mentioned features of the Archive, as easily can be foreseen, makes it unique and invaluable also for the studies on history medicine. In fact, it is possible to say that the documents in the Archive are increasingly used in the history of Ottoman medicine studies.<sup>1-3</sup> In this article, it was aimed to introduce the Archive briefly, to classify subject headings related to history of medicine and to illustrate some examples, and listing some keywords for researchers.

## Methods

The list of subjects related to medicine was constructed by the authors using a two-way method. First, some main keywords, such as "tabib" (physician), "tababet" (medicine), "emraz" (disease), and "cerrah" (surgeon), were selected to start searching documents related to medicine by using the computer network in the Archive building. Then new keywords were extracted from the documents found by the initial set of keywords, and were used for a new search. Searching by using this "snowball"

technique was stopped after getting a list which was long enough to cover the concepts related to healthcare workers, diseases, medical institutions, medical applications, and health policies. Naturally, the list is not a result of a systematic search of 100 million documents in the Archive, nor of nearly 80 million accessible on the intranet; it is just a compilation of some keywords which were determined by authors' archive studies. A complete survey of the Archive is obviously impossible for a researcher, even via catalogs accessible from the intranet, because one single search with keywords takes nine minutes on average, and inspecting the results takes much more due to the size of retrieved material. But the authors strongly believe that this list still can be used as a key for the history of medicine studies. The keywords used for searching the archive catalogs were shown in Table.1.

Keywords were used in different combinations in order to decrease the number of retrieved information, and some of the documents related to history of medicine were selected as the representatives of a certain subject. The classification of documents related to history of medicine and some examples can be seen below.

## Results

Subject headings and example documents for history of medicine in the Archive are shown below:

### 1. Abortion

- “On prohibition of abortion, which causes to decrease the population”
- “Exile of Dimitri from Limni and his daughter, because of aborting together the fetus”
- “Deportation of Madam Ziyold from Germany, who practice abortion in Beyoglu, out of the Ottoman Empire.”

### 2. Quackery

- “Exile of a person named Hasan, who introduce himself as physician, because of causing death of a sick person named Abdi by giving him a drug.”

### 3. Health system organization

- “The establishment of Meclis-i Umur-ı Tıbbiye-i Mülkiye and Sihhiye-i Umumiye”
- “The duties of Protection of Health Commission”
- “The vehicles of Kadirga Midwifery School can be used for transportation of pregnant in case of an emergency.”

### 4. Legal regulations

- “Complying the rules of regulation on smallpox vaccination”
- “Regulation about provincial health inspectors, and physicians who work in municipalities and hospitals”
- “On the necessity of immediate application of the regulation on syphilis”

### 5. Treatment methods

- “Notebook about ingredients which are used to prepare drugs”
- “Prescription about drugs prepared by using plants for the treatment of tuberculosis”

### 6. Forensic medicine

- “On Manastrir province's demand about the appointment of a physician who will solely work on forensic cases”
- “Investigation of late arrival of İnebolu municipality physician to Cide, who were charged to examine of a death”

### 7. Trade of treatment methods

“The petition of Serkiz, complaining that some Europeans interfere him while he has the right to collect leeches from the lakes in Bolu territory.”

- “On postponing the punishment of an attar, who sells drugs without license”

### 8. Communicable diseases

- “On a scarlet fever epidemic in Gemlik town and measures to be taken”
- “Measures for the syphilis epidemic occurred in Yemen, San'a, Hudeyde, Ta'z and around”
- “Plague epidemics in Antalya and measures to be taken”
- “Establishment a facility for vaccine production in Asir”

### 9. Professional practice

- “Omer, who has applied with a petition, was successful at the examination and was given licence to practice surgery.”
- “It is not possible to appoint Dr. Salfonor, graduated from American Medical School, as a municipality physician”
- “Appointment of Samoil Efendi as the pharmacist of Isparta province Gureba Hospital”
- “The petition of Salemon Garten Efendi requesting to be appointed to Istanbul after eight years-long rural service”

- “On the need of a physician in Hakkari who can treat wounded patients and can conduct some small surgical operations”
- “Although Mehmed has requested to be recognized as the unique circumciser in Kemer, Edremid, it is not possible to limit a profession to one man.”
- “On giving licence to masters, headworkers, and apprentices who work in drugstores by physicians once a year”

## 10. Visits of foreign physicians

- “On the scientific studies which will be carried out in Ottoman Empire’s territory by Austrian physician Franz Nabel”
- “On the visit of Italian physicians, Dr.Biconi and Dr. Ralli, who have invented some medicines for plague”
- “Providing help to Dr. Vilhem Salay, who was sent by Carnegie Institute for carrying out scientific researches in Beirut, Syria, and Jerusalem.”

## 11. Social state policies

- “The expenses of insanes will be provided by municipality incomes”
- “On the payment of expenses of poor and single patients who were served in madrasah in Edirnekapi”
- “Helping the flood victims in Humus”
- “Providing the expenses of poor women from the general budget”
- “Salary assignment to the fathers of twin babies”

## 12. Red Crescent Society

- “Discussions about establishment of aid committees in Red Crescent Society”
- “On the claim of financial fraud in Red Crescent Society”

## 13. Occupational health

- “Permanent employment of engineers in Zonguldak coal mines, protecting the legal rights of accident victims, taking necessary precautions in workplaces”

## 14. Public health

- “Prohibition of mussel collection from the copper floats under Yeniköprü, regarding the toxication cases related to mussel consumption”
- “On preventing bakers to produce bread in poor quality, and make them adapt the scientific reports of municipality physicians”

- “Analysis of samples of peppers which was imported to Ottoman country”
- “On the vaccination tubes that were sent to Selanik”
- “Most of the schools’ architectural features in İstanbul are harmful for health.”

## 15. Health institutions

- “Improvement of hospitals in Kosovo, and building new ones where they are needed”
- “Approximate expenses of building a sanatorium in Kütahya, exercising its scientific exploration, and examination of its plans.
- “Establishing a mobile ship-hospital for the sponge fishers who might be sick during diving”

## 16. Medical education

- “Annexation of Military Medical School to School of Medicine which is an institution of Ministry of Education”
- “Providing corpses not only from Gureba Hospital, but also from the other hospitals, in order to use in anatomy studies”
- “Revenues obtained by selling of books which were written by the teachers of School of Medicine, should be paid them, after subtracting the expenses for printing and publishing”
- “Appointment of Dr.Şarl Edvares for teaching history of medicine in School of Medicine”
- “On providing help to the participants of International Congress of Medicine who will come from Budapest to İstanbul”

## 17. Mental health

- “On the need of additional healthcare workers in Süleymaniye Mental Hospital, because of increasing numbers of patients”
- “Restraining the referrals of mental health patients from country side to İstanbul due to the lack of capacity of hospitals”

## 18. Health of the Sultan and Palace residents

- “The reports of urine analysis of Sultan, given by Hamidiye Etfal Hospital laboratory”
- “The head physician of Sultan, Omer Efendi who has made a drug composition that ease Sultan’s ache, was promoted to Kazasker of Rumeli”

- “The treatment of Fehime Sultan’s nervous disease has begun”
- “The report prepared by German physician Dr.Çimsen about the health status of Nemika Sultan”
- “For Sadrazam, it is not possible to have a chance to heal from his heart disease”

## 19. Documents about minorities’ health institutions

- “Upon their request asserting their poorness, rationing meat to the Jewish hospitals, as it is given to the Greek and Armenian Hospitals”
- “Building a hospital for the Bulgarian community in Feriköyü, Hasköy Street”
- “Rationing 45 kıyye (approx. 58 kilograms) bread and 30 kıyye meat (approx. 39 kilogram) daily to Bulgarian Hospital in Şişli”

## 20. Scientific innovations

- “On an information request by Brasilian Government about a drug for leprosy that was invented by Zambako Paşa in İstanbul”

- “Publishing a newspaper named Vekayi-i Tıbbiye in order to announce the scientific developments in Europe”
- “Information about scientific developments in Europe, and the things that should be done in the Ottoman country”
- “Sending two physicians to Germany in order to get them trained about the new treatment method for tuberculosis which was invented by Dr.Koch”

## 21. Violation of professional codes and malpractice cases

- “On Zonguldak mobile physician Mehmed Şükrü Efendi’s unfulfillment of his duties”
- “Physicians who demand excessive salary and pharmacists who hide their stocks should be informed to the authorities”
- “Manol, a physician in Yenice, has given a forbidden drug, “argotin”, to a pregnant woman and caused her death, therefore he should be judged”
- “Imprisonment of Dr. Silva, who practice medicine in İstanbul and who is a Spanish citizen, because of causing death of a pregnant woman during labor”

Table.1 The keywords used for searching the Archive catalogs

Professional titles of healthcare workers	Medicine and medical specialties
Sihhiye müfettişi	Tababet
Tabib - p	Etibba
Seyyar tabip -b -bi	Etibba
Reisületıbbı / Reisületıbbı-yı hassa	Rüşeym
Seretıbbı	Ensac
Seretıbbı-yı Sultani	Nisaiye / Viladiye
Seretıbbı-yı Ordu-yı Hümayun	Edviye
Serhekim	Üzniye / Enfiye / Hançereviye
Sercerrah	Etfal
Başhekim	Hariciye
Cerrahbaşı	Beviye
Hekimbaşı	Cerrahi
Hassa tabibi	Memalik-i harre
Etibba-yı Hassa	Akliye / Asabiye / Dimağıye /
Padişah'ın başhekim	Dahiliye
Hapishane -si -i tabibi	Ayniye
Hekim	İlm-i teşrih
Doktor	İlm-i tüfeylat
Çıkıkçı	Kimya-yı Hayati
Kırıkçı	Seririyat
Kaçıkçı	Sari -ye
Cerrah	İntaniye
Eczacı	Fenn-i kıbale
Belediye Eczacısi	<b>Communicable diseases</b>
Eczaküb	Firengi
Ebe -lik -si / Sancak ebesi / Kaza ebesi	Kızıl
Dişçi	Veba
Kehhal	Çiçek
Baytar	Kanlı basur
Aşı memuru	Cüzzam
İbrizi	Tifo
Aşşab	Kolera
<b>Words related to professional practice</b>	İllet-i mahufe
Tayin	Taun
Maaş	Bataklik
Mecburi hizmet	Sıtma
Firar	İnfitah-ı akd-i lenfiye

Vazifesini ifa
İcra-yı tababete mezuniyet
Tabib-p dükkanı / Dükkan küşadına mezun
Diplomasız
Azı / Azlı cihetine gidilmiş
Görevden alınarak / Görevine son verilen
Yolsuzluk
Suistimal
Kusur
Tecdid
Tevkif
Hapis
Kürek
Yanlış ilaç
Ölümüne sebep -p
<b>Names of the medical institutions</b>
Tahaffuz Meclisi
Meclis-i Tıbbiye-i Mülkiye
Mekteb-i Tıbbiye-i Mülkiye
Meclis-i Umur-ı Tıbbiye-i Mülkiye
Meclis-i Sıhhiye / Sıhhiye Meclisi
Mekteb-i Tıbbiye
Mekteb-i Tıbbiye-i Adliye-yi Şahane
Mekteb-i Fünun-ı Tıbbiye
Askeri Tıbbiye
Mekteb-i Tıbb-ı Cedid / Mekteb-i Tıbb-ı Cedid-i Şahane
Tıp Medresesi
Sıhhiye-i Umumiye
Etibba-i Mülkiye
Tıphane / Tıphane-i Amire
Cerrahhane
Müessesat-ı Hayriye-i Sıhhiye İdaresi
Yeni Tıbbiye Mektebi
Sıhhiye eczanesi
Darüşşifa
Amalara mahsus mektep
Eczahane-i Amire
Hastahane / İspitalya
Bimarhane / Timarhane / Timarhane
Muayenehane
<b>Other words related to medicine</b>
Sıhhat
Sıhhiye
Hastalık
Emraz
Vefat
Hurdebin

Verem
Vebe-yi bakari
Dizanteri
Kuşpalazı
Telkihane
Tahaffuzhane
Karantina -e
Aşı
Aşıhane
Aşı tüpü
Salgın
İshal
<b>Treatments</b>
Tedavi
Zeytinyağı
Balmumu
Astar
Teremendi / Terebementi
Çam sakızı
Sülük
Iskat-ı cenin
İlaç
Ecza
İlaç cetvelleri / pusula
<b>Words related to patients</b>
Mecnun / Mecanin / Deli
Sara -lı
Hasta
Hastegan
Hastalar ağası
Mecruh
Cerha / Ceriha
Alil
Garip
Kimseyiz
İdrar
<b>Medical education</b>
Hoca
Muallim
Şakird -an
Talebe
Mekteb -p
Muid
Hocagan / Hacegan
Müfredat
Kongre
Tercüme

## As a conclusion...

Using documents is one of the important resources for history-writing. While re-constructing the history of that particular era, documents are regarded as concrete and traceable, and therefore relatively reliable. In this sense, Prime Ministry Ottoman Archive is an unimaginably rich source for the researchers who work in the field of history of medicine. As it can be easily seen, the subject headings are various enough to understand the daily practice of medicine, health organization and policies, and health problems of society. It is possible to claim that our study is unique of its kind, and showing the possibilities for research by using Archive documents. We think that this research will inform the researchers and give them new ideas. It also should be stressed that history of medicine studies would be deficient and poor unless taking into consideration the medicine and health in the Ottoman era.

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# History of Odor Removers and Anti-perspirant in the Arabic Medical Heritage

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## Summary

Bad body smell is a social problem which is worthy to call our attention, and requires our both care and interest. We may notice that via a vast spreading advertisements regarding deodorants (Perfumed Deodorant) comparing with the other cosmetic products.

Normal body sweats between one quarter up to three quarters of a gallon (about 1 – 3 liters) daily. Water, which is the main component of sweat, dries immediately leaving residues on the skin, which is in turn converted, by bacteria and chemical factors into unpleasant odors.

Hyperhidrosis can be defined as excessive sweating. It is very disturbing for people who are suffering from this case.

Arab physicians have been concerned, since the past, with bad odor removers, and we can see this in their medical publications. Some Arab physicians devoted a special chapter in which they mentioned prescriptions along with methods of preparing and using it, such as Physician (Ibn Al-Telmiz) in his Pharmacopeia. Some classified these removers with cosmetics, such as Physician (Avicenna) in his book (Al-Qanon fi AL-tib). Others specialized in this field as (Razes) did when he set special descriptions to remove the odor from armpit and foot.

Our research sheds light on this social problem that has always been a cause of suffering for a lot of people. Ancient medicine gave special importance to this blast and considered it cosmetics social blast. It also considered odor removers as part of cosmetics. The most important example of this could be the large expenditures by women on this kind of cosmetics.

We will study the forms of this kind of cosmetics, and distinguish between Perspirants and odor removers, and upon a comparative scientific study with modern medicine in this field in which we show the importance of science presented by Arab physicians, particularly the physician (Ibn Al-Telmiz) (.....-560 A.H. /.....- 1165 A.D.), This science was the corner stone for further Pharmacopeias which came after it on one hand. As well as other medical publications which were obviously considered in setting the formula for such kind of products on the other hand, especially that modern studies have confirmed the efficient role of these components used in composition of the prescriptions.

**Key words:** Deodorants in the Arabic medicine, Antiperspirant in the Arabic medicine, History of deodorants and antiperspirant, Kinds of deodorants and antiperspirant in the Islamic medicine.

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## Introduction

Nations, from the ancient ages, concerned with cleanliness and body care. That was a great concern, not less than their concern with medical treatments. They considered cleanliness as a basic issue to keep health, and protection from illnesses. We find that many Physicians devoted books and publications talking about bathing, ways to protect from illnesses, and how to keep healthy. One of the most important books, which dealt with this subject, namely the common health, was the book of (Health Keeping) by (Hippocrates) (460 B.C. – 377 B.C.) (1). He talked about many subjects that could help man to keep his health, one of which was bathing. Then, a lot of publications were presented, dealing with this point over ages.

This was continued until the age of the Prophet Mohammed – may God pray and peace be upon Him. Since we referred to the publications about the Prophetic Medicine we could find that Islam did not mention bathing only, but also urged for perfuming, besides bathing. Number of Hadiths were mentioned in this field. Some of which for example: it was mentioned in (Sahih Muslim) that the Prophet said: “ He who was offered a basil, never return it as it has pleasant smell and

light weight “. In (Sahih Al-Bokhari), it was mentioned that the Prophet – may God pray and peace be upon Him – never refused a perfume (2).

Since that age, great was paid to concern perfuming and removing unpleasant smells, till it was considered that hyperhidrosis was a bad social disease. Hence, it has special products were necessarily prescribed which should be used in certain ways according to the pharmaceutical forms.

Care of body smell became one of the important objects that man should stop at it, for paying much attention Physicians recommended special prescriptions for it in their medical publications.

In our research, we will focus on what those physicians mentioned and gave examples recommended about them and their therapeutic prescription recommended for this disease.

## Scientific view

### Skin nature and sweating system

Skin consists of a number of different types of tissues, each of which plays an important role for the body. In this research

we are interested in the active role of skin in regulating the body temperature via sweating as a reaction to the temperature and reducing blood flow to the skin as a reaction against weather coolness (Hence it keeps heat inside the body). Thyroid glands are existed on the surface of the skin, and they are called expelling glands. The numbers of these glands increases on the foot, the palm, the upper lip and the forehead. Sweat is necessary to keep a suitable and healthy body temperature. When the body gets hotter, or gets under pressure, it sweats, evaporates and gets the body cooling.

Sweat is defined as one of the natural responses, made by body, for certain cases, especially fever, exercises, strong emotions, or temperature increasing. Excessive sweat, which is medically known as hyperhidrosis, is a state of excessive sweat which is not caused by one of these cases. Hyperhidrosis occurs when the sympathetic nervous system – This part of the nervous system which is not controlled by man (4).

The mechanism by which antiperspirants work is contracting the sweat pores by strong astringent action so that perspiration is not freely exuded. Two ingredients are most commonly used for this purpose: aluminum chloride and aluminum sulfate. The former is most generally used in liquid preparation and the latter in creams. In fact, antiperspirants occur most generally as liquids or creams containing 10% to 15% of these aluminum salts.

Deodorants on the other hand are considered as cosmetics. The purpose of using deodorants is to remove the offensive odor. However, although ancient people used deodorants specially white sandalwood and musk to remove odor, it was not possible to remove body odour because these deodorants were not active.

Sweat which as it is deposited upon the skin under favorable conditions, such as moisture and warmth, undergoes decomposition and chemical changes. This may become offensive even in spite of bathing and hygiene. Body odor also is referred to as bromidrosis (fetid or foul smelling perspiration).

It is the desire of every person to rid himself of this objectionable body odor. Body odor cannot be altogether eliminated by frequent bathing because perspiration may become malodorous in a period of four to six hours after a bath. Some people are affected by bromidrosis or fetid perspiration because of physiological condition. Persons affected with certain diseases develop a characteristic odor and it has been observed that emotional reaction such as fear and anger the flow of perspiration and intensify its odor.

Normal body exudes from one to three quarts of perspiration a day. The water content of this perspiration evaporates immediately, depositing waste matter on the surface of the skin which rapidly undergoes changes through bacterial and chemical action. Consequently a deodorant

should conceal these conditions in order to prevent the formation of decomposition products. This has to neutralize body odors, it should possess a pleasant odor and be non-irritating and non-toxic.

There are two types of deodorants: one is intended merely to deodorize perspiration without restricting its flow and other is designed to deodorize and prevent decomposition through bacteria inhabiting action. These types take the forms of liquids, pastes, powders, compacts and sticks. It is obvious, of course, that the liquid and the paste types are best suited for restrictive deodorants, because they will exert more lasting astringent action. The dry types are best suited only for deodorizing purpose. Although many of the powders and sticks on the market contain astringent it is quite probable that they exert very little astringent action.

Before compounding a deodorants it is necessary first to decide what type it shall be and second to determine its specific use. Although deodorants are generally used for the arms pits, many are also used for deodorizing sanitary napkins. Obviously a deodorant of the latter type should not be astringent and hence the use of materials like aluminum chloride is precluded.

As on one chemical possesses all the properties for an effective deodorants it is customary to utilize two or more to produce a product that has the requisites properties. A deodorant may be antiseptic; it may be (depending upon the use to which it is to be put) astringent; or it may be both. Among the materials used are boric acid, benzoic acid, alumol, aluminum acetate, aluminum chloride, alum, tannofom hexamethylenetetramine, propyl-p-hydroxy benzoate, quaternary ammonium compounds and other.

Each of these chemical has one or more properties which makes it useful in one type of deodorant or the other. Oxyquinoline sulfate is said to be an excellent ingredient because it is not only a powerful antiseptic but it is an excellent deodorant is also to be an astringent it is non-irritating. When the deodorant in regard to the type of astringent selected and the amount used in the formula because some astringent gents are likely to be harsh. Having compounded a suitable formula it is essential to obtain a perfume that will not be incompatible with other ingredients.

Aluminium chloride is probably more widely used in astringent deodorants than any other chemical. It is powerful astringent with excellent deodorizing properties. Chandan oil is a very good ingredient being both antiseptic and deodorant.

Deodorants in paste form are suitable for packaging in tubes or jars. They also present ready application to the skin. Formulas for those follow:

Deodorants powders are used in rather large quantities. They have the advantage of absorbing some of the perspiration and also affording a degree of lubrication in places where

sweating is profuse like the feet, the crotch and under the arms. As it is inconvenient to use powder under certain conditions, it is at times pressed into compact form or made in sticks, usually by addition of wax, paraffin, cocoa butter and lanolin.

Deodorants in cream form are among the most popular. For this reason they are made in large quantity and are extensively advertised.

Cosmetic manufacturers are now using them successfully in liquid form as an improved type of deodorant. (5)

Hyperhidrosis is the excessive production of sweat, and can be a major inconvenience to sufferers. In theory, when there is over- or underproduction of sweat it should be possible to determine whether the change is in the sweat glands, due to pharmacologically active agents acting thetic pathway between the hypothalamus and the nerve ending, or to over activity of one of the three different 'centers' responsible for thermoregulatory, mental and gustatory sweating. Any difficult case should be approached from first principles in this way. In practice, most cases of hyperhidrosis fall into the following clinical groups.(6)

## Odor removers and anti-sweating materials by some of the Arab Physicians

Deodorants and anti-sweating are not recently occurred, but they appeared many centuries ago. They were similar in some aspects, but they were different in others.

In the past, a group or a number of Arab physicians did not distinguish between odor removers and anti-sweating materials. They were classified under one category which is anti-sweating materials. This classification remained as such for several centuries.

These products contained smell removers and sweat-sealers whose main role is to remove odors. This is due to the fact that they contained a high ratio of deodorant aromatic oils.

We will mention some examples of prescriptions which were used as odor removers and anti-sweating materials in the period between the third and the sixth centuries A.H. (that is ninth and twelfth centuries A.C.); e.g. during the period when medical writings bloomed. We have depended on the works of (Razes), (Avicenna) and (Ibn Al-Telmiz), to prove that our study is right.

\* Razes (251 – 313 A.H. / 840 – 925 A.C.):

Razes talked about odor removers in his book (Al-Hawi fi Al-tib), namely in Part 23, volume 8 under the title the twenty third chapter in the eighth volume, under the title “ what removes bad smell and sweat stink, urine and stool stink, and what softens it, and what expel the trace of lime, and powders that perfume the body”. In this book Razes dealt with the way to remove the stink, in general, whether it is stink

of urine, stool or body stink. We may find in his prescriptions more concern with body smell than that of urine or stool.

Treatment, in the view of (Razes) followed two methods: internal and external. For example, his words:

“To perfume body, one should coat his body with leaves of Cypress-tree and the oil of its flowers, and eat Cubeb Pepper and Cassia-tree, in the morning before eating anything else”. and his words: “nothing can remove stinking sweat like Rehani Syrup (grape juice with carnations and wood and so on), and eating Artichoke and Asparagus, and all plants that expel thick urine, like Sabin, which is very strange, if one has some of it every day. Then the smell of sweat will be as that of Sabin. The same applies to the smell of urine. So stink will be removed completely.

We notice that he distinguished between odor remover and anti sweating materials, by his words: “By which the body is perfumed by its essence like spices and perfumes. Some of them block pores of the body, like burnt lead, alum, slag of silver and zinc. They all prevent sweat from armpit and feet, so there will be no stink”. (Razes) recommended to use the prescription after bathing, in his words: “body should be rubbed by cooked wild-thyme, butchers broom, rose, sweet marjoram, moss and sweet flag “. (7)

\* Avicenna (371 – 428 A.H. / 980 – 1037 A.C.):

Avicenna wrote in the third article of the fourth book of his book (Al-Qanon fi Al-tib) under the title “ chapter: in treating bad smell of skin in general.” Besides, “a chapter: in describing a powder which perfumes body and benefits hot-tempered people”. He encouraged bathing, and eating what is digestible in manner and quantity, and eating what can perfume body and remove sweat odor on empty stomach, like Cubeb Pepper, Cassia-tree, Parsley, Artichoke and Asparagus, and every plant which expels urine and purifies blood from stink. He also encouraged coating the body with butchers broom water and supply water with Yemen alum and iris syrup. He also used for that purpose liniments, like liniment of butchers broom and white sandal. Besides, he used oils, like oil of butchers broom and oil of rose. In addition to that he used what blocks pores and prevents sweat, like burnt lead, zinc, alum and so on.

We find here that there are some common points between Avicenna and Razes, like bathing and following internal and external treatment method. Avicenna did not distinguish between odor removers and anti-sweating materials. Razes mentioned odor removing compounds and anti-sweating ones in the same prescription. For example: we take one ounce of cinnamon-tree and Indian valerian and azzfar al-teeb (covering of a kind of shellfish), two ounces of each one, and half ounce of lake mud, graphite slag and washed ceruse, one ounce of with judean wormwood and Roman valerian and three ounces of saffron and dried rose. Then the dry components are crushed with butchers broom water and saffron, and dissolved by old rehani syrup and used”. (8)

\* Ibn Al-Telmiz (..... - 560 A.H. /..... - 1165 A.C.):

He talked about these products in his manuscript (Pharmacopeia of Ibn Al-Telmiz), namely in the twentieth chapter (the last one). Because of the importance of this issue, Ibn Al-Telmiz wrote it in an independent chapter, through which he showed the necessity for curing this disease. This Pharmacopeia was one of the biggest and most comprehensive one in that time. So, pharmacies and hospitals depended on it. In addition to the fact, it was an independent Pharmacopeia, not attached to other medical books.

We mentioned to some examples from it:

“Prescription of medicine to hold sweat: dry Coriander and refined Tanner’s Sumach and washed rice, ten dirhams of each one.

All these components are cooked with three pounds of water, until third of it remains. Then it is filtered. Three ounces of it are drunk every day. After that the body is coated with quince fat, and Armenian mud, butchers broom is sprinkled over his body, and crushed leaves of Tamarisk, fine like dust. And the body is coated his body with butchers broom fat and Sanle fat. It is useful “.

“Prescription of medicine to cut sweat: The body is cleaned with rose fat and butchers broom fat, then rose water is poured on it, and then it is fanned.

The sick must sleep in a place furnished with leaves of Sanle and leaves of grape and butchers broom as well as leaves of plum and apple. That is useful “. (9)

From what we mentioned above we can notice the following:

1. In the past, in order to remove body smell people mainly used fats with aromatic smell, like quince fat, rose fat, butchers broom fat, Sanle fat, Cinnamon-tree, Spices and Scent. Also, they depended on liniment, like: liniment of butchers broom, liniment of White sandal. These are components of odor removers, not anti-sweat.
2. Treatment of hyperhidrosis followed two methods: internal and external. That what we noticed in prescriptions of Arab physicians.
3. Using Armenian mud, burnt lead, alum, slag of silver and zinc, in that time in order to dry the body, because of their characteristics which exceed many individual medicines resulting in narrowing pores, so sweat can be cut. Razes and Avicenna clarified this point, though Ibn Al-Telmiz did not declare it frankly.
4. Encouraging bathing in old medicine was one of the assisting factors in health keeping and consequently preventing disease.

Odor removers has recently been separated from anti-sweat (though we notice such separation in some prescriptions of Arab physicians). In the following we will mention some examples to clarify the difference between the two:

**First:** Example of a prescription of anti-sweat, which is creamy (it is classified on absorption base):

Absorption base, Aluminum sulfate, distilled water, milky cream. (6)

By examining the components of the previous prescription, we notice that the basic role of these components is sweat through adding materials that absorb sweat, and narrowing pores materials like Aluminum Sulfate. Removing unpleasant odor is not touched on.

**Second:** Example of a liquid type of odor removing prescription:

Boric acid, phormaline, Aluminum chloride and lemon juice, water, perfume [6].

From the above we notice that the role of these components is to remove odor more than their being anti-sweat materials. The role of boric acid, phormaline, Aluminum chloride and lemon juice is to remove bad smell, because of their being as they are antiseptics and act as sterilizer the area and to prevent the aggregation of bacteria which cause the unpleasant odor. Aluminum chloride, has double characters, as it is considered anti-sweat and odor remover. The existence of perfume is to add pleasant smell on the applied area.

## Scientific and Historical studies

Recent studies have confirmed the importance of using coriander, liquorice root, and other plants which contain aromatic oils, in removing bad smell. coriander and liquorice root contain 20 chemical materials act as anti-bacteria. While mint perfume and rosemary contain 19 material where as Ginger contains 17 materials. (10)

From what we mentioned above we find that decreasing in zinc may be a cause for bad smell. It is not easy to get it from which prepared foods, as it is lost during preparing. So, we should get it from food is not subjected to different preparing ways. The good sources of zinc (in descending order) are: spinach, parsley, cabbage, cauliflower, chicory, ginger and raisin (kishmish). (10)

## Results

By comparing between the prescriptions of Arab physicians and the prescriptions of the modern medicine, we conclude the following:

1. The use of coriander by Ibn Al-Telmiz was not in vain, but it was in the prescription because it was anti-bacteria, on one hand, and as it was rich in Zinc, on the other hand. Recent studies have proved this point.
2. The Use of aromatic oils was common many centuries ago to remove bad smells, and this has continued till this day.

3. Dividing treatments to remove internal and external smells as a method which has been followed by physicians since many centuries and has continued till today.
4. Arab were interested in cleanliness so much that they devoted a chapter for it, they called it concerned cleanliness so much, hence they devoted a chapter called it sweat-sealers, and they considered hyperhidrosis as dermal disease required special treating to get rid of. This what we noticed in Ibn Al-Telmiz, in which he devoted special chapter for this issue. We also noticed this, in the modern medical books which talked about dermal diseases.
5. Distinguishing between products that remove smell and anti-sweat products was known long time ago by some physicians, like Razes

### Conclusion

Through our study we can praise the contributions presented by Arab physicians, whose effects have continued till now. They depended experience and practical experiments to prove what was used in their time. May be they read what were written by who were before them, but, certainly, they have become references for what was written after them, and we see that through the modern scientific medical studies. Where there is obvious dependence Arab physicians presented in this field.

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Table of the names of plants mentioned in the text:

Plant	Latin Name	Group
Apple-tree	<i>Pyrus malus</i>	Rosaceae
Artichoke	<i>Cynara scolymus</i>	Compositae
Asparagus	<i>Asparagus officinalis</i>	Liliaceae
Butchers broom	<i>Ruscus Aculeiatus</i>	Liliaceae
Cabbage	<i>Brassica oleracea</i>	Cruciferae
Cassia-tree	<i>Cinnamomum cassia</i>	Lauaceae
Cauliflower	<i>Brassica oleracea</i>	Cruciferae
Cinnamon-tree	<i>Cinnamomum zeilanicum</i>	Lauraceae
Coriander	<i>Coriandrum sativum</i>	Umbelliferae
Cubeb pepper	<i>Piper cubeba</i>	piperaceae
Cypress-tree	<i>Cupressus sempervirens</i>	Coniferae
Endive	<i>Cichorium endivia</i>	Compoitae
Ginger	<i>Zingiber officinale</i>	Zingiberaceae
Grape vine	<i>Vitis vinifera</i>	Vitaceae
Indian valerian	<i>Nardostachys jatamansi</i>	Valerianaceae
Iris (Syrup)	<i>Iris florentina</i>	Iridaceae
Judean wormwood	<i>Artemisia judaica</i>	Compositae
Liquorice root	<i>Glycyrrhiza glabra</i>	Leguminosae
Moss	<i>Muscus arboreus</i>	Usneaeae
Parsley	<i>Apium vulgare</i>	Umbelliferae
Parsley	<i>Petroselinum sativum</i>	Umbelliferae
Peppermint	<i>Menth piperita</i>	Labiatae
Plum	<i>Prunus Domestica</i>	Rosaceae
Quince	<i>Cydonia vulgaris</i>	Rosaceae
Rice	<i>Oryza sativa</i>	Gramineae
Roman valerian	<i>Nardus celtica</i>	Valerianaceae
Rose	<i>Rosa</i>	Rosaceae
Rosemary	<i>Rosmarinus officinalis</i>	Labiatae
Sabin	<i>Huniperus sabina</i>	Coniferae
Saffron	<i>Crocus sativus</i>	Iridaceae
Sanle	<i>Salix aegyptiaca</i>	Salicaceaea
Sweet-flag	<i>Sweet-flag</i>	Araceaea
Sweet-marjoram	<i>Origanum marjorana</i>	Labiatae
Spinach	<i>Spinacia oleracea</i>	Chenopodiaceae
Tamarisk	<i>Tamarix gallica</i>	Tamaricaceae
Tanner's-sumach	<i>Rhus coriaria</i>	Anacardiaceae
White sandal	<i>Santalum album</i>	sandalaceae
Wild thyme	<i>Thymus glaber</i>	Labiatae

# Süleymaniye Medical Madrasa (*Dār al-Tib*) and Its Importance in the History of Ottoman Medicine

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## Summary

The medical school, which consisted of a section of the Süleymaniye complex built by Süleyman the Magnificent (1520-1566) and is described in the charter as “the good *madrasa* which will house the science of medicine” was the first medical *madrasa* built by the Ottoman Turks (1555). This medical *madrasa* which resembled those encountered in certain earlier Islamic states differed from them in being part of a larger mosque complex and in providing education in a more systematic fashion for nearly three hundred years. The medical *madrasa* was established to train specialized physicians and occupies a very important place in the field of Ottoman medical education in terms of medical specialization. In this article I will scrutinize the school’s situation, physicians, students and other staff and the importance of it in the history of Ottoman medicine.

**Key Words:** Süleymaniye Medical Madrasa (*Dār al-Tib*) in the History of Ottoman Medicine, Salim Ayduz, medicine, dar al-tib, Ottoman history, Süleyman the Magnificent, Architect Sinan, Tiphâne-i Âmire, danishmand, muid, mudarris, bevva.

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## Introduction

The fact that the first Ottoman hospital, the Bursa Yildirim Bâyezîd *Dâr al-Shifâ*, recruited its chief physician Husnu from Iran in 1400 is an indication that there were few highly skilled physicians capable of performing that function in Ottoman cities at that time<sup>1</sup>. Those physicians who were available had come from the Seljuk’s or from other Muslim states like Egypt and Syria, i.e. the most populous cultural centres of that time.<sup>2</sup> The Ottoman state had just been established and it did not have any institutions or doctors available for training physicians. In later years we also encounter many doctors who had come from other countries, as in the earlier period. For example, Mehmed the Conqueror (1451-1481) made the Iranian Qutb al-Dîn Al-Ajamî<sup>3</sup> (d. 1497) and the Muslim convert Ya’qûb Pasha<sup>4</sup> (Maestro Jacopo b. Gaeta, died in Istanbul in 1481) his private physicians. Süleyman the Magnificent also employed the Jewish eye doctor Mûsa b. Hamûn (d. 1554) as his private physician. There were also many other non-Muslims who worked as doctors in the Palace. The fact that there were also a number of converts or physicians who had come from abroad serving as chief palace physicians during later years, leads one to surmise that insufficient numbers of highly qualified physicians were being trained in Ottoman institutions, especially up until the time when the Süleymaniye Medical *madrasa* was founded.<sup>5</sup>

The Süleymaniye Complex (*kulliye*), sponsored by Süleyman the Magnificent and built in Istanbul by the great architect Mimar Sinân (1489-1588) between 1550 and 1557, is the largest of the Ottoman building enterprises.

It is functionally designed as a socio-religious centre with geometrically organised dependencies in the Ottoman Empire.<sup>6</sup> It follows the example of the Fatih Complex, but architect Sinân made its architectural qualities vastly superior. A large outer courtyard separates the Mosque from the outer buildings. The courtyard is surrounded by streets where there is a Qur’ân school, *madrasas* for different levels of education, a medical school, a large hospital, a public kitchen, a hospice and a caravanserai on a lower level, a *hadîth* school, a bath, plus rooms for single people, and also shops were set up on the slopes of the terrain. As for the architectural characteristics of the Medical *Madrasa*, we can begin by saying that it was planned as a component of the Süleymaniye Complex.<sup>7</sup> Ottoman medicine reached a formal teaching institution with the Süleymaniye Medical School. Thus, this should be examined within the system of a multi-functional building complex. The Medical *Madrasa*, with a perpendicular plan, is composed of twelve domed-cells lined up on the shops in the Tiryakiler Street which is located in the south-western part of the Süleymaniye Mosque.

A physical relation existed between the Medical *Madrasa* and other components of the complex such as *Dâr al-shifâ* (hospital), *Dâr al-akakir* (drugstore), *Tabhane* (the place where patients stay during their convalescence period) and *Imarethane* (public kitchen). A kind of division of labour shows itself with respect to these components. The medical students depending on the *Madrasa* used the cells as a dormitory, had meals cooked in the kitchen of imaret without paying, used the hospital

*Dâr al-shifâ* for practicing the theoretical lessons they learned in the Medical *Madrassa*, received their medicine from the drugs house: *Dâr al-akakir*, and after being cured in the hospital, they would stay in *Tabhane* for the period of convalescence.

The construction of this *madrassa* is considered to be a new stage in the history of Ottoman medical institutions. Unlike the previous traditional hospitals, which had medical education in their bodies, Süleymaniye was the first medical school in the Islamic civilisation to have a deed of trust (*waqfiyya*) mentioning its character as an institution for medical learning<sup>8</sup>. The Medical school, which consisted of a section of the Süleymaniye complex and is described in the charter as “the good *madrassa* which will house the science of medicine”, was the first medical school built by the Ottoman Turks. This Medical *Madrassa*, which resembled those encountered in certain earlier Islamic states, differed from them in being part of a larger mosque complex and in providing education in a more systematic fashion over nearly three hundred years. The Medical *Madrassa* was established to train specialised physicians and occupied a very important place in the field of Ottoman medical education in terms of medical specialisation.<sup>9</sup> Medical education, which had previously taken place in hospitals, acquired an independent institutional structure with the founding of this school.<sup>10</sup> The entrance to the medical school, which is located across from the hospital of which only the south-western wing has survived to this day, opens out onto Tiryâkiler Market. The north-eastern wing of the structure is located above the arches and shops of the market.

Süleymaniye Medical *Madrassa* was the first institution which was built next to *Dâr al-Shifâ* in Istanbul. Süleyman the Magnificent was known to exhibit a high regard and delicate sensitivity on the subject of medicine<sup>11</sup>. This is reflected through his poems which he wrote with a *Muhibbi* pseudonym explaining how much attention he pays to health matters. Thus, he ordered the establishment of a medical *madrassa* in his complex to educate highly skilled physicians for both the public and army needs.

The Medical *Madrassa* and the *Dâr al-shifâ* buildings as a component of the complex were built side-by-side to provide both a medical education and a public health service. This is very similar to contemporary university hospitals. In the complex, which was based on a very large area, Sinân had planned at one corner for medical education and a health site and put them on a parallel axis by two rectangular courtyards with a separate block.

The idea of two buildings together, a Medical *Madrassa* and the *Dâr al-shifâ*, is considered superior in application

and was ahead of its time. The medical student after having a theory lesson would go the *Dâr al-shifâ* straight away to put into practice what he had learned. Hence, the Süleymaniye Medical School and *Dâr al-shifâ* had a very important place in the history of medical education and its application to a hospital.

## Building process and architectural features

### Construction of the Medical *Madrassa*

The Sultan Süleyman, who knew the importance of medical education, ordered the building of a medical school in 1552 or 1553. It was built at the south west of the complex, opposite the *Dâr al-shifâ* and next to the *Madrassa-i awwal* and *sânî*. But we do not know when the medical *madrassa* construction started. The construction of the mosque began in 1550 and finished in 1557, but the *madrassas* were built later. Some sources point out that the construction started in 1552. According to Ömer Lütfi Barkan’s book on the Süleymaniye Complex, the *madrassas’* construction started later than the mosque and thus their construction was completed between 1553 and 1559. Through the Süleymaniye Complex Deed which was published in the year 1557, one understands that the Medical *Madrassa* was active at that time.<sup>12</sup>

### Architectural features of the Medical *Madrassa*

The Famous Ottoman painter Seyyid Lokman mentions the Medical *Madrassa* had ten cells.<sup>13</sup> These cells were along with Tiryakiler Çarşısı as one line without a classroom. At both sides of the cell line, there were cells which connected to the line as vertical. Thus in the side which is towards the south west courtyard there were divided cells with an arcade between them. Due to some major and minor changes over the passing of centuries and thus the loss of its original form, it is very difficult to find the original structure of the building which today serves as a maternity hospital. As the maternity ward office block was built in the courtyard of the medical *madrassa* which has twelve cells, the appearance has changed from the original site. Therefore, only a few areas have remained, from the original building of the Medical *Madrassa* which remains on the other side of the *Dâr al-shifâ* street. Sinân had developed the previous idea of a *madrassa* by adding new styles and features. In description, the Tiryakiler Carsisi side of the *madrassa* had been planned as two floors; one of the cells from the eleven domes which were

at the right corner has two domes side-to-side and became rectangular. In front of these places there was a roof which had one slope and a long courtyard. Two side wings of the *madrasa* from the other three wings remained behind the arcades as cells which have fireplaces and windows.

Architect Sinân planned and interpreted the Süleymaniye *Dâr al-shifâ* and Medical *Madrasa* like the other buildings of the complex, which show the most beautiful examples of classical Ottoman architecture. Thus, it can be said that Sinân planned one of the Süleymaniye complexes for medical education and as a health facility, building the *Dâr al-shifâ* as a separate structure with, on parallel axes, two rectangular courtyards.

## Staff of the Medical *Madrasa*

### *Muderris (Lecturer)*

According to the deed of the complex the Medical *Madrasa* had a very basic and small staff. One *Muderris* (lecturer), eight *danişmens* (student) and three auxiliary staff who are *noktaci* (assistant), *bevval* (door keeper) and *ferrash* (cleaner) were assigned.<sup>14</sup>

There was a *muderris* as head of the *madrasa*, just as the other *madrassas*. However, there were some special conditions for a *muderris* of a medical *madrasa*, they had to be well educated on the medical sciences and be able to direct the students through the medical sciences. On the other hand, a *muderris* of a medical *madrasa* receives 20 akças per day, which is actually a very low salary compared to other *madrassas*. It was one fifth of the *Dâr al-hadîth madrassas muderris* and one third of the other ordinary *madrassas muderris*. In addition to the classical religious sciences, many documents point out that the Medical *Madrasa* also held information on the medical sciences.

The conditions of the *muderris* of the medical *madrasa* were explained in the deed<sup>15</sup>:

1. He will be intelligent, understanding, have very strong intuition, which is no excuse to use his five senses,
2. Well educated in medicine, and should be Plato of the time and Aristotle of the age,
3. He should have the reviving effect of Jesus,
4. He should understand the medical books which were written by early physicians on the subject of medicine,
5. Be careful about students who wish to learn medicine, and follow the rules of medicine.

It is also worth mentioning that the head of the medical *madrasa* was not the head of the *Dâr al-Shifâ* who is known

as *ra'îs al-atibbâ'*. It is indicated in the deed of the Medical *Madrasa* that the tasks, authority and responsibilities of the *muderris* and *tabîb-i awwal* of the *Dâr al-shifâ* are completely separate from each other. But we can see through the archival documents that later the head of the *Dâr al-shifâ* could teach at the Medical *Madrasa* and also became a *muderris* in it in the meantime.

The first teacher at the Süleymaniye Medical School was Tabib Ahmed Çelebi b. İsa Çelebi who received sixty akças per day.<sup>16</sup> Although the deed mentioned the daily wage of the *muderris* was twenty akças per day, he was receiving a higher salary due to his level of skills in medicine. Some of the Medical *Madrasa muderrisses* were appointed to other medical institutions as a *shagird*.<sup>17</sup> As we see from the documents, some famous physicians were appointed at the medical *madrassas* as *muderris*, such as chief physician Büyük Hayatizâde Mustafa Feyzi, Ayaşlı Şaban Şifai, chief physician Ömer Efendi and chief physician Gevrekzâde Hasan Efendi<sup>18</sup>

### Danishmand

The students of the medical *madrasa* were named as *danishmand* in the deed. They were studying medical sciences only and each one received two akças per day as a bursary. Whilst being educated, they were also performing a sort of internship at the Medical *Madrasa*. When they had learnt enough medicine they were appointed to other institutions as physicians.<sup>19</sup>

### Muid

Although the other *madrassas* had a *muid* as associated *muderris*, we cannot find more information about his tasks in the deed of the complex, but we know through the deed that the Medical *Madrasa* had a *muid*. The deed mentioning the lecturer's task says "*noktaci olup müderrisîn ve muid ve talebe ve müstaid mabeyninde...*" which indicates that besides a *muderris*, there was also a *muid* in the Medical *Madrasa*. From this sentence, we understand that there was a *muid* in the *madrasa* to repeat the *muderris*' lectures to the students. However, during the transcription of the deed, this detail was most probably omitted or forgotten. We also know of the existence of the *muid* as a physician through the later archival documents belonging to the *madrasa*. He was an associate *muderris*, and helped in giving lectures, also repeating and consulting the lectures on behalf of the students (*danishmands*). *Muids* were selected from amongst most successful students of the *madrasa*. They were appointed from the *madrasa* to the other medical institutions as physicians. Some of them were also promoted as palace physicians.<sup>20</sup>

## Auxiliary staff

There were also service staffs comprising of one *noktaci*, one *bevvab* and one *ferrash*. The door keeper and cleaner were each receiving two *akças* per day according to the deed. There were no specific conditions for them except they should be honest and virtuous men. *Ferrash* was responsible for cleaning and furnishing the Medical *Madrasa*. Salaries of the staff and other expenditures were met by the large *waqf* revenues of the Süleymaniye Complex.

*Noktaci* was, according to the deed, helping the *muderris*, monitoring the students and helping each respectively with lectures and homework; he was also responsible for observing the orderly carrying out of education and teaching. He had to be present during the lectures and follow the structures of the *madrassa*, and never leave the *madrassa* without excuse. As far as we understand from the documents, the *Noktaci* was the manager of the *madrassa*. He was receiving 3 *akças* per day according to the deed. We understand from the above information that there was a staff of twelve people at the *madrassa* who were collectively paid 43 *akças* per day.

## The Education at the Medical *Madrassa*

Although we have no sources available that fully explain the teaching and the educational methods followed in the Süleymaniye Medical *Madrassa*, it is understood from its deed that the constitutions for courts and *madrassas* (*ilmiye kanunnameleri*) and primary sources belonging to the classical period (1300-1600) was formerly taught and carried out in terms of the *master-apprentice method*. This practical method used also to be popular among other medical and social institutions such as the trade market system and *ahl-i hiraf* (artisans) organizations. This system was also common before the Ottomans in the Seljuk period. The textbooks used in the Süleymaniye Medical *Madrassa* are only generally mentioned in the deeds and other sources. They were teaching the famous medical text books at the Medical *Madrassa*. Although the deed does not mention the names of the textbooks, we do have a list of books which were given to the head physician to teach. In the list we find sixty-six famous medical books of which eighteen were written by Ibn Sīnā<sup>21</sup>. Although there is no indication that these books were given for Medical *Madrassa* teaching purpose, we can say that at that time these books were circulating between physicians for educational purposes. On the other hand, according to the deeds, courses on logic (*ilm-i mizan*), medicine (*ilm-i abdan*) and rational sciences (*fenn-i hikmet*, *ulum-i akliye*) were also somehow taught at the School.

In the deeds, there is no clear statement about the days and hours of the courses. In general, we know that that Süleyman the Magnificent stipulated the teaching of five courses a day on four weekdays. It is thought that pre-Ottoman practices were followed by taking Tuesday, Thursday, and Friday as holidays. Festival days were also holidays and the rest was for teaching. But these holidays could be decreased accordingly<sup>22</sup>.

The Medical *Madrassa* was under the administrative control of the Chief Physician's Office (*Hekimbaşı*).<sup>23</sup> The Chief Physician had responsibilities in the first instance for the health of the sultan and that of the personnel of the palace as well as for managing all state health institutions. This office monitored all appointments and any other studies at the Medical *Madrassa*. All students with diplomas from medical *madrassas*, medical schools (*Mekteb-i Tibbiye*) and hospitals would register with the chief physician upon graduation and would then await appointment to a medical institution.<sup>24</sup> The chief physician would appoint new doctors to vacant posts and would approve the promotion of those recommended for such. As a medical institution, the staff of the *madrassa* was under the aegis of the general Ottoman appointment system.

The Süleymaniye Medical School was not the only *madrassa* teaching medical sciences in the Ottoman state. Medical education was also taught at the other medical institutions such as the *Dār al-Shifās*.<sup>25</sup> For example, in Istanbul Fatih *Dār al-Shifā*'s lecturers were appointed through the Süleymaniye Medical School. Most of the *muids* of the Süleymaniye Medical *Madrassa* became *shagird* at the *Dār al-Shifā*. The *shagird* in the Medical *Madrassa* performed as the assistant of the physician<sup>26</sup>.

We still have a shortage of information about the educational system or classes offered at the Süleymaniye Medical School, but it was claimed by Prof. Süheyl Ünver that instruction in anatomy was also offered.<sup>27</sup> In addition, it is assumed that basic medical texts, such as Ibn Sīnā's *al-Qanun* (The Canon of Medicine), were also taught there. He mentions that most of the surgeons were taught at the School. Some of the Medical *Madrassa* staff were appointed as army surgeons.<sup>28</sup> The education given at the School differed from that offered at other *madrassas* in that it was associated with practical training. Accordingly, the theoretical part of the medical training was offered at the *Madrassa* and the practical part at the hospital.

The students of the medical *madrassas* came from the lower *madrassas* from which they had graduated on completing their basic education on the Islamic sciences and languages such as Islamic law, Arabic and Persian. A student who wished to study at the Süleymaniye Medical

School would first have to complete his course of education at the primary exterior (*ibtidâ-yi hâric*) and interior (*dâhil*) *madrâsas*. Following that, the student wishing to study medicine would enrol in the Süleymaniye preparatory schools (*tetimme*). Students completing their education there would receive the title of fellow (*mülâzim*). Classes there were held for four days a week. It is likely that one of the days not allocated for classes was a holiday, the other two devoted to work as an intern at the hospital. All practice required during the course of their training was undertaken at the hospital. Those who completed their internships at the hospital would receive a sealed document called a “sealed title” (*memhûr temessük*) rather than a diploma. The students would be given diplomas (*icâzet*) based on the classes they had taken and the work they produced; and depending on the rank they achieved upon graduation, they could become teachers or *kadis*. The teachers at Süleymaniye would be offered lower order judgeships (*mahrec mevleviyeti*) for periods of one year as a matter of course. They would leave those posts after having served for one year. Every year four people serving in that capacity would be given *pâyes* (posts) in Egypt, Damascus, Bursa and Edirne, and one of them would be given the office of *kadi* of Istanbul. As it was also customary to give the chief judgeship of Anatolia (Anadolu *kazaskerligi*) to the former Istanbul *kadi*, many of the doctors who graduated from the School rose to high political positions within the government, to the position of *Sheikh al-Islam* and even to a grand viziership. Persons who were trained at the Süleymaniye Medical *Madrâsa* or who had taught there might also have served as chief physicians at the palace or work at other medical institutions. In the final analysis, it can be said that with the opening of the Süleymaniye Medical *Madrâsa*, a more systematic kind of medical education had begun in the country. Theoretical medicine had become institutionally separated from applied medicine.<sup>29</sup>

There is no exact information how many years medical education lasted at this *madrâsa*. Ahmed b. İbrahim, who is the author of *Tashil al-tadâbir*, mentioned that he himself graduated at the Süleymaniye Medical School after fifteen years and then became a physician at the palace. From his case, we understand that the educational process was very long.<sup>30</sup> Most of the physicians appointed to the palace as a palace physician were selected from amongst physicians who graduated at the Süleymaniye Medical School, and of course suitability was a very important point for appointments.

Abbé Toderini, who lived between 1781 and 1786 in Istanbul, provides information on the teaching method in the Medical *Madrâsa* of Süleymaniye in a chapter of his famous book *De La Littérature Des Turcs*. According

to Toderini, Turkish medical lecturers taught courses in general pathology and surgery in Süleymaniye for four days of the week. In addition to medical students, the courses were open to those who wished to attend. There was no barrier to francs (Europeans) attending these courses. Ubezio, a European physician, said that he followed the courses many times as a listener. The teaching method consisted of reading medical books, studying diseases and medicines through clinical observations and benefiting from physicians’ knowledge and advice.<sup>31</sup>

The Süleymaniye Medical School offered medical education for about three centuries and was the institution which provided doctors for almost all the Ottoman medical institutions, and mostly for the Fatih Hospital in Istanbul. The Süleymaniye Medical *Madrâsa*’s graduates or students such as Osman Saib Efendi, Abdülhak Molla and Mustafa Behçet Efendi were among the founders and teachers of the modern medical school in 1827. Thus, they pioneered the modernising of medical education in Turkey.

The School most likely continued to train students until the middle of the nineteenth century, until, that is, sometime after the new medical school (*tıbbiye*) opened.<sup>32</sup> The founders of the Tıbbiye in Istanbul (1827) composed the staff of the Medical *Madrâsa*. After the Second Constitutional Period (II. Meşrutiyet), the Süleymaniye *Madrâsa* was included in the body of “Dâru’l-hilafeti’l-aliyye Medresesi” which was planned to assemble all the *madrâsas* of Istanbul under one roof. It is understood that the Medical *Madrâsa* was out of use and needed restoration during the year 1914. It also seems that on 21 December 1918, this *madrâsa* was used by people who had lost their homes during a fire. Since 1946, after a full restoration, the building was used as a Maternity Clinic (*Süleymaniye Doğum ve Çocuk Bakımevi*).

### List of figures:

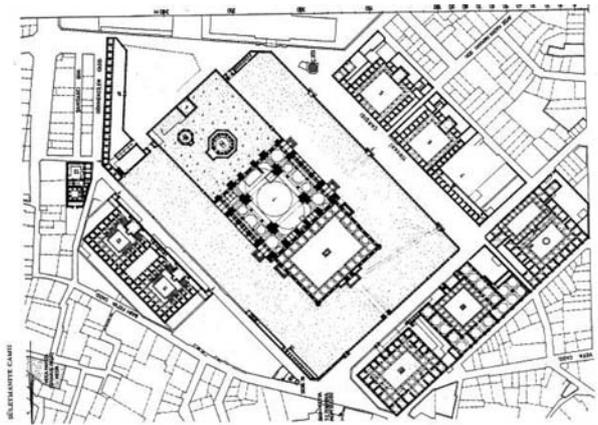


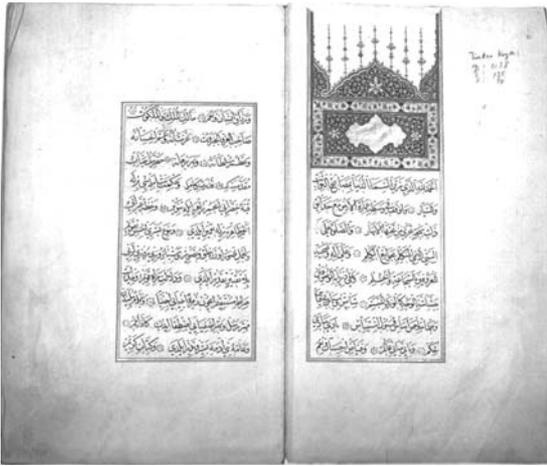
Figure 1. Plan of Süleymaniye Complex.



**Figure 2. The corner rooms of the Süleymaniye Medical Madrasa.**



**Figure 5. General view of The Süleymaniye Medical Madrasa rooms.**



**Figure 3. First pages of the Suleymaniye Complex Deed (Waqfiya) 965/1557.**



**Figure 4. Tiryakiler Carsisi Street between the Medical Madrasa and the Dar-Al-Shifa buildings.**

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# Hijamat: The renaissance masterpiece of medical sciences in Unani system

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## Summary

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Prophet Muhammad (alaihissalat wassalam) had frequently advocated about the importance of cupping in the prevention & control/cure of several diseases. Its indications, preventive and therapeutic values have been mentioned in different books of ahadees like Sahi bukhari & Tirmidhi. He quoted at several places that “there are no remedies comparable to cupping and bloodletting”, “cupping on an empty stomach is medicine and on a full stomach is disease”, Cupping on an empty stomach is best, for it enhances wisdom memory”, “whoever is cupped on the 17<sup>th</sup>, 19<sup>th</sup>, 21<sup>st</sup>, days of month will be cured of every disease”, “the best medicine is cupping and cupping purifies the outside of the body and bleeding from a vein purifies its inside.”

Clinical trial of cupping are being conducted in National institute of Unani Medicine, Bangalore, India on different disease like hypertension, & different idiopathic pains like joint pain, back ache and neck ache, etc. This paper will put stress on historical background, mechanism, method, terms and conditions, benefit, and contraindications of cupping.

**Key words:** Hijamat bil shurt, stagnation, sue mizaj, johar e rooh.

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## Introduction

“Hijamat” is Arabic word which means “application of cups” or “Cupping”. But in Urdu language this word was used incorrectly as cutting of hairs. The person who performs hijamat is called as “Hajam”, the one on whom hijamat is performed is called as “Muhajim” and the instrument by which hijamat is performed is called as “Muhajima”. The instrument is usually made up of animal horns but it may be made up of bamboo, glass or clay.

“Hijamat” is a technique done by producing partial vacuum in the cup glasses placed on the body surface by heat or suction, in order to evacuate morbid materials or to divert the materials from deeper tissues or diseased part.

When the dominance of material which we want to evacuate is on external body surface then we will remove it through “Hijamat”, if dominance is in internal body or internal and external both then, it is removed through “Fasd”, if in between internal and external body then, it is removed through “Leeching”.

The reason is that the physician is the servant of body’s immune system that is “Tabi’at” and the matter of body is that liquid entity, which cannot move itself towards direction of elimination. This function is performed by Tabi’at badanya or Tabi’at khiltiya. To eliminate the material the first movement which Tabi’at badanya performs is called as “Harqat qasarya” the second one which Tabi’at khiltiya performs is

called as “Harqat Tabaiyya. Whenever Tabi’at wants to move any matter or body matter move in any direction, so for its elimination, we have to help the Tabi’at, this type of help is given by opening the arteries or veins and scarification on skin, then we have to place such things which will help in elimination and that is cup which is used for creating vacuum, this is Hijamat.

## History

Cupping therapy is an incredibly ancient and universal practice that spans both East and West. In the West, cupping therapy had its birth in **Egypt**. The **Ebers Papyrus**, written around 1550 B.C.E., states that bleeding by wet cupping removes foreign matter from the body. In cupping, the ancient Egyptians saw the remedy for just about every disorder. The ancient Egyptians passed the art of cupping on to the ancient Greeks. Both **Hippocrates** and **Galen** were strong advocates and users of cupping therapy. Samuel Bayfield (1839: 51-52) wrote, “Hippocrates was a minute observer, and has left us some striking remarks on the shape and application of the cups. He recommends that they should be small in diameter, conical in shape and light in wt. even when the disease for which they are applied is deeply seated”.

Hippocrates also wrote about two forms of cupping. These are known as dry cupping and wet or moist cupping.

In East, the Chinese have been practicing the art of cupping for at least three thousand years. The earliest use of cupping that is recorded is from the famous Taoist alchemist and herbalist, Ge Hong (281-341 A.D.). The method was described in his book "A Handbook of Prescriptions for Emergencies", in which the cups were actually animal horns, used for draining pustules. As a result of using horns, cupping has been known as jiaofa, or the horn technique. From the ancient Greeks and Romans, through the Alexandrians, cupping therapy was passed on to the Muslim Arabs and Persians. The Prophet Mohammed (saw) even sanctioned the use of cupping, as stated in many Hadith.

Anas ibn Maalik (may Allah be pleased with him) reported that the Messenger (*Sallallaahu Alayhi Wasallam*) said, "**Indeed the best of remedies you have is cupping...**" [Saheeh al- Bukhaaree (5371)].

Abdullah ibn Abbas (may Allah be pleased with him) reported that the Messenger (*Sallallaahu Alayhi Wasallam*) said, "**I did not pass by an angel from the angels on the night journey except that they all said to me: upon you is cupping, O Muhammad.**" [Saheeh Sunan ibn Maajah (3477)].

## How Does Cupping Works

Traditional healers have long recognized the association between pain and conditions of congestion, stagnation and blockage. An old Chinese medical maxim states: **Where there's stagnation, there will be pain. Remove the stagnation, and you remove the pain.** Not only pain, but the vast majority of all illness and disease comes from stagnation, congestion and blockage - of energy, like the Vital Force, or of vital fluids or humors, like blood and phlegm. The suction applied by cupping sucks out and breaks up that congestion, stagnation, or blockage, restoring a free flow to the vital energies and humors of the organism.

In addition to dispersing and breaking up stagnation and congestion in the flow of the Vital Force, blood and other humors, cupping also disperses pathogenic heat, toxins and inflammation by bringing them to the surface for release. By drawing congested energy, blood, or other humors to the surface, cupping is a form of derivation therapy. Derivation means the drawing away or diversion of vital energies or substances away from the site of blockage and obstruction in order to relieve congestion and restore health and patency to the organism. By improving the circulation of blood, and other vital fluids and breaking up and dispersing blockages and congestions of offending waste matter, toxins and morbid humors, cupping improves the eliminative functions and the evacuation of wastes from the organism.

## Types Of Hijamat

On the basis of blood letting:

1. Hijamat bil shurt (cupping with scarification or Wet cupping)
2. Hijamat bila shurt (cupping without scarification or Dry cupping)

On the basis of method:

1. Hijamat- e- nariya (cupping with fire)
2. Hijamat- e- ghair nariya (cupping without fire)

## Method Of Hijamat

Cups can be applied to any part of the body where the skin surface is level, smooth and fleshy enough to permit a firm seal. These parts include the neck, temples, forehead, back, chest, abdomen, hips, buttocks, thighs, knees, and calves.

Clean the area to be applied with spirit. The classical method for creating suction in the cups is with fire. Hold a cotton ball in a set of forceps and soak it in olive oil, ignite the cotton ball and whisk it around quickly inside the cup right before placing it on the skin in the desired location. This should create a powerful suction. The cups may be applied for 10-15 minutes or until the site under the cups begins to appear reddish. After 10-15 minutes, press the skin around the edges of the cup to remove it. When air enters from outside, the cup will fall off by itself. The place of application of cups may become swollen because of which it is difficult to remove the cups, to avoid this, soak a cloth or a sponge in moderately hot water and place it around the base of the cup so that the swelling will subside and cups can be removed easily.

## Conditions For Hijamat Bil Shurt

1. Ibn Sina advises against using cupping glasses at the beginning of the lunar month because the humors are then in the state of rest and difficult to move. The best time is the middle of lunar month, when the moon is on increase and humors are in a state of agitation, the sixteenth and seventeenth days of lunar month are best.
2. It should be done at 2nd or 3rd phase of the day, because this is the most moderate time of the day.
3. It should be done in summers, because in summers matters are in liquid state, due to heat their derivation is towards external surface of the body hence evacuation of matter becomes easy.
4. It should be done on those person having thin blood, if blood is thick deep scarification is needed which will result in much pain and weakness.

5. Stomachic should be given before cupping. eg. Jawa-  
rish zanjabeel, jawarish jalenoos
6. Age of the person should not be less than 2 years and  
more than 60 years.
7. It should not be done after bathing, except those having  
thick blood. Because just after bath the skin becomes  
thick so for the removal of the blood we have to scarify  
deeply and this will cause much pain and weakness.
8. Should not be done just after intercourse.
9. Should not be done after heavy work or exercise, be-  
cause of this metabolism of matter increases and hence  
chances of weakness of vital energy also increases.

### **Three Most Important Things To Be Kept In Mind While Doing Hijamat Bil Shurt**

1. Extent of scarification  
Depth and number of scarification should be according  
to the consistency of the matter, when the quantity is  
more and consistency thick then the number and depth  
of scarification will be more and vice versa.
2. Organs should be massaged with great force before  
scarification and cups without scarification should be  
applied several times so that the matter which we want  
to eliminate gets attracted towards that side.
3. Avoid excess intake of food after scarification, beca-  
use the immune power of body will be busy in allevi-  
ating pain caused by the wound, and will be unable to  
concentrate more on the digestion of the food taken in  
excess, because of this most of the food content will  
get transformed into wastes of the body, so food shou-  
ld be given after one hour of cupping.

### **Benefits Of Hijamat Bil Shurt**

1. Cleanses skin  
It cleanses skin and its nearby sites more as compared  
to fasad.
2. Divert morbid matters  
It produces local skin irritation and agitation so that  
morbid matters of deep organs are brought to surface.
3. Local evacuation  
When cups applied locally, the morbid matters get elimi-  
nated from the site directly they don't have to pass thro-  
ugh any other organs that are why this type of evacuation  
doesn't have any adverse effect on any other organs.

4. Vital force  
In other processes of evacuation, johar rooh gets eva-  
cuated from whole body along with other humors, but  
in hijamat we get protected from this harm.
3. To divert inflammation away from an important organ  
to less important one, cup on less important organ few  
times.
4. Change of temperament  
To change su-e- mizaj barid of an organ cups are appli-  
ed just above the organs so that blood will be absorbed  
more at that site thereby changing the mizaj of organ  
to hot.
5. To replace the displaced organs  
Whenever any organ is displaced from its original sites they  
are brought back to its original sites. e.g. scrotal hernia.
6. To alleviate the pain  
e.g. In severe pain of colitis and pain due to gas, hija-  
mat bila shurt above the umbilicus relieves pain.
7. To suck pus of the wounds or the ulcers.
8. Vital organs  
Vital organs are protected from adverse effect of eva-  
cuation; because hijamat does not evacuate the humors  
of vital organs because its effect doesn't reaches up  
to them as we know tat effect of hijamat is only up to  
superficial vessels of skin.

### **Benefits Of Hijamat Bila Shurt**

1. Imalah (Diversion or derivation)  
It means drawing away or diversion of matter against  
its direction of flow. E.g. hijamat below breast stops  
menses.
3. To divert inflammation away from an important organ  
to less important one, cup on less important organ few  
times.
4. Change of temperament  
To change su-e- mizaj barid of an organ cups are app-  
plied just above the organs so that blood will be ab-  
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jamat bila shurt above the umbilicus relieves pain.

7. To suck pus of the wounds or the ulcers.

HAMA/ YAFOOKH (Centre of head)	Diseases of the eye Darkening of the face Vertigo
KAMDADA (Four fingers up above the neck)	Heaviness of the head and eyelid Pain of conjunctivitis
GUDDI (Nape of the neck)	Heaviness of eyebrows and eyelids (but produces amnesia) Pain in tongue, jaw
AKHADAEN (Both sides of neck)	Conjunctivitis, inflammation of ear Excess produces tremors of head and site of application becomes white shoulders Pain
KAHILYA (Between shoulder Blades)	throat pain Asthma Produces weakness of stomach and palpitation
TAHATUZAQAN (Below chin)	Diseases of teeth, throat and face Cleanses head and face
PINDHLI (Calf)	Provokes menstrual flow Cleanses blood
MONDHE (Shoulders)	Rt.shoulder-liver diseases Lt.shoulder- spleen diseases huma-e- raba
QUTN (Lower back)	Furuncle of thighs Boils and pustules of thigh Gout piles Front thighs - orchitis - leg ulcers
FAKHZAIN (Thighs)	- inflammation of uterus Back thighs - inflammation and abscesses of hips - piles
TAHTUL RAKBA (Behind knees)	Knee pain Ulcers and abscess of leg or calf Furuncle of thighs
QUTN (Lower back)	Boils and pustules of thigh Gout piles Front thighs - orchitis - leg ulcers
FAKHZAIN (Thighs)	- inflammation of uterus Back thighs - inflammation and abscesses of hips - piles
TAHTUL RAKBA (Behind knees)	Knee pain Ulcers and abscess of leg or calf
KABAIN (Over ankle)	Amenorrhoea Sciatica gout Piles
WARKAIN ( Hips )	Leucorrhoea Inflammation of uterus
PISTAAN (Below breast)	Puerperium Menorrhagia

## Contraindications

- Children aged below 2 years
- Elderly person above 60 years
- Obese ( as their blood is thick which is not evacuated up to full extent and in cupping as compared to thick blood thin blood is lost more.
- Soon after eating
- Vigorous exercise
- Above breast
- Just after bath
- On nape of the neck
- after intake of eggs
- empty stomach

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# Plant Pharmacology Used for Treating Ear Diseases in Pediatric Books and Letters between Third and Fifth Hegira Centuries

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## Summary

This research enlightens the ear diseases which are six diseases and their remedies by plant drugs in the books and letters of pediatrics in the period between third and fifth century AH. Six ear diseases were mentioned in the research: (occurring humidity in ears, scratching ears and the exit of formed pus, occurring sores in ears, growing flesh in ears, existing worms in ear, occurring tumors in ears). The old disease description and the new one were mentioned. Remedy by drug plant, in a single or compound way, for each disease were made. We aimed in this research to present information that might be interesting for the people working in the field of drug plants for ear sicknesses.

**Key words:** plant pharmacology, ears diseases in Arabic history, pediatrics in Arabic history.

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## Introduction

Arabs have gathered the knowledge of old nations, and melt it in one pot, through translation movement for the Greek, Persian, Indian, Egyptian and Mesopotamia civilizations inheritance, getting these knowledge from Antioch, Alexandria and Jendisabour libraries. They translated these sciences according to their branches and then improved them adding their knowledge and studies, as the medical profession became depending on test and trial. The medical knowledge started to take shape and paints of the Arabic Islamic civilization; which went through ascending stages of scientific and Cultural creativity in the fourth and until the seventh century AH. Thus this contribution was of high human value for all world nations.

## Research target

Arab doctors mastered professionally in the space of medical sciences, and Pediatrics is a part of them. Some doctors had written down separate books and letters in Pediatrics and its treatments. This was clear in the period between third and fifth century AH. This research aims to describing ear diseases which were mentioned by doctors in these books and letters, with description of plant drugs used for the treatment of them and a table scheduling were sicknesses mentioned by doctors.

## Research Importance:

Since treatment of infant sicknesses was often done by means of drug plant, so this research will enlighten us about the old and new definitions of the six ear sicknesses; and the plant drugs treating them.

## Definitions of books and letters of this research

Two letters that contained children diseases and their treatment, which are:

RISALEH FI TADBIR EL- SUBYAN:

By Abu Baker Mohamed Bin Zakaria Alrazi (256-313 AH / 865-923 AD). (1)

RISALEH FI AWJA3 EL-ATFAL:

By Abu Ali Bin Ahmed Bin Mandaweh Alasfahani (died 410 AH / 1019 AD). (2)

Two books contained Pediatrics and providence and care of breastfeeding woman which are:

A. KITAB EL-MUALAJAT EL-BUKRATIH FI ILAL EL-ATFAL WA TADBIRIHEM WA MUDAWATIHEM,

By Abu Hasan Ahmed Bin Abu Hasan Altabari, who worked in Medical profession (was born before El-Razi death in 313 AH). (1)

## B. KITAB Siyaset EL-SUBYAN WA TADBIRIHEM

By Ahmed Bin Ibrahim Bin Aljazzar Al kayrwani (293-373 AH / 906-984 AD). (1)

Two books contained speaking about Pediatrics and providence of pregnant and infant which are:

KITAB KHALK EL-JANIN WA TADBIR EL-HABALA WA EL-MAWLUDIN<sup>1</sup>

By Oureb Bin Said Al-Qurtubi (Unknown his life and death). (1)

KITAB TADBIR EL-HABALA WA EL-ATFAL WA EL-SUBYAN WA HIFZ SAHATIHEM, WA MUDAWAT EL-AMRAD EL-ARIDA LAHOM

By Ahmed Bin Mohamed Bin Yahya Al Baladi (died 380 AH). (3)

## Definition of ear diseases & treatment by plant drugs:

It was meant by ear diseases by Arab doctors who wrote on Pediatrics, in their letters and books (our research subject) the following morbid cases:

1. Occurring humidity in ears.
2. Scratching ears and the Exit OF formed puses
3. Occurring scores in ears.
4. Growing flesh in ears.
5. Existing worms in ear.
6. Occurring tumors in ears.

Here we display these diseases, and used plant drugs in their treatment, as shown in the books and letters of doctors, our research subject:

### 1. Occurring humidity in ears:

It was mentioned by all except **El-Tabari**.

**Old description of sickness:** It is humidity in ears occurring at the time of teeth growth and it is a result to extra humidity of brain. (4,5,6,7)

**New description of sickness:** It is either serous Otitis Media or bacterial Otitis Media. (8,10,11)

## Treatment

**For El-Razi and El- Qurtubi:** humidity is cured by a distillation consisting of *Crocus Sativus*(*Zafaran*) Natron, *vinegar*(*KHell*) and water. (4,6)

<sup>1</sup> History of book writing is 353 AH, Hamarne, TARIKH TURATH EL-ULUM EL-TUBIEH INDE EL-ARAB WA EL-MUSLIMIN – FILE 1, PAGE 328

**Ibn El Jazzar** excluded that in case of fester influxion, a droplet consisting of *Crocus Sativus* powder molten in syrup or boiled with *Myrtus communes*(*Aas*) in *vinegar* (*Khell*). (5)

**As for El-Baladi:** He used one of the following treatments: (7)

A droplet consisting of:

- *Crocus Sativus* (*Zafaran*) powder.
- Or *Crocus Sativus* (*Zafaran*), and Natron, with mixed *vinegar* (*Khell*)
- Or cooked *Origanum majorana* (*Marazanjosh*) with sweet syrup and water.
- Or the filling the *Glaucium corniculatum* (*Mamitha*) Twigs into the ear.

### 2. Scratching ears and the Exit OF formed puses:

It was mentioned by El-Tabari only:

**Old description of sickness:**

This happens due to a hot bilious steam generated from the milk status or due to infant extra feeding of sweets. (9)

## New description of sickness

It is Inflammation of the hearing course (external otitis) or bacterial otitis Media. (8,10,11)

## Treatment

A wick immersed in (9)

- Boiled mixture of *rose* (*Ward*) ointment and *vinegar* (*Khell*) ointment.
- Humid *radish* (*Fijil*) with *vinegar* (*Khell*) *Mathiola acaulis* (*Shukara*) with *rose* (*Ward*) ointment and *vinegar* (*Khell*)

### 3. Occurring ulcers in ears:

It was mentioned by El-Razi and El-Tabari, and gave a definition for it:

## Old description of sickness

It is the existence of blisters after tumors as healing become slower and they ulcerate. (4,9)

## New description of sickness

It is that the existence of blister or ulcer in the auditory path leads to its inflammation (external otitis). (8,10,11)

## Treatment

**El-razi:** soaked leaves in water of *Myrtus communus* (*Aas*) and *Biota orientalis* (*Afas*) to be distilled into ear. (4)

**El-Baladi:** He mentioned one of the following treatments: (7)

- A wick from *Glaucium corniculatum* (*Mamitha*) powder with honey is put inside ear.
- Or distilled into ear *Boswellia floribunda* (*Kandar*) powder with *Commiphora myrrha* (*El-Murr*) adjusted by honey, *vinegar* (*Khell*) and *Aloe vera* (*El-Sabir*).

### 4. Growing flesh in ears:

**Old description of sickness:** it appears in the ears of boys extra flesh due to the humidity of their bodies and the strength of natural growth. (7)

#### New description of sickness:

It is benign tumors erecting in the Ear lobes and the hearing course. (8,10,11)

**Treatment:** Body bathing by hot water and Natron, then burnt brass and red Arsenic put in *vinegar* (*Khell*) and *rose* (*Ward*) ointment is distilled into ear, so that if flesh burns it is cleared by honey. (7)

### 5. Existing worms in ear:

It was mentioned by El-Baladi only.

## Old description of sickness

Due to congestion of humidity, rots, damages and corruptions, small worms appear in the ears of boys. (7)

## New description of sickness

It is the inflecting the external ear with small worms like maggots and others. (8,10,11)

## Treatment

The following plants and mixtures can be used: (7)

- Boiled *Artemisia Absinthium* (*Avsentin*) or *Erythraea centaurium* (*Kantorium*) or *Marrubium vulgare* (*Farasium*) or *Brassica Oleracea* (*Karanab*) juice, dissolved into *vinegar* (*Khell*) to be distilled in the ear. *Capparis spinosa* (*El-Kibr*) leaves juice or *Allium porrum* (*Kuthe-ra*) seeds juice or *Origanum dictamnus* (*Fodenj*) juice.
- Original *Morus nigra* (*Tut*) peel juice, and *peach* (*Khokh*) Paper water and white Karbak, all mixture crushed and mixed with *vinegar* (*Khell*) and distilled in the ear.

- *Radish* (*Fijil*) and *Artemisia Absinthium* (*Avsentin*) juice mixed with crushed *Brassica Oleracea* (*Karnab*) water.
- *Aristolochia rotunda* (*Zarawand*) crushed powder is blown into ear.

### 6. Occurring tumors in ears:

It was mentioned by El-Baladi only.

## Old description of sickness

The increasing descendent humidity causes these tumors and its flowing. (7)

## New description of sickness

Otitis media which is not accompanied with fluidity. (8,10,11)

## Treatment

Following treatments were mentioned: (7)

- Distillation of scraped soft *Cucurbita*
- *Maxima* (*Kar3*) or with *rose* (*Ward*) ointment or with *Glaucium corniculatum* (*Mamitha*) twigs.  
Or *Portulaca oleracea* (*El-Rijle*) seeds and *lettuce* (*Khess*) water and *Almond* (*Lawz*) butter.
- In severe pain: *Opium* (*Afyun*) is used with some ointments as aural droplet.
- In light pain: distilled warm *rose* (*Ward*) ointment with *vinegar* or water with *Glaucium corniculatum* (*Mamitha*).
- In external pain: one of the following treatments are used:
  - Bandage made from *barley* (*Shaiir*) flour cooked with *grapes* (*Inab*) juice.
  - Bandage made from broad beans (*Bakly*) dry violet, (*Banafsaj*) Chamomile (*Babunaj*), *barley* (*Shaiir*) flour and *Althaea rosa* (*Khatma*) mixture is stroked and knead into water and violet (*Banafsaj*) ointment then heated and applied as ointment.
  - *Aloexylon agallochum* (*Inab El-Tha3lab*) water, violet (*Banafsaj*) ointment and *vinegar* (*Khell*) ointment are boiled, then *Trigonella foenum* (*Hilbe*) flour is sprayed or *barley* (*Shaiir*) flour and applied as a bandage while it is hot.
  - *Brassica Oleracea* (*Karanab*) water and *lily* (*Sawsan*) juice water are boiled then *broad beans* (*Bakly*) flour are mixed and used.

- On ear flowing: warm **almond (Lawz)** ointment with **violet (Banafsaj)** ointment into ear.

The following table extracts the mentioning of ear sicknesses in books and letters, subject of this research:

Diseases	Razi	El-Tabari	Qurtubi	Ibn El-Jazzar	El-Baladi	El-Isfahani
Occurring humidity in ears	+		+	+	+	+
Scratching ears and the exit of formed puses		+				
Occurring scores in ears	+				+	
Growing flesh in ears					+	
Existing worms in ears					+	
Occurring tumors in ears					+	

### Conclusion

We mentioned here ear diseases of which Arab physicians mentioned in their books and letters “our research subject”. Treatment was made by plant drugs for these diseases. Usually the disease and its plant treatment that it may be a substitute for chemical drugs we suggest that an investigative study for the use of these drugs in treating ear diseases, and this require more high effort specialist

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# Who Discovered Hemophilia?

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## Summary

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In the whole history of hemophilia, it is generally accepted that the main development in understanding the cause and the inheritance type of the disease accomplished in the last century. But, who really was the first to describe the disease?

The priority of the disease is still a matter of argument. We followed the tracks of hemophilia in history since the ancient times to the recent, trying to identify the priority in each discovery related to the disease, chasing the advances in treatment.

We found that the Arabian physician Albucasis may be the first who described the disease. He defined the disease, witnessed some cases, named it, and even suggested a treatment. Then, more than seven centuries had passed until the concern about the disease revived, thanks to its spread in the royal families of Europe.

In our treatise, we tried to shed light on the most important events in the history of hemophilia. We clarified how hemophilia spread in the royal families through Europe. Finally, we mentioned the discoveries and inventions in the recent age.

**Keywords:** History of Hemophilia, Clotting Factors, History of Medicine, Albucasis, John Conrad Otto, Queen Victoria.

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## Introduction

The history of haemophilia represents one of the human mind attempts to define and encompass a mysterious fascinating phenomenon. Although some western historians claimed the priority of discovering this phenomenon to Jewish writings or recent physicians, the real priority may be attributed to Albucasis, the Arabian physician who died in the 11<sup>th</sup> century.

Treatment options for hemophilia patients present one of the most stimulating treatment stories of any patient group with an inherited disorder.

## Definition

Haemophilia is derived from the Greek “*haima*” which means blood and “*philia*” which means friend. In Arabic language; haemophilia means Naaor (روعان) which means the unstopped bleeding vessel.

Haemophilia (also spelled Hemophilia in North America) is conventionally a group of hereditary genetic disorders that impair the body’s ability to control blood clotting or coagulation. Thus, prolonged bleeding and re-bleeding are the diagnostic symptoms of haemophilia, especially haemarthrosis, haematuria and large bruises. The most common form of haemophilia is haemophilia A which is an X-linked recessive inherited bleeding disorder resulting from a mutation in the F8C gene which results in a deficiency of factor VIII. About a third of mutations

are new sporadic mutations. Whereas, haemophilia B is an X-linked recessive inherited bleeding disorder, previously known as Christmas disease, resulting from a mutation in the F9 gene which causes a deficiency of factor IX. Similarly to most recessive sex-linked, X chromosome disorders, only males typically exhibit symptoms. Because females have two X chromosomes and because haemophilia is rare, the chance of a female having two defective copies of the gene is very low, thus females are almost exclusively a symptomatic carriers of the disorder. Bleeding manifestation in hemophiliac individuals are related to the level of reduced factor. There are other rare forms of haemophilia, which are less important.

## Hemophilia in the Ancient and Medieval Ages

The genetic mutation originally responsible for haemophilia in mammals is generally considered to be many thousands of years old.

The study of blood coagulation can be traced back to about 400 BC and the father of medicine, Hippocrates. He observed that the blood of a wounded soldier congealed as it cooled. Additionally, he noticed that bleeding from a small wound stopped as skin covered the blood. If the skin was removed, bleeding started again.

Aristotle noted that blood cooled when removed from the body and that cooled blood initiated decay resulting in the congealing of the blood.

According to many European historians, the earliest assumed written references to what may have been human haemophilia are attributed to Jewish writings of the 2nd century AD. A ruling of Rabbi Judah the Patriarch exempts a woman's third son from being circumcised if his two elder brothers had died of bleeding after circumcision. Additionally, Rabbi Simon ben Gamaliel forbade a boy to be circumcised because the sons of his mother's three elder sisters had died after circumcision.

Anyway, the Jewish writings didn't consider this condition as a disease. They included no medical description of the disease, nor treatment. Besides, death after circumcision may result from any other accompanying reasons like infections. As a result, those writings are considered as an observation of a condition may relate to haemophilia, but may not.

In the 12th century, Maimonides (1135-1204 AD) applied the rabbinic ruling to the sons of a woman who was twice married.

### Albucasis, the First Physician Who Described Hemophilia

The famous physician Al-Zahrawi - Albucasis (936-1013 AD), in the second Essay of his medical encyclopedia "*Kitab al-Tasrif*", described a disease which he named "مَدْلُ قَلْع" or blood disease. His description corresponds with haemophilia. He was far ahead in his description for many reasons: firstly, his naming was indicative of the real cause of the disease. Secondly, he noticed the spread of the illness in just one village, which is attributed to the inherited nature of it. Thirdly, he was the first who noticed and described the disease, because, as he said, he didn't read of it in any of the ancient's medical books. Actually, we tried to find a former description of the disease in some ancient physicians, but we found nothing. Fourthly, he noticed the limitation of the disease to males and their boys. Fifthly, he characterized the disease with easy bleeding after minor traumas which is nowadays considered the primal symptom of the disease. He mentioned examples of three boys bled until they died. Sixthly, he admitted that he didn't know the cause of the disease which was impossible to be discovered in his time. Albucasis didn't pretend that he knew the cause which indicates his scientific method. Finally, he recommended using the cauterization of the bleeding place until the vessels stop bleeding. The treatment he suggested represents the most beneficial remedy available in his time.



From the Manuscript of Albucasis's book "*Kitab Al-Tasrif*" describing "Blood Disease" or Hemophilia

### Hemophilia in the Recent Age

Down the years there were rare scattered records of bleeding disorders more or less closely agreeing with the clinical picture we know.



William Hewson

In 1770, William Hewson challenged the cooling theory and believed that air and lack of motion were important in the initiation of clotting. Hewson described the clotting process, demonstrating that the clot comes from the liquid portion of blood, the coagulable lymph, and not from the cells, disproving the cooling theory.

The first recent descriptions of haemophilia are from the end of the 18<sup>th</sup> century. In 1803, Dr. John Conrad Otto (1774-1844), an American physician, published an account about "a hemorrhagic disposition existing in certain families" in the "*New York Medical Repository*". He recognized that the disorder was hereditary and that although it affected only males the disorder was transmitted by unaffected females to a proportion of their sons. He was able to trace the disease back to a woman who settled near Plymouth, New Hampshire in 1720 AD. These accounts began to define a clinical syndrome on which the 19<sup>th</sup> century developed an extensive literature.

The recent rather strange name 'haemophilia' which means 'love of blood' appeared in the title of Hopff's treatise of 1828 published at the University of Zurich.

Numerous dissertations, treatises and many papers were published in journals in the following years.

The rare occurrence of true haemophilia in the female is supposed first to have been described by Sir Frederick Treves in 1886, from a first-cousin Marriage.

The involvement of joints, to us the most characteristic symptom of haemophilia, was described in detail by Konig only in 1890.

## ***The Royal Hemophilia***

Haemophilia figured prominently in the history of European royalty in the 19th and 20th centuries. Queen Victoria, through two of her five daughters (Princess Alice and Princess Beatrice), passed the mutation to various royal houses across the continent, including the royal families of Spain, Germany and Russia. Victoria's son Leopold suffered from the disease. For this reason, haemophilia was once popularly called "the royal disease". The spread of hemophilia in the royal families of Europe was a very important factor in the development of medical knowledge about the disease. The physicians dived into the cases of hemophilia, trying to uncover its secrets, looking for the suitable remedy to enjoy the favor of the royal families.

The condition is not known among any of the Queen's antecedents, so that it is supposed that a mutation occurred at spermatogenesis in her father, Edward, Duke of Kent, a mischance perhaps made more likely by the fact that he was in his fifties when she was conceived.

### **Haemophilia in the British Royalty**

Leopold was severely affected and suffered numerous bleeding episodes. In 1868 the British Medical Journal noted a 'severe accidental haemorrhage' leading to 'extreme and dangerous exhaustion by the loss of blood' at the age of 15. In 1884 he died of a cerebral haemorrhage after falling and hitting his head. He was 31 years old. His daughter, Alice, born the previous year (1883 AD), who became Princess of Teck, had a haemophilic son, Rupert, Viscount Trematon, born in 1907, who died at 21, also of a cerebral haemorrhage.

The present British Royal Family haven't inherited haemophilia.

### **Haemophilia in the German and Russian Royalty**

Alice, Victoria's third child, passed it on to at least three of her children: Prince Friedrich, Princess Irene, Princess Alix and Princess Victoria.

Prince Friedrich died before his third birthday of cerebral bleeding resulting from a fall.

Princess Irene of Hesse and by Rhine (later Princess Heinrich of Prussia), who passed it on to two of her three

sons: Prince Waldemar of Prussia. Survived to age 56; had no issue. Prince Heinrich of Prussia who died at age 4.

Princess Alix of Hesse and by Rhine. Alix married Tsar Nicholas II of Russia, and passed it on to her only son, Tsarevitch Alexei who was murdered by the Bolsheviks at the age of 13. Alexei's haemophilia was one of the factors contributing to the collapse of Imperial Russia during the Russian Revolution of 1917. The illness of the Tsarevich cast its shadow over the whole of the concluding period of Tsar Nicholas II's reign and alone can explain it. Without appearing to be, it was one of the main causes of his fall, for it made possible the phenomenon of Rasputin (1869-1916) and resulted in the fatal isolation of the sovereigns who lived in a world apart and wholly absorbed in a tragic anxiety which had to be concealed from all eyes. Rasputin used hypnosis to relieve pain and/or slow hemorrhages, and sent away doctors who some claim were actually prescribing then "wonder drug" aspirin. It is not known whether any of Alexei's sisters were carriers, as all four were executed with him before any of them had issue. One, Grand Duchess Maria, is thought by some to have been a symptomatic carrier, because she hemorrhaged during a tonsillectomy.

Princess Victoria of Hesse and by Rhine, Alice's oldest child and maternal grandmother to Prince Philip, Duke of Edinburgh, might have inherited the mutation, though the gene remained hidden for several generations before reappearing in the descendants of her eldest granddaughter, Princess Margarita of Greece and Denmark.

### **Haemophilia in the Spanish Royalty**

Princess Beatrice, Victoria's ninth and last child, passed it on to at least two, if not three, of her children: Princess Victoria Eugenie, Prince Leopold and Prince Maurice.

Princess Victoria Eugenie of Battenberg (later Queen Victoria Eugenia of Spain), who passed it on to Infante Alfonso and Infante Gonzalo. Infante Alfonso of Spain, Prince of Asturias who died at age 31, bleeding to death after a car accident whereas Infante Gonzalo who died at age 19, bleeding to death after a car accident.

Prince Leopold of Battenberg. Later Lord Leopold Mountbatten. Died at age 32 during a knee operation.

Prince Maurice of Battenberg who killed in action in World War I in 1914 at the age of 23. Maurice's haemophilia is disputed by various sources. It seems unlikely that a known haemophiliac would be allowed to serve in combat.



**Queen Victoria and her family. Victoria (circled lower right) transmitted the gene to her son Leopold (circled) and to two daughters, one of whom, Princess Beatrice, is depicted (upper right). Tsarevitch Alexei (below) was Victoria's great-grandson.**

## Hemophilia in the Last Century

It was Paul Oskar Morawitz (1879-1936) in 1905 who assembled coagulation factors into the scheme of coagulation and demonstrated that in the presence of calcium (Factor IV) and tissue thromboplastin (Factor III), prothrombin (Factor II) was converted to thrombin, which in turn converted fibrinogen (Factor I) into a fibrin clot. He introduced his landmark theory in *Ergebn Physiol* magazine. This theory persisted for 40 years until Paul Owren, in 1944, discovered a bleeding patient who defied the four-factor concept of clotting. Owren observed a cofactor that was involved in the conversion of prothrombin to thrombin. Thus factor V was discovered.

Many reputable scientists claimed early success in treating with unusual substances. A report in *The Lancet* in 1936 extolled the virtues of a bromide extract of egg white. As recently as 1966, a report in the esteemed *Scientific Journal Nature* claimed that peanut flour was also effective for the treatment of hemophilia. The first hint of success came with the report from R.G. Macfarlane in 1934 that snake venoms could accelerate the clotting of haemophilic blood, and he reported success in controlling superficial bleeds in people with hemophilia after topical application.

Factor VIII was discovered in 1937 by American researchers A.J. Patek and F.H.L. Taylor. They found that intravenous administration of plasma precipitates shortens blood clotting time. Taylor later calls the precipitates anti-hemophilic globulin. In 1939, American pathologist Kenneth Brinkhous showed that people with hemophilia have a deficiency in the plasma factor he later called anti-hemophilic factor. In 1952, Loeliger named this factor VII.

Buenos Aires physician Pavlovsky reported that the blood from some hemophiliac patients corrected the abnormal clotting time in others. In 1952, Rosemary Biggs from Oxford U.K. calls it Christmas disease, named for the first patient, Stephen Christmas. The clotting factor was called Christmas factor or factor IX.

Factor XI deficiency was described in 1953 as a milder bleeding tendency.

In 1955, Ratnoff and Colopy identified a patient, John Hageman, with a factor XII deficiency who died from a thrombotic stroke, not a bleeding disease.

Factor X deficiency was described in 1957 in a woman named Prower and a man named Stuart.

In 1960, Duckert described patients who had a bleeding disorder and characteristic delayed wound healing. This fibrin stabilizing factor was called factor XIII.

In the early days, treatment of hemophilia A patients consisted of giving whole blood units to relieve symptoms. Not until 1957 was it realized that the deficient coagulation protein was a component of the plasma portion of blood.

**In 1958**, Inga Marie Nilsson, a Swedish physician, begins prophylaxis in treatment of boys with severe hemophilia A. Regular prophylactic treatment does not begin until the early 1970s.

The World Federation of Haemophilia was established in 1963.

Cryoprecipitate, a plasma derivative, was discovered by Dr. Judith Pool in 1964. This product is produced as an insoluble precipitate that results when a unit of fresh frozen plasma is thawed in a standard blood bank refrigerator. Cryoprecipitate contains fibrinogen, factor VIII, and vWF. This product is extracted from plasma and usually pooled before it is given to the patient according to weight and level of factor VIII. This product presented a major breakthrough for the hemophilia population because it was an easily transfusable product affording the maximum level of factor to the individual.

Next in the chronology of treatment products for hemophilia was clotting factor products. These freeze-dried products were developed in the early 1970s. The products were lyophilized and freeze dried and could be reconstituted and infused at home. This treatment offered the hemophilia

population an independence that they had never previously experienced. Finally they were in control because they could self-infuse when necessary and provide themselves with prompt care when a bleeding episode developed.

Another landmark was the recognition by Italian Prof. Pier Mannucci in 1977 that desmopressin (DDAVP) could boost levels of both factor VIII and von Willebrand factor, and this remains a useful option in mild forms of these conditions.

But a dark cloud loomed over the bleeding community. Approximately 80% to 90% of hemophilia A patients treated with factor concentrates in the period 1979-1985 became infected with the HIV virus. Factor concentrates were made from pooled plasma from a donor pool that was less than adequately screened. Additionally, manufacturing companies were less than stringent with sterilization methods and screening for HIV virus did not occur in blood banks until 1985. When each of these factors is brought to bear, the tragedy to the bleeding community is easily understood. According to the National Hemophilia Foundation, there are 17,000 to 18,000 hemophilia patients (hemophilia A and B) in the United States. Of those, 4200 in the United States and about 1200 in the UK are infected with HIV/AIDS. There are no numbers available for wives or children who could have been secondarily infected.

The hepatitis C virus (HCV) was first identified in 1989, and it soon became clear that an even higher proportion of people with hemophilia had been exposed to this virus. Fortunately, the introduction of physical treatments of concentrates such as exposure to heat or the addition of a solvent-detergent mixture has effectively eliminated the risk of the transmission of these viruses.

The structure of the factor VIII gene was characterized and cloned in 1984. This led to the availability of recombinant factor VIII. Recombinant products became available in 1989 and represent the highest purity product because they are not human derived. Recombinant technology uses genetic engineering to insert a clone of the factor VIII gene into mammalian cells, which express the gene characteristic. Production expenses for this product are unfortunately the most costly, and these costs are passed on to potential users. Most individuals with hemophilia in the United States use factor concentrates prophylactically.<sup>10</sup> Life expectancy of a child growing up with haemophilia today is comparable to that of someone without a bleeding disorder. **In 1998**, Gene therapy trials on humans began. In the future, gene therapy is considered a realistic goal.

## Conclusion

To sum up, it's widely clear that the main improvements in understanding the cause and the inheritance type of

hemophilia, and the major advances in its treatment was actually done in the last hundred years. In spite of this fact, historians of medicine couldn't deny that Albucasis was the first who noticed the disease. We need to reconsider this fact when we try to rewrite the history of hemophilia.

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# Laws on Medical Ethics in Turkey from the past to Nowadays and Comments

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## Summary

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The responsibility of the physician is also an important theme of the history of Turkish medical ethics. Turks believed in a polytheistic religion, namely Shamanism, before Islam. This religion is a religion with regard to nature. Ottoman physicians were educated in the form of master-apprentice. The responsibility of the physician was examined both by the Islamic Penal Code and by Ottoman Lawbooks in the Ottoman period.

Some interesting characteristics were found in some medical manuscripts and some documents in the period of the Ottoman Turks. Afterwards, the responsibility of the physician showed a modern characteristic and some modern laws came into force. An education in the type of medrese (an Islamic High School) was seen in the Islamic World in the Middle Ages. A Medrese was a kind of high school, and this foundation was also seen in the field of medicine. The persons who graduated from medreses got their diplomas in the name of educator in the period of Ottoman Turks. The period of high school began with the foundation of Tiphane and Cerrahane-i Amire (Medical and Surgical School) in 1827. So, some modern laws were passed about the responsibility of the physician.

So, today , a physician is responsible in all the medical practices according to Turkish Criminal Law, The Turkish Obligation Law, Turkish Civilian Law, Medicine and Its Branches' Law, Turkish Medical Ethics Regulation, Health Protection Law, Turkish Medical Association .

The **Agreement on Patients Rights** with the date of 1998 contains the subjects such as justice, the choosing of of foundation of health, informed consent, fidelity, confidentiality, privacy, veracity, the refuse of the treatment, the suing of the patient.

In this paper, we will comment about laws on Medical Ethics in Turkey from the past to nowadays.

**Key Words:** History of Medicine, Patients Rights , Responsibility , Civilian Law

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The responsibility of the physician is an important subject of the history of Turkish Medical Ethics. We know that the responsibility of a physician occurs due to damages, negligence and carelessness in the practice of physician-ship .The lack of modern scientific methods in the treatment and diagnosis and inexperience in the art of medicine also produces responsibility .

In the world of Turks, remarkable developments have always taken place in terms of physician responsibilities and duties and there are many archive materials on it. This study gives examples from such materials and makes some comments.

Physicians had responsibilities to their patients in the world of ancient Turks and they had to pay for it when they failed in their duties. In the states of such Turkish nations as Huns, Tabgac-Topa Huns (216 – 394), Avars (394 – 552), Tukyus (Gokturks) (552 – 745) and Uygurs, medicine was learnt by apprentices from masters and physicians were held in great respect. It is known that Islam was adopted in the 8<sup>th</sup> century in the period of Uygurs. From then

on, the knowledge of medical deontology was attached importance in all of the Turkish Islamic states. In Kutadgu Bilik written in 1070 by Yusuf Has Hacib, a renowned vizier in the Turkish state of Karahanlıs (840 – 1212), physicians are dealt together with some social issues. The book, which consists of 73 chapters and 6500 lines, fully appreciates the work of patients and emphasizes that they are all supposed to be industrious, honest and self-sacrificing people. It talks about two types of physicians, which are positive physicians and physicians of the psyche, and includes some sections on deontology as well.

Before Islam, Turks followed Shamanism, which was a polytheist totemic religion of nature. In it, the sky, sun, moon, stars, earth and animals were all holy beings believed to have spirits and angels in them and Turks kept a deep kind of mysticism in their souls. This made instilling and psychotherapy as the dominant methods of treatment then. Shamans, who held an important place in Shamanism, tried to treat patients with fortunetelling and magical drugs, and they were punished if they damaged people's health in any way. The medical training in Turkish

states was given by master physicians to apprentices. The mysticism in Turkish people's faith maneuvered them into monotheism and after the adoption of Islam, physicians' responsibilities were considered within the framework of Sharia (the code of law derived from the Koran). In the states of Uygurs, Tolunoglus, Karahanlis, Great Seljuks and Anatolian Seljuks, physicians damaging their patients' health were always held responsible for it. Many books written by some physicians and philosophers of the time dwelt upon physician responsibilities.

In the Islamic world of the Middle Ages, the most important sources of the Islamic law were the Holy Koran and hadiths (oral traditions relating to the words and deeds of the Islamic prophet Muhammad). In spite of talking about several health issues, these sources do not give any direct information about physician responsibilities. However, the Islamic code called Sharia introduced some laws concerning it. According to them, physicians who knowingly damaged their patients or caused death were punished with an eye for an eye and same things were done to them whenever they did something wrong. For instance, the eyes of the physicians who blinded a patient were gouged. However, the consent of the patients and serious and obvious faults were required to be held responsible for damaging health. About the period before the adoption of Islam, there are very few sources in terms of penal laws on the confidentiality of medical practice. However, some conclusions can be arrived at considering the sources about Chinese laws. The Islamic law was in power after Turks' adoption of Islam and it prohibited everyone from talking about other people's faults and offences. As a matter of fact, some chapters and verses of the Koran have provisions about keeping secrets.

The principles of Islamic law were valid during the Ottoman period as well. Many codes of laws devised in this period governed some new issues. Nonetheless, none of them included the crime of disclosing professional secrets. In the 215<sup>th</sup> article of the imperial penal law dated 1857, it is written that the physicians, surgeons and midwives revealing professional and occupational secrets are all to be punished.

An understanding of medical deontology can also be found in the works of many scholars. In the Islamic world affected by ancient times and Greek civilization favoring a scientific approach to medicine, it is understood from the works of such renowned scientists as Razi (854 – 932), Farabi (870 – 950), Biruni (973 – 1051) and İbn-i Sina (980 – 1037) that medical deontology was attached considerable importance. 5 of the 180 books written by Ebubekir Muhammed bin Zekeriya Razi (854 – 932), a renowned scholar of his time, are about deontology. Ebu Reyhan Biruni (973 – 1051), who was an eminent medical practitioner, is the first person who specified

and defined medical practice and pharmacy as two separate and independent professions. His book "Kitab al-Saydala" touches on the duties of physicians and the necessity that medical training should be given by master physicians to apprentices. İbn-i Sina, the greatest medical scholar of the Middle Ages, and Farabi, a distinguished scientist of his time, wrote chapters on deontology in their books.

Information on deontology can be found also in some books written during the period of Buyuk Seljuks. In "Çehar Makale" written in 1156 by Nizam-i Aruzi, who was a physician from Semerkand, there are four articles on medical practitioners. The following short sentences taken from the book would give some clues about the deontological approach of the time: "Physicians are supposed to be good-natured, honorable and rational people. They should know the effects of drugs and symptoms of the diseases. They should be trained by a master of the profession and keep reading about it. Besides, they should practice medicine well enough." (12, 20, 30).

Ottoman physicians held onto Islamic traditions too. For long years, medical training was given by masters to medical students. Although physician responsibilities were always considered within the framework of Islamic penal law, statutes were sometimes used as different criteria to follow. As a matter of fact, the legal principles in the Koran and Sunna (the sayings and doings of Mohammed) turned out to be inadequate to meet all the needs of the nations constituting the Ottoman Empire. Therefore, the loopholes in the Islamic law were tried to be closed and an alternative code of laws based on local traditions was developed. The statutes like those of Fatih Sultan Mehmed, Kanuni Sultan Süleyman and Mehmed IV closed some of the loopholes in the Islamic penal law. The sanctions on physicians were imposed by the edicts of the sultans and mandates of the head physicians until the 19<sup>th</sup> century. In all the decisions taken during that period, the emphasis was on the fact that physicians could not be held responsible for any medical situation unless the consent of patients was obtained (47, 48).

Several books on medicine were written in the Ottoman period and most of them had chapters about deontology. Bereket Efendi, who was a renowned Turkish physician of the 14<sup>th</sup> century, wrote "Tuhfe-i Mübarizi" as the first medical work in Turkish in Anatolia and gave some deontological information in it. According to him, a physician should always keep his temper and never hurt a patient". Hacı Paşa (Celaleddin Hızır b. Hoca Ali) (1334/35? – 1424?), who is another renowned physician of the same century, wrote a medical book called "Kitab al-Tealim" in Arabic in 1370 when he worked for Medrese-i Seyhun in Cairo. At the end of the book, there is a chapter called "Pieces of Advice" and it deals with medical

ethics . Hacı Paşa was such an eminent scholar of deontology and medical practice that he was given the title of “the İbn-i Sina of Anatolia”. He wrote another book called “Şifa al-Eskâm” in Arabic in 1381. At the end of this book comprising chapters on four subject matters, there is a section talking about medical ethics. The sentences quoted here reflect his understanding of medical ethics: “A physician is supposed to be a good-humored and neatly dressing person who keeps his promises, does favors, keeps secrets and retreats into silence when needed. He should never overcharge his patients and make prompt decisions about the duration and consequences of any disease. He should always see patients whenever called and be careful about the diagnoses and treatments.” In the 13<sup>th</sup> chapter of Şirvanlı Mehmet bin Mahmud’s book called “Kemaliye”, there is a section on deontology with the heading “Pieces of Advice for Physicians”. Another renowned Turkish physician attaching importance to deontology was İbn Şerif, who lived in the 15<sup>th</sup> century. His book called “Yadigar” deals with several deontological issues. The 13<sup>th</sup> section of the second chapter contains some words of advice for physicians: “Physicians should know their patients well and prescribe drugs accurately.”

In “Cerrahiye-i İlhaniye” written in the 15<sup>th</sup> century, Şerefeddin Sabuncuoğlu mentions that physicians are supposed to be knowledgeable people and read and know a lot about drugs and broken and dislocated limbs.

In “Miftâh ün-Nur ve Hazâin üs-Sürûr” written by Mu’min b. Mukbil, an eminent physician of the 15<sup>th</sup> century, the qualities of good physicians are listed and a comparison is made between them and ignorant ones.

The Ottoman Turkish physicians of the 16<sup>th</sup> century kept dealing with physician responsibilities in their books. In a document dated 1573, it is mentioned that the head physician Garaseddinzâde Muhiddin wants to prevent ignorant people from practicing medicine and those who want to do it need to take examinations to be awarded a diploma. A document from the Religious Court Records of the city of Ayıntap (Gaziantep) is dated 1540 and it talks about the removal of stones clogging up the urinary system. For such operations, the permission of patients and the religious court was needed and surgeons were paid a certain amount of money. Physicians could be sued when patients who gave their consent died during or after operations on urinary system.

Emir Çelebi, a renowned Turkish physician of the 17<sup>th</sup> century, mentions in his “Enmuzec al-Tıb” that physicians have to learn anatomy well in order not to make mistakes practicing medicine. According to him, all physicians are supposed to keep secrets, know thoroughly the effects and doses of every drug and be honest and rational (25, 30).

In the 17<sup>th</sup> century, physicians and surgeons having informal training from masters were allowed to practice medicine only after taking some examinations and proving that they have perfected their crafts. This was the same in the 18<sup>th</sup> century and the offices and consulting rooms of the unauthorized physicians were all closed. Some medical manuscripts dated the 18<sup>th</sup> century and the Ottoman archives of the Prime Ministry talk about physician responsibilities as . In his “Ra’is al Cerrahin” written in 1720, Cerrah Mes’ud Efendi reports that good physicians are compassionate, good-humored and kind people who do their best to help other people. In 1704 when Ahmed III was the sultan and Nuh bin Abdülmennan the head physician, the decision was taken that ignorant and unqualified physicians were to be prohibited from practicing the profession. In a judgment dated 1729, it is written that medical practice was to be learned from master physicians in an informal training process and a diploma given after passing some particular examinations was needed to become a physician. A prime ministry archives material dated 1765 holds the judgment that Papa Istrati, who was a qualified Jewish surgeon then, was allowed by the head physician Katipzâde Mehmed Refi Efendi (1682 – 1769) to run an office where he could see his patients. The document suggests that “Fıtıkçı Karhanesi (the place where people with hernia are treated)” was the name of the office of that surgeon who was highly successful in performing hernia operations. In the period of Mustafa III in the same century, some other decisions were taken to severely punish those who practiced medicine without authorization.

Some documents dated the early 19<sup>th</sup> century give information about the understanding of physician responsibilities. A prime ministry archives material dated 1848 reports that the head physicians and physicians of Ayıntap (Gaziantep), Birecik and Haleb hospitals were all dismissed from their posts because of unacceptable behavior. A document dated 1849 is about some new regulations designed to impose that physicians should treat poor patients for free. An Ottoman document dated 1853 is about the requirement that physicians should never slack about the ways they treat their patients .Physicians were sent to the important hospitals of the empire so that they could gain professional and practical experience. A document dated 1891 is about the appointment of Miralay Osman Bey, who was working at Yıldız Hospital then, as a physician at Haseki Nisa Hospital to broaden his experience .

A document dated 1856 is about a physician summonsed to appear in court in Istanbul as he was accused of causing the death of the pregnant wife of an Austrian captain, Andarya Kalacavie, prescribing wrong drugs .

There are also documents reporting that physicians were not at fault in some particular cases. One of them dated 1863 is about the fact that Andon, the son of Erdeki Tabta, died because of his disease only and Hekim İstanili, who had prescribed drugs for him, was not at fault in any way. Some other documents give information about the inquiries launched into the wrong prescriptions and ineffective methods of treatment at hospitals. A document dated 1871 is about the dismissal of a surgeon and a pharmacist of Vakıf Guraba Hospital for neglecting their duties. Another one dated 1890 is about the investigation launched into the wrong treatment given by Cerrah Malik Efendi at Gümüşsuyu Hospital. An archive material dated 1894 deals with the inspection report on the malpractice at Gureba Hospital.

In the Ottoman Empire, patients' consent was obtained before giving any treatment. It is written in a document dated 1899 that some of the wounded soldiers at Yıldız Hospital were to be operated on after obtaining their written consent.

Physicians gave private treatment as well. A document dated 1895 is about Major Mehmed's application with a petition to Yıldız Military Hospital for private treatment.

Some documents from the early 20<sup>th</sup> century show that wrong treatments and consent of patients kept being issues discussed openly. In the meantime, physicians who were successful in treating patients were rewarded. A document dated 1902 is about Esmeryan Efendi's promotion to the rank of colonel for successfully treating the ophthalmologic disease of the Mayor of Algeria. The archives contain many more documents referring to several successful operations. One of them dated 1908 is in acknowledgement of the operation Ferit Muhtar Sadık had thanks to the care of the Sultan and skills of İranidar Bey and Mehmet Selim Bey. Another one dated 1909 is about the rewards and promotion of the physicians who took care of the treatment of Zeki Pasha. There are also some explanatory documents prepared to inform and warn physicians about probable mistakes. One of them dated 1900 is a document explaining the difference between appendicitis and bowel diseases.

Before the foundation of the Republic, the Islamic Penal Law was in force about abortion. A document dated 1788 is a written copy of a final court decision and aims to inform the provinces that the physicians and pharmacists in Istanbul were prohibited from prescribing for abortion. There are also some 19<sup>th</sup> century documents about abortion. One of them dated 1826 talks about a midwife known as "the bloody midwife" to be punished for prescribing abortive drugs. It is a behest addressed to the head physician asking him to denounce the people violating the laws in that way and it reports that the

abovementioned midwife and some other Jewish midwives were all banished to Salonika after informing the Greek and Armenian patriarchs and the chief rabbi about it. Another document dated 1828 says that women should never be prescribed abortive drugs. A document dated 1838 is about the announcement of the decision which banned abortion. Another one dated the same year is about the reply from Skopje to the announcement about punishing parents and people who prescribe for abortion. A document dated 1843 is about forgiving a man called Lutfullah banished to Rhodes for causing an abortion. The 193<sup>rd</sup> article of the Imperial Penal Law dated 1857 says that people who cause or help abortion are to be sentenced to imprisonment between 6 months and 2 years. When a physician or a pharmacist did that, the punishment was much more severe. A document dated 1859 refers to the judgment about Develili Hacı Ömer, who caused a miscarriage attacking the wife of Enis Bey whom he was seeking to kill.

The law about population planning dated 1965 and numbered 557 was changed. It was issued on 12. 6. 1967 a population planning regulation and a bylaw about pregnancy termination and sterilization when medically. The law about population planning dated 1983 and numbered 2827 is a modernized version of the law issued in 1965.

In some physician reports dated 1902 in the Prime Ministry Ottoman Archives; there is information about diagnoses, symptoms, nature and treatments of several diseases. Examples can be found in the reports that the German physician Cmsni wrote about the diseases the Sultan's relatives and court staff had. Some of such reports teach us about the diseases of the time and their treatment methods. As it is the way today, the reports were always written according to the physicians' own observations and scientific views. All those documents, which are very important in terms of the Turkish history of medical ethics, emphasize the importance of such medical ethics principles as getting informed consent, abstaining from causing any damage and being of help.

Dr. Cmsni is the writer of many reports provided as examples here. He was a German physician working at the royal palace in Istanbul then. Although it was not possible to find any other information about him, it can be mentioned that his reports are equivalent to the medical reports prepared today.

The first particular example is the report dated 1902 about Fehime Sultan. A previous one dated 1889 is about the beginning of the treatment of Fehime Sultan's neural disease. Fehime Sultan had hysteria and some neurological problems. Besides, her nerves were always frayed and her

sleep was restless. However, her internal organs were healthy. According to the report dated 1902 written by Cmsni, she needed to do exercise, swim and play ball games.

The second report dated 1902 is about Nemika Sultan. It indicates that Nemika Sultan did not have a serious health problem but she was so weak and anemic. It says “Nemika Sultan needs to take pills with albuminate de fer to gain strength.”

Another report dated 1902 is about İzzet Bey, who was the vice-secretary of the Sultan then. His muscles were too weak and he had hernia, neurasthenia, high blood-pressure and dyspepsia. The treatment recommended was exercises for his neurasthenia, water therapy and diet for his dyspepsia.

The report about Ethem Aga, who was another secretary of the Sultan, says that he had rheumatism and his knees needed to be tied up and strengthened with rubber rings to relieve it.

Another report is about Halil Aga, who was the chief coffee-maker of the Sultan in the palace. It indicates the possibility that Halil Aga could have stomach cancer. He was recommended to breathe in fresh air in a village, drink milk and kondurango wine .

A document dated 1906 is on the examination of the organs belonging to a woman who was thought to have died because of the bad treatment Dr. Alexandrios Efendi gave .A document dated 1907 deals with the prescriptions and analysis reports concerning a commander called Rıza Pasha .A report dated the same year is about the health of Seniha Sultan. Another one looks at the cause of death of the daughter of the artillerymen’s commander who had died in Edirne French Hospital.

Some documents dated 1908 are the reports given by the Hamidiye Etfal Hospital Chemistry Laboratory. They are about the urinary analysis results concerning the disease of the Sultan. A report dated 1910 is on some women examined by Tabip Ibrahim Ali.

All these reports suggest that the physicians wrote about their observations of the patients conscientiously and scientifically which is the reason why they are important in terms of the history of Turkish medical ethics.

The Ottoman Archives of the Prime Ministry show that there were also some physicians who wrote misleading reports. A document dated 1900 says that the Mayor Abdullahim Efendi, who was a lecturer in the Mekteb-i Fünun Medical School then, wrote a misleading report. He was to be sued for it, his diploma was to be taken back and he was to be imprisoned as he tried to break out .

As it is the way today, the physicians of those times had to be careful about what they wrote in their reports of any type and abide by all the medical ethics rules. They always tried to adhere to the principles of privacy, loyalty, honesty and not harming patients. The rules below were as absolute as they are today:

- I. Physician reports are documents that the state demands in order to carry out the public duties in a secure way. Therefore, a physician should never write his reports carelessly, pay regard to his own or others’ feelings and benefits and charge an extra fee for the reports he writes. According to the draft of the Turkish Medical Association’s administrative law on Medical Ethics (Deontology), a physician gives reports about the diseases of the patients he examines and treats himself if he thinks it is necessary.
- II. A physician should not divulge his personal feelings and opinions in his reports.
- III. A physician should keep a copy of all his reports in a file chronologically.
- IV. A physician should not write about the diagnoses of dangerous diseases and deal with the symptoms only.
- V. If a physician writes a report with the aim of having unfair advantages, he incurs financial and imprisonment penalties according to the 104<sup>th</sup> article of the Turkish Penal Law. If a physician writes a report indicating that a healthy person is mentally ill and if that person is damaged by that in any way, the penalties are increased. If physicians write reports for their own benefit, the medical ethics principle of not harming patients is betrayed and people’s trust in physicians is lost .

The regulation dated 1998 on patient rights has the following articles :

Article 16 – A patient can examine directly or through an official proxy the files and records about his health or get a copy of them. Such records can be seen only by those who are primarily responsible for the treatment of the patient.

Article 17 – A patient can demand that the inaccurate and missing medical and/or personal information in the records about him be completed, explained, corrected or revised according to his final state of health. This entitlement includes also the rights to objection to the reports and demand for the recompilation of them in the same institution or another one.

**Afterwards, the responsibility of the physician showed a modern characteristic and some modern laws came into force. Penal Code and Civil Law had some articles about this theme.**

Medical education in the world was in the form of master-apprentice in ancient ages and even at the beginning of the Middle Ages, and this application also continued from time to time. Moreover, the medical education began to show a scientific characteristics in the Alexandrian Period in the third century B.C., and then an education in the type of medrese (an Islamic High School) was seen in the Islamic World in the Middle Ages. A Medrese was a kind of high school, and this foundation was also seen in the field of medicine. The persons who graduated from medreses got their diplomas in the name of educator. The medical education in Turkey showed three periods. These are the periods of medrese, high school and faculty. The period of high school began with the foundation of Tıphane and Cerrahane-i Amire (Medical and Surgical School) on the 14<sup>th</sup> March, 1827, and it continued until the foundation of Mekteb-i Tıbbiye-i Adliye-i Şahane in Galatasaray in 1838, and then the period of faculty began. This school was accepted by Europeans in 1847. The doctor's title was given to the physicians for the first time in Galatasaray. Thus, 67 students got this title in the period of *Sultan Abdülmecit*. So, medical school left the characteristic of medrese and it began to show a modern aspect because of its modern clinics and laboratories. Moreover, dissection was applied for the first time in 1841. So, some modern laws were passed about the responsibility of the physician. For example *Karantina Talimatnamesi* (Quarantine Agreement) in 1838, *Tababet-i Belediye Nizamnamesi* (Agreement of Medicine of Municipality) in 1861, and *Tababet-i Belediye İcrasına Dair Nizamname* (Agreement of the Application of Medicine of Municipality) in 1878 mentioned the responsibility of physicians. Articles 192 and 193 of *Ceza Kanunname-i Humayunu* (Penal Law) in 1857 mentioned the punishments for abortion. Article 215 of this code had the responsibilities about the revealing of medical secrets. Moreover, according article 182, if a patient died because of his physician's negligence, that was punished.

Today, in Turkey, the physician is responsible and punishable for all the damages (death, bodily harm, incapacitating, financial damages) he caused during his practice, because of : a) negligence, carelessness or causation with intention b) not following the proper rules for practicing medicine c) not applying the latest scientific methods for diagnosis and treatment d) lack of medical knowledge and training.

Alongside physicians, the health institutions, hospitals, laboratories and other related medical services are also jointly responsible if their practice is not proper .

**Three kinds of responsibilities of the physicians are found from the point of view of the law in Turkey.**

## **I. Administrative Law and the Responsibility of the Physician**

The physician can be responsible due to personal mistakes and the mistakes in public health services. A physician is punished with compensation according to the Turkish Administrative Law :

**I.a. Mistakes in Public Health Services:** The duties of the administration is to order public health services. The disorganizing in the public health services causes mistakes. These mistakes are divided into three parts :

1. Poor organization of public health services causes harm. For example if a patient is urgently taken to the hospital and he isn't taken care of for a long time, administrative responsibility can occur .
2. **Medical care mistakes are divided into two parts:** 1) *The Mistakes of Physical Care:* For example, lack of medical equipment is an important mistake. 2) *Medical Care Mistakes :* Malpractice of medical personnel is the mistake of medical care.
3. Medical practices that injure the patients. These injuries may be in treatment or surgical operations.

**I.b. Personal Mistakes:** These kinds of mistakes are the personal mistakes of the physician and health personnel. If a physician doesn't treat a patient who is urgently taken to the hospital is responsible due to his own behaviour.

## **II. Civil Law and the Responsibility of Physicians**

A physician is fined with compensation according to the Civil Law because of malpractice. A person who injures someone with intention or negligence, is fined with compensation according to article 41 of the Turkish Obligation Law. That is, if a physician is responsible due to malpractice and injures his own patient, he must pay him money for his injuries .

## **III. Penal Code and the Responsibility of Physicians**

In this law, a doctor is punished because of the technical and nontechnical mistakes in medical practice. If a doctor causes death of a patient because of a technical mistake he is punished with prison sentence according to the article 456 of the Turkish Penal Code.

The Agreement of Patient's Rights with the date of 1998, 1 August and with the number of 23420 contains the subjects such as justice, the choosing of of foundation of health, informed consent, fidelity, confidentiality, privacy, veracity, the refuse of the treatment, the suing of the patient.

It stresses the rights of the patient with regard to these subjects. For example, a patient has the right of equal use

of his health foundation. If a physician doesn't respect to these rights of the patient, he can be responsible. According to this agreement, if a physician doesn't respect his patient's rights, his (her) patient can sue about this physician. Moreover this patient can apply for the Chamber of Physician with a petition according to the Agreement of Inquiry of Turkish Physicians Association. The Management Board of that Chamber should reply to this patient's petition. If this patient is right, this complaint is sent to the Honour Board of the Chamber of Physician. If this board decides that physician is guilty he can be punished with a written warning, admonition, fine, deprivation from his profession .

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.

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.

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. According to the **Turkish Law of Patients' Rights** with the date of 1998, the patient has the right of privacy.

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. According to the **Turkish Law of Patients' Rights**, the informed consent of persons is necessary in all of the medical practices.

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. According to the **Turkish Law of Family Planning with the date of 1983**, curettage can be applied up to the 10<sup>th</sup> week with the desire of woman. Birth control drugs and apparatus can be used with the prescription of physician.

The Turkish medicine of our day is highly developed and enables us to successfully transplant organs from donors into patients who need them. The laws relating to organ transplantation enacted in 1979 and 1982 have been immensely helpful for our physicians in saving lives. Kidney transplantation can be cited as an example. For over a period of 40 years in many countries, kidney transplantation has been widely adopted for being effective in treating kidney diseases and producing favorable outcomes in terms of socioeconomic concerns. The first kidney transplantation in Turkey was carried out in 1967. It was epoch-making for the country that the first kidney transplantation between relatives (a mother and her son) was done on November 3<sup>rd</sup>, 1975 at Hacettepe Medical Faculty Surgery Department. Since then, several other medical centers have performed such transplant operations. On October 10<sup>th</sup>, 1978 at a Hacettepe Hospital again, the first transplantation from a cadaver was done with the kidney of a dead donor provided by the Eurotransplant Foundation. With the regulation issued in 1979, kidney transplantation from cadavers officially began at Hacettepe Hospitals. On September 8<sup>th</sup>, 1980, the Organ Transplantation and Burn Treatment Foundation of Turkey was established in Ankara. It aims to help people with organ transplantation and burn treatment, encourage training and research activities and provide treatment facilities. On June 5<sup>th</sup>, 1982, the Dialysis Center of the foundation was opened in Ankara.

As there was not an administrative law concerning organ transplantation in Turkey before 1979, many operations were not possible to perform and physicians did not have much to do to save lives. The law numbered 2238 and dated 29.5.1979 on transplanting and keeping organs and tissues allowed the operations and relieved physicians of many hesitations (36). The law numbered 2594 and dated 21.1.1982, which was enacted to change an article of the previous one, was a step forward. It deals with organ and tissue transplants in terms of two dimensions: a) Organs and tissues taken from people living, b) organs and tissues taken from dead donors .

If the donor is a dead person, the death should be identified in terms of objective criteria. The law dated 1979 requires that medical death is taken into consideration and identifications are made according to the level of the science in the country. However, we think that objective data provided by the constantly changing and developing medical techniques of our day would enable us to identify and explain deaths and causes. Besides, causes of deaths can be outlined. Thus, in comparison with others, it would be more objective that any new medical technique saves lives. Every life ends in death (Civil Law 27). A person forfeits his rights when he dies and that is why identifying a death is important in terms of both penal law and civil .

The law has the following articles concerning the determination of death, the forbidden acts to physicians and preparing written reports:

Article 11: In order for this law to be enforced, a death is to be determined applying all the rules and methods that the scientific level in the country permits and having the unanimous vote of a physicians committee comprised of a cardiologist, neurologist, neurosurgeon and anesthesiologist.

Article 12: Physicians treating a recipient and those who are to work at removing, keeping, vaccinating and transplanting organs and/or tissues cannot be in committees set up to determine deaths.

Article 13: Physicians who determine a death according to the Article 11 have to prepare a report containing their signatures and the date, time and way of the death. They have to present it to the health center where the organs and/or tissues were taken. The reports and annexes are to be kept for ten years in the related institutions.

In the regulation dated 2000 on organ and tissue transplantation, the criteria for defining brain death are laid down.

Flemming Kismeyer, who is renowned for successfully transplanting kidneys, says "Keeping the other parts of an organism alive after the brain dies is nothing but delaying the time of the death. If it is recognized that a person dies when his brain dies, the life of a hopeless patient can be saved with transplantation".

The Islamic law suggests that when a person dies, his personality is lost and he is accepted not to have responsibilities anymore. In addition, Islamic beliefs permit organ transplantation to save patients' lives and the Higher Theological Committee of the Presidency of Religious Affairs announced with his decision dated 6.3.1980 and numbered 396 that organs can be transplanted from dead bodies. Nevertheless, there are still people who do not want anyone to touch the bodies of their dead relatives and they insist on

it under the influence of their old moral values. Some people of law state that heirs have the right to decide about their dead relatives according to their own moral values, which deserve to be respected. It is not possible to expect that the traditions, customs, values and beliefs of people would change much in a short period. We believe that the developing medical techniques and the steps made forward to save lives will change some social codes in time.

In our country, educational activities are needed to satisfactorily increase the number of the transplantations from cadavers: a) collective training (via the press, TV and radio channels, schools, meetings, organ donation campaigns) b) professional training (through cooperation between health centers and training physicians, assisting medical staff and the administrators of the state organizations) c) open-minded theologians enlightening people.

If a person allows it in his will orally and/or verbally, organ transplantation can be made from his body after he dies. Even if this is not mentioned in the will, the law suggests that the closest relatives can permit transplantation from the dead body.

According to the 14<sup>th</sup> article of the law, an organ of a person who dies with enormous damages in an accident or natural disaster can be given to an urgently needing patient not considering the will or consent in any way.

"The Condition of Taking Organs and Tissues from a Dead Body and Keeping Bodies for Scientific Studies:

Article 14: If a person has not written in his will or declared in the presence of two witnesses that he donates his organs for treatment, diagnosis and scientific studies, his tissues and/or organs can be transplanted after his death with the consent of his/her spouse, children over the age of 18, parents and brothers/sisters respectively. If none of them is alive, a relative can give his consent for transplantation. If there is not a will or an official declaration prohibiting it, tissues that would not bring about a change on the body (like cornea) can be taken.

If a person has not declared officially that he is opposed to taking organs out of dead bodies, his organs and/or tissues can be taken after his death.

(Change: 21/1/1982-2594/1 md.) If there are not any of the abovementioned relatives, the working organs and/or tissues of a person who dies of enormous damages in an accident or natural disaster can be transplanted in patients who need it to survive. This is due to the written confirmation of the committees mentioned in the Article 11 that the state of medical death does not depend in any way on the organs or tissues to be taken. When it is extremely urgent and medically forced, organ and tissue transplantation can be made without any consent. In such cases, forensic autopsy is performed after

the operations and the reports of the committees are enclosed with the forensic examination and autopsy records.

Nevertheless; this article states that such transplants can be carried out only in extraordinary cases of emergency and necessity. Even if an operation of that kind is entirely within the law, the family of the dead person could have some moral and social problems thinking that the spiritual self of the one they lost was disrespected. It is quite natural that the article in question, which aims to save lives in cases of extreme emergency, is compatible with the views of medical ethicists and the Hippocratic Oath encouraging physicians to save patients' lives. However, it is crucially important here to accurately and unambiguously identify deaths. Today, the major factors in Turkey which constrain providing organs from cadavers despite the laws in force are that some physicians are still hesitant about getting official permission for transplant surgeries and people have doubts, superstitions, strongly held beliefs and lack of training about what death in terms of medicine is and how times of death are determined. There are also physicians who are reluctant because of the medicolegal responsibilities of determining a brain death while the heart is beating and taking the patient out of the respirator.

(Change: 21/1/1982 – 2594/1 md.) Besides; schools of higher education can be given the right to keep and use for 6 months the bodies of the people who leave in their wills their bodies for scientific studies, abandoned patients who die at health centers and dead people in morgues with no relatives and not needed for legal proceedings. The burial of such bodies and other procedures shall be determined with the regulations to be issued in 3 months after the announcement date of this law by the Ministries of Justice and Health.

We think that it would be to the point to revise the law dated 1979 and make it a law imposing different penalties for every single act instead of similar penalties for different acts.

One of the penal provisions that need to be revised is below:

### Forbidden Acts

Article 15: If the acts do not require heavier penalties, those who take, keep, vaccinate, transplant, buy and sell organs and tissues against the law and those who help others do these are sentenced to two to four years' imprisonment and a fine between 50000 and 100000 liras.

Benevolence 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. However, it is beneficent for public health workers to strive for economic, environmental, social and political conditions that will maximize good health.

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.

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.

Moreover, some agreement drafts are present in Turkey. One of them is **Rules on Ethics of Medical Profession**. It was accepted by **Turkish Medical Association**. Another law is malpractice law. In near future, it will be passed.

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# Blood Transfusion in History

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## Summary

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The transfusion time line highlights many of the discoveries, inventions, observations, and practices, which, since ancient times, have led to a remarkable progress and resulted in the effective treatments that are now taken for granted.

The recent practice of transfusion isn't the result of one man's effort; but, it is the glamorous consequence of many inventors and physicians of different eras and regions.

In our treatise, we tried to shed light on the most important events in the history of blood transfusion epic. We tried to follow the steps in the development of blood transfusion, from the ancient and medieval eras to the modern era. We conventionally divided the history of transfusion in the modern era to seven periods, according to the main concern of every period.

Although the major developments of blood transfusion were in the last sixty years, we can't ignore the contributions of the Ancient physicians who created the dream that has recently become true.

**Keywords:** Transfusion, Blood Bank, History of Medicine, Richard Lower, James Blundell, Karl Landsteiner.

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## Introduction

Man must have recognized that loss of blood was frequently associated with weakness and death. This was manifested by Greeks and Romans committing suicide by cutting their wrists. Blood was recognized as having numerous mysterious properties, including initially that of carrying both the mental and physical characters of its owner. Early attempts at replacing lost blood involved the drinking of blood by the patient.

The practicality of transfusion has, to some degree, paralleled and in some instances been the consequence of, developments in other sciences. The idea though of the theoretical beneficial effects of blood transfusion has been recognized for over three centuries. This older history is based on the traditional idea of blood as being the 'living-force' of the body.

## Blood Transfusion in the Ancient and Medieval Eras

One of the first writings relating to a 'transfusion' is contained in the seventh book of the epic poem **Metamorphoses**, which was written in 43 BC by the Roman poet **Ovid**.

The Arabic physicians practiced venesection, cupping and blood leech in order to treat diseases.

The famous physician **Al-Zahrawi - Albucasis** (936-1013 AD), in the thirty. Essay of his best work "*Kitab al-Tasrif*", described the method and indications of venesection and drew pictures of the Scalpels that he designed and used in venesection.

## Blood Transfusion in the Modern Era

It is conventionally divided into seven periods.

### I. First Thoughts of Blood Transfusion

One of the most frequently quoted candidates for this noteworthy honor is **Pope Innocent VIII** (1432-1492), **Giovanni Cibo**, who was reputedly 'transfused' sometime between 1490 and 1492.

Pasquale Villari (1827-1917), the Italian historian, claimed that the Pope had some sort of illness (in the light of present knowledge, this was probably chronic renal disease), that rendered him semi-comatose.

All three boys, who were selected as donors, apparently died shortly after the procedure, possibly as a result of air embolism, but there was no change to the Pope's condition.



**Pope Innocent VIII**

**Andreas Libavius** (1555-1616) imagined how blood was taken from the artery of one young man and infused into the artery of another old man. He described blood transfusion accurately and vividly enough, but he never transfused anyone.

### II. Blood Transfusion from an Animal to an Animal

**Francis Potter** (1594-1678) is thought by some to possibly be the first person to conceive of transfusion on a practical basis. In 1649 he attempted the procedure of transfusion between two chickens, though it is likely that because of the size of such birds, it probably proved unsuccessful.

The 'established' priority claim however for proposing and demonstrating the intravenous administration of medications (into the veins of dogs) is made by the British Dr (later to become Sir) **Christopher Wren** (1632-1723) who developed in 1656 an animal bladder attached to two quills 'needles' for this purpose.

**Richard Lower** (1631-1691) was the first person to give a blood transfusion to animals successfully. He did this, early in February of 1665, when he bled one dog almost to the point of death. Then he tied the artery, and transfused this dying dog from a larger dog-a mastiff-and revived the bled dog. He successfully did this three times.



**Richard Lower**

### III. Blood Transfusion from an Animal to a Man

In England 1666, **Richard Lower**, assisted by Dr Edmund King, transfused a 32 old man named Arthur Coga to improve his mind. Lower described the quills and silver pipes used to carry the blood between the carotid artery of the donor sheep and a vein of the recipient's arm.

Dr **Jean-Baptiste Denys** (1640-1704), a young French physician, read of Lower's experiments in the *Journal des Savants*. In 1667, Denys was asked to treat a 15-year-old boy, who had suffered from a fever for many months. Accordingly he was bled to the extent of about three ounces and received



**Richard Lower and Edmund King Transfused Arthur Coga in 1666**

in exchange nine ounces of blood from the carotid artery of a lamb. The boy had survived but he suffered a present-day indication of an incompatible transfusion reaction. Denys' second transfusion was performed on a 45-year-old man using a reported 20 ounces of lambs' blood and described the man as feeling stronger than before the transfusion. Following the transfusion of at least four individuals, Denys and his associate performed a further transfusion in 1668 to a 34-year-old mad man, called Antoine Mauroy. Denys removed ten ounces of blood from the vein of his right arm, and replaced them with five or six ounces of blood from a calf. Two days later, the man was transfused a second time.

This resulted in what is now recognized as a hemolytic transfusion response. Mauroy died the following evening. Mauroy's widow accused Denys and Emmerez of contributing to the death of her husband by the transfusion. Consequently, in 1678, an edict from the French parliament ruled transfusion to be criminal act if performed in France. This had repercussions

in London where the Royal Society rapidly washed its hands of transfusion as well. Finally, in 1679 the Pope joined the general outcry and also announced a ban on the procedure. As a result, the practice fell into general disrepute for more than a century and a half.



**Dr. Jean-Baptiste Denys Transfused Antoine Mauroy**

### IV. Blood Transfusion from a Man to a Man

**James Blundell** (1790-1877) had placed transfusion on a scientific basis and re-awakened interest in its use and he was also the first to transfuse human blood. Blundell initially advocated direct transfusion. He described transfusion by syringe in several papers, noting the necessity of removing air from the instrument before transfusion, as well as experiencing the problems of blood clotting. In 1818, Blundell, with the help of the surgeon **Henry Crine Noyes**, his niece's husband, transfused a 35-year-old man with what would now be called gastric carcinoma. Approximately 14 ounces of blood were administered by syringe in small amounts, from several donors, at intervals of 5-6 minutes. Despite temporary improvement in his condition, the patient died 56 hours later. His disease was incurable and nothing could really have been expected from the transfusion. Blundell then invented a rather strange instrument called an 'impellor', which was essentially a funnel and pump combined; a diagram of which appeared in his book, published in 1824.

Later, Blundell invented another instrument, the 'Gravitator'. He used his Gravitator in 1828 to make his first successful transfusion for a woman. She recovered from severe post-partum hemorrhage after receiving eight ounces of blood from Blundell's assistant during the course of three hours. This case was published in journal 'The Lancet' in 1829.

Blundell also actively encouraged his contemporaries to practice transfusion. For the most part, these were obstetricians who used the procedure in cases of postpartum hemorrhage.

### V. Establishing Transfusion Procedures

It is obvious that one of the first problems that had to be solved before blood transfusion could be placed on a practical footing was the prevention of blood coagulation. One of the first people to use an 'anticoagulant' additive was J. Neudorfer, who in 1860 recommended the addition of sodium bicarbonate as an anticoagulant.



**Blundell Performed the First Human to Human Successful Transfusion in 1828 using his Gravator**

Defibrillated blood was used by Sir **Thomas Smith** (1809-1881) who, in 1873, used the procedure in St Bartholomew's Hospital for in the first reported case of a transfusion to an infant (who was suffering from Hemolytic Disease of the Newborn).

During the final quarter of the 19th Century, frustration and discouragement with blood as a transfusion product resulted in a brief period of enthusiasm for the transfusion of milk, which was thought of as a 'blood substitute'.

The most outspoken advocate of milk transfusions was **T.G. Thomas**, who was an American physician discouraged by the use of blood because of its "tendency to coagulation". However, by 1880 increasing numbers of adverse reactions associated with the administration of milk, besides the introduction, between 1875-1880, of physiological saline solution for infusion use, with its associated convenience and lack of danger to the recipient, led to milk's general abandonment.



**The Impellor of Blundell Fixed to a Chair**

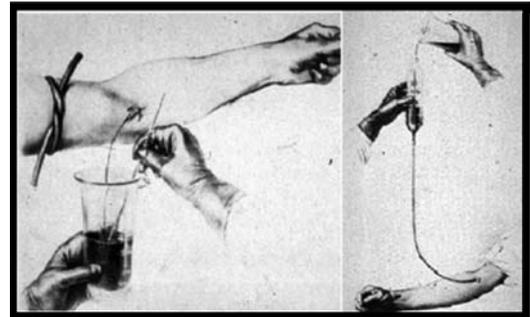


**Karl Landsteiner (1868-1943)**

The discovery (in 1900) of the human ABO blood groups by Dr **Karl Landsteiner** (1868-1943) in Vienna was the major step in understanding that these reactions were in fact due to what is now known to be blood group incompatibility (probably associated with intravascular hemolysis). From these early experiments he identified three groups, called A, B and C (C was later to be re-named O). The fourth much rarer blood group AB, was discovered a year later. He was awarded Nobel Prize in Physiology or Medicine in 1930.

At Mount Sinai Hospital in New York, American Doctor **Reuben Ottenberg** (1882-1959) performs the first transfusion using cross matching, and over the next several years successfully uses the procedure in 128 cases, virtually eliminating transfusion reactions.

**VI. The Impact of War**



**Richard Lewisohn's Method in performing blood Transfusion**

War was not an incidental factor to the developments in blood transfusion, as it created unprecedented demand for the life-saving fluid. In 1914, almost simultaneously, researchers **Albert Hustin** of Brussels and **Luis Agote** of Buenos Aires discover that adding sodium citrate to blood will prevent it from clotting. In 1915, the American physician **Richard Lewisohn** (1875- 1961), at New York's Mount Sinai Hospital, formulates the optimum concentration of sodium citrate that can be mixed with donor blood to prevent coagulation, but pose no danger to the recipient.

At the beginning of World War II, it had become the exclusive method of blood transfusion used in surgery and medicine.

Dr. **Richard Weil** determines that citrated blood can be refrigerated and stored for a few days and then successfully transfused.

In 1916, At the Rockefeller Institute in New York, **Francis Peyton Rous** and **J.R. Turner** used a glucose additive as a red cell energy supplement to improve red cell preservation. Thus, they develop a citrate-glucose solution that allows blood to be stored for a few weeks after collection and still remain viable for transfusion.

The voluntary blood donor scheme was pioneered in London in 1921 by the British librarian **Percy Lane Oliver** (1878-1944) following a request of the Red Cross service to provide two blood donors at short notice. Oliver's work attracted attention worldwide. The development of electrical refrigeration resulted shortly after in the first 'blood bank' being set up in Barcelona in 1936.

The idea of stored blood was originally used by the

Canadian doctor **Henry Norman Bethune** (1890-1939). He set up a mobile blood-transfusion service to rush bottled blood in refrigerated trucks to the wounded at the front in the Spanish Civil War.

**Bernard Fantus** (1874-1940), at Chicago's Cook County Hospital, established the first blood bank in the United States in 1937. Thus, he invented the name "blood bank".

Dr **Philip Levine** (1900-1987) co-discoverer with Karl Landsteiner and **Alexander Wiener** (1907-1976)<sup>32</sup> the 'Rhesus' (now termed Rh) blood group system factors, associated with the potentially fatal condition of Hemolytic Disease of the Newborn.

In 1943, acid-citrate-dextrose (ACD) anticoagulant preservative solution, was developed for the storage of blood by Australian doctor **John Loutit** and British Professor **Patrick Mollison** (1914-2003), which extended the vitality of blood units to 21 days.

Plasma fractionation was developed by **Edwin Cohn** (1892-1953) in 1944.

In 1945, the British Professor **Robin Coombs** (1921-2006) described anti-globulin testing, which is nowadays referred to as "Coombs Test". This test has formed the base of a large number of laboratory investigations in the fields of hematology and immunology.

## VII. Blood Transfusion in The Last Sixty Years



**Reusable Glass Bottles**

Most of the important developments in transfusion medicine have only been achieved in last sixty years. Blood was collected into reusable glass bottles in the first half of the twentieth century.



**Current Plastic Bags**

In 1949, trials of plastic bags were conducted by the American Red Cross. Plastic bags were disposable and, because of their flexibility, facilitated the separation of blood components.

ACD preservative solution was supplanted in 1957 by citrate phosphate dextrose (CPD), which extended the vitality of blood units to 28 days. CPDA-1 was developed in 1979 and extended the shelf time of blood units to 35 days. CPDA-2 (**Citrate Phosphate Dextrose Adenine**) was developed in the 1980s. It extended the shelf time of blood units to 42 days.

Dr. **Judith Graham Pool** (1919-1975) was an American physiologist at Stanford University. She is best known for the discovery of cryoprecipitation in 1965.

In 1969, **S. Murphy** and **F. Gardner** demonstrate the feasibility of storing Platelets at room temperature, revolutionizing platelet transfusion therapy.

In the late 1990s, there was a transition in terminology from Blood Banking to Transfusion Medicine.

From 1987 to 2008, a series of more sensitive tests are developed and implemented to screen donated blood for infectious diseases.

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# Health sustenance in Al-Qanun fit-tib Book

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## Summary

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Body Sustenance<sup>1</sup> had a special importance in Ibn Sina's<sup>2</sup> encyclopedia Al-Qanun fit-tib, as in other Islamic medical books. This important position appears through two points: first of which by direct statement that keeping the body health is advanced for healing (restoring) the ill body. Second through the long recommendations that deal with body sustenance and hygienic issues.

**Key words:** body sustenance, preventive medicine, Ibn Sina, Avicenna, hygienic issues, Islamic Medicine, Al-Qanun fit-tib.

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<sup>1</sup> keeping the health of the body.

<sup>2</sup> Ibn Sina (370-438): Avicenna, Abu Ali al-Husayn ibn Abdallah (979- 1037), the greatest Arab physician and philosopher of the East, born in Persia.

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## Introduction

The Muslim Physicians interested in prevention of diseases, and made it advanced to their treatment, and so Ibn Sina thought that sustenance is advanced to treatment of ill bodies, so his book Al-Qanun fit-tib contains recommendations that call for maintaining good health and taking into account the healthy conditions, and these notes are presented in two models: the first in chapters devoted to topics related to hygiene, and the second is the recommendations for maintaining good health lay in the body of his book, during his explanation of the disease and treatment plans.

### Health Keeping In Al-Qanun Fit-tib

**Causes of the diseases:** Ibn Sina refers at the beginning of the first part of his book to the importance of the causes of the disease, which are usually discussed in the chapters devoted to Health maintenance in the Arab-Islamic Medicine. It is one of the foundations of Arab-Islamic Medicine, so Ibn Sina singles out for these reasons, what he calls "the first sentence of the second instruction, which contains nineteen chapters that explain these reasons, where he refers to reasons divisions, and their description as humeral or complex or related to mood<sup>1</sup>, and others produced by matters from outside the core of the body, and he says that the effect of one reason may vary among the different bodies and different times. Then he cites reasons so-called changing, and starts to explain the air as the first reason, which is considered an important element, and

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<sup>1</sup> Mood: apervasive and sustained emotion that, when extreme, can color one's, while view of life. Dorland's Illustrated Medical Dictionary, W. B. Saunders, Harcourt Brace Jovanovich, Inc, 27<sup>th</sup> ed, 1988.

beyond being an important element of the bodies and souls to be an effective factor, through the processes of purification and recreation.

**Seasons and astrology:** Then he talks about the importance of succession of seasons, which affect the people through the change in their natures and moods, then he distinct between two definitions of the seasons: the doctor's definition and the astrologer's. And stresses the importance of knowing the difference between seasons and their diseases, to take the necessary actions to prevent bodies from associated diseases.

Then he refers that each season has a specific mood agrees with a group of people, but it is contrary to another, so it causes diseases to them, but if the nature of the season changes, it will cause disease to all people, and this is a general rule, about the impact of the seasons.

Then he talks about the moods of the seasons, and the diseases caused by each season, that are suitable for this season, with reference to the diseases that are caused by impact of overlapping seasons.

Then he talks about the changes that are taking place according to astrologic reasons (planets, and their excessive heating), and according to land property (heights, mountains, seas, wind and soil).

He assures that the knowledge about these matters are very important to know the most widespread diseases, how to prevent, and treat this diseases when they take place.

**The effects of air and residencies:** Then he defines the good air, and the factors that spoil the air, and the places where the air is good, and the impact of spoiled air on the bodies.

Then he describes the effects of the air according to its quality: the impact of hot air is different from the influence of moderate, and the influence of cold or wet or dry, and explains the causes of air disturb and its impacts on the soul and body.

He refers to some changes in air quality, such as the transition to be spoiled, and then talks about the impact of the wind according to their direction.

Then he speaks about the conditions of houses, and the residential factors that affect the bodies: the altitude, the nearby mountains, the nature of soil, being well watered or deficient in water, and the surrounding trees, minerals, and cemeteries and corpses. Then he states rules for selection of houses and how to prepare the residences, and stresses the need to know the diseases and health of the people of the country, and the conditions of water and windows and doors and directions of wind, and the entry of the sun.

**The effect of movement.** Then he talks about the effects of movement on the human body according to its severity and amount, the accompanying dormancy, and then describes the impact of each type.

When talking about sleep he likens the sleep to dormancy, and the wakefulness to movement.

It is noteworthy that the psychological movements followed or accompanied by movements of the spirit, which is directed either outward or inward.

**The effects of food and drink.** The foods and drinks as Ibn Sina says affect the body three ways: quality, elements, and the nature.

And he says that the water is a corner, and that does not turnover, because it carries food, and it is not a nutrient. Then he talks about the differences of the water, and attribute that to the water-born particles and their amounts.

Later in other chapters he addresses the conditions of healthy food, in terms of the type of food, its time, and its suitability to the desire, taking into account not to be subjected to severe hunger, and not filled to the point of satiety.

Then he states the order of the food must be kept in mind, and talks about eating habits. Then talks about drinks, the good from the water and snow, and how to reform the spoiled water, and then says that the good of the drink is the white soft drink.

And then talks about the quality of water, depending on the nature of its valley, direction, and its deposits.

**Retention and emptying and other procedures.** Then he explains three reasons of retention: the weakness of the driving force, or intensity of detent force, or weakness of digestive power. And speaks about the impact of the emptying and congestion in the body.

In other places he talks about the procedures that are applied to the body, such as the types of bathes, and massages. Then he talks about the physical characteristics desired in the bathroom, the benefits of the bathing, and explains its harms, and then he talks about the exposure to the sun and the warm sand and its effects in drying wetness of the skin.

In addition to these chapters there are many other independent chapters and notes about emptying, although not listed in the maintenance of health issues such as injections and phlebotomy and cupping, leeching<sup>2</sup> (hirudinization<sup>3</sup>), emptying, where he speaks about ten things must be taken into account during emptying to be right.

Then he provides a set of rules for the use of laxatives and nauseous drugs, including food habits and the amount, the ways, and times of food. And he devotes a chapter about the diarrhea and its laws, a chapter about the management of the overabundant diarrhea, a chapter about the management of who used laxatives drug and stayed without diarrhea. A chapter about thing must be done by the vomiting person, a chapter about the benefits of vomit, another about the harmful effects of excessive vomit, and a chapter about management of overabundant vomiting.

Then he devotes a chapter about enema, one of the bleed and cupping, and leeching.

## The third art

Then he devotes the third art for the practical issues in the maintenance of health, this art consists of a chapter and five instructions, each of them contains several chapters.

In the lonely chapter in this art, addressed (**in the cause of health and illness and the necessity of death**), he explains the reasons for health and disease, and summarizes the reasons that must be taken into account when looking for health keeping, and begins to explain hygiene issues in special groups according the following order:

He begins to explain how to deal with **newborns**, especially the actions necessary at the time of the birth, and he advises the breast feeding from the mother. Then he cites the conditions that must be available in nursing woman, and how to manage the nurse when she needs.

Then he ensures about taking care of **boy's** ethics, for six years of his age. Then he talks about keeping adult's health, and defines sport and its importance in helping the body emptying. Then he worthily recommends that the best time for the sport is after digestion of former food, and with empty stomach.

2 Leeching: the application of leech for withdrawal of blood; formerly used extensively in the treatment of various disorders; called also *hirudinization*.

3 Hirudinization: 1-. The process of rendering the blood noncoagulable by the injection of hirudin. 2- the application of leeches, leeching.

And then devotes six chapters to the management of aged people, who are classified as weak bodies like **pregnant women** and newborns, which are discussed above.

**Managment the old peoples.** Then he starts by summarizing the general principle in managing the old peoples: “the use of moisturizing and heating factors like prolong sleep, staying in bed more than youngest, and the nature of the food.

The food is very important in keeping health of elders, so he talks about the ways and the necessary amount of food that must be given to them, recalls of recommended foods, advises to avoid others, and recalls recommendations for the selection of the appropriate drinks, and how to handle.

Then he talks about the obstruction, massage, and sports of the old people.

And there are miscellaneous issues of health keeping, such as the speaking about the importance of **massages**, which divided by the auther into rough, soft, abundant, and moderate, and he speaks about their act on the body. Then he speaks about the bathing and its necessity for the person who needs moderate temperature and wetness, and states the conditions and how to use cold water washing, with massage, sport, and anointment, and the gradual progression to use it.

Then he discusses the term “**sleep**”, and mentions the benefits of moderate sleep, the damage of daytime sleep, the benefits of sleep at night, and the best position to sleep.

Then he speaks about strengthening of the weak members, and growing their sizes. Then about the **fatigue and stretching** the body, and yawning, and explains the treatment of different kinds of fatigue, and talks about the conditions resulting from sports, like condensation, rarefaction, and excessive Hydration. Then he speaks about management of bodies of bad moods.

**The management according to moods.** After that he talks about the management of the body whose mood is good, and devotes five chapters about this.

The above is talking about the management of the bodies whose moods are moderate without any alteration or excessive in one of the qualities, then he devotes instruction IV containing five chapters to the management of bodies that suffer from mood change.

He starts with the management of the bodies with increased temperature, then with increased cooling, then with rapid acceptance, and talks about fattening of the slim, and sliming of the obese.

Then he devotes the fifth instruction to what are called **transitions**, and speaks about the seasons.

**The management of travelers.** After the end of seasons study he devotes eight chapters about the management of travelers, and mentions at first a group of symptoms that warns the diseases, and must be in mind, such as long lasting palpitations, nightmare, dizziness, and others.

Then he states a general rule for travelers is that the most important factor that affects the traveler is the **change of habits, fatigue, and tiredness**.

Chapter III is devoted to the prevention of sun heat, and the management of who travels in the sun. And he devotes a chapter to the management of traveler in the cold. Where he recommends that the traveler to massage his limbs until heated first, and then to coat them by warm aromatic ointment. And he advises to cover face with sticky things, which conserve its color.

Then he assures that the different water causes many diseases to the traveler, and that is most important than the different food and, therefore, he emphasizes the prevention of this diseases be managing the water, and reminds the different methods of purifying the water.

Then he states the symptoms associated with **sea travel** like dizziness, nausea, and vomiting, provides recommendations for those who suffer them, and describes the medications and foods for the treatment of such cases.

The previous chapters are not the only chapters about maintaining the health in Al-Qanun fit-tib, but there are a lot of recommendations about the subject in this book, even without mentioning that it is related to the conservation of health. There are issues known to be related to the maintenance of health, and Ibn Sina considers without reference to this relation, like the chapter about **sleep and coma**, in which he presents the definitions of natural sleep, hibernation, abnormal sleep, and the treatment of each type of hibernation, in addition to a chapter about sleep and staying awake at night.

During the discussion of eye diseases he writes a chapter about **conservation of the health of the eye** and what hurts it. And during discussion of the teeth in the seventh art, the author devotes a chapter about **keeping dental health**, and talks about eight things must be taken into account to keep healthy teeth. There are also chapters dedicated to things related to the maintenance of health like chapter about **things suitable to stomach**, in which he considers the suitable food to the stomach, and the best measures for most stomachs, and laxatives, and a chapter about things that cause damage to the stomach, where he discusses the damage of satiety and filling, and some types of food, wind and some medications and foods that are harmful to the stomach.

Ibn Sina talks about other issues related to the maintenance of health like a chapter called (chapter about the **benefits of sexual intercourse**), and another about the (sexual intercourse and its harms, conditions, and bad types), and another chapter titled (chapter about times of sexual intercourse) states the conditions of intercourse and the proper times in relation to eating and sleep and other conditions, to avoid damages of the sexual intercourse.

There is another important issue about the maintenance of health that is the maintenance of the health of pregnant women, which comes under the heading of **“holistic management of pregnant women”**, in which he talks about things must be taken into account in pregnant women like softening of the nature, moderate sports, walking, bathing, movements, intercourse, foods and medications of pregnant women, the management of the women who have recently given birth, the absence of desire, and the management of vomiting, palpitations, swelling of feet, and abortion.

**Infectious diseases.** There is also a special chapter entitled “the epidemic fevers and similar diseases” in which he speaks about smallpox and measles, and he says that they are caused by particles that change the characteristics of the air, and this explanation of the fever is similar to that provided by the other physicians of the Arab Muslims, which suggests that there is a holistic awareness about air-borne particles that cause disease.

When he speaks about smallpox he says that its occurrence is higher in boys, and it is in spring, more than in winter, and he explains the signs of smallpox.

There is another topic about maintenance of health in the chapter entitled feeding of convalescent, which draws attention to special qualities of the food .

## Results and discussion

1. There is a main principle in the Islamic Medicine: “keeping health of the healthy body is advanced to the treatment of ill one”, and this is advanced viewpoint, which is clear through this book and other books of Islamic Meicine, and this indicates the great advancement in Islamic Medicine.
2. Ibn Sina assures the importance of the outer causes or the environmental causes in occurrence of the diseases, so they are essential factors in preventing the diseases, and must considered in any researche about keeping the health of the body.
3. Ibn Sina assures the multiple factor cause of the disease, and that there are no one single cause for disease, but there are external factors, and internal factors related to

the nature of the body, and it’s mood, and the style of nutrition, drinking, age, and many other causes.

4. Ibn Sina assures that the infectious diseases are transmitted by air-born particles, and that we can prevent the spreading of infectious diseases by avoiding the direct contact with the ill persons, and this is a main principle in preventive medicine.
5. Ibn Sina directs special attention to specific groups who are with high risk to special diseases, such as newborn, pregnant women, old persons, travelers, and others, and this also forms a branch of preventive medicine.
6. There are many procedures must be done in order to keep the balance between the input and output of nutrients, and this is very important in keeping body health; and these procedures include the habits and nature of the food, and emptying procedures such as diarrhea, vomiting, bleeding, cupping, and others.

## Conclusion

From all of clues above it becomes clear to us the importance that Ibn Sina gives to health keeping subjects, like other Arab and Muslim physicians, and this appears through prolonged texts about hygiene, the advanced vision of Arabic and Islamic Medicine, which advances prevention to treatment, and emphasizing the view that have emerged in many of the medicine books, which says that there are particles suspended in the air and water, cause diseases, and that we can prevent infection by getting rid of these impurities, and the removal of their sources, and this is consistent with the data of modern microbiology, and to this the assertion that there are other factors intervene in the incidence of the disease, some of these factors related to body or to food and eating habits, or psychological conditions of the patient. It is also evident in full awareness of the importance of clean environment, housing, and the so-called attention today to improve environmental conditions for maintaining human health. And this reflects the great progress and advancement of the Arab and Islamic Medicine.

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# Comments on a Book of Hulusi Behcet with the Name of the Therapy of Oriental Sore with Diathermy

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## Summary

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Prof.Dr.Hulusi Behçet (1889-1948) is a famous Turkish physician. He translated many foreign articles into Turkish to help the education of new generations and published original case reports in the international reviews in order to make contact with foreign countries. Moreover, he published many books. He also studied on Cutaneous Leishmaniasis. Moreover, Hulusi Behçet also published 126 national and international articles between 1921-1940. Fifty-three of those appeared in prestigious European Scientific Journals. Prof. Dr. Hulusi Behçet died on March 8, 1948.

We know that Cutaneous Leishmaniasis which is formed by parasites belonging to Leishmania genus and is infected with vector phlebotomus can be seen in many regions of the world and has been known in Mediterranean Region and Middle East for centuries. But, the first scientific knowledge about Cutaneous Leishmaniasis' Epidemiology was seen after the eighteenth century. Many Turkish researchers like Celal Muhtar, Hulusi Behçet and some foreign scientists investigated some subjects about this disease. Leishmaniasis (Oriental Sore) was another disease which Dr. Behçet worked on, beginning in 1923. He wrote many articles about it and succeeded in its treatment with diathermy. He first described "the nail sign" appearing by the removal of the crust of an Oriental Sore. Hulusi Behçet wrote an important book with the name of the Therapy of Oriental Sore with Diathermy (Şark Çıbanının Diyatermi İle Tedavisi in Turkish) . This book is 23 pages. In this book , the therapeutical ways of Oriental Sore and some cases are present. Moreover , Dr.Behçet mentions diathermy in his book.

In this paper ,Prof.Dr.Hulusi Behçet's biography and his book with the name of the Therapy of Oriental Sore are stressed and some comments are pointed out.

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## Hulusi Behçet's Biography

**Prof. Dr. Hulusi Behçet** is a famous Turkish physician. He described Behçet's Disease. Moreover, he studied many topics on dermatology. Dr. Hulusi Behçet who was born in Istanbul on February 20, 1889 got his primary education in Damascus because of his father's business there.

His father, Ahmet Behçet, was a well known businessman and his mother, Ayşe Behçet, was also Ahmet's cousin. Hulusi Behçet lost his mother when he was a child and he was raised by his grandmother. His childhood was difficult for him and this gloomy state of mind had a detrimental influence on his whole life, leading him to become very introverted.

After the Turkish Republic was established and the "Family Name Law" was accepted, his father Ahmet Behçet, who was among the friends of Mustafa Kemal Atatürk, the founder of Turkish Republic, received private permission to use his father's name Behçet which had the meaning of shining, brilliant as a family name(1).

Hulusi Behçet learned French, Latin and German as a native speaker and his knowledge and curiosity led him to decide to become a medical doctor and he never regretted this decision.

At this time, because there was no civil medical faculty, Dr. Behçet pursued his education at Gülhane Military Medical Academy. He was 16 years old when he had started at the Academy, graduating at the age of 21 in 1910. After he had become a medical doctor, he specialized in dermatology and venereal diseases at Gülhane Military Medical Academy and he completed his specialization in 1914. He served at the Edirne Military Hospital during 1914-1918 as a specialist in dermatology and venereal diseases and an assistant to the head of the hospital. After the war between 1918-1919, he went to Budapest and then to Berlin's Charite Hospital to improve his medical knowledge. He had the opportunity to meet some famous colleagues at that time(2).

He never thought of living in Europe, however, and after his return to Turkey he worked as a free medical doctor. Then in 1923 he was appointed as the head physician at the Hasköy Venereal Diseases Hospital. Six months later, he moved to Gureba Hospital, as a dermatologist. As well as his position as a professor at the university, he worked in a private consulting office.

In 1923, the year of the establishment of the Turkish Republic, he married Refika Davaz, who was sister of one his patients. His wife was the daughter of a famous diplomat, which led him to accept many patients from high society of Istanbul. He had a daughter, Güler, from this marriage and she now live in England working as a decorator(3).

After the establishment of the Turkish Republic, many social reforms were enacted. In 1933, the old-fashioned medical college (Dar-ul-fünun), which did not approve of scientific progress and insisted on religious principles, was abolished and the University of Istanbul was established. During this period of reform, the scientific vision and knowledge of academic staff was reevaluated and some were dismissed. Dr. Behçet stayed and he set up the department of dermatology and venereal diseases which remains the base of dermatology. At that time, the dermatology department, which had been at Vakıf Guraba Hospital, moved to a place on campus which had once been a tobacco depot. It still houses the Department of Dermatology(4,5).

Dr. Behçet was the first Turk who received the title of professor, in Turkish academic life. His curiosity for investigation, writing and discussion were his intellectual characteristics. Starting from the early years in his profession, his participation in national and international congresses with original articles was very apparent, publishing many articles in his own country and abroad. The famous German pathologist Prof. Schwartz called him a scientist who was well known in the world. He translated many articles into Turkish and he published original case reports in international reviews in order to make contact with such countries as Korea. He had been interested in syphilis since 1922 and he had published many international articles on its diagnosis, treatment, hereditary properties, serology and social aspects.

A part of his published work was concerned with parasitosis. In 1923, he described the etiologic agents of "gale cereal" in Turkey. He had dealt with superficial and deep mycoses and their treatments. Due to his observations, he described the dermatitis of fig (dermatitis figus carica) in 1933. In 1935, at the Dermatology Congress in Budapest, he was honored for his studies on mycosis(6).

He was also in the publishing vanguard to improve Turkish medicine and he was responsible for the first dermato-venerology journal of Turkey called "Turkish Archives of Dermatology and Syphilology" in 1924. In 1939, he was elected as a correspondent member to the German journals "Dermatologische Wochenschrift" and "Medizinische Wochenschrift"(7).

The most important work that Dr. Behçet brought to Turkish medicine was the monograph published in 1940 called "Clinical and Practical Syphilis, Diagnosis and Related Dermatoses". Every page of this book contains an aspect of syphilis and the footnotes, provides a wealth of detailed information about the differential diagnosis of other skin diseases. As a result, scientists had the chance

to learn about syphilis and dermatology at the same time. Dr. Behçet continued as the Head of the Department of Dermatology and Venereal Diseases until 1947. In 1939, he received the degree of "ordinarius".

The most important discovery of Dr. Hulusi Behçet is Behçet's Disease. His first observations on Behçet's disease started with a patient he met between 1924-1925. This patient had been consulted for 40 years in Istanbul and Vienna several times. According to his symptoms, the illness had been diagnosed as "aphte recidivante chronique", "erythema nodosum", "sarcoide de Boeck" or "erythema exudativum multiformis". From the etiology, syphilis and tuberculosis were suspected. Austrian doctors had called an unknown protozoal disease. Ophthalmologists had described the ocular symptoms as "iritis recidivante a l'hypopion". Iritis might be the result of syphilis, tuberculosis or streptococcal or staphylococcal infections. After several iridectomies, the patient had completely lost his vision. Dr. Behçet continued to follow up the patient for many years.

In 1930, a woman suffering from irritation in her eye and with lesions in her mouth and genital regions was referred to Dr. Behçet's clinic and told him that these symptoms had been recurring for several years. Dr. Behçet consulted the woman until 1932 and tried to diagnose the etiological agent for tuberculosis, syphilis or mycosis etc. by biopsy and other laboratory analysis, but he could not find anything. The prominent ophthalmologists Murat Rahmi and Iggescheimer had evaluated the ocular symptoms as "episclerite" and "conjunctivitis".

Following those two patients, in 1936 a male patient from a dental clinic with oral pemphigus like wounds, acneiform signs on the back, scrotal ulcer, eye irritation, evening fever, and abdominal pain was sent to the clinic. After the consultation, nothing except a dental cyst was found. Dr. Behçet thought the recurrent symptoms might be due to a virus. He referred the patient to Prof. Braun who did a viral investigation and found some corpuscular structures. Dr. Behçet, with the symptoms of these three patients whom he had followed for years, then decided that they were the symptoms of a new disease and in 1936, he described the situation in a meeting and this was published in the "Archives of Dermatology and Venereal Disease"(8).

In 1937, he wrote his ideas in "Dermatologische Wochenschrift" Journal and in the same year he presented it at the meeting of the Dermatology Association of Paris. At this meeting, he declared that a dental infection might cause the etiology of the disease.

In 1938, Dr. Niyazi Gözcü and Prof. Frank reported two new cases with the same symptoms. In 1938, Belgian scientists Weekers and Reginster, and the Italian Franchescetti reported some patients with similar symptoms. Therefore, European doctors had accepted the appearance of a new disease. Ophthalmologists had begun to accept "Behçet's Disease" but dermatologists kept denying the new disease, insisting they could be symptoms of pemphigus, ulcus vulvae acutum, dermatomyozitis, aphthosis of Neumann, erythema exudativum multiforme, etc. While that debate was taking place, some new cases were reported from Belgium, Austria, the U.S., Japan, Denmark, Switzerland and Israel. When they had been published, the whole world finally came to accept that they had confronted with a new disease. In 1947, at the suggestion of Prof. Mischnern of the Zurich Medical Faculty during the International Medical Congress of Geneva, this finding of Dr. Behçet's was named "Morbus Behçet". Though it was evaluated in the early days as "Behçet's Syndrome", "Trisymptom Behçet", and "Morbus Behçet", today the disease is universally called Behçet's Disease in medical literature. In order to give the disease its place in medical literature, credit should go to Niyazi Gözcü, Iggescheimer, Murad Rahmi, İrfan Başar, Naci Bengisu, Marchionini, Braun and Obendorfer from Turkey, Weekers, Reginster from Belgium, Franchescetti from Italy, Jensen Tage from Denmark, Sulzberger & Wise from U.S. who all supported and participated in the work. ü Hulusi Behcet died from a sudden heart attack on March 8, 1948.

Prof. Dr. Hulusi Behcet translated many foreign articles into Turkish to help the education of new generations and published original case reports in the international reviews in order to make contact with foreign countries. Moreover, he published many books. Moreover, Hulusi Behcet also published 126 national and international articles between 1921-1940. Fifty-two of those appeared in prestigious European Scientific Journals.

Hulusi Behçet interested deeply in the arts, particularly literature

Among his colleagues and close friends were Prof. Dr. Fahrettin Kerim Gökay, Ord. Prof. Dr. Murad Rahmi, Prof. Dr. Muzaffer Şevki, Prof. Dr. Gougerot and Prof. Dr. Cartoud.

In 1975, many years after his death, he was honored with the TUBITAK Scientific Award. Several classes, laboratories and libraries had been named in his honor; and masks and statues have been made in his likeness. A new generation of scientists continues to carry on the excellent work he began, working with foundations and units that bear his name. In national and international congresses, events like "Korea-Turkey Behçet Days" are taking place. The results of these studies are published every year in various journals.

In 1980, on the initiative of one of his students, Dr. Ali Arban, a stamp was published in his commemoration, about which an article was published in "The Journal of the American Dental Association". His biographies were published in the "Journal of Philatelic Society" and in the "Medical Bulletin of the United States Army, Europe and Seventh Army's Medical Bulletin".

In 1982, he was awarded with the Medical Award of the Turkish Republic by Eczacıbaşı Foundation of Scientific Investigation. In October 1996, the Turkish mint released commemoration coins for Dr. Behçet during the National Dermatology Congress. This silver coin designed by Sculptor Suat Özyönüm, was presented in Portugal. The coin is still presented by the Cerrahpaşa Medical Faculty, Dermatology Department and by the Turkish Dermatology Association.

The life story of Hulusi Behçet, his curiosity for investigation, his delicate observation ability and his patience resulted in a gift to medicine, a mysterious new disease which is focus of wide research and interest to this day.

In 1937, Hulusi Behcet, a Turkish dermatologist, described a disease associating uveitis (inflammation of the uvea, the middle coat of the eye comprising the choroid, ciliary body, and the iris) with genital and oral ulcers. Fifty years later, Behcet's disease has expanded and is now recognized as a chronic, multisystem disorder with vasculitis (inflammation of blood vessels) as its underlying pathological process.

### **Comments on the Book of Hulusi Behcet with the Name of the Therapy of Oriental Sore with**

### **Diathermy (Haleb veya Şark Çıbanlarının Diyatermi ile Tedavisi in Turkish)**

Hulusi Behcet's book with the name of the Therapy of Oriental Sore with Diathermy (Haleb veya Şark Çıbanlarının Diyatermi ile Tedavisi in Turkish) is a monography of 23 pages and is with the date of 1925. In this book, some medical cases are given and commented. According to Behcet: "Oriental Sore is seen in Baghdad, Diyarbakır, Aleppo, Sivas, Yemen etc. Its therapy continues one year and a good result cannot be obtained every time." (21,22,23,24).

We know reports of a disease simulating the type of lesion seen in cutaneous leishmaniasis were first made in 1756 by Hasselquist and Russel. Also in the middle of the nineteenth century, the same type of lesion was described by French medical officers in Africa. Laveran demonstrated in 1880 that this condition could be transmitted and that a fly was an important factor. In 1885 Cunningham described a

histologic picture and stated that there were bodies within the cells which were circular to elliptic in shape. Ryan, in 1886, also described some cells which were filled with bodies which he regarded as cocci with capsules. He attempted cultures in human blood but obtained no results. It was not until 1903 that Leishman and Donovan made independent reports describing the protozoan. During the same year Wright in Boston described the organisms found in the first case of cutaneous leishmaniasis reported in this country. Since then there have been approximately 30 cases reported in the United States, all of which have been exogenous. In only 1 instance has the disease in cases reported in this country been proved by actual culture of the flagellate from the lesion. Packchianian in 1945 reported 2 cases in which the disease was actually proved by culture; his cases were also exogenous, and were of American soldiers who had returned to the United States from the Near East.

In this book ,Behcet specified that:” The ‘tin-tack’ sign (TTS) was the appearance of horny processes that project from the under-surface of a crust. Although it was a well-known feature of discoid lupus erythematosus it might be also seen in other crusted lesions particularly in cutaneous leishmaniasis.” So, Hulusi Behçet mentioned the tin-tack sign for the first time in the world. Leishmaniasis (Oriental Sore) was another disease which Dr. Behçet worked on, beginning in 1923. He wrote about it in many articles and succeeded in its treatment with diathermic. He first described “the nail sign” appearing by the removal of the crust of an Oriental Sore in 1916. To Behcet, this symptom was the most important sign of oriental sore . Oriental Sore was diagnosed both microbiologic analysis of Leishmaniasis and nail sign. A Turkish physician, Abimelek mentioned in his book named Discuss on Oriental Sore (Cit Leishmaniose’ları Hakkında Münakaşa Münasebetiyle in Turkish) with the date of 1934 that Behcet described nail sign in Oriental Sore for the first time in the world(25). Moreover, The paper of Alfred Marcionini and Kemal Turgut dated 1944 with the name of Essays on the Pathology ,Clinic and Treatment of Oriental Sore in the Middle Anatolia(Orta Anadolu’da Görülen Şark Çıbanlarının İntişarı ,Patojenisi,Klinik ve Tedavisi Hakkında Tecrübeler in Turkish) gave some knowledge about the Oriental Sore in the Middle Anatolia. To this paper, Oriental Sore was named as Diyarbakır Çıbanı(Sore), Mardin Çıbanı ,Urfa Çıbanı etc .to the cities of Turkey. These physicians and all the world also accepted that Hulusi Becet described the nail-sign in the oriental sore for the first time in the world.

We know that there are a number of types of protozoa which can cause leishmaniasis. Each type exists in specific locations, and there are different patterns to the kind of disease each causes. The overall species name is *Leishmania* (commonly abbreviated L.). The specific

types include: *L. Donovanii*, *L. Infantum*, *L. Chagasi*, *L. Mexicana*, *L. Amazonensis*, *L. Tropica*, *L. Major*, *L. Aethiopica*, *L. Brasiliensis*, *L. Guyaensis*, *L. Panamensis*, *L. Peruviana*. Some of the names are reflective of the locale in which the specific protozoa is most commonly found, or in which it was first discovered.

### Localized cutaneous leishmaniasis

This type of disease occurs most commonly in China, India, Asia Minor, Africa, the Mediterranean Basin, and Central America. It has occurred in an area ranging from northern Argentina all the way up to southern Texas. It is called different names in different locations, including Chiclero Ulcer, Bush Yaws, Uta, Oriental Sore, Aleppo Boil, and Baghdad Sore(8).

This is perhaps the least drastic type of disease caused by any of the *Leishmania*. Several weeks or months after being bitten by an infected sandfly, the host may notice an itchy bump (lesion) on an arm, leg, or face. Lymph nodes in the area of this bump may be swollen. Within several months, the bump develops a crater (ulceration) in the center, with a raised, reddened ridge around it. There may be several of these lesions near each other, and they may spread into each other to form one large lesion. Although localized cutaneous leishmaniasis usually heals on its own, it may take as long as year. A depressed, light-colored scar usually remains behind. Some lesions never heal, and may invade and destroy the tissue below. For example, lesions on the ears may slowly, but surely, invade and destroy the cartilage which supports the outer ear(9).

### Diffuse cutaneous leishmaniasis

This type of disease occurs most often in Ethiopia, Brazil, Dominican Republic, and Venezuela(10).

The lesions of diffuse cutaneous leishmaniasis are very similar to those of localized cutaneous leishmaniasis, except they are spread all over the body. The body’s immune system apparently fails to battle the protozoa, which are free to spread throughout. The characteristic lesions resemble those of the dread biblical disease, leprosy.

### Mucocutaneous leishmaniasis

This form of leishmaniasis occurs primarily in the tropics of South America. The disease begins with the same sores noted in localized cutaneous leishmaniasis. Sometimes these primary lesions heal, other times they spread and become larger. Some years after the first lesion is noted (and sometimes several years after that lesion has

totally healed), new lesions appear in the mouth and nose, and occasionally in the area between the genitalia and the anus (the perineum). These new lesions are particularly destructive and painful. They erode underlying tissue and cartilage, frequently eating through the septum (the cartilage which separates the two nostrils). If the lesions spread to the roof of the mouth and the larynx (the part of the wind pipe which contains the vocal cords), they may prevent speech. Other symptoms include fever, weight loss, anemia (low red blood cell count). There is always a large danger of bacteria infecting the already open sores(11,12).

### *Visceral leishmaniasis*

This type of leishmaniasis occurs in India, China, the southern region of Russia, and throughout Africa, the Mediterranean, and South and Central America. It is frequently called Kala-Azar or Dumdum fever.

In this disease, the protozoa uses the bloodstream to travel to the liver, spleen, lymph nodes, and bone marrow. Fever may last for as long as eight weeks, disappear, and then reappear again. The lymph nodes, spleen, and liver are often quite enlarged. Weakness, fatigue, loss of appetite, diarrhea, and weight loss are common. Kalaazar translates to mean "black fever." The name kala-azar comes from a characteristic of this form of leishmaniasis. Individual with light-colored skin take on a darker, grayish skin tone, particularly of their face and hands. A variety of lesions appear on the skin (13-14).

This famous physician mentioned that some drugs such as Neosalvarsan or carbonic acid couldn't treat it. But, to Behcet, diathermy therapy was the best way. Behcet mentioned diathermy in every page of his book. To Behcet: "Diathermy method is applied in developed cities and good results are obtained." Behcet treated some leishmaniasis cases with this way from 1920 to 1922. In this book, 4 cases are given. One of them was the son of a merchant from Adana. This patient was 19 years old and traveled to Syria for the trade occasionally. Ulcers were located on his right neck and these were combined in time and became in the size of silver coin (mecidiye). Other doctors couldn't treat this patient.

In this case, Hulusi Behcet determined Leishmania by preparing culture and diagnosed this disease as oriental sore.

Moreover, in his book, Hulusi Behcet wrote that Dr. Resat Rıza and Mustafa Bakar prepared Leishmania Tropica cultures and this research was published in *Gulhane Seririyatı Journal* in German. In this first case, Hulusi Behcet examined microorganisms by ultramicroscope and saw flagellums. He informed about their dimensions.

So, he applied diathermy to his patient. Hulusi Behcet accepted diathermy as the best therapy.

The second case of Hulusi Behcet was a servant girl. She was 23 years old. Oriental sore was seen on finger of right hand and left cheek. It was of a dull red color and was inflammatory, quite tender and painful. Hulusi Behcet also diagnosed this case as oriental sore.

In his third case, Hulusi Behcet treated a porter from Diyarbakır. He was 42 years old. Sore was on his right eyebrow and left cheek. The fourth case belonged to a girl. She came from Tahran to Istanbul. She was relative of Iran Emperor. A deep sore was on her right cheek. Behcet also treated this case with diathermy.

Famous Turkish physician Behcet gave some knowledge about the discovery of microorganisms and their names. Behcet mentioned that American scholar Wright named this disease's microorganism as Helcosome tropicum at that time and R. Ross gave the name of Leishmania tropicum or furunculose to it. But, afterwards, Leishmania Donovanii was known as its microbe.

Moreover, Behcet gave some knowledge about Leishmania kinds in his small book: "Leishmanias are in two forms: Forms with flagellums and without flagellums. Two kinds of Leishmanias are present. One of them is Leishmania Donovanii and another is Leishmania tropica L. We also know Leishmania Americana. Leishmania Donovanii also causes Kala-azar.

Hulusi Behcet also gave other useful knowledge in his important book. Oriental Sore was seen in India, South Asia, Mediterranean Sea Region, North Africa, Crete and Greek Islands, Adana etc. Oriental Sore was named Halep (Aleppo), Nile, Tahran, Isfahan, Palestine, Ankara and Diyarbakır sores. Hulusi Behcet mentioned epidemiology of this disease. Especially, Oriental Sore was infected from animals to dogs, monkeys, mice.

Hulusi Behcet also mentioned the characteristics of oriental sore. To Behcet: "On an average a fully developed Oriental sore is an inch or so in diameter. While there is often but one, there may be several or more distinct and sometimes quite widely separated formations. An Oriental Sore, when developed, is of a dull red color, is usually of sluggish nature throughout its course, unless constantly knocked, irritated, or having added an active pyogenic factor, when it may become much more inflammatory, and quite tender and painful. The favorite regions are the face, hands and forearms, and legs, but no part is exempt (15,16).

The ulcer, as remarked, is usually rather sharply cut, frequently oblong and irregular in shape, with commonly some elevation and in filtration of the surrounding border;

the latter may or may not be undermined. It may discharge but slightly, so that it is continually spreading, patch, with smaller lesion and older lesion on forehead covered with an adherent dry scab; or it is forever discharging abundantly a pale yellow, watery pus, which adds to the discomfort of the for some patient. After attaining a variable size the ulcer may remain stationary for some time before the reparative process begins. In some cases, however, the ulcer continues to extend, and may finally involve an area of several inches or more, and persist; such instances doubtless furnishing some of the examples of so-called "endemic ulcer," "tropical ulcer," etc(17,18). As a rule, however, after a variable period, of from two or three months to a year or more, healing, sometimes more or less interrupted, sets in; and this may be effected under the crust. In some cases the ulcer is still extending peripherally whilst healing is progressing centrally. As intimated, the character of the scar varies; it may be slight or almost nil in some instances, whilst in others, more particularly when about the face and joints, be extremely pronounced and disfiguring, and if contraction occurs can give rise to considerable deformity. In fact, the character, features, course, and cicatrix of the malady show wide variations.<sup>1</sup> There is no systemic involvement, but occasionally the usual accidental complications of such ulcerative processes are noted, such as lymphangitis, erysipelas, and the like.

Moreover, Behcet gave some knowledge about some ways used in oriental sore therapy. According to Behcet, arseno benzol and salvarsan couldn't treat oriental sore. Neosalvarsan was good for syphilis. Famous physicians, Resad Rıza and Abdülkadir Bey accepted this condition. The best method was the diathermy. This was a apparatus with electric. Namely, electric was applied to the sore. But this apparatus was present in the modern cities of Turkey at that time. To Behcet, in the other cities of Turkey, frozen carbonic acid was used for the therapy. But, he preferred diathermy therapy more than frozen carbonic acid.

Hulusi Behcet applied diathermy by anaesthetizing his patients and the patient healed in ten or twenty days. So, he advised application of diathermy to every physician in his book.

Hulusi Behcet gave a paper on nail sign of oriental sore in 1932 .M. Mayer and Ernst Nauck also accepted Behcet's thoughts on this topic.

Hulusi Behcet again mentioned these topics in his paper with the date of 1934 and named Two Important Points on Wright Sores (Wright Çıbanları Seririyatında İhmal Edilmiş İki Mühim Nokta in Turkish) (,27,28,29,30).

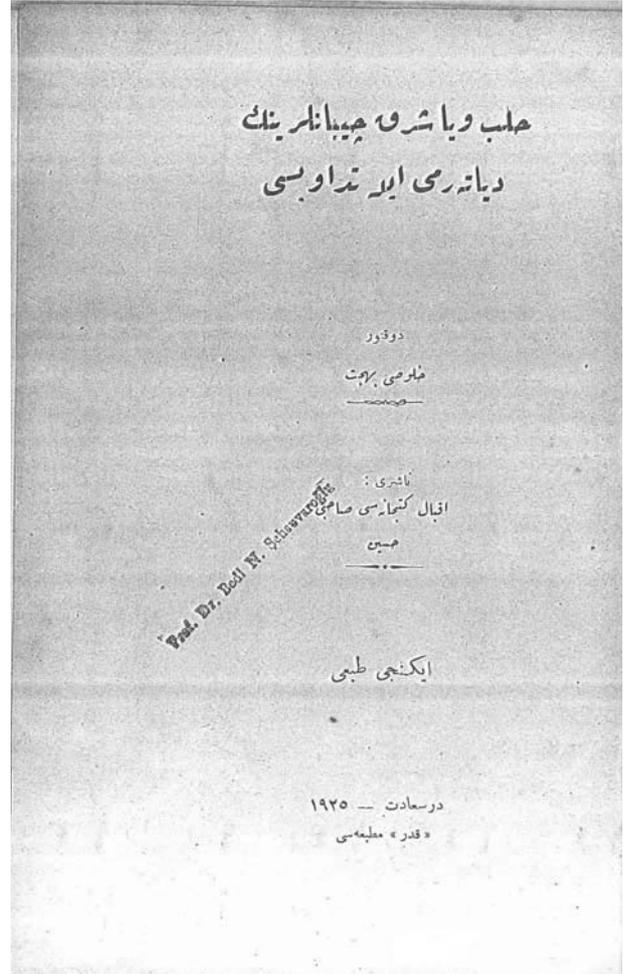
Approximately 350 million people in 8 countries are estimated to be under the threat of leishmaniasis. Most of the drugs used for the treatment of leishmaniasis are toxic

and have many side effects. At present there is no vaccine against leishmaniasis. Vaccine development for parasitic infections is more difficult than for viruses and bacteria because of the antigenic complexity and parasite-host interactions(26).

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Prof.Dr.Hulusi Behçet's Book Cover on Oriental Sore



Hulusi Behçet

# Cranial Nerves Anatomy in Al Qanun fit-tibb

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## Summary

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Cranial Nerves are important because special injuries may occur in it while these injuries don't occur in the Spinal Nerves, and for its turn in discovering the main reason of disease, and put prognosis and treatment. Cranial Nerves are divided to serve one or a few specific functions in wider anatomical territories.

Ibn Sina identifies that the Nerves coming from the Brain are seven (Cranial Nerves) explaining its origin, tasks and branches. But these Nerves were not mentioned in place and didn't have its current numeration. So that he didn't mention Olfactory Nerve, Trochlear Nerve and Abducens Nerve, while he extended in explaining Optic Nerve lengthly, and he explained the mechanism of seeing clearly to the benefits of the optic chiasma.

Also he displayed the Internal carotid nerve, which is continued up from the superior cervical ganglion of sympathetic trunk, and considered it a branch from Trigeminal Nerve; and showed that Vagus Nerve was great and it nerves the viscera and gives branches to muscles of larynx clearing mechanism of its innervation, and the importance of recurrent laryngeal nerve. He ended by explaining hypoglossal nerve which nerves muscles moving the tongue, and the muscles between the thyroid cartilage and hyoid bone.

**Key Words:** Cranial Nerves, Ibn Sina, Al Qanun fit-tibb

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## Introduction

Ibn Sina (Avicenna) is Abu Ali al-Hussain Ibn Ali Ibn Abdallah Ibn Sina. He was one of the foremost philosophers of the golden age of Islamic tradition and physician. He was born in 980 A.D. at Afshaneh near Bukhara; he received his early education in Bukhara, the capital of the Samanid dynasty. At 10 years old he had learned the Koran as well as Arabic grammar and literature. By the age of 16 he had mastered not only natural science and rudimentary metaphysics but also medical theory, so he began to treat the sick people. At the age of 17, he knew enough about medicine to treat the ailing Samanid ruler Nuh Ibn Mansur. The successful treatment gained Avicenna access to the rich library of that prince. By 21, he was also given an administrative post and soon wrote his first book.

On his father's death, he left Bukhara and travelled to Jurjan where Khawarizm Shah welcomed him.

Later on he moved to Al ray and then to Hamazan, where he wrote his famous book Al Qanun fi t-tibb, and he treated the King of Hamazan from severe colic. From Hamazan, he moved to Asphahan, where he completed many of his monumental writings. Nevertheless, he continued travelling and the excessive mental exertion as well as political turmoil spoilt his health. Finally, he returned to Hamazan where he died in 1037 A.D.<sup>1</sup>

Ibn Sina was the author of almost 276 books on science, He was the most famous physician, philosopher, encyclopaedist, mathematician and astronomer to his time

Al Qanun fit-tibb is the most famous single book in the history of medicine, it is an immense encyclopaedia of medicine extending over a million words; It surveyed the entire medical knowledge available from ancient and Muslim sources. It is an important original contribution that includes such advances as recognition of the contagious nature of phthisis and tuberculosis; distribution of diseases by water and soil, and interaction between psychology and health. In addition to describing pharmacological methods, the book described 760 drugs and became the most authentic materia medica of the era. He was also the first to describe meningitis and made rich contributions to anatomy, gynaecology and child health<sup>2</sup>.

The importance of Anatomy in Al Qanun fit-tibb became from assorting the bones, muscles, arteries, veins, nerves and viscera, so that it is like the recent assorting; and also he extended so much in its description, and showed its form, connection with each other, and the benefit to some of them. He studied Cranial Nerves in special class and called it "Anatomy of Brainy Nerve" and its way. This class was distinguished by explaining the mechanism of seeing during his citation to the Anatomy optic nerve, he also explained the mechanism of laryngeal muscles innervation during his mentioned to the Anatomy of Vagus Nerve.

## We will talk about Cranial Nerves separately

### Optic Nerve

Ibn Sina Says: "The origin of the first pair is the bottom of the anterior ventricles of the brain beside the excrescenc mammary papilla (like breast nipples) which are responsible for olfaction. It is great and hollow. The left originated nerves turn right and the right one turn left until the two meet each other on chiasma (forming a cross). The right nerve penetrates into the right pupil. And left nerve penetrates into the left pupil. Their two holes expand to contain the humour which is called (glassy or glass-like). Someone not Galen mentioned that they are penetrating after the cross point straightly, He mentioned three benefits of the cross:

One of them is that the spirit going to one of the pupils will not be obstacle from flowing into the other in case of injury. Therefore, the sight by one pupil while closing the other becomes sharper and clearer. The grape like foramen of the pupil becomes wider when closing the other because of the power of flow of the visual spirit into it. The second benefit is that the two eyes have one way to see object outline where they are united to make the seeing by the two eyes one sight representing the outline in the mutual line. Therefore they see the one thing as two. When one the pupils deviates superior or inferior breaking the straightness of the flow to the cross and lay before the joint point (border) a border for the refraction of the nerve.

The third benefit is that each nerve will support the other and relay to it as if it emerges from near the pupil"<sup>3</sup>.

It seems from Ibn Sina's explaining to the first pair that it corresponds now to the optic nerve which is the second cranial, that is originated in the retina then goes to the optic chiasma then the optic tract towards the lateral geniculate body. The three mentioned benefits of the optic chiasma and the mechanism of seeing represent the wrong scientific knowledge that prevailed in that era<sup>4</sup>.

### Oculo-motor Nerve:

Ibn Sina Says: "The origin of the second pair of the brain nerves is posterior to the origin of the first pair to the lateral side. It goes out of the foramen of the cavity which contain the eyeballs and to separate in the ocular muscles. This pair is very thick to stand against softness and for its nearness of the origin, so as to have enough strength to move, especially that it is not supported, because the third pair is deviated to move a big organ that is the mandible, and thus has no spare strength and it needs another helper as we will mention late"<sup>5</sup>.

It seems from Ibn Sina's explaining to the second pair currently corresponds to oculomotor nerve which is the third cranial. It reaches nerves to the eye muscles (superior rectus, inferior oblique, inferior rectus, medial rectus and levator palpebrae superioris); while the lateral rectus muscle has abducent nerve which is the six cranial. And the superior oblique muscle has trochlear nerve which is the fourth<sup>6</sup>.

### Trigeminal Nerve:

Ibn Sina Says: "The origin of the third pair is the mutual border between the fore brain and hind brain towards the base of the brain. At the beginning it associates a little with the fourth pair then it leaves it to separate into four branches:

A branch comes out of the carotid artery, we will talk about it later on, downward the neck till passing diaphragm and spreads into the viscera.

And the second part comes out of a hole located in the temporal bone. After leaving, it connects with the nerve that leaves the fifth pair (mentioned later).

A branch comes out of the foramen which the second pair comes out of it, headed towards the organs anterior of the face. It doesn't go into hole passage of the first pair. Then it congests and presses the nearest nerve closing the cavity. When this part dispatch it breaks into three parts: A part goes towards the inner corner to reach the temporalis muscles, the masseter, eye-brow, forehead and the eyelid. The second part penetrates into the hole at the outer corner to reach to the interior of the nose to spread into the nasal mucous membrane. The third part is rather a big one. It goes downwards (the infra temporal fossa) the hole of the zygomatic bone, and it separates into two branches: One of which goes inside the mouth cavity and spreads to teeth. That reaches the molars are visible but the ones go to other teeth are invisible. It spreads also in the upper gums. The other branch appears in the external organs, skin of the zygomat, the external nose and the upper lip. These are the parts of the third parts of the third pair.

The fourth branch of the third pair infiltrates in the hole of the maxilla to the tongue and spreads into its external layer. Taste is its sense. Then it spreads on the lower teeth pulp, gums and lower lip. The second part reaches the tongue and it is thinner than the eye nerve because the solidity of this and softness of that match the thickness of that and the thinness of this"<sup>7</sup>.

It seems from Ibn Sina's explaining to the third pair that it separates into four branches. The second, third and fourth represent branches of Trigeminal Nerve: [ophthalmic, maxillary and mandibular], which is the fifth cranial<sup>8</sup>. The first branch comes out of the carotid artery hole and spreads into the viscera, the internal carotid nerve, this nerve is continued

up from the superior cervical ganglion of the sympathetic trunk, the sympathetic trunks are two ganglionated nerve cords which extend from the base of the skull to the coccyx. The thoracic part gives the Splanchnic nerves: (greater, lesser, lowest), and they pierce the diaphragm<sup>9</sup>.

## **Palatine Branches of the Maxillary Nerve**

Ibn Sina Says: “The origin of the fourth pair is the back of the third towards the base of the brain and associates with the third as we mentioned, then it leaves it going to the palate giving it the sense. It is a small pair but it is harder than the third. Because the palate and its aponeuriosis are harder than the tongue fascia”<sup>10</sup>.

It seems from Ibn Sina’s explaining to the fourth pair that it currently corresponds to branches of Maxillary Nerve which is one of the three branches of Trigeminal Nerve, the fifth cranial, so that the general sensation for the hard palate is carried by the greater palatine nerve and naso-palatine nerve; the soft palatine is nerveated by the lesser palatine nerve; these branches which appear to arise from the pterygo-palatine ganglion are, for the most part, derived from Maxillary Nerve through its ganglionic branches<sup>11</sup>.

## **Vestibulo-cochlear Nerve & Facial Nerve**

Ibn Sina Says: “Each branch of the fifth pair spreads into two parts. Mostly each one of them is considered a pair. Its origin is the two sides of the brain. The first part of each pair goes to the meatus tympanic membrane spreading into it. This part comes really from the back side of the brain and it contains the sense of hearing. The second part, smaller than the first, comes out of the petrous bone hole and it is called the blind cecum because it is very twisted and curved intending to lengthen the range between the origin and the end. The nerve takes benefit from the far distance from its origin to gain hardness, so when it comes out it associates with the nerve of the third pair, where most of them are heading to the cheek and the wide muscle (buccinators), and the rest of them go to the temporal muscle. The sense of taste was created in the fourth nerve and hearing in the fifth because the organ of hearing had to be uncovered and open for air flow. And the organ of taste had to be covered, and the nerve of hearing had to be harder, therefore its origin is nearer to the back of the brain. The muscle of the eye contains one nerve; where the nerves of the temple muscle are many, because the eye hole needs space since the nerve giving the faculty of vision needs hardness and cavity; and the bone holding the pupil doesn’t needs many holes. Whereas the nerve of the temples needs hardness rather than thickness. The thickness limits its movement. And also its outlet in a hard stony bone accept many holes”<sup>12</sup>.

It seems from Ibn Sina’s explaining to the fifth pair which is The double pair: its first part represents Vestibulo-cochlearNerve<sup>13</sup>. The second part currently corresponds to Facial Nerve<sup>14</sup>.

## **Glosso-pharyngeal Nerve, Accessory Nerve and Vagus Nerve**

Ibn Sina Says: “The origin of the sixth pair is the back brain and connects with the fifth and they are tighten together with ligaments fascias as if they are one nerve. Then it leaves and goes out of the foramen at the end of the lambdoid suture; it breaks into three parts, which they come out of the foramen together:

A part of it goes to muscle of the fauces and base of tongue to support the seventh pair for moving it.

The second part goes down to the muscles of the scapula and its rounding and most of it spreads in the flat wide muscle (trapezius) on the scapula. This part goes hanging until it reaches its destination.

The third part, the biggest of the three, goes down to viscera with raising the carotid artery. It is bounded tightly to it. When it passes by the larynx it separates into many branches going to the muscles of the larynx which its origin is upper elevating the larynx and its cartilages. And when it passes the larynx, branches come out of it to the depressors of the larynx origin of which is lower, this is very necessary for closing and opening the arytenoids and for pulling it downwards, therefore it is called the recurrent nerve. This comes from the brain because the Medullary Nerve when going up it will be curved and not straight from its origin, thus the pulling by it downwards is not perfect. It came from the six because the soft and semi-soft nerves which are before the sixth they are spread to the muscles of the face, head and other organs they contain. The seventh doesn’t come straight as the sixth. It comes curved inevitably. Since the recurrent upperwards needs to fixed supporter like trochlea to enable the upper to circle around it supported by it. It is straight, hard, strong, smooth and nearby located. It is not like the great artery (aortic arch), the left recurrent nerve branches encounter this artery; which is straight and thick, goes around it without need of much binding. The right recurrent nerve associates with the artery not on its previous condition but it becomes thin because of the many branches emerged from it, and it becomes not straight and curved towards the armpit. Therefore it is bounded to its supportive by joints holding the branches to it to coop with distances of thickness and straightness. The wisdom of separating apart between these recurrent branches is to nearer to this holder and to benefit from being far from the origin to gain strength and hardness. The strongest recurrent nerve is the one that spreads into the

two layers of the throat muscle with certain nerves branches. Then the nerve goes down and separates into other branches to spread in the membranes of diaphragm, thorax and its muscles, heart, lung, veins and arteries that exist there. The rest of the nerve goes into the diaphragm to associate the coming of the third part and they spread in the membranes of viscera to end to the wide bone<sup>15</sup>.

It seems from Ibn Sina's explaining to the sixth pair which divides into three parts correspond currently to:

The first part is Glosso-pharyngeal Nerve, the nine cranial<sup>16</sup>.

The second part is Accessory Nerve, the eleventh cranial<sup>17</sup>.

The third part is Vagus Nerve, the tenth cranial, which gives, during its passage down to the viscera, the (superior laryngeal nerve) & (recurrent laryngeal nerve)<sup>18</sup>.

### Hypoglossal Nerve

Ibn Sina Says: "The origin of the seventh pair is the mutual border between the brain and the medulla. Most of it goes separately to muscles moving the tongue, the muscles between the thyroid cartilage and hyoid bone, and rest of it may spread in other muscles near these ones but not permanently. Since the other nerves have other works, and since it is not good to have many holes in the front neither in the bottom (base); it was better that the movement of tongue to come from a nerve from this side as the sense has come from another side"<sup>19</sup>.

It seems from Ibn Sina's explaining to the seventh pair that it currently corresponds to Hypoglossal Nerve, the twelfth cranial. So that the hyo-glossus muscle originates from the hyoid bone, it enters the side of the tongue. The thyro-hyoid passes from the thyroid cartilage to the hyoid bone<sup>20</sup>.

### Conclusion

Ibn Sina identified that Cranial Nerves are seven nerves; but these nerves were not mentioned in place and didn't have their current numeration.

Olfactory Nerve was not mentioned in spite of identifying the place of smelling sense. So that Trochlear Nerve and Abducent Nerve.

He expanded in explaining Optic Nerve lengthily; and he explained the mechanism of seeing clearly to the benefits of the optic chiasma, but this represented the wrong scientific knowledge that prevailed in that era.

He considered Internal Carotid Nerve a branch from Trigeminal Nerve; and innervation of the palate from the fourth pair, while it is from Palatine Branches of Maxillary Nerve.

He considered Vestibulo-cochlear Nerve and Facial Nerve The double pair, because they pass from their attachments in the brain to the opening of the internal acoustic meatus; and Glosso-pharyngeal Nerve, Accessory Nerve and Vagus Nerve are one nerve, because they leave and go out of the Jugular foramen together.

Regardless of the mentioned fallacies, this chapter of AL Qanun fit-tibb is considered to be important and forms detailed study of the cranial nerves using inductive methodical approach.

### NOTES

- <sup>1</sup> Ibn abi usaibia Uyun al-anba fi tabaqat al-atibba, p437.
- <sup>2</sup> Hmaidan, Allam alhadharah alarabiyah aleslamiyah, p 331.
- <sup>3</sup> Ibn Sina, Qanun fit-tibb, v1, p54.
- <sup>4</sup> <sup>4</sup>WARWICK R, WILLIAMS P', gray's anatomy, p997-998, 913-914.
- <sup>5</sup> Ibn Sina, Qanun fit-tibb, v1, p54.
- <sup>6</sup> APRIL EW, N.M.S TM anatomy, p460-462.
- <sup>7</sup> Ibn Sina, Qanun fit-tibb, v1, p55.
- <sup>8</sup> <sup>8</sup>WARWICK R, WILLIAMS P', gray's anatomy, p1001-1010.
- <sup>9</sup> WARWICK R, WILLIAMS P', gray's anatomy, p 1070.
- <sup>10</sup> Ibn Sina, Qanun fit-tibb, v1, p55.
- <sup>11</sup> WARWICK R, WILLIAMS P', gray's anatomy, p1004-1006.
- <sup>12</sup> Ibn Sina, Qanun fit-tibb, v1, p55.
- <sup>13</sup> WARWICK R, WILLIAMS P', gray's anatomy, p10016.
- <sup>14</sup> WARWICK R, WILLIAMS P', gray's anatomy, p1011-1016.
- <sup>15</sup> Ibn Sina, Qanun fit-tibb, v1, p56.
- <sup>16</sup> WARWICK R, WILLIAMS P', gray's anatomy, p1017.
- <sup>17</sup> WARWICK R, WILLIAMS P', gray's anatomy. P1024.
- <sup>18</sup> WARWICK R, WILLIAMS P', gray's anatomy, p1019-1024.
- <sup>19</sup> Ibn Sina, Qanun fit-tibb, v1, p56.
- <sup>20</sup> WARWICK R, WILLIAMS P', gray's anatomy. P1025.

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# Causes of Obstructed Labor as written in The Complete Medical Art “Kamil al-Sinaa al-Tibbiya” by Ali Ibn al-Abbas al-Majusi

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## Summary

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Medicine is needed to maintain the health of human beings since the beginning of mankind.

Child delivery is one of the first and may be the first natural operation that occurred in the world. Hence, obstetrics and gynecology is one of the earliest medical branches in history.

Islamic civilization flourished in the different fields of sciences, as Moslems paid great attention to medical sciences due to the importance in maintaining the health of human beings. Many of them showed great skills in this field; for example the philosopher physicians Abu Bakr Mohammad bin Zakariya al-Razi, Ali Ibn al-Abbas, Abu Mansour al-Hassan Ibn Nouh al-Qumri, Ibn Sina, Avenzor and Ibn Rushd etc.

In this paper we discuss Ali Ibn al-Abbas's contributions to obstetrics and gynecology in his book al-Malaki in which he discussed the causes of obstructed labor in a simple and attractive manner, parallel in an aspect to our modern practice.

**Key words:** Obstetrics, Gynecology, Islamic Medicine, Obstructed Labor, Ali Ibn al-Abbas, al-Kamel fi al-Sinaa al-Tibbiyah, al-Malaki.

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## Introduction

**Ali Ibn al-Abbas:** His date of birth is not known, but he is a contemporary of al-Razi. He was born in a city called al-Ahwaz, south of Fares (Iran actually, near Jendi-Sabour). He learned medicine from the madrasa teacher Abi Maher Moussa Ibn Yousef Ibn Sayyar who died in 384 Hegira, which corresponds to 994 A.D., but some references note his date of death as 400 Hegira, 1010 A.D.

## His works and publications

Ali Ibn al-Abbas wrote many important medical books, which had a great role on the development and transmission of medical knowledge to medical practitioners.

The scholar Zuheir Hmedan wrote in his books *Allam-al-Hadara al-Arabia* the most important books of Ali Ibn al-Abbas as:

1. Ketab fi al-Tib; (*Book on Medicine*)
2. Ressalet fi al-Fassd; (*Treatise on Venesection*)
3. Mudawat al-Amrad bi'l al-Adwieah al-Mufrada; (*Treatment of Diseases by Simple Drugs*)
4. Al-Montakhab min Ketab fi Adwieah Nafeaa wa Ash-reba Nafeaa; (*Review of Beneficial Drugs and Liquids' Book*)

5. Kamil al-Sinaa al-Tibbiya (al-Malaki); (*The Complete Medical Art*).

## *Kamil al-Sinaa al-Tibbiya* (*Al-Malaki*)

In the second half of the fourth century of al-Hijra, amongst the main medical sources, namely "Kamil al-Sinaa al-Tibbiya (*al-Malaki*)" works of Ali Ibn al-Abbas, and "al-Mualajat al-Abqratiya" by Abi al-Hassan al-Tabari, were widely used.

Kamil al-Sinaa al-Tibbiya (*al-Malaki*) was greatly appreciated by the medical historians, due to its simple, clear and correct explanations and his contribution to the development of medical knowledge. His description of medical maneuver and discussions on medical writings give a good idea of the medical level of his period and his interest in the theoretical and practical fields of medicine.

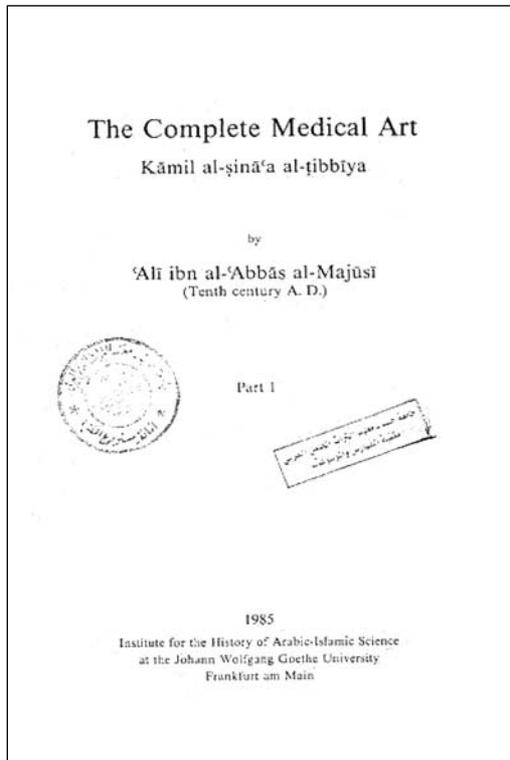
There are several manuscripts of Kamil al-Sinaa al-Tibbiya and we take the most clear one, which is kept at the library of Istanbul University, registered under Arabian manuscripts, numbered 6375 for the first part of the book, and 4713 for the second part.



Picture of the first page of Kamil al-Sinaa al-Tibbiya



Picture of the contents of Kamil al-Sinaa al-Tibbiya



Picture of the cover of the English translation of Kamil al-Sinaa al-Tibbiya



Picture of the last page of Kamil al-Sinaa al-Tibbiya

Ali Ibn al- Abbas's last book, which is considered as the best, was presented to the amir Adhodd al-Dawla al-Bouwayhi. This book is considered as one of the best medical books of his period. Here he discussed theoretical and practical medicine. This book is in fact a medical encyclopedia, celebrated by known writers. For example, **Ibn Abi-Usaybea** wrote: 'Al-Malaki is a great medical book or encyclopedia, gathering the two aspects of medicine; scientific and practical'. **Al-Qafti** described Al-Malaki as a well classified book.

*Al-Malaki* was translated into Latin by Constantine the African in 1087 A.D., ignoring the name of its original writer, Ali Ibn al-Abbas.

This book was used and taught at the Salerno Medical School as well as at the other European medical schools as the work of Constantine until a new translation by Elias Astephan Al-Antaki was issued in 1127 A.D., where he mentioned the real writer of the book, Ali Ibn al-Abbas.

This book continued to be studied in medical schools in Europe besides *Al-Hawi of Al-Razi*, *Al-Kanoon of Ibn-Sina*, and *Al-Tassrif of Al-Zahrawi* until the end of the seventeenth century A.D. Al Malaki was one of the most appreciated books studied by the medical students due to its clear phrases, compared with the other medical literature.

*Al-Malaki* was one of the most important encyclopedic medical works in history due to its good classification, and analytic explanations.

Al-Malaki is composed in two parts, each comprising ten articles. The eighth article of the second part is composed of twenty nine chapters on gynecology, while the last six chapters are specifically on obstetrics. The ninth article of the second part is composed of 110 chapters, on applied medical sciences, where practical points of managing and treating obstetrical and gynecological problems are discussed in a simple and clear manner.

## Gynecology and obstetrics in Al-Malaki by Ali Ibn Al-Abbas

Ali ibn al-Abbas was quite successful in describing diseases of the uterus in the first chapter of the eighth article of the second part of the book. In the last six chapters of the eighth article of the second part he described obstetrics, contraception, breast tumors, infertility causes and treatment, obstructed labor causes and management, extraction of the dead fetus and the placenta.

Due to the importance of obstructed labor we shall discuss it in detail.

## Obstructed labor in Al-Malaki by Ali Ibn Al-Abbas

Obstructed labor means difficulty in ending labor through a normal, in other words, vaginal delivery.

Ali Ibn al-Abbas discussed various causes that might complicate normal delivery, such as:

1. Obesity and over weight of the pregnant woman.
2. Small uterus (probably he means small or narrow pelvis)
3. Weak uterus (lack of or weakness of the uterine contractions)
4. Lesion located at the uterus outlet.
5. Prima-gravida.
6. Afraid pregnant woman.
7. Ovarian tumor or mass, pelvic mass and full bladder.
8. Cold weather.
9. Hot weather.
10. Very big baby (giant baby) as we see it in diabetic mother.
11. Very small baby (weak and thin baby).
12. Fetal abnormalities (baby with two heads); as we see in conjoined or Siamese-twins.
13. Mal or abnormal presentations (breech, transverse, oblique...)

We may conclude from the above given causes that Ali Ibn al-Abbas was a well educated and experienced obstetrician.

## Conclusion

Ali Ibn al-Abbas reported that there are many factors that might lead to obstructed labor, some of which are:

1. Maternal factors : obesity, over weight, fatty women, small uterus; small or narrow pelvis, weak contractions or weak uterus, presence of mass or ovarian cyst or full bladder or fibroma preventing progress of the fetus .
2. Afraid woman or woman under stress.
3. Hot or cold weather.
4. Fetal factors: giant fetus, small fetus, multiple pregnancy, abnormal fetus or fetal deformities such as hydrocephalus, hydrops fetalis and Siamese twins.
5. Abnormal presentations such as: breech, transverse, and oblique.

Today we know that the above given factors are the most frequent causes of obstructed labor which we come across in modern practice of obstetrics.

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# The Names of Hippocrates' Books and their Explanations that are Found in Arabic (Galen's explanations)

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## Summary

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The purpose of this research is to shed light on an important figure in human history of medical knowledge, known as "The Father of Medicine", Wise Hippocrates, through an introduction to his writings, works, and medical wisdom preserved by resources of western history and heritage during the prosperity of Islamic Arab Civilization (Islamic Golden Age).

**Key Words:** Hippocrates, Galen, Hanin Bin Yitzhak, Islamic medicine, Arabic Medicine.

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### Introduction: Hippocrates' Birth

HippocratesMacleodes, Hippocrates, Hippocrates Bin Ibraclus, or Bucrates, Bucrates Bin Ibraclus, in French "Hippocrate". He was born in (460B.C) in Cos peninsula, one of Dedocanees islands, and died in (377 B.C) in Larissa City at Tassalia region south of Greece. He descended from Asclepiades family. A version of the book "Hippocrates' Aphorisms in Medical Sources" presented the following: "One of the oldest classifications of Greek doctors and the most advanced scientists was Hippocrates the genius, the special, and the prominent doctor. He was born in one of the Roman peninsula called Cos, the cause of calling him Al Cosi Sheikh in 460 B.C or 1082 before Hegira. That was the year 75, before Alexander hold power, or in 590 before Jalynus was born. It was said that he lived 85, 90, or 95 years.

### The Names of Hippocrates' Books and their Explanations that are found in Arabic Galen's explanations)

- (*The pledge of Hippocrates* according to Galen's interpretation)

It was translated from Greek and Assyrian by Hanin adding something of his own( and I added an explanation for its difficult positions). Habish and Eissa Ibn Yahya translated it into Arabic as well; it was one article.

### Book summary

The *Pledge* book is known as the *Book of Faith*, Hippocrates established it for learners and teachers. They should abide by what he conditioned in it upon them.

- (*Aphorisms Book* according to Galen's interpretation)

It was translated into Arabic by Hanin. Mohammad Bin Mousa set the book in seven essays. Ayooob used to translated the book badly. Then, Gabriel Bin Bachteshooa tried to fix it but he spoilt it more so I tried to fix it like a re-translation adding him some of Hippocrates'. Ahmad Bin Muhammad (known as Ibn al-Mudabber) asked me to translate it for him. I translated only one essay into Arabic. Then, he asked me not to translate another until he reads that one that I translated. After that he got busy and the translation wasn't completed. When Mohammad Bin Mousa saw that translated essay, so he asked me to complete the book. Thus, I translated the whole book.

### Book summary

It contains definitions of medicine sentences in order to be as rules a doctor abides by during his work. It contains the totality of what he put in all his books.

It is clear to those who behold its chapters that they are well-organized and taken from his following books: *Takdemat Almaarefa*(introducing knowledge), *Alahweya W Alboldan*, *Alamrad Alhadde*(severe diseases), His book which is entitled "T-babedeema" and his explanations of the coming diseases. Some chapters of his book *Awjaa Alnesaa* (Pains of women) were mentioned as well.

### **(Introducing knowledge according to Galen's interpretation)**

Hanin translated 'alfass' of Hippocrates into Arabic. Then, Eissa translated the interpretation into Arabic (he made this book in the form of three essays. Serjas had translated it into Assyrian language then I translated it into Assyrian again. Then, I translated 'alfass' into Arabic for Ibrahim Bin Mohammad. Eissa Bin Yahya translated its interpretation into Arabic.

#### **Book summary**

It contains the signs and clues that a doctor would examine in three tenses: Past, present, and future. He said if he told about past, the patient would trust him and give up so that he could treat him depending on what is used in the medicine profession. When he knows about present, he can treat him using the proper medicine. When he knows about future, he can get ready and defend the body in a way that protects it from any possible attack.

### **(Severe Diseases according to Galen's interpretation)**

It consists of five essays. Eissa Bin Yahya translated three essays. (he made that book in five essays; I copied it in my books. I didn't have the chance to translate it. I was told that Ayoob had translated it before. I translated the whole book in addition to *Fas Alkalam*. Thus, I summarized all its meanings including the question and the answer. Then, Eissa Bin Yahya translated three essays of it into Arabic for Abi Alhassan Bin Mousa. These essays are the valid part interpretation of this book whereas the remaining two essays are the interpretation of the suspect part.

#### **Book summary**

The first essay includes the method of nourishment and the vomiting in severe diseases. The second essay includes the treatment in fomentation and phlebotomy in addition to the structure of diarrheal medicines and the like. The third essay includes the method of treating by wine, honey water, vinegar mixed with honey, cold water and taking a bath.

### **(The Fracture according to Galen's interpretation)**

Hanin translated it into Arabic for Mohammad Bin Mousa making it in three essays. I signed its Greek copy, but I didn't translate it. Then, I translated it into Assyrian in addition to Hippocrates' *Fas Alkalam*.

#### **Book summary**

It contains everything that a doctor might need concerning this field.

### **(Ibethma according to Galen's interpretation)**

It consists of seven essays. The first of which is divided into three sub-essays and so is the second. The third essay

consists of six sub-essays. Conserving the fourth, the fifth, and the seventh, Galen didn't interpret them. Eissa Bin Yahya interpreted the sixth essay into Arabic in eighth essays. Galen interpreted the first essay of this book in three essays. Ayoob translated it into Assyrian and I translated it into Arabic. Galen interpreted the third essay in six essays. He signed to me that he had already dismissed it from out of his interpretations. It contained a lot of mistakes, so I corrected them all and then copied the book in Greek. Then, I translated into Assyrian and Arabic for Mohammad Bin Mousa. A few of it remained but I couldn't complete it. Talking about the sixth essay, Galen interpreted it in eighth essays; Ayoob translated it into Assyrian. A copy of this essay is still existed among my books. From *Ibethma*, Galen didn't interpret but these four essays while the other remaining three which are the fourth, the fifth, and the seventh, he didn't interpret because he mentioned that they are fabricated about Hippocrates and not genuine. I added to my translation of Hippocrates' interpretation of the second essay from *Ibethma* the translation of *Fas kalam Hippocrates* into Assyrian and into Arabic.

Then, I translated the essays that Galen interpreted from the sixth essay into Arabic. Then, I summarized its meanings in the form of question- answer, in Assyrian. Then, Eissa Bin Yahya translated it into Arabic.

#### **Book Summary**

It contained the coming diseases, their arrangements, and cures. I mentioned that it could be divided into two categories one of which is only one disease while the other is fatal; it is called the two deaths (because it kills both humans and animals).

"I and my colleague interpreters know that the fourth, fifth and seventh essays of this book are fabricated" Galen said. He shows that the first and the third essay holds information about the coming diseases. The second and the sixth essays are of Hippocrates' conferment. Either Hippocrates is their writer or his son proves them to be true according to what he hears from his father.

### **(Blends according to Galen's interpretation)**

It consists of three essays. Eissa Bin Yahya translated them into Arabic for Ahmad Bin Mousa (I have never seen it before in Greek then when I found it, I translated into Assyrian in addition to *Fas Alkalam*. Eissa Bin Yahya translated it into Arabic.)

#### **Book Summary**

This book introduces the blends i.e. their quantity and quality in addition to introducing the knowledge of their post symptoms, tricks and the deliberating of the treatment of each.

### **(Katetrium according to Galen' interpretation)**

Hanin translated it into Arabic for Mohammad Bin Mousa. Galen translated this book in three essays; I obtained its Greek copy and didn't have the chance to read it after translating it. I know none in my library translated or copied it into Greek. Then, I translated it into Assyrian then Habeesh translated it into Arabic for Mohammad Bin Mousa.

#### **Book Summary**

"Katetrium" or the doctor's shop consists of three essays. It can be used for medicine actions that is concerned with hand-work like binding, tightening, splinting, sewing... and the like that he might need.

"Hippocrates decided that this book is the first book that is read and so believed all the interpreters including me; he called him the shop which a doctor sit in order to treat patients. Its best translation of it is 'the book of things that work in a doctor's shop.' Galen said.

### **(Water and Air according to Galen' interpretation)**

It consists of three essays. Hanin translated *Alfas* into Arabic and Habeesh Bin Alhassan interpreted it. (he made Water and Air also in three essays. I translated it into Assyrian for Salmoweh; I translated Fas Alkalam and added a brief explanation but I didn't complete it. Also, I translated Alfas into Arabic for Mohammad Bin Mousa. Habeesh translated *Hippocrates's interpretation* into Arabic for Mohammad Bin Mousa.

#### **Book Summary**

The book of water air and countries consists of three essays. In the first essay he introduces how we can distinguish the countries mixtures and what can result from the local diseases. In the second essay he introduces how we can tell about the mixtures of drinking water. And diseases they might result in. In the third essay he introduces how things that produce local diseases remain.

### **(Human's Nature according to Galen's interpretation)**

It consists of three essays. Hanin translated Alfas into Arabic. Eissa Bin Yahya. (he made that book in three essays as I remember; I copied it ,in my books, in Greek. I had no chance to translate it, and I know none translated it. I translated it after that into Assyrian (Hanin translated this essay about this book into Arabic. Eissa Bin Yahya translated the whole *Galen's interpretation* .

#### **Book Summary**

It consists of two essays. It includes the nature of human body and its structure. Bin Abi Asebaa added three books :

*The Book of Embryos, The Book of Women's Pains, The Book of Nourishment.* He says: "we found about thirty books of Hippocrates"; there are only twelve famous books of which we mention three of this book as mentioned by Bin Abi Asebaa.

- (*The Book OF Embryos*): It consists of three essays. the first essay includes information about the structure of semen. The second includes information about embryo's creation. The third essay includes information about the human organs.
- (*The Book of Women's Pains*): it consists of two essays. The first contains information about what diseases a woman might face due to holding menstruation and its bleeding. Then, it mentions what might happen during and after pregnancy.
- (*The Book of Nourishment*): it consists of four essays. this book contains the diseases and causes of blends materials i.e. the diseases of nourishment that increases fatness. (*The Book of Epilepsy*): it is one of the most prominent Hippocratic works according to medicine historians' points of view. In this book, Hippocrates treats epilepsy and other kinds of mental diseases. In the beginning of this book, Hippocrates objects to naming epilepsy as "the sacred disease" because diseases, in his opinion, cannot be branched into natural and sacred.

Hippocrates says: "here I begin the disease research known as "the sacred". In my opinion, he is not more sublime than all other diseases but it has natural reasons for this. The main cause if the claimed sublimity of its origin is the illiteracy of people. Though there are many other stranger diseases, people don't consider them sacred."

Some of the following books are Hippocrates and some are claimed to be his:

(The Book of virgin's pains, The Book of Body's Locations, a book about heart, the book of teeth enplanement, a book about eye, a book directed to Baslous. A book in blood bleeding, a book in inflating, a book in burning fever, a book about glands. A message to King Demetrius, this book is known as "The Curing Essay".

The book of humidity benefits, the book of wills, the book of medicine code, the book of the will that's concerned with arrangement of medicine(he mentioned about how a doctor should appear and the styles of his uniforms.), the book of removing, the book of head surgeries, the book of flesh, a book about diseases resulted from air, the book of animal's nature, the book of the cases' signs, the book of the two seas signs, a book about getting pregnant on a

rope, a book about introduction to medicine, a book about babies born in the seventh month, a book about wounds, a book about the weeks, a book about insanity, a book about pimples, a book about babies born in the eighth month, a book about Alfasd and Alhejamah,

A book about Alabtah, a book about Aflatoon's laws on Ares, A book about urine, a book about colors, a book to king Anteken in preserving health, a book about people disease, a book about incidences, a book about local diseases, a book directed to Caesar Akteghiothis, the Roman king, a book about the medicine of inspiration, a latter to Artehshasht the great, king of Persia, a letter to some folks of Ibdeara. A book about the difference in times and repairing nourishments. A book about human structure, a book about getting wastes out, a book about how to introduce the first speech, a book about how to introduce the second speech.

### Conclusion

We admit that Hippocrates' works are preserved through the translations of their explanations by the Arabic historical references and resources. For example, the historian, translator, and a doctor *Hanin Bin Yitzhak*, who was the most important translator into Arabic over the centuries, and was good at Syriac, Persian and Greek, translated these explanations into Arabic in the Abbasid Period. Hanin Bin Yitzhak also had a great role in the

“House of Wisdom”, which was founded by al-Ma'mun who spent lots of money on the works of translation for the purpose of transferring all Arts and Humanities especially Greek into Arabic.

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# Traditional Healing Methods of Thyroid Diseases in Turkey

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## Summary

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In this study, 60 patients who practiced or were informed of traditional healing methods in treating thyroid diseases were interviewed with. These patients were chosen amongst 400 female thyroid disease patients from various regions of Turkey, who were being followed up by the thyroid disorders polyclinic of a university hospital since a period of five years. 60 of these patients who were found to have some information about traditional healing practices were chosen for interview and were questioned about traditional healing methods they had practiced, as well as those they had heard of. Six questions were asked to these patients in a survey format.

Interviews revealed colorful anecdotes and the presence of traditional healing methods in rural parts of Turkey. Some of the substances used in treatment, such as salt, moss, sponge and iodine tincture, were said to have some therapeutic effects. These substances might be reminiscences of past centuries' empirical practices. Some of the therapies involved psychological factors, the effects of which are not easy to describe. Somehow irrational methods of treatment were practiced by a small number of patients, who had originated the methods themselves. Detailed descriptions of the traditional practices that existed side by side with contemporary medical practices also reflect patients' attitudes towards unscientific therapies.

**Key Words:** thyroid diseases, traditional therapies, Turkey

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## Introduction

The shield-like thyroid gland is in the frontal area of the throat and secretes thyroid hormone. Hyperthyroidism refers to the abnormal increase in the size of the thyroid gland. In general a thyroid gland exceeding 30 grams is indicative of hyperthyroidism [14].

Hyperthyroidism with its typical physical appearance and other symptoms have been known since early times. Artists in history illustrated people with extreme hyperthyroidism to express hatred, compassion or mockery. However, we find the first medical illustration of hyperthyroidism in the 1556 publication of a medical manuscript by Jacobus Rueff [10] (see Figure 1).

Hyperthyroidism was referred as “*bukuk*” in the oldest Turkish lexicon, *Divan-ı Lugati't Türk*, due to its resemblance to a flower bud. This same source notes the following legend about the origin and hereditary characteristics of the disease [3]:

*“These are glands between the skin and the muscle on each side of the throat. In Fergana<sup>1</sup> and Shikni (Shifhi) there are people suffering from this ailment. Their children always have the same disease. In some cases it grows so large that it prevents the patient from seeing his own chest and feet. I have inquired about the origins of this disease.*

<sup>1</sup> A city in central Asia near the river Sir Derya

*They told me that our grandfathers were bass voiced strangers who fought battles with Muslims and defeated them with the power of their voice. Then God wrathfully punished them and put this disease in their and their offsprings' throats. Today there is no one amongst them who has a bass voice.”*

Increased awareness of contemporary medical science and daily access to medical information through modern media has been reshaping traditional attitudes and practices continuously. Nevertheless, stories of traditional practices prevailed until today. As an interesting example we note the names given to the different types of hyperthyroidism. Hyperthyroidism is called “poisonous” when it extends toward the chest; and “interior hyperthyroidism” is called, “non-poisonous hyperthyroidism”; and when it reemerges after surgery it is called “female hyperthyroidism” due to its similarity to giving birth.

## Method

In this study, 400 female patients with a thyroid disease, inhabitants from various regions of Turkey, were questioned about traditional healing practices applied for the treatment of thyroid diseases. These patients were under routine control at the thyroid disorders polyclinic of a university hospital since a period of five years. 60 of these patients were found to have some information about traditional healing practices. The average age of

these patients were thirty five. 76% of them were married and 70% went to school for less than six years and 76% were housewives or didn't have any job. A majority of the patients lived in endemic hyperthyroid regions of Turkey, the Marmara (44%) and the Black Sea (35%) regions. They were diagnosed as, diffuse hyperplasia (44%), nodular hyperthyroid (32%), simple hyperthyroid (21%), and 3% of the group suffered from hypothyroidism.

The first question was about the amount and kind of knowledge these patients had about thyroid disease. 84% of them reported to have no information. However, 19% of the patients reported to have diagnosed their thyroid disease themselves, evaluating their symptoms. In 29% of the cases an acquaintance noticed their illness, whereas 52% of the patients were diagnosed by a medical doctor.

The question, "Did you use a healing method before or after medical treatment prescribed by a physician?" was answered yes by 24% of the patients. The majority of this group reported treatments by regional herbs, mosses or sponges. Drinking "iodine tincture" was the second most frequently used treatment method. Mystical healing practices such as prayer by a hodja were infrequent. Patients who were treated with drugs other than moss, said that they were rather relieved of their symptoms such as anxiety, depression, fatigue, weight loss, sweating, palpitation and breathing difficulties.

When the cause of their disease was questioned, a significant majority of the patients (70%) referred to psychological causes and expressed it as "sadness, depression, stress, anger, fear and anxiety." There are several studies that support the assumption that changes in the thyroid glands could be stimulated by psychological factors [13][15].

The elements in drinking water were said to be a second primary cause of thyroid diseases. Indeed, iodine under the normal level in drinking water is used as a criteria to determine endemic hyperthyroidism regions [14] [16].

Another reason given by the patients was malnutrition. Certain vegetables such as cabbage, turnip and cauliflower are known to increase iodine deficiency when consumed in large quantities and thyroid disease occurs [8][14][16]. A few patients suggested that iodine deficiency together with hereditary disposition might also lead to thyroid disorder.

Relatives of patients were also questioned about the causes of thyroid disorder. Primarily "psychological factors"; secondly "drinking water and weather"; and finally "eating cabbage and inadequate diet were believed to cause thyroid disorders." However, relatives of some patients had no idea about it. Comparing the answers of

the patients with their relatives, patients themselves were found to be slightly better informed about their disease than their relatives.

The question, "Have any people (relatives, friends or neighbors) advised any methods to help the healing process?" was answered yes by 62% of the patients. However, only 5% actually used advised treatments. 32% of the advised medicine were regional plants; and drinking "iodine tincture" also came up to be an important percentage of the suggested treatment methods.

## Traditional Methods of Healing Thyroid Disorders

Druggists in rural parts of Turkey (*Adapazarı, Düzce, Akçakoca, Edremit, Burhaniye* etc.) produce medicine from herbs for healing thyroid disorders. We were able to have a business card of one such druggist (Figure 2). A customer of this druggist gave us the following information:

*"I heard that about 25-30 people who used this medicine were healed. It is sold as a white powder. I decided to purchase a pack. I was advised to take it in an amount of a regular tablet, half an hour before meals in the morning and at night twice a day during the first week. I was advised to continue this about 40 to 50 days. If not healed, treatment was said to be repeated. I used it and felt a relief in the first couple of days."*

The study showed that the inhabitants of the *Karabük, Sinop, Bilecik, Edremit-Çanakkale* areas made use of regional plants in treating thyroid disorders. 26 ways of treatment were said to be practiced by these people. Twenty of the sixty patients said that they had used some of them, and eleven patients reported good results and one patient reported a negative outcome. Six patients had stopped using traditional drugs in a short time and two patients had just started at the time they were interviewed. Therefore, these eight patients had no opportunity to observe any results. The rest of the patients (forty) reported what they had heard from others, however didn't try any healing practices on themselves.<sup>2</sup> The traditional therapeutic practices reported by patients and healers are given below.

## Marine Substances

The use of moss and sponges in treating thyroid disorders is widely known amongst Turkish people.<sup>3</sup> Moss was used for treating thyroid disorders in history as well.

<sup>2</sup> The sixty patients questioned in this study are listed from 1 to 60. In the text patients are referred to by their number on the list.

<sup>3</sup> Some patients also mentioned about the benefits of seaside weather and life on the seaside. (11,16,52).

Lodine treatment by means of moss can indeed be beneficial. Alginic acid (algin) and iodine can be extracted from several fucus type sea moss species (e.g. *F. serratus* L., *F. vesiculosus* L.) under the dark moss (Phacophyceae) classification. They are prescribed as iodine preparation to be taken internally in the form of powder or extract to treat thyroid disorders. Recently sea mosses in shores of Turkey are being explored and our knowledge of them is getting to be much better. [4] [7].

Different ways of applying moss for treatment were described. Sea moss, according to some of the patients, “the female” kind (14)<sup>4</sup>, is stirred and cooked in oil until it is completely burned (14). One tea spoon of the burned moss is mixed with one spoon full of honey. The mixture is taken orally every morning. This is said to eliminate the disease in one-to-two months period (14). A different way of treatment related by patients is external application of burned moss on the throat (35). Another tradition was found to be the use of moss with another herb<sup>5</sup> that grows in a region between *Edremit* and *Çanakkale*. Both substances are ground into powder and one full tea spoon is taken orally. It is believed that this treatment would be more effective if the mixture is biking to the taste. The recommended treatment period was two-to-four weeks (41).

The most widely used substances in treatment were sponges. A sponge, according to some patients, one male and one female kind (29,51) is burned (1,23,29) or fried (9,32,50) or baked (20,51) in an oven (8) after it was cleaned (9) and dried (23). Some suggested that dried sponge should be cut into small pieces and taken every day orally for 2-3 months (8). Others advised it to be taken in ash-like form (1,23,29). Yet others suggested cutting it into small pieces (9,32) or grinding (36) or sieving (20,50), or pounding it in an iron mortar after having baked it in an oven (51). The final product being ash was to be mixed with honey (250 grams of ash mixed with 250 grams (1,9) or 1000 grams (20) of honey). It was recommended to be taken in the morning, with an empty stomach (1,9,20,23,32,36,50,51). The advised dosages were one desert spoon (1,51) or one dinner spoon (9,20,32) or one tea spoon (23,29,50). The period of treatment was said to be 1-2 months (1), 2-3 months (36,50) or until the preparation is finished (9,20,29,32). Of the ten patients who related a treatment with sponge only two had actually used it themselves. The other eight patients had either observed or heard of the use of sponge therapy. Some reported complete relief of their acquaintances and even of medical doctors who used the sponge-honey mixture. One patient talked about being repulsed by its smell and

black color (20). Those who used the mixture themselves said they were cured by the mixture. One of them stated that she went to the hospital as a caution, even though she feeled herself to be completely cured. The other patient recalled her childhood experience of sponge treatment as follows:

*“When I was eight or nine years old my mother burned a sponge (one male and one female kind) using wax candles. It was wrapped in a bed sheet. They asked me to inhale its smoke. During the following days I ate spoon-full of sponge ashes. I continued this every night before going to bed for 15-20 days. Then my thyroid glands became smaller. After thirty five years they grew larger again (29).”*

A patient mentioned of another healer in the small *Karacam* village near the city of *Adapazarı*. This seventy years old healer used a special concoction and kept its ingredients secret. The prescription seems to be a variant of the honey-sponge mixture cited above. The patient (47) with hyperthyroidism talked about the healer and described her method of treatment as follows:

*“The healer said that she had been using this method since a long time. Her predecessors were from Batumi, Georgia and she was born and brought up in that area. When we went to her house she diagnosed my illness immediately before we had a chance to tell her anything. She described the state of the eyes and the other disturbances I felt.*

*The medicine she gave me was held in a midsized container and it was like jelly. It tasted sweet and apparently it contained honey and a coal-powder-like substance. An analysis could have been made as to what substances were in the medicine. There was also another substance that resembled small sponge pieces and smelled like the tincture of iodine.*

*The two medicine were prescribed as follows: The sweet tasting medicine was to be applied twice daily with an empty stomach and it was also used to massage the throat, neck and eye lids. The sponge-like medicine was to be placed in a pot on hot coal and its fumigation was to be inhaled while the massage was continued. After the procedure was over one could eat a regular meal. If the expected relief from the disease was not realized the treatment was to be repeated. (47)”*

In *Ovacık* (Eastern Turkey) an elementary school teacher (60) who gave a sponge-honey mixture as a “natural treatment” to poor patients with thyroid disease, related the prescription of her medicine and its effects as follows:

<sup>4</sup> The numbers in curly brackets indicate the patient number.

<sup>5</sup> We were not able to identify this drug.

*“In a period of one or two months of treatment, especially young patients reported a relief from their symptoms. I observed that older patients also started to breath easier and their feeling of stress decreased. The prescription of the concoction is as follows:*

*Female sea sponge (10g)*

*Honey with comb (1000g)*

*Sponge is baked in an oven until it turns to be like ash. Having sieved the baked sponge using a piece of cloth to eliminate unwanted particles the sponge is grounded into powder, and then mixed with honey. One tea spoon-full is taken every morning one hour before breakfast until the concoction is completely consumed (around six weeks) (60).”*

Medical treatment with sea substances included smelling jelly fish every morning for forty days (56). Healing effects of a spring water in Tokat (Central Turkey) was another advised traditional treatment method (30).

## **Tincture of iodine**

The use of iodine tincture to treat thyroid diseases was a widespread practice. However there is a rich variety of specific prescriptions for applying iodine tincture. Generally it was advised to be taken in the morning (10,12,13,17, 21, 28, 30), with an empty stomach (10,12,13,17,21,28, 30, 40,42). The ratio of iodine tincture and water also changed from 1 drop (13) to 3 drops (21) or 10 drops (10,40) into one glass of water (10,12,13,17,21,30,40) or 5 drops in half a glass of water (28). The advised dosage also changed from 2 to 10 drops in one glass of water (17, 30). The advised period of treatment also differed. The treatment was said to be continued for 40 days (13), 1-1,5 months, 3-4 months (10), or 5-6 months. There even was a case of 2-3 years long treatment with 5 drops of iodine tincture mixed with half a glass of water, at the end of which an improvement was said to be observed (28). Several patients said they left an open bottle of iodine tincture for forty days in their bed room, preferably near the head of their bed, so that it would be inhaled all through the night at sleep. Which types of thyroid disorders might have been effected by iodine tincture treatment was not searched for.

Twelve patients said that they would not want to use iodine tincture treatment themselves. One patient who practiced it didn't see any positive effects and decided to seek contemporary medical treatment.

## **Iodine Salt**

Another traditional treatment utilizing iodine for thyroid disease was iodine rich salt used in cooking

meals (5,11,27,28,39,40). Of she six patients who gave information about the effects of iodine rich salt used in cooking, four of them actually practiced it (27,28,39,40). However only one of these four patients (40) reported “a feeling of relief.” Some advised dipping herbs such parsley and garden cress into iodine rich salt before cooking and using iodine rich salt in salads. The results of wide usage of iodine salt is a matter of discussion.

## **Honey**

Treatment of thyroid diseases with honey was one of the most common traditional healing practices. It was used purely or mixed with moss or sponge as stated above. Some patients talked about the healing effects of one spoon-full honey taken every morning with an empty stomach (7,16). One patient described the healing effects of honey treatment as follows:

*“My aunt had a serious thyroid disorder. Physicians recommended surgery but she preferred to be treated with honey. After a year when she went back to her doctor, there were no symptoms of thyroid disease, so there was no need for surgery. Consequently I also started taking honey every morning (at noon and evening too, when necessary) as much as I could. I felt a great relief. Now I eat honey even when I feel depressed.” (16)*

There are reports from people of Düzce (Black Sea Region) who produce concoctions by mixing some spicy herbs with honey (4). Two of the prescriptions are honey mixed with garden cress seeds (42,43); 100 grams of cress seeds are ground and mixed with 125 grams of honey. One spoon-full of the mixture is taken with an empty stomach every morning for 10 days (42) or 9 months (42). Both of the patients who related this method hadn't used it themselves. Another advised method was bay leaves mixed with honey (59).

A patient described the benefits of using a mixture of honey with other substances as follows:

*“An acquaintance of mine in Lüleburgaz (Thrace region) advised a prescription which I used, after which I felt great relief. The lady who recommended this had given it to her child. The child was healed as well. The swelling in my throat shrank considerably and now I feel great. The prescription is as follows: 1000 grams of pine honey, 500 grams of ground hazel-nut, 500 grams of butter, one spoon-full of “zerdecal” (Rhizoma curcumae longae) are mixed in a jar and kept in the refrigerator. It is to be taken in the morning one hour before breakfast, and if needed before lunch and dinner. It should be continued until the desired relief is reached.” (19)*

## Garden Cress

Garden cress (*Anethum graveolens*) is a herb most commonly used for the treatment of thyroid diseases. In addition to the honey-garden cress mixture mentioned above we also came across sugar-garden cress mixture [11]. A patient (38) reported the following prescription:

*“250 grams of bitter garden cress seed is divided into five pieces. Each of the pieces is ground in a mortar until powdered. Then it will be mixed with 5-6 spoons of sugar and beaten further. One spoon-full of this mixture is to be taken in the morning with an empty stomach.”*

We also noted the use of plain garden cress and its seed as a medicament. Several prescriptions were described: Boiling one pack of seed with water and drinking one cup of it for a period of 40 days (46); placing seeds under the tongue (this stimulates the secretion of a particular saliva) for 40 days (46); eating green fresh garden cress as much as possible for one year (42).

## Walnut

Fresh green walnuts, at a state just before the flower drops off, was used to heal thyroid diseases (25,37). A fairly small walnut was to be taken orally as a whole with its green parts, with an empty stomach (it had to be swallowed due to its bitter taste) (7,37). This treatment was to be continued for 40 (25) or 90 days. A patient reported that she had to stop walnut treatment because of its bitter taste (37). Walnut treatment was administered by a medical doctor, too (25). It was also reported that this method of thyroid disease treatment was practiced in *Karabük* (Black Sea Region) and *Antalya* (Mediterranean Region).

In addition to the above cited more or less known practices, some rare and individual practices were also related. The primary substances used in these practices are bitter melon (34), drop mastic (3), pine resin (57), creeping thistle (33), mallow (2), radish (54), apple (8), nettle seed (45), flax seed (32), good king henry (31), amber (12), henna (23), parsley (24), sesame (4), zucchini (4), and sweet bay seeds (59). Below are some of the prescriptions prepared using these drugs:

In *Bilecik* (Marmara region) villagers collect creeping thistle (*Tribulus terrestris*, or as known with its local names, “camel collapser or bear shouter”). It is thoroughly washed with its leaves and roots. Then it is boiled and its juice is taken every morning with an empty stomach for a period of two months (33).

A patient described treatment by flax seeds which can be purchased from drug stores. One hand-full of flax seeds was to be chewed and then swallowed everyday

with an empty stomach for six months. This patient’s aunt was diagnosed as having thyroid disease and was advised to go under surgery; however she preferred flax seed treatment; and soon after treatment with flax seeds, she was completely healed and didn’t need to undergo surgery. She herself also tried it, but because it was too bitter and her stomach was effected, she couldn’t take it more than once. (32)

In *Sinop* (Black Sea region) area, good king henry (*Chenopodium anthelminthicum*) is washed, boiled in water and taken with an empty stomach at morning. A patient from this region told us that she drank it’s juice as long as the herb was available all through the year (except August). It grows wildly in grassy areas. The doctor found her condition significantly improved. She said that she heard of people who used this herb and were completely cured.

Another patient said that she boiled 10 bunches of parsley (*Petroselinum sativum*) and drank its juice every morning with an empty stomach. When she came to the hospital for control her doctor asked surprisingly to learn how come her goiter disappeared. The patient related that the doctor advised her to continue parsley treatment until she felt completely well (24).

A prescription related from *Akçakoca* is as follows: Sugar, sesame seeds (*Sesamum indicum*) and nigella (*Semen Nigellae Sativae*) are to be mixed together and taken every morning with an empty stomach for a few months. A patient described the results of this treatment as follows:

*“I used this preparation, but it didn’t cure my swelling, but it slowed down its growth. People who thought they were healed by this preparation have seen that their disease reoccured in a few years.”* (4)

Some other prescriptions prepared from animal products were also cited. One of these is the “hedgehog” treatment, which is eating hedgehog meat. Since hedgehog is a ruminant animal its meat is edible without hygienic problems. However, since this is unusual for Turkish people, patients were not informed of what they ate. The patient who related this treatment method didn’t try it himself, but he reported that his relative who tried it was completely healed (44).

We were informed of a few more treatment practices that patients themselves had “invented.” Some of these might have been hazardous quite easily. For example a patient reported that he put a few drops of “eau de cologne” in one glass of water and drank it. He admitted that nobody advised him to do this, but insisted that he was endowed to this treatment! (2).

## Another patient advised the use of vinegar

“2 liters of vinegar is boiled until only half of it is left in the pot. Then, it is kept overnight under freezing temperature. One spoon-full is taken in the morning with an empty stomach.”

The patient used this preparation for a few days, but had to end it quickly due to its sour taste. He insisted that people who don't give up and continue would benefit from it greatly and would never have to visit a doctor again! (45)

According to two patients, arrack<sup>6</sup> and nicotine was to have healing effects. A patient reported that her friend's uncle was healed and his goiter completely disappeared in a period of six - seven months by consuming half a glass of arrack every day (22). Still another patient said that she had heard from her friends that nicotine could melt goiter if a cigarette is smoked when medicine is taken. She practiced this until she felt relieved from the disease, but said that her swelling reoccured after she gave birth to a baby (58).

## Mystical Practices

Practices that relied on suggestion, inspiration and religious beliefs were also related as ways of treatment. According to one belief, the disease would be healed if the hand of a deceased person is touched on the swelling of the patient (1). A similar practice in *Amasya* involves using the hand of a saint's mummy (55).

Prayer of a head preacher (*sheikh*) was also believed to cure thyroid diseases. A patient related the following story:

“A friend of mine visited a *sheikh*. He prayed for her and gave an amulet to be carried on her. She carried this amulet for a year on her neck without taking it off, even when bathing. After a year she was healed and after the swelling

<sup>6</sup> Strong alcoholic drink with aniseed flavoring made in Eastern Mediterranean countries.

disappeared she no more weared the amulet. She didn't use any medicine.”(42)

Another patient reported her experience with a *sheikh* as follows: “We went to visit our relatives in Rize (Black Sea region). I knew that I had hyperthyroidism (diagnosed by a doctor). My relatives in the village told me that in the town there was a *sheikh* who was specialized in the treatment thyroid diseases. I and my mother visited him. He had me sit across him and started praying and in the meanwhile he touched the swelling and blowed up with his breath on it. After a few minutes he touched with the dull side of a knife on both sides of my throat and kept praying. This took another couple of minutes. He didn't tell us when I should come back for another session or how long the treatment would continue. He just said that he would pray again if we would come back. Next morning, before leaving the town, we visited him again. This was the last time I saw him.” (48)

This patient was not healed and applied to a hospital clinic. After six months of treatment she was relieved from the disease and the doctor asked her to come every six months for control.

## Conclusion

As a result of this study, we reached colorful anecdotes of traditional healing methods practiced by people living in rural regions of Turkey. Some of the empirically used substances, such as salt, moss, sponge, and iodine tincture might have had some effects on thyroid diseases' symptoms. Mystical healing practices depending on suggestion might have influenced psychologically. We also found out that some ignorant patients' practices were quite harmful.

Today's modern surgical operations and the widely used medicine for the treatment of thyroid diseases prescribed by medical doctors have minimized, if not almost finished, the traditional ways of treatment.

Case Nr.	Patient's ID	Age	Province	Educational background	Diagnosis	Application of a traditional treatment method	Outcome of the traditional treatment
1	İ.K.	41	Ordu	Uneducated	Multinodular Goitre	Yes	Unknown
2	S.A.	76	Ankara	Uneducated	Multinodular Goitre	Yes	Positive
3	B.G.	57	Yozgat	Primary School	Multinodular Goitre	No	Unknown
4	M.B.	20	Bolu	Secondary School	Multinodular Goitre	Yes	Positive
5	S.A.	38	Sinop	Primary School	Multinodular Goitre	No	Unknown
6	M.Y.	32	Çanakkale	High School	Diffuse Hyperplastic Goitre	No	Unknown
7	H.M.	34	Siirt	Primary School	Hyperthyroidism	No	Unknown
8	S.D.	21	Balıkesir	Primary School	Diffuse Hyperplastic Goitre	No	Unknown

9	R.D.	22	Rize	Uneducated	Hyperthyroidism	Yes	Discontinued
10	S.Ç.	25	İstanbul	Primary School	Diffuse Hyperplastic Goitre	No	Unknown
11	D.K.	29	İstanbul	High School	Diffuse Hyperplastic Goitre	No	Unknown
12	F.B.	34	Tokat	University	Diffuse Hyperplastic Goitre	No	Unknown
13	M.B.	35	İstanbul	Primary School	Hyperthyroidism	No	Unknown
14	K.G.	35	Tunceli	Uneducated	Multinodular Goitre	No	Unknown
15	F.P.	48	Rize	Primary School	Hypothyroidism	No	Unknown
16	M.P.	39	Edirne	High School	Hyperthyroidism	Yes	Positive
17	N.A.	60	Isparta	Uneducated	Multinodular Goitre	No	Unknown
18	Ü.T.	34	Çanakkale	Uneducated	Multinodular Goitre	Yes	Positive
19	E.C.	66	Edirne	Uneducated	Multinodular Goitre	Yes	Positive
20	Z.D.	55	Bursa	Primary School	Simple Goitre	No	Unknown
21	G.D.	52	İstanbul	University	Diffuse Hyperplastic Goitre	No	Unknown
22	Ş.Ş.	30	Elazığ	University	Simple Goitre	No	Unknown
23	M.E.	47	Kastamonu	Primary School	Multinodular Goitre	Yes	Positive
24	S.Y.	52	İzmit	Primary School	Multinodular Goitre	No	Unknown
25	T.G.	30	Urfa	University	Diffuse Hyperplastic Goitre	No	Unknown
26	S.Y.	44	Hatay	Primary School	Multinodular Goitre	No	Unknown
27	A.S.	20	Afyon	Primary School	Diffuse Hyperplastic Goitre	No	Unknown
28	A.Ş.	52	İstanbul	Primary School	Multinodular Goitre	Yes	Positive
29	U.E.	55	Isparta	Primary School	Multinodular Goitre	Yes	Positive
30	H.N.	41	Ordu	Primary School	Multinodular Goitre	Yes	Negative
31	S.M.	47	Sinop	Primary School	Multinodular Goitre	Yes	Positive
32	G.K.	23	Antakya	Primary School	Hyperthyroidism	No	Unknown
33	Ü.M.	55	Bilecik	Primary School	Multinodular Goitre	No	Unknown
34	N.E.	45	İzmir	Primary School	Diffuse Hyperplastic Goitre	No	Unknown
35	V.K.	40	Giresun	Uneducated	Multinodular Goitre	No	Unknown
36	N.A.	27	İstanbul	Primary School	Multinodular Goitre	Yes	Positive
37	H. A.	22	Antalya	Primary School	Diffuse Hyperplastic Goitre	Yes	Discontinued
38	R.U.	53	İstanbul	Primary School	Diffuse Hyperplastic Goitre	Yes	Discontinued
39	S.U.	25	Artvin	Primary School	Multinodular Goitre	Yes	Unknown
40	Z.Ç.	45	Artvin	University	Multinodular Goitre	Yes	Positive
41	A.D.	26	Çanakkale	Primary School	Hyperthyroidism	Yes	Discontinued
42	H.Ç.	28	Zonguldak	High School	Diffuse Hyperplastic Goitre	Yes	Discontinued
43	N.K.	59	İstanbul	Primary School	Diffuse Hyperplastic Goitre	No	Unknown
44	Ş.A.	25	İstanbul	Secondary School	Diffuse Hyperplastic Goitre	No	Unknown
45	E.K.	58	Edirne	Primary School	Multinodular Goitre	Yes	Discontinued
46	Ş.U.	42	İstanbul	High School	Hyperthyroidism	No	Unknown
47	G.O.	23	Sinop	Primary School	Hyperthyroidism	No	Unknown
48	G.T.	28	Rize	Primary School	Hyperthyroidism	Yes	Negative
49	S.D.	22	Giresun	High School	Hyperthyroidism	No	Unknown
50	Z.E.	33	İstanbul	University	Multinodular Goitre	No	Unknown
51	L.Y.	38	Çorum	Primary School	Diffuse Hyperplastic Goitre	No	Unknown
52	P.İ.	31	Bolu	Secondary School	Diffuse Hyperplastic Goitre	No	Unknown
53	N.D.	26	Bandırma	Secondary School	Diffuse Hyperplastic Goitre	No	Unknown
54	A.E.	35	Kdz. Ereğli	Primary School	Diffuse Hyperplastic Goitre	Yes	Negative
55	S.Y.	33	Amasya	Primary School	Multinodular Goitre	No	Unknown
56	F.K.	32	Sivas	Illiterate	Multinodular Goitre	No	Unknown
57	Z.A.	28	Sivas	Primary School	Hyperthyroidism	Yes	Discontinued
58	Ş.G.	29	Elazığ	Illiterate	Diffuse Hyperplastic Goitre	Yes	Positive
59	G.K.	23	Gönen	Secondary School	Multinodular Goitre	Yes	Positive
60	H.E.	37	Tunceli	University	Multinodular Goitre	Yes	Positive

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Figure 1.

Western Turkey Hacı SEYFETTİN DURMAZ' da  
Şifalı bitki ilâcı bulunur  
Guatr ve şeker hastalarına iyi gelir.  
Deniyenler takdir eder.  
Telefon: 37 GÜRE - EDREMİT  
Telefon: 3900 Kot: 6731 - BURHANIYE  
Adres Mahkeme Mah. Dulluk Cad. Yıldız Sok.  
No: 63/1  
NURETTİN ALTINTAŞ /BURHANIYE

Figure 2 - The business card of a traditional healer in  
Western Turkey

# The Development of Neurology, Neurosurgery and Psychiatry in Turkey from the Ottoman Era to the Republican Period

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## Summary

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In this paper, the development of neurology, neurosurgery and psychiatry in Turkey from the Ottoman Era to the Republican Period is commented and interesting results are obtained.

**Key Words:** Ottoman Era, Republican Period, Medical History, Neurology, Psychiatry.

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We know that medicine has an ancient history. More precisely, it was born when the world and humanity began to exist. It is another fact that there is some kind of instinctive healing among animals.

Sources indicate that people of prehistoric times attributed diseases to supernatural causes and tried to treat them with methods similar to the psychotherapeutic ones of our day. Patients who survived after trepanation were believed to have some mystical powers. After they died, their skull pieces around the hole were kept as amulets to treat epileptics and mental patients. "Rondell" was the name that Broca gave to the pieces of hollow stones used to make necklaces. Until quite recently, such methods were employed by the natives of Pacific islands to fight epilepsy, headache and insanity (33).

In ancient Indian medicine, which dates from around 800 BC, they put patients under hypnosis in the way we do in modern neurology, psychiatry and anesthesia today. In 1840s, English surgeon James Esdaile (1808-1859) saw hypnosis in India as an old method.

Isn't it possible to think that the sleep and dream sessions in the asclepeions of the Aegean region (one of them is in Pergamon in western Anatolia) in mythological Greek medicine period were psychotherapy? It was a quite modern comment then that Hippocrates said epilepsy was more of an organic disease and it had nothing to do with God's punishment.

In ancient Rome in the 2<sup>nd</sup> century AD, Aretaeus distinguished between paraplegia and cerebral palsy for the first time and made an important step in neurology (33).

It is claimed that mental patients were treated in Byzantium in the 4<sup>th</sup> century AD and the health institutions called Morotrophium in Jerusalem in the 5<sup>th</sup> century. However, P.G. Hamlin argues that they cannot be considered psychiatric institutions as there is no document about it.

Medieval times have a very dark history. People always looked at neurological diseases in the light of mysticism and religion. Sources indicate that insane people were even sometimes burnt alive (12, 13).

Here it would be appropriate to mention Ibn Sina and Johann Weyer (1515-1588) in the 16<sup>th</sup> century. Weyer made a step towards modern psychiatry and tried to invalidate the books of medieval priests. His work "Praestigiis Demonium" can be considered to be the first book of psychiatry. Those years saw also the opening of "St. Lazar" mental hospital in Paris in 1662 (32).

In the 18<sup>th</sup> century, Broca found the center of speech impediments in left brain. However, some torturous methods were used in those days to treat neurological diseases. In France, Pinel (1745-1826) got permission from the revolution committee to set 50 insane people in two church hospitals free from their chains and let them sun themselves. B. Rush (1745-1843) can be considered to be the father of modern psychiatry in USA. Pennsylvania hospital was opened in 1756 and psychopaths were assigned hot rooms in it. The advancement in the branch was in the mid-19<sup>th</sup> century. Griesinger was the first in Germany to study psychiatry in terms of medicine. In order to illuminate mental disorders, he compared objective clinical observations with anatomical research results (33).

The findings of such European anatomic pathologists as Westfal (1833-1890), Nissl (1860-1911), Alzheimer (1865-1915) and Spielmeyer about brain disorders paved the way to the illumination of mental illnesses. Psychiatrists called Morel, Magnan and Dunpré attributed mental disorders mainly to genotypes (38).

In 1889, Ewill Kraepelin from Germany determined the four classical types of psychoses (simple, hebephrenic, catatonic and paranoid) and wrote the modern psychiatry book of his time (32-33).

Charcot, Babinski, Dejerine and Berheim were famous physicians who introduced new schools of thought on neurology in France. They pioneered psychoanalysis with their revolutionary ideas about the psychogenic characters of mental disorders and how neuroses happen. Freud was impressed by them.

The source of psychotherapy is Vienna. Karen Horney, Sullivan, Otto Rank and Melanie Klein all followed Freud (21).

Here it would be appropriate to mention also Russian physiologist Ivan Pavlov (1849-1936), who came to prominence in reflexology and psychiatry at the end of the late 19<sup>th</sup> century (32).

Clifford Beers (1876-1943) was a patient who received psychiatric treatment. In his book "A Mind That Found Itself", he wrote about some tragic events in mental hospitals. With the money earned, it was founded the first mental health society in USA (32).

In the beginning of the century, Adolf Meyer and physiologist Cannon created "psychosomatic medicine" with their studies on feelings of being excited. Thanks to the treatments and medications developed, this branch is at a high level today (1).

Neurosurgery emerged in London in 1884 when Rickman Godlee (1859-1925) removed a brain tumor (23).

Arthur Barker (1850-1916) operated on a brain abscess. After that, William Macewen (1848-1924) broke records in brain abscess treatment (100% success in 24 operations) (4).

Victor Horsley (1857-1916) operated successfully on a spinal tumor in 1887.

William Williams Keen (1837-1932) was the pioneer of neurosurgery in USA. William Harvey Cushing (1869-1939) was an authority on hypophysis and sensual nerve tumors (4).

As for neurosurgery and brain surgery in Europe, we can talk about Francesco Durante (1844-1934) from Rome with his "osteoplastic flap" method. Paul Broca (1824-1880) was both an anthropologist and a famous neurosurgeon of his time (4).

Neurology and internal diseases were closely intertwined for a long time, but in 1768, Robert Whytt identified meningitis tuberculoses and in 1770, Dominico Cotugno talked about sciatic neuralgia. James Parkinson described Paralysis Agitans in 1817 and it was Wilhelm Heinrich Erb (1840-1921) who regularized the electrical diagnosis technique.

The beginning of the history of neurological diseases is in France. The branch owes much to Armand Duchenne (1806-1875). He identified Progressive Muscular Locomotor Ataxia and Atrophic Bulbar Paralysis (33).

Here it would be to the point to mention two Spanish physicians. Camillo Golgi (1844-1926) and Santiago Ramon Y. Cajal (1852-1934) from Madrid worked on central nervous system and won the Nobel Prize in 1906 (20).

Psychiatry has sometimes been considered together with neurology and it is the youngest among all the other specialties. It has developed more and more and places founded for mental patients have become more like mental hospitals working in a more humane way. Neuroses began to be analyzed and attracted the attention of such scientists as Sydenham, Cheyne and Trotter. As the branch developed later than the others, it was late in terms of prognosis and classification as well (9).

In 1796, William Tuke established an institute for "Mental Diseases" in York. There was no violence, cruelty and chains in it. Tuke's grandson studied medicine and became a psychiatrist. He made great efforts to assert it as a specialty in England and USA.

Thomas Smith Clouston (1845-1915) from Edinburgh won popularity with his "Textbook of Mental Diseases" (9).

Emil Kraepelin (1855-1926) identified Dementia Praecox and Psychotic Manic Depression. English psychiatrist John Conolly (1794-1860) talked about the concept of moral mental disease and J. C. Pritchard (1786-1848) worked on it. In that period, psychiatry in Germany was placed on a somatic footing and famous psychiatrists were Nasse, Jacobi Heinroth and Ideler (2).

Somatism was improved with the degeneration theories of Lombroso (1836-1909), Benedict Morel (1809-1873) and Jacques Moreau de Tours (1804-1884).

Psychiatry developed with Kraepelin. Ernst Kretschmer related psychoses to character and body types. In his work "Constitution and Character" in 1921, he dealt with psychiatric studies (3).

Freud became the pioneer of modern psychiatry with psychoanalysis. John Elliotson (1791-1868) worked on the mesmerism theory. Hypnotism took its place in psychiatry (3).

## Anatolian Seljuks and Ottoman Period

Anatolian Seljuks placed great importance on hospitals. While some hospitals were built for lepers, some others were for mental patients.

Bursa Darüşşifa was established in Bursa in the 14<sup>th</sup> century (terms like Darüşşifa, Şifahane, Bimaristan, Maristan, Tımarhane, Darüssihha and Darülâfiye were used until the 19<sup>th</sup> century to mean the general hospitals of our day). All kinds of physicians worked at such institutions to treat both normal and mental patients. C. Niebuhr, a Dane who visited Bursa in 1767, reported that mental patients were being treated in Bursa Darüşşifa. After the 19<sup>th</sup> century when modern hospitals began to treat other patients, older ones were reserved for mental patients only and “tımarihane” became the word used for mental hospitals. They were not only treatment centers but also important educational institutions based on a mentor system in which experienced physicians taught and helped less experienced physicians. The one in Bursa had a rectangular shape and a large central courtyard. There were 20 patient rooms in it. Sources indicate that it was planned and built for mental patients. Tacüddin İbrahim b. Hızır Ahmedi (1334-1413), a 14<sup>th</sup> century physician, was also a poet. In his work called “Tervihü'l-Ervah”, he talked about not only organism diseases but also neurological problems in detail (12, 13, 16).

In the religious and social complex financed by Bayezid II and built by Architect Hayrettin in 1488, there was a Darüşşifa (hospital). With its central system architecture, it is an impressive example for both Turkish-Islamic and world architecture. The patient rooms encircled the central courtyard. A hexagonal building with a big hemispheric dome and 12 smaller domes around it was at patients' service. Edirne Darüşşifa served mental patients from the mid-16<sup>th</sup> century to the Balkan War in 1912 and used music for therapy. The famous Ottoman traveler Evliya Çelebi wrote the following about it:

“There were mental patients in some of the wards. Especially in spring months, 3 singers sang songs with a ney (end-blown flute) player, violinist, kanun (string instrument) player and lutenist. There was even a belly dancer. This was done three times a week” (16).

The Darüşşifa could not serve for a certain period of time after the 1876-1877 Russian war and it was reserved for only mental patients after 1894 (16).

Şerefeddin Sabuncuoğlu, who was one of the famous surgeons of the 15<sup>th</sup> century, touched also upon neurological diseases in his work on surgery called “Cerrahiyetü'l Haniye”. He suggested cauterization on the nape and neck to treat amnesia, cauterization in the middle of the head

and nape (neck vertebrae) to treat epilepsy, cauterization in the middle of the head, nape and neck vertebrae to fight paralysis and incision or cauterization of the arteries in the temples on both sides to cure chronic migraine. About hydrocephalus, he recommended excision in the middle of the head on three points, water discharge and 5-day dressing with wine and olive oil (27).

Sabuncuoğlu identified cervical trauma clinically. His primary suggestion for facial neuralgia was medication. In case of failure, he recommended cauterization on lip borders, around ears and the chin (27).

In Manisa Darüşşifa built by Kanuni in 1539 in Manisa, normal patients were treated until it was reserved for mental patients in the late 19<sup>th</sup> century. It served in that way until the 1<sup>st</sup> World War.

Haseki Darüşşifa, which was built in the 16<sup>th</sup> century, was restored in 1913 with the help of the municipality. However, it was not used as a hospital after that. Until the fire in 1918, it served mental patients as a place of isolation and observation.

Süleymaniye Darüşşifa, which was founded in 1556, was also a medical school. It had nearly 50 beds and a staff of 28 to 30. It gave musical therapy in its special neurology unit (16).

Toptaşı Atıkvalide Hospital, which was established in Uskudar in 1583, worked as a general hospital for a long time. In the early 19<sup>th</sup> century, it began to admit mental patients only. Monceri Efendi, who was the first appointed neurologist of the hospital, was a physician of Italian origin. Thanks to the efforts of him, who got “Pinel de Constantinople” as his new name later, instruments of violence like chains and sticks were all thrown away. In the hospital called also “Nurbanu Darüşşifa”, the number of the mental patients in 1908 in the Second Constitutional Era was over 400. It had 9 physicians and 76 caregivers. After Dr. Monceri left, Dr. Castro worked as the chief physician for almost 40 years. In 1919, nearly 300 patients in Şişli French Hospital were transferred there. After it wore out because of the war, Dr. Mazhar Osman took over the management. He converted the mental hospital into a big health institution with its clinics and laboratories (12, 13).

In the work called “Tedbir-i Mevlud”, which the Ottoman physician Hayatzade started and Şaban Şifai completed in 1700, child psychology is discussed and upbringing with violence and ill-treatment is strongly condemned (34, 35).

“Neticetü'l Fikriyye ve Tedbir-i Veladet'ül Bikriyye” is another important work on child psychiatry written in Turkish. The author is Gevrekzade Hasan Efendi, who was one of the 18<sup>th</sup> century physicians. In the sections between

94 a and 104 a, therapy with music is discussed and it is explained which system of melody types is good to treat which diseases (35).

In the work called “Kanunü-l Cerrahin” (The Law of Surgeons) which the Ottoman physician Şanizade Mehmed Ataullah Efendi (at the end of XVIII th century at the beginning of XIXth century) wrote about neurosurgery. He mentioned about the treatment of head injuries. He advised by drainage and repair in treatment of head injuries and also he made trepanations(1) .

## The Development of Neurology in Turkey

The first step towards the modernization of the medical education in our country is the medical school opened for only Greeks in Kuruçeşme (Bosporus) in 1805 in the period of Selim III. The school closed down in a rebellion in 1820. In the period of Sultan Mahmut II (1808-1839), it was desired to open a medical school again (12).

On March 14<sup>th</sup>. 1827 (March 14<sup>th</sup> is still celebrated as the “Day of Medicine” in our country) in Şehzadebaşı neighborhood in Istanbul, it was opened a school in Tulumbacıbaşı Mansion under the name of “Tıphane ve Cerrahane-i Amire”. The medical education there was for 5 years while surgical education lasted up to 3 years.

The school moved to the Gülhane Barracks in Sirkeci in 1836 and the processes of medical and surgical education were combined. The languages used in teaching were Italian and Turkish. The school moved to Galatasaray (the building of Galatasaray High School of today) in 1838. Next year, its name was changed into “Mekteb-i Tıbbiye-i Adliye-i Şahane”. The Associate Professor Dr. A. Bernard (1808-1844) from Vienna was appointed as the educational planner. It was opened to train military physicians only. Starting from 1847, Europeans recognized it as a faculty. The educational period was lengthened to 6 years in 1845 (12).

In 1867, “Mülki Tıbbiye” was opened for civilians. It was in Demirkapı Barracks in Sirkeci. The language of teaching was Turkish (16).

In 1870, the military medical school began to teach in Turkish too. In 1892, the general medicine and surgery groups, who had had different education programs before, were formed into one. In the same year, the construction of a new medical school began in Haydarpaşa. It was opened on November 6<sup>th</sup>, 1903. The military medical school started the 1903-1904 academic year in that new building. On the top floor, there was Dr. Raşit Tahsin’s Mental Diseases Clinic and Dr. Pepo Bey’s Neurological Disorders Clinic.

In 1909, the military and civilian medical schools united to give a modern medical education in Haydarpaşa. Moreover, its name included the word “faculty” for the first time. However, as I mentioned before, the military medical school was already recognized as a faculty back in 1847 (13).

In the 1<sup>st</sup> World War in 1914, the faculty could not give education as all its students had been recruited.

It worked in its first place for 30 years. It was the 1922-1923 academic year when female students were admitted into the faculty for the first time.

With the Great Ataturk’s University Reform in 1933, the faculty moved to the European side of Istanbul. Many Jewish people of science came from Nazi Germany and contributed to the modernization of medicine in the country.

Today, there are 3 medical faculties in Istanbul and 66 (state and foundation) medical faculties all around Turkey. 49 of them actively give education.

Medical schools got interested in neurology only after Turkish was made the language of teaching. Dr. İbrahim Yusuf, who was an 1871 graduate, was sent in the same year to Paris to be trained on neurology and began to work as an associate professor after he came back. Before that, neurology courses were given by internal diseases lecturers. For instance, Dr. Feyzullah Bey taught brain and medulla spinalis diseases (13).

In 1896, Dr. Raşit Tahsin (Tuğsavul) was the first lecturer appointed to the Neurology Clinic of the Military Medical School and pursued his teaching career until 1908 in Gülhane Military Medical Academy.

The first lecturer of the civilian medical school was Dr. Derviş Halil Bey. Dr. Peppo Akşiyote was another member of the teaching staff. In the 1908-1909 academic year when the two schools united, Dr. Derviş Bey was made the head of the neurology department of Haydarpaşa Medical Faculty and Dr. Nuri Bekir Bey became his deputy. In 1909 when Dr. Raşit Tahsin came, the department was converted into a clinic with beds. On the other hand, Dr. Abdi Muhtar Bey was assigned to the Ottoman Medical School of Damascus. In 1910, we see Dr. Peppo Akşiyote as Dr. Raşit Tahsin’s deputy again. He replaced Charcot’s student Colonel Hilmi Kadri Bey, who died in war of typhus (14).

In 1924, neurology became a completely independent branch and Mustafa Hayrullah Diker began to teach about it with the title of “professor”. Gülhane Military Medical Academy, which is a military medical faculty today, played a significant role in the development of neurology.

As I mentioned earlier, in 1910, the famous professor Mazhar Osman Uzman took over the clinic Raşit Tahsin founded in 1898 and managed it until 1918. In the same year, Dr. Nazım Şakir was chosen in place of him (3).

With Atatürk's University Reform in 1933, two neurology clinics were founded in Haydarpaşa Medical Faculty. Prof. Dr. M. Hayrullah Diker and Dr. Fahrettin Kerim Gökay were recommended to be the deputies to manage them. In the meantime; Esat Reşit Tuğsavul (Raşit Tahsin's son), who had been a specialist, became an associate professor. He has important studies on sleep (16).

In 1941, Prof. Dr. F. Kerim Gökay was appointed as the deputy and he became the head of the department in 1942. The associate professors were Dr. Necmettin Polvan in 1942, Dr. Kenan Tükel in 1945 and Sabahattin Kerimoğlu in 1950.

In 1949 and 1950, we see Ord. Prof. Dr. İhsan Şükrü Aksel as the head of the department. Necmettin Polvan took it over in 1950 (17).

The neurology department continued for some time in Bakırköy Hospital, which is a psychiatric hospital now. It moved to Cerrahpaşa Hospital in 1950. In the beginning, it was a 10-bed practice clinic. The number of the beds increased up to 50 in a very short time and laboratories of EEG and neuroradiology were established. In 1959, experimental animal laboratories were opened and Prof. Dr. Sabahattin Kerimoğlu managed the clinic between 1960 and 1963 (17).

In 1963, a reorganization process separated the clinics in Çapa and Cerrahpaşa into two. Prof. Dr. Kenan Tükel, Associate Prof. Dr. Edip Aktin and Specialist Dr. Aynur Baslo founded the neurology unit in Çapa (18).

In 1967, Istanbul Medical Faculty was divided into two and Cerrahpaşa was made a medical faculty controlled by Istanbul University. In the neuropsychiatry unit of Cerrahpaşa Medical Faculty, independent departments of neurology, neurosurgery and psychiatry were founded. The unit was managed by Prof. Dr. Necmettin Polvan between 1967 and 1973 and by Nedim Zembilci after 1973. Today, the neurology unit of Cerrahpaşa Medical Faculty is a department. It comprises the disciplines of EEG, clinical neurophysiology (including sleep laboratories), cerebrovascular diseases, neuroradiology and headaches, neuromuscular diseases and EMG, demyelization, Parkinson's disease and child neurology. There are also animal laboratories for EEG, EMG, neuroradiology, biochemistry and experimental studies (4, 5).

Most of the lecturers in our neurology-teaching history have been sent abroad to specialize in it. Dr. İbrahim Bey

was the first of them. He was sent to Paris in 1871. In 1893, Raşit Tahsin was sent to Germany and came back after working with such well-known scientists as Joyl, Mendel, Binswanger and Kraepelin. Mazhar Osman Uzman went to Germany in 1908 and worked with Spielmeier, Spatz, Jacob, Cerletti and some others. Şükrü Hazım Tiner went to Hamburg to collaborate with Nonne. İhsan Şükrü Aksel went to Munich to work on neuropathology with Spielmeier, and Fahrettin Kerim Gökay went to Munich to do clinical and experimental psychiatry with Kraepelin (3, 17, 30).

With the University Law enacted in 1946, Dr. Necmettin Polvan and Feyyaz Berkay went to the USA with a group of 5 people. They worked with such lecturers as Putnam, Hans Hoff and Pomerat. As part of the Marshall Plan, the military physicians in Gülhane and other military hospitals were sent to the USA and especially to Maryland Bethesda Naval Hospital to gain more knowledge and experience about medicine.

Kenan Tükel worked with Fischgold in Paris. He went to Montreal in 1950 and did research for two more years there. That was the time when hospitals began to buy electroencephalography devices (8).

Dr. Ayhan Songar started his studies on neurophysiology in those years. Dr. Coşkun Özdemir, who was a well-known neurologist, worked in Denmark and Russia on muscular diseases, peripheral nervous system diseases and electromyography (30).

In the late seventies and early eighties, two important developments occurred in neurology. The first one was neurophysiology. Here it is worth mentioning Prof. Dr. Üner Tan. He worked on the field in Germany for a long time and he won TUBITAK and Albert Einstein prizes after he came back. The second development was computerized brain tomography. They both get even better all around the country (17).

In Istanbul today; Istanbul Medical Faculty has 19, Cerrahpaşa Medical Faculty has 24 and Marmara University Medical Faculty has 9 lecturers with postgraduate students who are still specializing.

## The Development of Neurosurgery in Turkey

The earliest specialties that stemmed from general surgery are gynecology and urology. The other surgical branches followed them. Neurosurgery is one of the modern ones in which a striking development has been achieved with great determination since the 1890s.

In his last days, the famous French neurologist Babinski said that he made a considerable forward step by integrating surgery into neurology. He cured a patient by getting the well-known surgeon Lecène to extirpate a medulla spinalis tumor. That was one of the important early operations and they became two of the surgeons and neurologists who have played critical roles in the development of the branch (23).

As the examples of some other pioneers, we can mention the general surgeons inclined to neurology (Von Eiselsberg, Guleke, de Martel, Horsley, Cairns) and the neurologists inclined to surgery (Förster, Tönnis, Cl. Vincent, Puech) (23).

Cushing was undoubtedly the father of modern neurosurgery. The following step was just specialization.

The prehistoric age for neurosurgery is the time of trepanning operations. They were the primitive forerunners of the branch, which was going to flourish in the 10<sup>th</sup> century.

In 1831, Heyman removed a tumor in the parietal bone of a child who had Jackson fits. It is the first case published about (4).

In 1876 and 1879, McEwen was the first to publish about brain abscesses. In 1884, Rickman Fodlee published about his partial removal of a tumor using electrocautery. It was another early publication. In those years, anesthesia and Lister methods began to be implemented with success. Victor Horsley, who was the father of English neurosurgery, achieved success in brain tumor operations. His practices spread in the USA in the 20<sup>th</sup> century (4).

“Hirnchirurgie”, published by Ernest von Bergmann in 1889, is the first significant work on these issues. Otfried Förster from Germany followed him. His studies on neurophysiology are quite famous (11).

Durante, Albertoni and Pastempske are well-known names in Italy about the meningioma operation in 1884.

Neurosurgery in France began with Martel in 1900 (11).

The names to mention in the USA are Birdsall Weir, W. W. Keen and Knapp. They were all general surgeons who got interested in the brain. This was one of the early steps.

The Period of beginning: Studies grew between the 1<sup>st</sup> and 2<sup>nd</sup> World Wars. Later, the development continued at breakneck speed.

The biggest name is Harvey W. Cushing (1869-1939). He thought that good neurosurgery requires neurology, neurophysiology and neuropathology. Thanks to him, neurophysiology became an independent specialty (23).

Adson, Frazier, M. Peet, Sachs and Dandy are from the first generation.

Cairns, Dott and J. Jefferson in England, Cl. Vincent in France and Olivecrona in Sweden are from the second generation.

Neuroradiology began to rise in importance in the USA. Cushing worked on the histopathology of tumors. W. E. Dandy speeded the development by adding *ventriculography* and *encephalography* into nervous system surgery.

Horrax, Baily, Putman, Klenme and Penfiel from the second generation worked on epilepsy surgery. They were authorities on it. Such masters as Popper, Guman, Matson, Cooper, French, and Walker followed them (23).

Neurosurgery finally covered psychosurgery, stereotaxy, cerebrovascular surgery, microneurosurgery, angiography and computerized tomography.

Neurosurgery developed considerably in Turkey as well. Nervous system surgery has been maintained for a long time as a field that our eminent surgeons concern themselves about in situations like wars and accidents.

Our well-known surgeons like Cemil Pasha, Orhan Abdi and M. Kemal treated brain and spinal problems with their technical superiority (4).

In the paper he gave in the International Congress of Surgery in Lyon in 1894, Cemil Pasha indicated that he performed neurosurgical operations just like his colleagues in the western world did. One of them was the treatment of brain abscesses by drainage. His greatest achievement was his localization and treatment of Jacksonian Epilepsy brain abscesses (4).

In 1897, Opr. Dr. Cemil Topuzlu performed laminectomy on a patient with paraplegia and Pott disease. His study was published in *Gazette Médicale d’Orient*. Another important achievement of him was the stitch he put in a cut in the radius-medianus nerves in 1896 (4, 22).

Neurosurgery began to be considered a specialty in Atatürk’s time (7).

According to the famous neurosurgery professor Bülent Tarcan, the development of the branch in Turkey had three phases (18).

1. The period when there were no specialists and neurosurgery was performed sporadically by general surgeons: It started in the time of the solo-virtuosos of Cemil Pasha’s generation and continued until 1930. Skillful surgeons rarely operated in big hospitals (34).

2. The period when neurosurgeons began to appear: Dr. Abdülkadir Cahit, a neurologist who decided to specialize in his field with Prof. Dr. Mazhar Osman Uzman's encouragement, was sent to Germany in 1929 to work with Dr. Förster. After he came back, he performed brain and spinal cord operations in Toptaşı Hospital (Zeynep Kamil Hospital of today). He continued his studies in İzmir.

Dr. Hami Dilek, who was a general surgeon appointed to Bakırköy Psychiatric Hospital in 1932, was sent to Paris to work with C. Vincent. He was awarded a certificate and began to work as a neurosurgeon after he returned. According to Tarcan, he was the first real specialist. He trained many more eminent specialists (23).

In 1935, we see Dr. Cemil Şerif Baydur as a specialist. After he came back from Paris with his degree, he began to work in Bakırköy Hospital in January, 1937 as a neuropathologist and neurosurgeon. His book "Nöroşirürji Bahisleri (Neurosurgery Topics)" was published (23, 24).

Due to the University Reform in 1933, the famous Ord. Prof. Dr. Rudolphe Nissen was in charge of general surgery. He was a representative of the Sauerbruch School. He performed neurosurgery besides all the other surgical operations. However, he needed neurologists for localization (7).

In the meantime, Operator Şevket Bey in Gülhane Military Medical Academy operated on a craniopharyngioma and the well-known surgeon Dr. Nimet Taşkıran in Haydarpaşa Numune Hospital operated on a chiasma chordone. They both published about their operations (6).

3. The period when neurosurgery became an independent surgical branch in Turkey: The Regulation on Specialty in Medicine issued in 1947 recognized neurosurgery as an official specialty. In 1946, his university sent our famous neurosurgeon Feyyaz Berkay to the USA. He worked there with Prof. Dr. Klemme and returned in 1951. At that time, a ward of 45 beds in the first surgery clinic was allocated for neurosurgery patients. In 1954, while neurosurgery was a division in the neurology building, operations were performed on the top floor. Berkay founded the first modern neurosurgery clinic at Istanbul University Medical Faculty and became a professor in 1964. In 1971, he created a completely independent department with 17 beds. Later, the number of the beds went up to 27. He trained such important neurologists as Dr. Ertuğrul Sayın, Dr. Ali Çetin Sarioğlu and Dr. Nejat Çıplak (6).

Today, Cerrahpaşa Neurosurgery is a modern institution where *stereotaxic* and micro-neurosurgical operations are carried out. Prof. Dr. Berker is one of the founder members and former presidents of Turkish Neurosurgical Society. Due to the Regulation on Specialty in Medicine enacted in 1962, the branch requires 5 years of education now. Today, Istanbul University Cerrahpaşa Medical Faculty serves with its 11 lecturers.

The clinic in the Çapa Campus of Istanbul Medical Faculty was founded by Dr. Bülent Tarcan. He went to England in the early 1950s and came back in 1953 after working there with such authorities as Prof. Dr. D. W. C Northfield, Prof. Dr. Norman Dott and Dr. Pennyhaker (10).

Using also his own money, Tarcan began to run the neurosurgery unit. In 1966, it was put under the control of the neuropsychiatry department. In March, 1968, the unit began to work as an independent organization in the faculty. Tarcan continued his studies there until the beginning of 1984. The first associate professor of the department was Umur Kaya. Associate Professor Doctor Hüsamettin Gökay was appointed in 1968. Many specialists of the field have been trained there.

Hacettepe Neurosurgery was founded in 1960 by Dr. Nurhan Avman. Ankara Medical Faculty had it in 1965. The other medical faculties followed them and they are still developing (11).

In Istanbul, Istanbul Medical Faculty has 10, Cerrahpaşa has 11 and Marmara Medical Faculty has 4 lecturers working on the field.

## The Neurosurgery Society In 1968

There are related departments also in the other medical faculties of our country and state hospitals.

The periodical "Modern Cerrahi ve Nöroşirürji Mecmuası (Revue de Chirurgie Moderne et de Neuro-Chirurgie – Modern Surgery and Neurosurgery Journal)", published between 1936 and 1947, is one of the earliest ones in the world. It was in Turkish and French (24).

## Psychosurgery in Turkey

The pioneers of modern psychosurgery are the Portuguese neurologists Antonio Egas Moniz and Almeida Lima. They were the first to do prefrontal leucotomy.

They reported successful results about 22 cases (manic depression, schizophrenia, anxiety neurosis, melancholia). Moniz won the Nobel Prize in 1949. Walter Freeman and James W. Watts followed them. The new method was prefrontal lobotomy.

Psychosurgery began in our country in the 1950s (40).

It was Dr. Ertuğrul Saltuk (1914-1980) who reported the first case on November 3<sup>rd</sup>, 1950. He made a publication in 1952 with the name “Lobotomy, the Technique”, which presented 70 cases. 49 of them were about schizophrenia, 3 were about mania, 3 were about depression and 2 were about dementia paranoia while the others were on such diseases as epilepsy and Parkinsonism. 12 patients died because of various reasons.

Another important neurosurgeon was Dr. Feyyaz Berkay (1915-1993). He reported 28 cases in 1952. He worked with psychiatrists in all of them. 17 were about schizophrenia and 2 were on agitated depression with psychosomatic pains. All the patients went home fully recovered. The operations were unilateral or bilateral or bifrontal lobotomies. Most of the patients died of infection. He reported 200 lobotomy operations in 1980 (40).

Dr. Kazım Dağyolu was antagonistic. He talked about the high risks of epilepsy, death and cardiac problems caused by frequent operations (40).

## Psychiatry

Turks have always considered mentally ill people to be “patients”. Ibn Sina was the first who indicated that nerves provide the connection between the brain and senses and actions. Turks noted that “lunatics” should be helped and protected much more than normal people are.

Sultan Mehmet, the Conqueror of Istanbul, built a mental hospital called “Bimarhane-i Ebulfeth Sultan Mehmed”, in which mental patients slept in bedsteads made of walnut. They were treated with music. Moreau de Tours and Esquirol, who visited the hospital in 1842, stated that they were impressed with what they saw there (5).

“Toptaşı Bimarhanesi” is a hospital of more recent times. It is also called “Bimarhane-i Valide-Atik”. Mongéri Père, who was an Italian head physician of the hospital, has an important place in our history of psychiatry. He first had to fight the cholera epidemic that broke out in Crete. He stayed in our country between 1848 and 1882. He managed Süleymaniye Bimarhane (Hospital) for 17 years and, after shutting it down, he took over the management of Toptaşı Bimarhane (Hospital). According to him, insanity was an illness and it had to be treated as an illness. He founded “La Paix French Medical Hospital” in Şişli together with Abdülhamit II’s daughter Cemile Sultan (16). Toptaşı Hospital is an institution where Mazhar Osman worked as the head physician and such eminent professors as İhsan Şükrü Aksel and Fahrettin Kerim Gökay were trained. By the way; we should also mention Raşit Tahsin Tuğsavul

from Gülhane Military Medical Academy. He is one of the creators of modern neurology and psychiatry. He taught both at Gülhane Military Medical Academy and Civilian Medical School until the 1933 Reform. He was the first to teach about “Electrical Diagnosis and Treatment”. He is among the founders of Turkish Green Crescent Society (an anti-alcohol organization). He has a book called “Seririyat-ı Akliye Dersleri (Neurology Clinic Lessons)” (14).

On June 15<sup>th</sup>, 1927, Toptaşı Hospital moved to Bakırköy Psychiatric Hospital. Istanbul Medical Faculty Psychiatry Clinic served there until 1954. In the same year, Ord. Prof. Dr. İhsan Şükrü Aksel moved the clinic to its new building in Çapa.

In the Ankara Medical Faculty established in 1945, the neuropsychiatry lecturer Dr. Nazım Şakir Pasha founded the Psychiatry Clinic. Prof. Dr. Rasim Adasal, who is a big name in our history of psychiatry, became the director (8).

In 1963, Istanbul Medical Faculty was reorganized and a psychiatry clinic was founded in Cerrahpaşa Hospital. Associate Professor Dr. Ayhan Songar managed it with his two assistants. It was in a quite small place with 20 beds. When Cerrahpaşa had the second faculty in 1967, the number of the beds went up to 100 and the clinic became a department (12).

Here we should mention some big names.

İhsan Şükrü Aksel is the father of biological psychiatry. He wrote a book called “The Anatomy of Psychoses”.

Rasim Adasal was the follower of the “Analytical Psychiatry School”. He was the first in our country to talk about “medical psychology” and wrote a book with that name.

Necmettin Polvan was interested in psychopharmacology and worked on the neurological fundamentals of psychiatric syndromes.

Kenan Tükel placed great importance on neurophysiologic knowledge in which neurology and psychiatry are basically in agreement. He introduced electroencephalography in Turkey.

Fahrettin Kerim Gökay taught both psychiatry and neurology; created “social psychiatry” and his book “Ruh Hastalıkları (Psychiatric Disorders)” had 5 editions. He founded “Akıl Hıfzıssıhhası Cemiyeti (Mental Health Society)”.

Turan İtil, who was a psychiatry professor at New York University, introduced the “Computer-EEG (computerized electroencephalography)” technique, which is applied all around the world today. This is a very important method in

terms of not only the research into the effects of medications on nervous system but also the objective diagnosis criteria of many psychiatric syndromes and diseases (13).

Faruk Bayülkem was an authority on the theory and practice of rehabilitation and occupational therapy for big groups of mental patients.

Süleyman Velioglu, a lecturer at Istanbul Medical Faculty, implemented the “psychopathology of expression” method, which is also known as “Psychopathologic Art”.

Psychologist Dr. Rahmi Oruç Güvenç contributed to the field with his studies on therapy with music and ethnomusicology (5).

Prof. Dr. Abdülkadir Özbek from Ankara University employed psychodrama as a psychotherapeutic method. Ayhan Songar came to the field of psychiatry from physiology. That was the time of biologic psychiatry. When he got involved in the field in 1950, pharmacotherapy was so limited in psychiatry. Only some opium derivative bromides, phenobarbitals and vitamins were in use. 3 years after chlorpromazine was synthesized in 1952, Songar used it and EEG together. When biophysics was added into medical education, Songar had begun to teach about medical cybernetics (28, 29).

Geriatric Psychiatry department was founded in the psychiatry unit of Cerrahpaşa Medical Faculty established in 1963. The head of the department was Associate Professor Dr. Engin Eker. He still holds his position as a professor (31).

The psychiatry unit of Istanbul Medical Faculty has a child psychiatry department with eminent lecturers such as Prof. Dr. Rıdvan Cebirođlu and Kayhan Aydođmuş.

When it comes to written works, Mazhar Osman Uzman’s “Tababet-i Ruhiye (Psychological Medicine)” and “Psikiyatri (Psychiatry)”, İhsan Şükrü Aksel’s “Psikozların Anatomisi (The Anatomy of Psychoses)” and “Psikiyatri (Psychiatry)”, Rasim Adasal’s “Medikal Psikoloji (Medical Psychology)”, Ayhan Songar’s “Psikiyatri (Psychiatry)”, “Nöropsikiyatri (Neuropsychiatry)”, “Temel Psikiyatri (Basic Psychiatry)” and “Psikosomatik Hastalıklar (Psychosomatic Diseases)” (a translation from Ruben Plozza) can be given as the examples of the books. Some others are Kriton Dinçmen’s “Deskriptiv ve Dinamik Psikiyatri (Descriptive and Dynamic Psychiatry)” and Adnan Ziyalar’s “Sosyal Psikiyatri (Social Psychiatry)”, “Psikiyatri Lügatı (Psychiatric Dictionary)”, “Psikiyatrik Semiyoloji (Psychiatric Semiotics)” and “Medikal Psikoloji (Medical Psychology)” (31).

The journals on psychiatry are İstanbul Seririyatı (Istanbul Clinic) (not published anymore), Acta-Neuro-Psychiatrica and Tıp Dünyası Dergisi (Medical World).

### **A Great Institution in the History of Turkish Neurology, Neurosurgery and Psychiatry: Bakırköy Education and Research Hospital of Psychiatry**

There were some plans to close down Toptaşı Bimarhane (Mental Hospital) and found a modern institution for mental patients. The poorhouse in Şişli and even Çamlıca Hill on the Anatolian side of Istanbul were considered appropriate for the building site but it did not happen. The next plan was to build a hospital on the land of Bakırköy Reşadiye Barracks with the Great Ghazi Mustafa K. Atatürk’s consent and Cabinet’s decision. The minister of health was Dr. Refik Saydam then. The hospital owes everything to that gentleman (5, 16).

The barracks were reserved for French soldiers during the armistice period. After being evacuated, they were occupied by tramps and badly damaged (5).

Baths were added to the barracks repaired. Corrections were made step by step. Wires were connected inside the buildings so that electricity could pass through. Water was provided from an artesian well nearby. Vegetables, wheat, melons and water melons were cultivated on a land of 1000 square meters. When fruit trees were planted, the hospital looked like a farm. 90% of the workers were patients, so some kind of rehabilitation began on the very first day. The number of the patients in 1933 was nearly 1500 and the hospital had 21 pavilions. Its name was “İstanbul Emraz-ı Asabiye ve Akliye Hastanesi” then. In 1935, the twenty-second pavilion was built for children and lepers. The twenty-third one was built in 1936. A polyclinic was added in 1937. The next year, the central building and the restaurant were built. The artesian water was now stored in a reservoir of 70 tons (28).

Later on, laboratories were established for modern psychiatry. Due to the University Reform in 1933, the neurology and psychiatry clinics of the medical faculties were moved to Bakırköy Hospital and this played a crucial role in the acceleration of the scientific and administrative development. The interns were trained in groups for a month with strict discipline (5).

Some of the patients were inpatients. Most of them were just rehabilitated. Scientific, work-focused and versatile rehabilitation based on treatment with entertaining activities and dynamic psychopathology was possible only if applied completely and faultlessly. Therefore, starting from 1960, a revision started under the supervision of a committee of science and the hospital was reorganized according to the requirements of modern psychiatry. Workshops were opened. Patients were now cared for by physicians, psychologists, teachers and nurses. They had group psychotherapies and psychological tests to see how rehabilitated they were (5).

A library with over ten thousand books and magazines was set up. Patients began to publish a magazine called "Kendi Sesimiz (Our Voice)". The sports facilities gave them the chance to do different kinds of sports. A theatre club was started. Concerts were given in the music club. Some useful films were shown with a mobile cinema system.

In the hospital almost 50 years old, academic activities have never stopped. Weekly and monthly meetings, conferences and seminars are still held. Studies on the pharmacotherapy of mental patients are carried out (5).

A unit with beds is in service for child neuropsychiatry. Another one is used for the treatment of alcoholics. A social psychiatry polyclinic was founded in 1999.

In order to publicize the hospital, many works of art that patients in different Anatolian cities produce are exhibited.

Since 1960, facilities for lepers have been built and improved in the hospital campus. The old pavilions were restored. A modern biochemistry laboratory was established. New restaurants, modern rehabilitation units and laundries were built. A new mental disorders pavilion with 6 floors and 300 beds and a brain surgery unit with 5 floors were established. The modern mental disorders pavilions have 1000 beds in total.

Some of the well-known head physicians of the hospital are Ord. Prof. Dr. Mazhar Osman Uzman, Dr. Ahmet Şükrü Emet, Dr. Faruk Bayülkem, Dr. Yıldırım Aktuna (former minister of health) and Prof. Dr. Arif Verimli. Specialists, psychologists, pharmacists and dentists work for the hospital. As a big institution which helped many great neurologists, psychiatrists and neurosurgeons to be where they are, it still functions as an education and research hospital. In two separate complexes, it serves with over 70 buildings, 2000 beds and 1600 employees. In 1998, the number of the polyclinics was around 160.000 (5).

The emergency room of psychiatry is in service for 24 hours.

The polyclinics of neurology, neurosurgery and AMATEM (the research, treatment and training center for alcohol and drug addicts) serve independently. A computerized system is used for registration.

Call centers for problem-solving (Help-line) were established. There are telephone numbers to prevent suicide attempts (182) and help people about their marriage problems and drug use.

As a first in our country, UMATEM (the treatment and rehabilitation center for volatile substance abuse) was founded with 20 beds to help street children (5).

In the 2000s, a modern building with 120 beds was built and the hospital began to use TVs, cameras and monitors for

security and patient follow-up. The toxicology laboratories were reorganized. A Gas Chromatography Device was provided from WHO.

The digital angiography and tomography units are in service.

The ceramics and art studios were restored. A land of about 8000 square meters was converted into a garden called "The Daylight Garden", in which 500 hundred patients can walk comfortably (5).

## Mental Health Dispensaries

They are institutions working under the control of mental hospitals to maintain and improve the mental health of the society. They give protective outpatient treatment.

They serve as a bridge between the hospitals and people. Dr. Faruk Bayülkem, a former head physician of Bakırköy Psychiatric Hospital, put in a great deal of effort for them and had a great success.

İstanbul Aksaray (07.07.1962) Mental Health Dispensary, Kocamustafapaşa and Kasımpaşa Dispensaries (1963), Eyüp Dispensary (1964) and Sağmalcılar Mental Health Dispensary (1965) are the first ones founded under the control of Bakırköy Hospital.

These dispensaries employ psychiatrists, psychologists and psychiatry nurses. They are always in coordination with the hospital. Moreover, they collaborate with parent-teacher associations (5).

## İlk Gündüz (The First Daytime) Hospital

It was founded on 13.06.1970 under the control of Bakırköy Hospital. It has two units.

1. The Mental Health Polyclinic
2. The Daytime Hospital

It serves in a building of the Directorate of Foundations in Beşiktaş, Akaretler. It cares for mental patients all day long with a specialist physician, four psychologists, four paramedics and a secretary.

Daily excursions are made to rehabilitate the patients (5).

## Mazhar Osman Uzman (1884-1951)

Mazhar Osman, who is an unforgettable Turkish physician, laid the foundations for specialty in neurological disorders in our country.

He was born in Sofulu (Dede Ağaç) in 1884. He finished the elementary school in Kırklareli and high school in İstanbul Uskudar before starting the Military Medical School (Mekteb-i Tıbbiye-i Şahane) (Galatasaray Tıbbiyesi). In 1904, he graduated with the rank of captain as the most successful student and became a military physician. After doing his internship for a year in Gülhane Military Maneuvers (Medical) School, he joined the neurological diseases unit as an assistant and became an associate professor in 1906. He went to Germany in 1908 to work with Prof. Kraepelin, Prof. Ziehen, Spilmayer, Spatz, Jacob and Garletti in Munich and Berlin Clinics. In the same period, he also worked as the head physician at Haseki Mental Disorders Observation Clinic (3).

After coming back to his country in 1911, he resumed his duty at Gülhane Military Medical School. In 1918 during the 1<sup>st</sup> World War, he was appointed to the Neurology Clinic of Haydarpaşa Hospital. He was elected the head physician of İstanbul Emraz-ı Akliye ve Asabiye Müessesesi (Neurological Disorders Institution) opened at Şişli French Hospital during the war. He created his own school there to attract young physicians to neurology, which had always been neglected and despised up until then. He became the head physician of Toptaşı Bimarhane (Mental Hospital) in 1920. With the help of the minister of health Dr. Refik Saydam, he acquired the land that belonged to Reşadiye Cavalry Troop in Bakırköy in İstanbul and moved Toptaşı Bimarhane to its new building in 1927 after founding a modern hospital there. With the 1933 University Reform, he became a Professor Ordinarius (professor of professors) at İstanbul University Medical Faculty and worked there until 1951 when he died (5).

Besides his ordinary lessons, he taught at Military Medical School on neurological disorders in the evenings. He even made case presentations in his lessons. He taught and presented cases about almost everything including Charcot's hysteria and Babinsky's pithiatism (39).

He proved with cases that hysteria is not common only among women.

He chose his first assistants during the time when he was the head physician at Şişli French Hospital. Two of them were Ahmet Şükrü and Kemal Osman (14).

Mazhar Osman used to work so hard. His assistants could not have any days off for long periods of time and they had to work as much as he did. He got them to organize seminars once a month and discuss about cases.

He has two books called "Tababeti Ruhiye (Psychological Medicine) (2 volumes) and "Asabiye ve Akıl Hastalıkları (Neurological Diseases)" and more than 300 medical and paramedical articles in Turkish and foreign languages. He published the "İstanbul Clinic" journal. He is one of the

founders of Green Crescent Society. He was a member of French Society for Neurology, German Society for Psychiatry and New York Neurological Academy (14).

He proved that the overuse of marijuana might cause early dementia and syphilitics who get only salvarsan treatment have more nervous system disorders. He is one of the first physicians who pointed out that sleep disorders might be seen without any classic symptoms. His modern book on mental disorders is a first in our country.

He participated in many national and international congresses (19).

At the night of August 31st, 1951, we lost our beloved professor of professors because of heart failure. His death had major repercussions not only in the country but also in the world of medicine. His biography in Revue Neurogigue ends as follows: "He was a man loved and respected by everyone". May God bless his soul!

## **Ord. Prof. Dr. Fahreddin Kerim Gökay (1900-1987)**

He was born in the famous Western Anatolian city of Eskişehir in 1900. His father was a merchant and his mother was a house-wife. He educated at primary school. Besides reading and writing, he also received an education in the teachings of the Quran.

In 1915 he graduated from high-school and he was admitted to the **Haydarpaşa Medical Faculty (İstanbul Darulfunun Tıp Fakültesi)**. During his first year at the faculty, he wrote a dissertation on public health, on the subject of the measures to be taken for preventing mosquitoes transferring malaria to humans.

This dissertation was published in the local "Karacahisar Gazetesi" in Eskişehir.

He became the president of the "İstanbul Student Association".

He graduated from the faculty in 1922, also earning the title of "specialist in mental illnesses" (Emraz-ı Akliye) (2).

In 1923 he worked with Prof. Kraepelin in Munich, then went to Vienna to work at the Clinic of Wagner von Jauregg for seven months.

He returned to Turkey in 1924 and began his official career at the "İstanbul Emraz-ı Akliye ve Asabiye Hastanesi Tecrübi Ruhiyat Laboratuvarı" (The İstanbul Hospital for Mental Diseases) where he became the chief of the experimental laboratory for mental diseases in 31 May 1924 (5).

Later he was appointed as an associate professor of clinical mental diseases at the İstanbul Medical Faculty.

During the University Reform of 1933 by Atatürk he was appointed as a professor to the Second Clinic of Mental Diseases. In 1941 he became the director of the Clinic for Mental Diseases. Later he became a senior professor (Ordinarius Prof.) at the same clinic.

Prof. Dr. Fahrettin Kerim Gökay participated many various congresses about Hygiene of Mental and Neurology. He was selected as a member of "International Community of Drinks" in 1946 and also was selected as a member of "International Federation of Health of Mental Community" in 1948 (18).

Alongside with those memberships he was charged at "Council of Criminology" at the university. In the "Assemble of Education" and "The Turkish Society of History and Language" (8).

He published some periodics such as "Tıp Dünyası (World of Medicine)", Yeşilay (The Green Crescent).

He became as a publication director of "Medical Faculty, Medical Bulletin of İstanbul".

He worked as a chief of many societies such as "The Green Crescent, Red Crescent (Turkish Red Cross)", "The Committee of Turkish Medicine", "The Mental Hygiene", "The Association of Professors" etc.

He published many researches in French, in German and in English in Medical Bulletins.

He was selected to "The association of German Neurology" and "The association of French Medico-psychology" as a member.

In 1949 in February he was elected to the "Committee of Health under Health Ministry" and also was elected to the "Turkish Tourism Association" as a member.

He retired in 1949 from İstanbul University. The same year he was appointed to the "Governor of İstanbul and mayoralty of İstanbul" at the time of CHP Government. In 1952 it was given to Gökay Legion d'Honneur Medal by France Government. His position continued until 1957 (17).

In 1957- 1960 he was appointed to the Ambassador of Bern and he was selected as a member of the Turkish Parliament from Y.T.P.from İstanbul (1961- 1965) (31).

He became Minister of Health in 1963 before his disposition he was in charge of Minister of Public works in 1962 when İsmet İnönü was the Prime Minister.

In 1965 he retired from Politics and he started to work in his own garden as growing his beloved red roses (28).

He founded Lions Club for the first time in İstanbul in 1963.

He founded many establishment such as Migros (very famous market in Turkey) , Tanzim Satışları ( it means general stores for food which were established by municipalities).He was also in the service of education of İstanbul City, he founded approximately 60 schools.

Gökay attached importance to the historical monuments such as Mosques. Most of them were restored. He made many campaigns towards to smoking and drinking alcohol.

He also founded a special library named Fahreddin Kerim Gökay.

His name was given to a main street in İstanbul in Göztepe and also in Bilecik which is another beautiful city in Turkey. His name was given to a high school (37).

We have given samples of his activities socially who also made a lot of contributions on psychiatry and medicine in our country which made him an honorable teacher of all medical doctors in Turkey. He also served İstanbul by creating a foundation that he put all his financial assets into. Dispensaries under that foundation are placed in Göztepe, Taşdelen in Çekmeköy. He examined psychiatry patients every Thursday in those dispensaries during the 70s.

In 2006 in the dispensary in Göztepe; on Mondays psychiatry patients and on Fridays auto rino larengology patients were examined for free. In Taşdelen dispensary pediatric and gynecology departments are on service.

He was married but had no kids. His brother named Hüsamettin Kerim Gökay is still alive and he is a famous neurosurgeon.

For his memory, we still respect and pray for him.

## **Prof. Dr. Bülent Tarcan (1914-1991)**

Bülent Tarcan is one of the renowned versatile people of our country, who excelled in medicine, surgery and Turkish-Western music at the same time as a product of the cultural renaissance in Atatürk's time. He was also a doyen professor of neurosurgery.

He was born on August 23<sup>rd</sup>, 1914 in Istanbul. His father was the military physician A. Rıza Tarcan. Both his father and mother were traditional music lovers.

He got interested in classical music when he was only 11 years old. He listened to Italian operas at the age of 12 and his interest grew even stronger. He had already learnt how to play the mandolin then. He finally focused

on the violin and he was 16 years old in 1930 when he played in an orchestra in Izmir for the first time. In 1931, he finished high school and began to study medicine. In 1932, he added training to his love of music at Istanbul Conservatoire(7) .

When he finished his medical education in 1937, he had made significant progress in music as well. Cemal Reşit Rey advised him to compose music. He was a great admirer of Chopin, Brams and Schumann.

In 1939, he became a surgery assistant. In the meantime, he had military service for three times during the Second World War.

In 1944, he was a specialist chief assistant. He became an associate professor in 1948. Music was now a passion for him and he had never abandoned it. He had an orchestra consisting of physicians and he was playing in the orchestras of the conservatoire and a radio station (6) .

In 1950, he went to London to specialize in neurosurgery. He worked with Northfield there. The difficulty of his studies distracted him from music until 1954. He even planned not to compose anymore and play in chamber orchestras only.

His first book was “The Essentials of Neurosurgery”, which included translations from Leslie Oliver. It is the first published work on the field in our country.

Tarcan got back to his music life and, with his ballet suite on Turkish folk motifs; he became the winner of a competition held by a bank. His work was played in Brussels. He was now an international composer (45).

He was promoted to professorship in 1961. In 1968, Istanbul Medical Faculty started studies on the independence of neurosurgery. Until then, it was a department with 17 beds in the second clinic of surgery (34).

Professor Tarcan was one of those who pioneered the establishment of neurosurgery in our country. In 1971, he went to Switzerland and Germany to follow the developments in the field. He took the courses Professor Yasargil gave in Zurich. He learnt the microsurgery techniques. He took part in intracranial aneurism operations. He worked on trigeminal intervention techniques and he got his faculty to buy the equipment and operation microscopes needed to apply the techniques.

He worked with Prof. Penzholz and Prof. Gainshirt in Heidelberg in Germany. He followed closely the use of microscope in the treatment of hypophysis cancers. He introduced the “Transsphenoidal” method in our country.

Karl Berger was his first teacher when he started music. By the time he became a physician, he had already written his first violin and piano sonata numbered “Opus I”. It was played by Ankara Radio. “Opus II” was the piece called “Yankı (Echo)” and it was played in a concert. After that, he wrote a concerto for the piano. His orchestra prelude “Leila and Mecnun” is very famous.

As a very good music critic, Bülent Tarcan loved not only western music but also classical Turkish music. He supported the current of polyphonic Turkish music. He fully appreciated Dede Efendi and Hafiz Post from earlier times.

Tarcan, who was an internationally known musician, was also a good poet. However, this has never come to the fore as he did not publish his poems (45).

He had an excellent command of grammar. He spoke English, German and French very well while his Arabic and Persian were at the intermediate level.

He represented our country in Budapest in March, 1975 in the international meeting held for “Bela Bartok”. He entered the “Asia Radio” contest in Tokyo in 1966 and he won it with his 7-second radio signal “little melody”.

After retiring from Istanbul Medical Faculty Neurosurgery Department in 1984, Prof. Dr. Bülent Tarcan taught “composition” at Mimar Sinan University Istanbul State Conservatoire (34) .

## Here are his other works

Introduction, Passacaglia and Füg (1961)

Hançerli Hanım (The Woman with a Dagger) (1965)

Obualı Dörtlü (Oboe Quartet) (1968)

Keman Konçertosu (Violin Concerto) (1968)

## His Orchestrations

Deli Dumrul (Dumrul the Crazy) (1977)

Piyano Konçertosu (Piano Concerto) (1980)

Sirto (Syrtos) (1980)

Sakarya (1983)

Ölümsüz Mimar (The Immortal Architect) (1986)

Parafraz (Paraphrase) (1986)

Just like him, his three brothers are musicians and his daughter is international piano virtuoso Hülya Tarcan.

We lost our estimable teacher in 1991. He was a contemporary of great Turkish composers Ahmet Adnan Saygun, Cemal Reşit Rey and İlhan Usmanbaş. We remember him with respect and gratitude (34).

## Prof. Dr. Özcan Köknel

Köknel, who is one of the big names of psychiatry in Turkey, was born on March 23<sup>rd</sup>, 1928 in Istanbul. He had elementary and secondary school education in Anatolian cities. In 1946, he finished Kabataş High School with outstanding success. He graduated from Istanbul Medical Faculty in 1952 and became a physician. After having his military service, he worked at Adana Workers' Insurance Dispensary in 1954 for a short period (42).

At the end of the same year, he became an assistant at the psychiatry clinic of Istanbul Medical Faculty and in 1958; he became a neurology specialist with his thesis called "LSD-25". He worked as a specialist between 1958 and 1963 and proved how hardworking and productive he is with his 20 publications (5).

In 1959 and 1960, he worked at Kantonspital University Clinic in Zurich and broadened his knowledge and experience on EEG there.

In 1962 and 1963, he worked on psychopharmacology with Prof. C. L. Cazzullo at "Universite degli Studi di Milano Clinica Psichiatrica" in Milano and he was awarded a certificate with his thesis (43).

With his thesis "Electro-stimulation of the Olfactory Nerve in Various Psychoses and Psychoneuroses and its Results", he became an associate professor in November in 1963.

Köknel was made a professor in 1968. In 1971, he attended the "Psychotropic Drugs" seminar in Denmark held by World Health Organization. In 1973, he researched into drug addiction in London (5).

He specialized and became an authority in three main fields. They are pharmacotherapy in psychiatry (his book "Pharmacotherapy in Psychiatry" published in 1965 is one of the 10 most influential works of the field in the world), drug addiction and problems of youth. Besides his books and national and international publications, he has radio and TV talks, conferences and newspaper articles on those issues.

After 1973, he focused on alcohol and drug addiction.

His study "Heroin Addiction" won the "Sedat Simavi Prize" in 1983.

He joined WHO as the representative of Turkey between 1971 and 1980 and submitted annual reports.

He has a series of 13 books for public use (5).

He is a member of 6 national societies like Turkish Neuropsychiatric Society, Turkish Mental Health Society and Turkish Electroencephalography Society. The Royal College of Psychiatrists, Society for the Study of Addiction, UNESCO National Commission of Turkey and Societe Royal De Medicine Mentale De Belgique are 4 of the 6 international societies he is a member of.

Some of his publications are as follows (18):

1. A.C.T.H. psikoza vak'ası Münasebetiyle (1954) (In Reference to the Case of A.C.T.H Psychosis)
2. LSD-25 in Kliniği (His thesis of specialty) (1958) (The clinic of LSD-25)
3. Yeni bir alkolizm tedavisi (1958) (Acta Neuro-Psychiatrica. pp. 3-4 (1958)  
(A New Alcoholism Treatment)
4. 4-Les resultats de L'application du LSD-25 chez des normaux et des psychotiques. A. Neura-Psychiatrica (1959) (The results of the application of LSD-25 on normal people and psychotics)
5. Epilepsi ve şizofreni (Epilepsy and Schizophrenia) Yeni Tıp Alemi p. 113 (1961)
6. L'effet de la stimulation ol factive chez des psychotiques et des Psychonevrotique. XXVLLL. Congresse Nazionale Della Societa Italiana di Psichiatrica Napoli(1963)
7. Yüksek Öğrenim Gençliğinin psiko-sosyal problemleri Mayıs 1966 tarihli rapor (The May 1966 Report on the Psychosocial Problems of University Students)
8. The Importance of drug induced side effects in Psychiatric prognosis and in the choice of neuroleptics.  
Proceeding of the IV. World Congress of Psychiatry. Madrid (1966)
9. Çalışan çocuk ve gençlerin psikolojik ve psikiyatrik meseleleri (The Psychological and Psychiatric Problems of Children and Young People Who Work)  
Çocuk ve Genç İşçilerin Korunması Semineri (1968) (The Seminar on the Protection of Child and Young Workers)
10. Türk Toplumunda Cinsi Eğitim (Sexual Education in Turkish Society)  
Sosyal-Psikiyatri Toplantısı (Social Psychiatry Meeting, 08.05.1971)
11. The use and misuse of drug in Turkey. XXV. World Medical Assembly-Ottawa, (1971).
12. Alkoliklerin kişilik yapısı (The Personality of Alcoholics)  
Tıp Dünyası. Vol. 46. p. 2 (1973)
13. Türkiye'de İlaç Alışkanlığı (The Habit of Drug Using in Turkey)  
VII. National Neuropsychiatry Congress 1971
14. General Aspects of Drug in Turkey.  
2. International Symposium on Drug Abuse. Israel 1972
15. Mental disorder in chronic Cannabis Users  
Cento Seminar on Drug use İzmir 1974

Some of his other books are (18):

1. Pharmacotherapy in Psychiatry (1965)
2. The Youth of Today in Turkish Society (1970)
3. Narcotism throughout the Human History (1976)

Between 1990 and 1995, he worked as the head of the Psychiatry Department at Istanbul Medical Faculty and retired in 1995.

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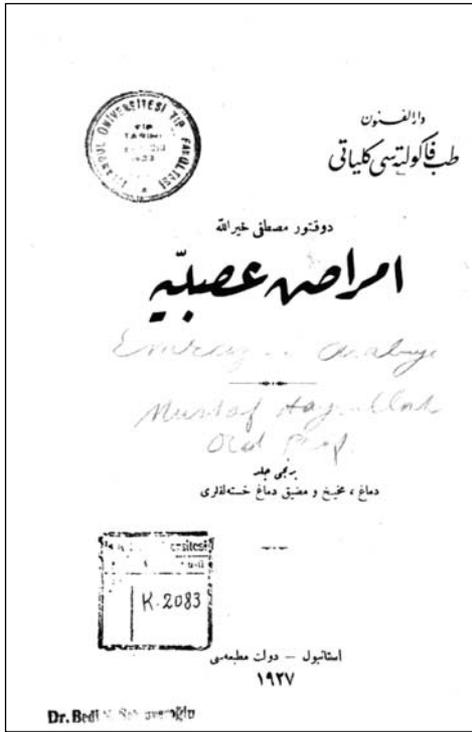
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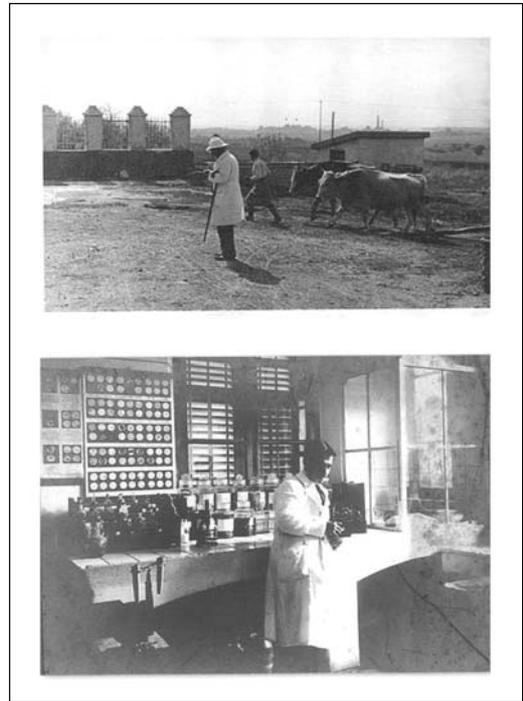
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# Abortion from the Viewpoint of Islam and Ottomans

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## Summary

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In this paper, abortion is pointed out from viewpoint of Islam and Ottomans, some Ottoman Archives Documents are commented and important results are obtained.

**Key Words:** Abortion, Medical Ethics, Islam, Ottoman Documents

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Like all the other religions, Islam has considered abortion to be a matter of morality. Abortion in the first four months of pregnancy was a sin and it was a murder during the following months. According to Islam, a baby in the first four months was considered an unanimated piece of meat. When a woman terminated her pregnancy without telling her husband, she was sentenced to pecuniary penalty if the baby died before or after the birth. If a woman did that obtaining the consent of her husband, she was condemned to reprimand. We can see that the approach of Islam to the issue is not based on severe punishment (8,9).

Before the foundation of the Republic, the Islamic Penal Law was in force about abortion. A document dated 1788 is a written copy of a final court decision and aims to inform the provinces that the physicians and pharmacists in Istanbul were prohibited from prescribing for abortion (14). There are also some 19<sup>th</sup> century documents about abortion. One of them dated 1826 talks about a midwife known as “the bloody midwife” to be punished for prescribing abortive drugs (13). It is a behest addressed to the head physician asking him to denounce the people violating the laws in that way and it reports that the above mentioned midwife and some other Jewish midwives were all banished to Salonika after informing the Greek and Armenian patriarchs and the chief rabbi about it (10). Another document dated 1828 says that women should never be prescribed abortive drugs (1). A document dated 1838 is about the announcement of the decision which banned abortion (15). Another one dated the same year is about the reply from Skopje to the announcement about punishing parents and people who prescribe for abortion. A document dated 1843 is about forgiving a man called Lutfullah banished to Rhodes for causing an abortion (2). The 193<sup>rd</sup> article of the Imperial Penal Law dated

1857 says that people who cause or help abortion are to be sentenced to imprisonment between 6 months and 2 years (7). When a physician or a pharmacist did that, the punishment was much more severe. A document dated 1859 refers to the judgment about Develili Hacı Ömer, who caused a miscarriage attacking the wife of Enis Bey whom he was seeking to kill (16).

## Birth Control in the Republican Period of Turkey

Birth control had some phases in the Republican Period of Turkey:

- 1. The Period during which Birth Control was Prohibited (the period until 1965):** There were some particular reasons for that ban: **a-** Several military and political reasons required population growth. **b-** There was a need for labor force to manage and benefit from the natural resources. **c-** The economic development needed to be strengthened. **d-** Many more institutions for culture were to be founded. **e-** The need for division of labor and specialization required population growth. A document dated 1927 is about the destruction of the book “Gebe Kalmamak İçin Ne Yapmalı? (What Needs to be Done in order not to Conceive?)”, which contravened the population policy of the time (17). There were two laws prohibiting birth control then. One of them was the Turkish Penal Law dated 1926 and numbered 765, and the other one was the Public Health Law dated 1930 and numbered 1593.
- 2. The Period of Transition to Freedom:** Before 1965 in which birth control was free, there was a period of transition for which the reasons were: **a-** economic: The population was growing so fast that the rates of death

decreased while those of birth increased. The development of the country was considered to depend on birth control. **b-** medical: Ban on birth control caused uncontrolled miscarriages that damaged mothers' health. **c-** social: The population policy during the ban period was not compatible with the social realities. In the transition period, many scientific meetings were held, precautions were discussed, several reports were produced and some certain conclusions were reached.

- 3. The Period of Freedom (after 1965):** **a-** The Change in the Population Policy: The ban on birth control was repealed and the state began to help people who demanded it. **b-** The Change in the Laws (1965): The law about population planning dated 1965 and numbered 557 was changed. It was issued on 12. 6. 1967 a population planning regulation and a bylaw about pregnancy termination and sterilization when medically needed. The law about population planning dated 1983 and numbered 2827 is a modernized version of the law issued in 1965 (11,12)).

As is known, two of the medical techniques of reproduction are test-tube babies and artificial insemination. The Higher Council of Health decided to try the test-tube baby technique in 1987. Since then, it is applied in the centers that have been authorized by the Ministry of Health. Artificial insemination was legalized in 1987 and covers married couples only. It is applied when a woman is infertile. Her ova are mixed with the father's sperms in a tube to form an embryo to be placed in the uterus. When it is done with sperms collected from a foreigner as the father candidate is sterile, some social, psychological and juridical problems arise and it has not been legalized in Turkey yet. It is not considered lawful as it is contrary to the moral values in the country (3,4). The legal father and mother of a baby born using the mother's ovum and a foreigner's sperms might feel differently about the child in the future. It is also probable that the biological father of the child turns up and wants him at any time (5,6). Moreover, the mother might feel guilty later on about having a baby in that way, brothers and sisters born with artificial insemination might get married in the future and some problems may occur in terms of inheritance laws. However, it is doubtless that all of

the problems could be solved in a world becoming more and more modern every day.

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# Organ Transplantation in the Republican Period of Turkey

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## Summary

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The Turkish medicine of our day is highly developed and enables us to successfully transplant organs from donors into patients who need them. The laws relating to organ transplantation enacted in 1979 and 1982 have been immensely helpful for our physicians in saving lives. In this paper, these topics are commented

**Key Words:** Organ Transplantation, Medical Ethics, Dialysis Center

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Kidney transplantation can be cited as an example. For over a period of 40 years in many countries, kidney transplantation has been widely adopted for being effective in treating kidney diseases and producing favorable outcomes in terms of socioeconomic concerns. The first kidney transplantation in Turkey was carried out in 1967. It was epoch-making for the country that the first kidney transplantation between relatives (a mother and her son) was done on November 3<sup>rd</sup>, 1975 at Hacettepe Medical Faculty Surgery Department. Since then, several other medical centers have performed such transplant operations. On October 10<sup>th</sup>, 1978 at a Hacettepe Hospital again, the first transplantation from a cadaver was done with the kidney of a dead donor provided by the Eurotransplant Foundation. With the regulation issued in 1979, kidney transplantation from cadavers officially began at Hacettepe Hospitals. On September 8<sup>th</sup>, 1980, the Organ Transplantation and Burn Treatment Foundation of Turkey was established in Ankara. It aims to help people with organ transplantation and burn treatment, encourage training and research activities and provide treatment facilities. On June 5<sup>th</sup>, 1982, the Dialysis Center of the foundation was opened in Ankara.

As there was not an administrative law concerning organ transplantation in Turkey before 1979, many operations were not possible to perform and physicians did not have much to do to save lives. The law numbered 2238 and dated 29.5.1979 on transplanting and keeping organs and tissues allowed the operations and relieved physicians of many hesitations. The law numbered 2594 and dated 21.1.1982, which was enacted to change an article of the previous one, was a step forward. It deals with organ and tissue transplants in terms of two dimensions: a) Organs

and tissues taken from people living, b) organs and tissues taken from dead donors .

If the donor is a dead person, the death should be identified in terms of objective criteria. The law dated 1979 requires that medical death is taken into consideration and identifications are made according to the level of the science in the country. However, we think that objective data provided by the constantly changing and developing medical techniques of our day would enable us to identify and explain deaths and causes. Besides, causes of deaths can be outlined. Thus, in comparison with others, it would be more objective that any new medical technique saves lives. Every life ends in death (Civil Law 27). A person forfeits his rights when he dies and that is why identifying a death is important in terms of both penal law and civil law.

As is known, people do not die wholly and all of a sudden. A death begins in the brain and nervous system and then reaches the respiratory and circulatory systems. Muscles, bones and hair die the last. If the aim is to successfully transplant such organs as liver and kidney, they must be kept alive during and till the end of the transplantations and the new organisms must be prevented from rejecting them. This requires that the parts taken from dead bodies are still alive.

Identifying deaths, determining the moments of them and seeing the dead bodies are important in terms of embalming, autopsy and laws as well (1).

In what situations can a person be considered medically dead? The Medical Ethics Committee of Turkish Medical Association defined death in the following ways:

a) Bilateral and continuing mydriasis. b) An absolute loss of all the reflexes and senses. c) Respiratory and circulatory systems not working spontaneously anymore and deciding that they shall not work in a normal way again even if reanimation techniques are applied long enough. d) Determining electroencephalographically that the brain does not function any more and shall not have any sign of activity even with reanimation methods.

Nonetheless, the advanced techniques of our day can give his life back to a person whose respiration and heart stop. Thus, stopping respiration and heart are not stringent criteria for death anymore. Today, there is a method which is called artificial hibernation and used frequently in several cases. According to all of such techniques and methods, the main criterion of death is an irreversible cessation of reproduction and regeneration and having tissues repairing themselves no more(2). As there is no reproduction and reparation in brain and nerve cells anyway, the death of a brain or nervous system can be determined fast and that is called "biological death". However, in order for an absolute death to occur, the other organs and tissues must be in the same situation and that might take hours or even days. Here it can be mentioned that "death is the functional integration stopping completely and permanently in an organism" .

The law has the following articles concerning the determination of death, the forbidden acts to physicians and preparing written reports:

Article 11: In order for this law to be enforced, a death is to be determined applying all the rules and methods that the scientific level in the country permits and having the unanimous vote of a physicians committee comprised of a cardiologist, neurologist, neurosurgeon and anesthesiologist.

Article 12: Physicians treating a recipient and those who are to work at removing, keeping, vaccinating and transplanting organs and/or tissues cannot be in committees set up to determine deaths.

Article 13: Physicians who determine a death according to the Article 11 have to prepare a report containing their signatures and the date, time and way of the death. They have to present it to the health center where the organs and/or tissues were taken. The reports and annexes are to be kept for ten years in the related institutions.

In the regulation dated 2000 on organ and tissue transplantation, the criteria for defining brain death are laid down.

Flemming Kismeyer, who is renowned for successfully transplanting kidneys, says "Keeping the other parts of an

organism alive after the brain dies is nothing but delaying the time of the death. If it is recognized that a person dies when his brain dies, the life of a hopeless patient can be saved with transplantation".

The Islamic law suggests that when a person dies, his personality is lost and he is accepted not to have responsibilities anymore. In addition, Islamic beliefs permit organ transplantation to save patients' lives and the Higher Theological Committee of the Presidency of Religious Affairs announced with his decision dated 6.3.1980 and numbered 396 that organs can be transplanted from dead bodies. Nevertheless, there are still people who do not want anyone to touch the bodies of their dead relatives and they insist on it under the influence of their old moral values. Some people of law state that heirs have the right to decide about their dead relatives according to their own moral values, which deserve to be respected. It is not possible to expect that the traditions, customs, values and beliefs of people would change much in a short period. We believe that the developing medical techniques and the steps made forward to save lives will change some social codes in time.

In our country, educational activities are needed to satisfactorily increase the number of the transplantations from cadavers: a) collective training (via the press, TV and radio channels, schools, meetings, organ donation campaigns) b) professional training (through cooperation between health centers and training physicians, assisting medical staff and the administrators of the state organizations) c) open-minded theologians enlightening people.

If a person allows it in his will orally and/or verbally, organ transplantation can be made from his body after he dies. Even if this is not mentioned in the will, the law suggests that the closest relatives can permit transplantation from the dead body.

According to the 14<sup>th</sup> article of the law, an organ of a person who dies with enormous damages in an accident or natural disaster can be given to an urgently needing patient not considering the will or consent in any way.

"The Condition of Taking Organs and Tissues from a Dead Body and Keeping Bodies for Scientific Studies:

Article 14: If a person has not written in his will or declared in the presence of two witnesses that he donates his organs for treatment, diagnosis and scientific studies, his tissues and/or organs can be transplanted after his death with the consent of his/her spouse, children over the age of 18, parents and brothers/sisters respectively. If none of them is alive, a relative can give his consent

for transplantation. If there is not a will or an official declaration prohibiting it, tissues that would not bring about a change on the body (like cornea) can be taken.

If a person has not declared officially that he is opposed to taking organs out of dead bodies, his organs and/or tissues can be taken after his death.

(Change: 21/1/1982-2594/1 md.) If there are not any of the abovementioned relatives, the working organs and/or tissues of a person who dies of enormous damages in an accident or natural disaster can be transplanted in patients who need it to survive. This is due to the written confirmation of the committees mentioned in the Article 11 that the state of medical death does not depend in any way on the organs or tissues to be taken. When it is extremely urgent and medically forced, organ and tissue transplantation can be made without any consent. In such cases, forensic autopsy is performed after the operations and the reports of the committees are enclosed with the forensic examination and autopsy records.

Nevertheless; this article states that such transplants can be carried out only in extraordinary cases of emergency and necessity. Even if an operation of that kind is entirely within the law, the family of the dead person could have some moral and social problems thinking that the spiritual self of the one they lost was disrespected. It is quite natural that the article in question, which aims to save lives in cases of extreme emergency, is compatible with the views of medical ethicists and the Hippocratic Oath encouraging physicians to save patients' lives. However, it is crucially important here to accurately and unambiguously identify deaths. Today, the major factors in Turkey which constrain providing organs from cadavers despite the laws in force are that some physicians are still hesitant about getting official permission for transplant surgeries and people have doubts, superstitions, strongly held beliefs and lack of training about what death in terms of medicine is and how times of death are determined. There are also physicians who are reluctant because of the medico legal responsibilities of determining a brain death while the heart is beating and taking the patient out of the respirator (3,4).

(Change: 21/1/1982 – 2594/1 md.) Besides; schools of higher education can be given the right to keep and use for 6 months the bodies of the people who leave in their wills their bodies for scientific studies, abandoned patients who die at health centers and dead people in morgues with no relatives and not needed for legal proceedings. The burial of such bodies and other procedures shall be determined with the regulations to be issued in 3 months after the announcement date of this law by the Ministries of Justice and Health (5).

We think that it would be to the point to revise the law dated 1979 and make it a law imposing different penalties for every single act instead of similar penalties for different acts.

One of the penal provisions that need to be revised is below:

#### Forbidden Acts:

Article 15: If the acts do not require heavier penalties, those who take, keep, vaccinate, transplant, buy and sell organs and tissues against the law and those who help others do these are sentenced to two to four years' imprisonment and a fine between 50000 and 100000 liras.

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# Islamic Medicine – A Missing Chapter of the History of Medicine!

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## Summary

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In this paper, relation between Islam and the promotion of science is mentioned. Also the attitude and contribution of the state, characteristic features of hospitals in the Islamic civilization and famous physicians in the Islamic state are discussed. Finally, medical ethics in Islam is given.

Key Words: Islamic civilization, Medical ethics, Islam physicians.

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History of Islamic Medicine is the knowledge of Medicine which was inherited by the Muslims in the early centuries of Islamic History, during that time Europe and the rest of the civilized nations were living the “dark ages”.

As Islam spread out of the Arabian Peninsula into Syria, Egypt, and Iran it met long established civilisations and centres of learning. Arab scholars translated philosophical and scientific works from Greek, Syriac (the language of eastern Christian scholars), Pahlavi (the scholarly language of pre-Islamic Iran), and Sanskrit into Arabic. The process of translation reached its peak with the establishment of the “House of Wisdom” (Bait-ul-Hikma) by the Abbasid Caliph Al-Mamun in Baghdad in 830. It made Arabic the most important scientific language of the world for many centuries and preserved knowledge that might otherwise have been lost forever.

As well as assimilating and disseminating the knowledge of other cultures, Arab scholars made numerous important scientific and technological advances in mathematics, astronomy, chemistry, metallurgy, architecture, textiles, and agriculture. Techniques they developed—such as distillation, crystallisation, and the use of alcohol as an antiseptic—are still used.

## Islam and the Promotion of Science

As the Muslims challenged the civilized world, 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 (CE 1258), and by the Spaniards, who, out of hatred, demolished most of the Islamic heritage in

Spain. The difference between the Arabs and these others were 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 Muhammad (peace and blessings be upon him) was “read.” In that time, a captured enemy was freed if he paid a ransom or taught ten Muslims reading and writing. In the holy Qur’an, 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?”**(Az-Zummar 39:9) Prophet Muhammad (peace and blessings be upon him) 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 Most High 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 Allah on the Day of Judgment will ask about. The relationship now in the West is medico-legal. The emphasis has become one that has slipped into materialism. Because the relationship between doctor and patient has become one that is based more on money, the level of trust has been decimated between the doctor and his or 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 subject anyone to probable harm, or withhold anyone’s therapeutic needs, or defraud or exploit anyone. Freedom of scientific research shall

- not entail cruelty to animals or their torture. Suitable protocols should be laid down for the humane 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. The holy Qur'an says: **And whoever saves a life it would be as if he saved the life of all the people.** (Al-Ma'idah 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. In one hadith, the Prophet (peace and blessings be upon him) said, **"Whoever helps a brother in difficulty, God will help him through his difficulties on the Day of Judgment."** Islam provides rights and protection to all human beings at every stage and area of life. The holy Qur'an states: **Do not kill your children on account of want or poverty, We provide them sustenance for you and for them.** (Al-An'am 6:151)
  5. Islam developed in Muslims the respect for authority and discipline. For example, realizing the scourges and terror of plague, Prophet Muhammad (peace and blessings be upon him) decreed, **"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 Muhammad (peace and blessings be upon him) laid down laws governing the Muslims and made them 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 treated the Jews honestly, at a time when the latter were persecuted in Europe. Dr. Jacob Minkin, a reputable Rabbi and scholar says, "It was Mohammedan Spain that was the only land of freedom the Jews knew in nearly a thousand years of their dispersion. While during the Crusades, the armored 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 (such as Jibra'il Ibn Bakhtashoo'e, Youhanna Ibn Masawaih, Ishaq Ibn Honain, and Ishaq Ibn Moosa). They were part of that "Golden Age."

## The Attitude and Contribution of the State

The Islamic empire in the early eighth century was the inheritor of the scientific tradition of late antiquity. The Muslims preserved it, elaborated on it, and finally, passed it to Europe. At this early date, the Islamic dynasty of the Umayyads showed an interest in science. These were the centuries that were, for Europeans, the Dark Ages, but for Muslim scholars, these were the centuries of philosophical and scientific discovery and development. The Arabs at that 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.
- During the eighth century, the Abbasi Caliphs encouraged the Persian physicians to translate their medical knowledge into Arabic, to build medical centers 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, and so on.

## Characteristic Features of Hospitals in the Islamic Civilization

The Muslims planned and 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

- Secular Hospitals served all people, irrespective of color, religion, or background. The government ran them, as opposed to religious groups, and their directors were usually physicians who were 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.

- Separate wards and nurses: Patients of different sexes occupied separate wards. Also, different diseases, especially infectious ones, were allocated different wards. Male nurses took care of male patients and female nurses took care of the female patients.
- Proper records of patients: For the first time in history, these hospitals kept records of patients and their medical care.
- 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, but one can pray even while lying in bed. Therefore, these hospitals had to provide the patients and employees with a plentiful clean water supply and with bathing facilities.
- Practicing physicians: Only qualified physicians were allowed by law to practice medicine. In CE 931, the Caliph Al-Muqtadir 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 also worth mentioning that the physicians of that era gained high prestige. Although almost anyone, irrespective of social status, could study medicine, the route was long and tedious. He had to finish Islamic studies, philosophy, astronomy, art, chemistry, amongst other things, before being accepted as a medical student. Therefore, the physician was an educated person who had wisdom and knowledge. In fact, the Arabic translation of a physician is *hakim*, which means sage. In the 9<sup>th</sup> and 10<sup>th</sup> centuries, the court physician was ahead of the chief justice in the protocol. 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.
- Medical regulations: 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 regulations ensured that all doctors were qualified. Prophet Muhammad (peace and blessings be upon him) 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 as it set an

example for them, leading them to found various medical associations and guilds for regulating their profession too. Hence, one could say that the Muslims' regulation of medicine led to a safer and more professional medical institution during the Renaissance, which undoubtedly saved countless lives, which would have been lost due to medical incompetence.

- Medical schools: The hospital was not only a place for treating patients, but was also for educating medical students, interchanging medical knowledge, and developing medicine as a whole. Attached to the main hospitals, there were expensive libraries containing the most up-to-date books, auditoria for meetings and lectures, and housing for students and house-staff.
- Rulers' involvement in building hospitals: The Caliphs of the Islamic empire built magnificent hospitals; partly for religious reasons, as Islam teaches that money spent on charity is a good investment for Judgment Day; and partly for political reasons to show their people that they cared and were interested in them. Whatever the motive of the ruler, the population benefited and good hospitals were established.
- 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 obligatory alms or zakah (2.5% of property value).

## Famous Physicians in the Islamic State

Medicine in Islam passed through three stages:

- The first stage was the stage of translation of foreign sources into Arabic. It extended through the seventh and eighth centuries.
- The second stage was the stage of excellence and genuine contribution, in which the Islamic physicians were the leaders and the source of new chapters of medicine. This stage extended from the ninth to the thirteenth centuries.
- The third stage was the stage of decline, where medicine, as well as other branches of science, became stagnant and deteriorated. This stage started mainly after the thirteenth century.

- During the first stage, Syrian and Persian scholars did a marvelous job by faithfully translating the ancient Greek and Syrian literature 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 only did only thing, namely, preserving ancient literature and handing it honestly to Europe, that would have been a sufficient contribution in itself. The Moslem rulers encouraged translation. Caliph Al-Mamun Al-Abbassi 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.

### **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. The Renaissance physicians utilized his methods of differentiation when they attempted to do the same with other diseases hundreds of years later. Additionally, his treatise of smallpox was used by 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 that medical procedures were much more hygienic, again saving countless lives that would have been lost through infection. Finally, his monumental encyclopedia *Al Hawi* offered striking insights for its time, and it had a huge impact shaping European medicine during the Renaissance and for years afterwards.

### **Bin Sina (Avicenna)**

was honored in the West with the title of "Prince of Physicians." Ibn Sina's works also had a significant impact on the Renaissance. First, 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 in 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. If they knew how diseases were transmitted, it made their job of finding cures for the diseases much easier. It also provided a base for their studies into how diseases were spread.

### **Bin Al-Nafis**

discovered the pulmonary circulation, which was re-discovered by modern science after a lapse of three centuries. He was the first to describe correctly 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)**

was a 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.

### **Medical Ethics in Islam**

- Several works were written by Muslim physicians specifically on the subject of ethics and medicine.
- The medical profession was a well respected specialty and its leaders kept it this way by laying down proper ethics. Ishaq ibn 'Ali Al-Ruhavi (9th century) wrote a book entitled *Adab Al-Tabib* or "The Ethics of the Physician."
- Al-Tabari, the chief physician in 970 CE, described 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 a peacemaker. He should avoid predicting whether a patient will live or die, only Allah knows. He should not lose his temper when his

patients keep 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 other's religious belief. He should speak well of his colleagues. He should not honor himself by shaming others."

- 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 professi-**

**on. 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, friend and enemy. To strive in the pursuit of knowledge and harness 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. 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."**

## Conclusions

Only Those Who Remember History Make History !

# Concept of Conception and Infertility in Realm of History

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## Summary

Fertilization of the human ovum by a spermatozoon occurs in the fallopian tube within a short time after ovulation. This basic reproductive biological process can be affected by number of abnormalities that can lead to infertility and pregnancy loss. Stone age people had some knowledge of anatomy and the reproductive process as it is evident from craving and cave drawing. The first detailed information of gynecological complaints and prescriptions to increase fertility comes from Egyptian Papyri. The glorious era of Unani medicine in which it formulated as a definite branch of study starts with Hippocrates. Hippocrates said that important cause of recurrent or habitual abortion at the same time in repeated pregnancies was due to be disproportion between the development of child and that of the uterus. Aristotle was the first to record that intercourse was necessary for pregnancy to occur and he believed that semen and menstrual blood mix in the uterus and formed fetus. Following the glory of Greece and the grandeur of Rome desolation came upon the civilized world then flame of medicine was kept alight by Arabian physicians. The principle Arabian writers in the Eastern Caliphate who mentioned gynaecologic conditions were Razi, Ali Bin Abbas, Ibn Sina, etc and Western Caliphate was Albucares, Avenzoar and Averroes. During this era Rabban Tabari described different causes of infertility like *sue mizaj* (distemperament) of woman or *mani*, obstruction of fallopian tube, tumour of uterus, displacement of uterus, etc. Ali Bin Abbas Majoosi divided embryonic development into four periods i.e., period of *mani*, *janeen*, *matan* and *tifal*. Ibn Sina (Avicenna) very efficiently discussed about infertility with other gynecological and obstetrical diseases. About infertility he said that it could be caused due to both partners. Ismail Jurjani was of opinion that *quwate moosawwera*, *roohe nafsani* and *haywani* are necessary for implantation of embryo in the uterus. During the renaissance there was a return to scientific investigation, and as a result many new discoveries were made and several key developments altered the traditional images of the reproductive organs.

**Key Words:** Infertility, Fertilization, Unani Medicine.

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## Introduction

Fertilization is the most important processes in biology, where father's sperm fertilize mother's egg. It normally takes place in the woman's fallopian tube. <sup>1</sup> The journey along the fallopian tube continues slowly for about four days. After fertilization the single cell-zygote splits into two, then the two cells double to four, four to eight, eight to sixteen and so on. Because the cell cluster looks superficially like a berry it is called the morula (Latin for "mulberry"), but the new life is always biologically human (species *Homo sapiens*). The morula enters into the uterine cavity. <sup>1</sup>The uterus is the size and shape of a large pear: it is made of muscle and it stretches to allow the baby's growth throughout the months of pregnancy. By the time the uterine cavity is reached, the cell cluster becomes hollow and fluid-filled, and is referred to as the blastocyst. However, this is not inert clump of cells but a busily developing human individual: differentiation (organization into different parts and functions) is already taking place. Meanwhile the uterus is forming a spongy lining within which the embryo will implant. To achieve this embryo burrows into the wall of the womb and is covered over by the lining of the womb. This begins 6 days after

fertilization and is completed within the next 7 days. These basic reproductive biological processes that are required for women to successfully achieve ovulation, fertilization and implantation can be affected by number of abnormalities that can lead to infertility and pregnancy loss. Infertility is state of inability to conceive after a period of one year of unprotected intercourse.

From the earliest times, it was apparent that the human race had an interest in beginning, interrupting, or discontinuing the reproductive process. To better understand conception and infertility in the realm of history, it can be divided into four periods.

1. Primitive period
2. Ancient medicine with the name of Hippocrates, Galen
3. Middle period-Arabian medicine (Rhazes, Avicenna)
4. Renaissance medicine. <sup>2</sup>

## Primitive Period

Physicians throughout time have analyzed, and were puzzled over the female reproductive organs. The natural urge to procreate assured an interest in fertility. <sup>3</sup>

When we look back into the dim and distant past we see primitive man terrified by the world around him and ascribing disease as well as his other misfortunes to supernatural malevolent forces, to the influence of spirits to be placated by sacrifices. It was the age of the witch doctor, the medicine man, the fetish and amulet, an age that has perhaps even yet not a truly passed away. Death was punishment from man's disobedience.<sup>2</sup>

As it is evident from craving and cave drawing, stone-age people had some knowledge of anatomy and the reproductive process.<sup>3</sup>

## Ancient Period

The first detailed information comes from Egyptian Papyri that described many gynecological complaints and prescriptions to increase fertility. The interest of ancient Hebrews in the fertility process can be confirmed by various passages in the Bible. They were aware that conception was possible 7 days after cessation of menses.<sup>3</sup>

The Greater Berlin Papyrus gave a prescription of a mixture of fat, also mandrake and sweet ale, boiled together and swallowed by the woman, to be taken every morning for four mornings after intercourse. It was presumed that it increases fertility.<sup>3</sup>

Egyptian Papyrus and Brugsch Papyrus also showed indication for the diagnosis of pregnancy as follows "Direction to see if women bears or not, a water-melon pounded is mixed with milk of a woman who has born a son and is given to the patient to drink, if she vomit, she is pregnant, if she has only flatulence she will never conceive again."<sup>3,4</sup>

The Berlin and the Carlsberg Papyri discussed about pregnancy test. "A woman who thought she may be pregnant was asked to urinate daily on two cloth bags, one containing wheat and the other barley mixed with sand and dates. If both germinate she was said to be pregnant. In neither did then she was not."<sup>3</sup>

Kahun Medical Papyrus (2000 to 1800 BC) described gynecological method to bring about conception.<sup>4</sup>

In 2160 BC sterility was treated with glands of animal and by performing certain exercise.<sup>5</sup>

***The glorious era of Unani medicine in which it formulated as a definite branch of study starts with Hippocrates.***

## Greece

The Greeks were of opinion that for conception to occur it was thought necessary that the woman should

close the cervix immediately after seminal ejaculation in order to retain the male seed.<sup>3</sup>

## Buqrat (Hippocrates) (460-370 BC):

Buqrat is called as "Father of Medicine" and the most famous physician of antiquity. He was the first writer among the Greek whose works possess and deals with gynecology.<sup>6</sup> His work "Aiya-Al-Nisa" relates to gynecology and midwifery. He described about bicornuate theory,<sup>5</sup> and knew the shape of the uterus.<sup>7</sup> He mentioned that frequent intercourse kept woman healthy as it moistened the womb and improved both their general and mental health. He assumed that simultaneous orgasm must occur for conception to take place. He held the view that seeds came from all parts of the body of man and woman, flowed together forcing a fruit and then development.<sup>3</sup>

Some of the causes said by him for infertility are displacement of the uterus, congestion, prolapsed uterus and leucorrhoea. He recommended fumigation of the uterus for infertility<sup>4,7</sup> and vaginal pessaries were used for conception. Venesection was also used for treating infertility. He also said that important cause of abortion, which was known to recur at the same time in repeated pregnancies, was held to be disproportion between the development of child and that of the uterus.<sup>7</sup>

In his time to test that if a woman will conceive or not or wish to ascertain whether she can conceive, having wrapped her in blankets, fumigate below and if it appear that the scent passes through the body to the nostrils and mouth, know that of herself she is fruitful.<sup>4,7</sup>

Buqrat, therefore stand at the confines of two epochs, rooted in the remotest past, yet providing direction and a goal to the immediate present, professional faithfulness, a seeks after with full consciousness of its being unattainable.<sup>5</sup>

## Arastu (Aristotle) (384-322BC)

Arastu made researches on embryology, comparative anatomy. He developed many theories related to menstruation, conception, pregnancy and infertility. He was the first to record that intercourse was necessary for pregnancy to occur and he believed that semen and menstrual blood mix in the uterus and formed fetus.<sup>3</sup> He made a comparative study of the uterus in various animals and studied the embryonic development of the chick and clearly stated the fundamental problem of sex, hereditary, etc.<sup>8</sup> He knew the function of the ovaries because he refers to the effect of castration on female animals.<sup>7</sup> He wrote that man contributed the form of humanity through

his semen, while woman contributed only brute matter -- a substance less pure and less sanctified than semen itself.

## Rome

### Cornelius Celsius (27BC- AD 50)

Celsius was the physician of Rome. He wrote a book on medicine and included remedies for some gynaecological complaints. His "De Medicina" was rediscovered in the fifteenth century and became a standard medical textbook for students and physician. He said if a woman does not conceive lion fat is to be softened by rose-oil and to be used.<sup>4,7</sup>

### Dioscorides (AD 40-90)

He was notable scholar and physician who is called as "Father of Herbal drugs". His 'De Materia Medica' was basic source of knowledge about plants and medicines.<sup>9</sup> His work 'Kitab-Al- Hashaish ' is the most celebrated work of pharmacology. He had mentioned drugs used to correct menstruation, extraction of placenta, etc.

**Pliny the Elder (AD 23-79):** He discussed about sterility.<sup>3</sup>

### Soranus of Ephesus (AD 98-138)

Soranus is called as "Father of Gynaecology" who is chiefly remembered as a writer on obstetrics and gynaecology. He held the opinion that the female seed did not play a part in the production of life and believed conception was most likely to occur after menstruation.<sup>3</sup>

### Jalinoos (Galen) (AD 131-201)

Jalinoos was the most distinguished Roman anatomist, physiologist, and physician of antiquity after Hippocrates. His treatment was mainly based on herbal medicine. The Allopathic and Homeopathic system of Medicine of the present day are based on his doctrines.<sup>14</sup>

Apart from 'Ilmul Maulood', "Kitab-Al-Adiva Mufrada" consisted of 11 treatises. Each herb was designated a specific 'temperament': hot, cold, moist, and dry. Within these categories, a plant could be in the first, second, third or fourth degree. He mentioned several medicines used in gynecology.

Jalinoos said that "Turn outward the woman's, turn inward, so to speak, and fold double the man's, and you will find the same in both in every respect." He pointed out that the fallopian tubes were pervious.<sup>4,7</sup> He considered that the uterus had two cavities. The right uterine cavity received warm pure blood from the aorta, vena cava and in consequence the male developed on that side. The left side of the uterus received

impure blood from vessels passing to the kidney and gave rise to female. He also thought that there was a mixing of male and female semen from the ovaries with formation of a conception. The heart and liver were formed from the female principle while the brain came from the male.<sup>3</sup>

Buqrat and Jalinoos preferred to describe human conception as occurring from two "seeds," though they differed slightly on the relative importance of each contribution.

We might even say that they intensified as Aristotle and Galen became key authorities in philosophy and medicine respectively, and moral questions of sexuality became of increasing interest in medieval society.<sup>3</sup>

## Aetius

Aetius was physician of Rome and he said that infertility is to be treated by dilation, local application, fumigation and rectification of malposition.<sup>4</sup>

The dark night of the middle age, fell upon Europe. Medicine ceased to be a science; it again became mystery and magic. Life itself was too precarious for mental development.<sup>2</sup>

## Middle Period

Middle age was a period of European history between the collapse of the Roman Empire in the west and the Renaissance period.<sup>3</sup> Following the glory that was Greece and the grandeur that was Rome desolation came upon the civilized world in which the light of learning burnt low, flickering almost to extinction. The flame of medicine was kept alight by Arabian medicine.<sup>2</sup> The principle Arabian writers in the Eastern Caliphate who mentioned gynaecologic condition were Razi, Ali Bin Abbas, Ibn Sina, etc. and Western Caliphate were Albucazes, Avenzoar and Averroes.<sup>7,9</sup>

### Zakriya Razi (Rhazes) (AD 860-932)

Razi was a physician and al chemist, considered the greatest physician of Arab world.<sup>9</sup> He was a genius, able to blend the knowledge of his age with the achievement of the past. He was an inexhaustible writer, possessing extraordinary productiveness and versatility.<sup>7</sup> All historians of medicine whether Muslim or western have lauded Razi's role and highlighted his achievements. He wrote numerous texts among which "Kitab-Al-Mansoori" and "Al-Hawi" {Continens} are famous.<sup>4,9</sup> He wrote an immense Graeco-Arabic encyclopedia.

Dairetal Malariff, Osmania University, has brought out Al-Hawi for the first time in 25 vol. Al-Hawi in Vol. seventh, he discussed about disease of breast and said that drugs, which increases virile power also increases milk production. Vol. Tenth consists of five chapters. In first and second chapter he discussed about infertility of women caused by the closure of the neck of uterus, which can be congenital or due to ulcer, growth, different types of swelling of uterus.<sup>10, 11</sup>

He discussed about disease of breast and said that drugs, which increases virile power also increases milk production. He also discussed about infertility of women caused by the closure of the neck of uterus, which can be congenital or due to ulcer, growth, different types of swelling of uterus. He also discussed treatment of infertility.<sup>10, 11</sup>

### **Ali Bin Rabban Tabari (AD 860)**

Rabban Tabari discussed about treatment of infertility and benefits of coitus, steps to be taken before and after coitus. He described that when *mani* of male partner enter into the uterus of female partner then the mouth of uterus closes.<sup>10, 12</sup> He also described different causes of infertility like *sue mizaj* (distemperament) of woman or *mani*, obstruction of fallopian tube, tumor of uterus, displacement of uterus, etc.<sup>12</sup>

### **Ali Bin Abbas Majoosi (AD 994)**

After Razi, Ali Bin Abbas was the next important physician of the Abbasid period.<sup>9</sup> He discussed about female reproductive system and process of fertilization, implantation, embryonic development and event of labor. He divided embryonic development into four periods and these periods can be correlated with period divided in modern medicine. The four period of embryonic development are period of *mani*, period of *janeen*, period of *matan* and period of *tifal*.<sup>13</sup>

Majoosi discussed about causes, symptom, and treatment of infertility. He said that women who have primary amenorrhoea, intersex, etc could have primary infertility. He said that obesity could also cause infertility; until it is treated the patient can't conceive.<sup>13</sup>

### **Ibn Sina( Avicenna) (AD 980-1037)**

Ibn Sina was known as "*Prince of Physician*".<sup>2, 9, 14</sup> He wrote: "According to the teaching of philosophy, the process of generation may be compared with the processes which take place in the manufacture of cheese. Thus the male 'sperm' is equivalent to the clotting agent of milk, and the female 'sperm' is equivalent to that of milk. The starting point of the clotting is in the rennet; so the starting-point of the clot 'man' is in the male semen." He even cited a saying of the Prophet to support this idea: "We made the life-germ a clot."

He wrote about reproduction and this faculty consists of the generative and formative faculty. Generative faculty deals with formation of male and female semen and the development of various organs such as bones, nerves, and arteries according to their distinctive structure and temperament. Formative faculty as ordained by the wise and exalted creator gives the shape and appearance to the various organs, develops them complete with their cavities and foramina in appropriate spatial relationships and provides a proper degree of smoothness and roughness. This faculty is responsible for the continuity of life and the perpetuation of race and served by the processes of nutrition and growth.<sup>8</sup>

He very efficiently discussed about infertility (*uqar*) with other gynecological and obstetrical diseases. About infertility he said that it could be caused due to both partners. The causes of infertility are distemperament of *mani* of both partner, diseases of uterus, ovary, psychological disorders and due to general causes like obesity, malnutrition, disease of gastrointestinal tract.<sup>15</sup>

### **Abul Mansoori ul Hassan al Quamri**

He said that female who consume excessive alcohol will not conceive.<sup>16</sup>

### **Ismail bin Hussain Jurjani**

Jurjani was of opinion that *quwate moosawera*, *roohe nafsani* and *haywani* are necessary for implantation of embryo in the uterus. He described seven main etiological factors for infertility with sign, symptom and treatment and said that it can cause due to both partners.<sup>17</sup>

**TROTULA (AD1050)** became the first woman to write a text on the subject of obstetrics.<sup>3</sup>

### **Ibn Rushd (AD 1188)**

Ibn Rushd was of opinion that infertility or sterility is caused when *Quwate hafaza* and *jaziba* is weak or absent. It is also caused due to *sue mizaj*.<sup>18</sup>

### **Renaissance Period**

The Middle Ages, which lasted from the decline of Rome to the beginnings of the renaissance a thousand years later, was an age of scholasticism, and few advances occurred in medical knowledge. During the renaissance there was a return to scientific investigation, and as a result many new discoveries were made.<sup>3</sup> and several key developments altered the traditional images of the reproductive organs.

**LEONARDO DA VINCI (AD 1452-1519)** detailed the male and female reproductive anatomy in art.

**ALESSANDRO BENEDETTI IN 1497** wrote, “The semen is a superfluous nourishment of the body, a material pure and separate from the principle members necessary for generation,” It is believed on the authority of Galen that it is drawn from the brain.”

**GABRIELLE FALLOPIA (1523-1562)** had identified the Fallopian tubes, though no one was yet sure what their function was and he described the ovaries, vagina, placenta and clitoris.

**LAURENT JOUBERT (1570)** stoutly contradicted the idea of the womb “being divided in two in the manner of animals” or having “booths separated one from another.”

In the seventeenth century, the vocabulary for the male and female bodies grew much more specific to each sex.

**JOHN MOIR (1620)** wrote “The uterus is called also *matrix* because it is the mother of all,” It was a cold and dry organ.

**FABRICIUS (1621)** believed that the fertilizing principle of semen was called as the *Aura seminalis*.

**HARVEY** theorized that the uterus was brought to a stage of ripeness by copulation. It could then proceed to a conception state through the stimulus of the *aura seminalis* and apparently no physical agent took any part in the process.

Much theory evolved as to how conception took place. In the ‘theory of evolution’ it was believed that the egg contained fully formed embryo which developed after the stimulus of intercourse. This theory was replaced by epigenesis.<sup>3</sup>

**ANTONI VAN LEEUWENHOEK (1632-1723)** described the microscopic appearance of sperm. He wrote, “A human being originates not from an egg but from an animalcule that is found in the male semen.” The sins of Adam and Eve had yet to be resolved. In the meantime, the formation of the offspring of this union remained the ultimate mystery of all – a human seed, male and female, immaterial and material, that both sexes claimed for their own. Originally spermatozoa were thought to be small parasite animals until **Kolliker** in 1841 detailed the development of spermatozoa in the testis.<sup>3</sup>

**REGNIER DE GRAAF:** In 1672, the Dutch anatomist published “*On the Generative Organs of Women*” in which he mistakenly identified the Graafian follicles. He mistakenly regarded the follicles as eggs, although he had seen but not recognized ova in fallopian tubes.<sup>3</sup>

**AKBAR ARZANI (AD1721)** also gave detailed account of infertility.<sup>19</sup>

**CASPAR FRIEDRICH WOLFF (1733-1794):** He is regarded as ‘*Father of Embrology*’ introduced a new era in embryology and viewed chick embryo through the microscope.

**JACOBI (1764)** experimented with artificial insemination, and 8 years later **JOHN HUNTER** successfully carried out human artificial insemination, which was followed by the birth of a healthy infant.<sup>3</sup>

Advances in the investigations and treatments of infertility gained impetus from scientific research in the fields of embryology, physiology and cellular pathology. In this century gynecological endocrinology, culdoscopy, laparoscopy, ultrasound and laboratory techniques were developed and helped elucidated the causes and management of infertility. Eventually in the 1980s the assisted conception technologies became available.

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# A Museum and Library of Islamic Medical History: A new perspective

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## Summary

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Islamic Medical History is one of the richest heritages of the Islamic Civilization. Medicine was gathered accumulated, translated, compiled, categorized and indexed. New discoveries were made and added to the discoveries of the ancients and a special cadre of Medicine evolved which has been termed as "Islamic Medicine". It is estimated that there are about three million manuscripts, documents and ancient texts of Islamic Medicine, that are spread across the world. Although a good percentage of them exist in the Libraries of the Arab and Muslim Countries, the largest identified collections can be found in western libraries where they have been collected, collated and preserved.

In this paper, the need for the Museum and Library of Islamic Medicine Islamic is discussed, the pioneers of Islamic Medicine and their role in Islamic Medical History are examined and the need for collection, preservation and dissemination is stressed.

**Key Words:** Islamic medical history, Islamic medical manuscripts, Library, Museum.

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## Introduction

Islamic Medical History is one of the richest heritages of the Islamic Civilization. Soon after our beloved Prophet (pbuh) had brought to humanity the message of Islam, and in a span of less than two centuries, this message had spread far and wide across the globe covering a large geographical area which included many different countries, cultures, races, and peoples who spoke many different languages. These divergent cultures were all thrown into a single crucible, causing a catalytic reaction that was to cause the synthesis of a great nation that had almost no parallels in history of mankind. In the midst of this vast Muslim Empire, a class of people evolved that were keen and thirsty for knowledge. These scholars belonged not only to the elitist of this society or the ruling class, but also encompassed all its strata, the nobility, the middle and the working class.

This new civilization knew no boundaries of race, religion, color or creed, and as dictated by the tenets of this new religion of *Islam*, knowledge thrived, mushroomed and reached a new pinnacle of human achievement. A new lust was created for the acquisition, utilization and dissemination of this knowledge. Medicine was only a part of this miraculous boom, and many other arts and sciences flourished and prospered. These included mathematics, astronomy, alchemy, pharmacy, astrology, logic, philosophy to name only a few. The practical application of this knowledge had tremendous effects on the lifestyles of the common peoples, bringing to them

new dimensions with the manufacture of paper, the use of the decimal systems, refinements in architecture, design and building construction, improvements in agriculture, horticulture, animal husbandry and the manufacture of goods and materials. It was also to revolutionize the teaching and practice of rational medicine. These events were forever to change their lifestyle and daily living. These historical events were to last for almost a millennium and knowledge was brought to a new peak of human achievement. Great contributions were made during this era to the development of all sciences including medicine. Medicine was gathered accumulated, translated, compiled, categorized and indexed. New discoveries were made and added to the discoveries of the ancients and a special cadre of Medicine evolved which has been termed as "*Islamic Medicine*".

## The need for the Museum and Library of Islamic Medicine

It is estimated that there are about three million manuscripts, documents and ancient texts of Islamic Medicine, that are spread across the world. However these are widely disbursed through the many different parts of the globe. A good percentage of them exist in the Libraries of the Arab and Muslim Countries, but many of them are stored and housed in Western Libraries and Museums. In recent times most of the research, collection and dissemination of this heritage has been done by western scholars or in western Universities by orientalist who look at these with a perspective somewhat

different from one that may be generated by an Islamic or Islamically oriented scholar. As most of the Muslim countries emerge from a period of colonization and subservience to the West, they are beginning to understand that one of the most important aspects of our civilization that has been utterly neglected has been our history and heritage. This also includes our rich history and heritage in Medicine. Efforts are now being made to fill these gaps in our knowledge by the neo intellectuals of Islamic Civilization, but much, if not most of the fundamental research in this subject continues to be done in the West and very little is being done in the Islamic lands. Notable examples of these efforts are the collection, collation and publication of this historic material that has been gathered by eminent scholars like **Faut Sezgin** in his voluminous contribution of 99 volumes on **“Islamic Medicine”**.

Some other efforts in the East that can be noted are publication of some original research by the late Hakim Mohammed Said at the Hamdard Foundation in Karachi Pakistan; research and publications of the Hamdard University in Delhi and some efforts being made at ISTAC in Kaula Lumpur Malaysia, to name just a few.

To this day no single center exists, that houses all the collections in one place, for scholars to continue research in the fundamentals of Islamic Medicine and benefit the humanity at large. The time has come to fill this gap and this paper examines the feasibility and execution of such a project.

## **Islamic Medical Manuscripts where are they?**

As already stated the Islamic Medical manuscripts are distributed widely in the world. The largest identified collections can be found in western libraries where they have been collected, collated and preserved. I have personally visited some of these libraries and viewed some of these collections. Some of the most well known are:

In the USA: Library of Congress, Washington DC, the National Library of Medicine in Bethesda Maryland, the medical Libraries of John Hopkins, Yale, Harvard, Princeton and UCLA.

In UK: The British Museum, the Wellcome Library of History of Medicine, the Libraries of the Colleges of Medicine and Surgery in London, Edinburgh and Glasgow in Scotland and collections in the Radcliffe library at the University at Oxford, and a generous collection in the libraries at the University of Cambridge.

In Europe: There are oriental collections in Paris, in Madrid at the Escorial, and in Germany at the libraries in Frankfurt, Munich and Berlin.

In the Middle East: At the University of Istanbul, at the Topkapi Museum, in the Alexandrian library in Cairo, and others in Damascus, Aleppo, and Tehran.

In Russia: The library of Moscow and Leningrad.

In India and Pakistan: Hamdard Foundation in Karachi and Delhi,

The Khuda Baksh Library in Patna, the Library in Rampur, in Hyderabad and the Salar Jung Museum, and Royal Asiatic Society in Mumbai (Bombay).

In the far East: The ISTAC Library in Kaula Lumpur.

## **Examining the pioneers of Islamic Medicine and their role in Islamic Medical History**

There were some great physicians that shaped the history of Islamic Medicine. Earlier in Islamic history they were mostly Christians and many of them were associated with either the school at Jundishapur or with the hospitals and schools of Baghdad patterned after the one in Jundishapur. These included the Bukhtishu family of Physicians, and the Masawih and Hunayn ibn Ishaq.

Most of the Later physicians were Muslims and include such physicians as Al Majusi, Al Tabbari, and Al Razi. Their works and contributions are well known to the world today. Perhaps the most scintillating and prodigy of the Islamic Medical renaissance was Ibn Sina known to the west as Avicenna. His *Magnus Opus “Qanun fil Tibb”* became the standard work of Medicine for centuries to come and its Latin translations were used by west for several more centuries as a standard work of medical reference.

Mention has also to be made of the physicians in Al Andalus or Islamic Spain. These included Al Zahrawi who was made famous by his surgical treatise in Al Tasrif. This was to make great contribution to the development of surgery in the west. Mention also needs to be made of Ibn Rushd, Ibn Zuhr and the Jewish physician Ibn Maimun or “Maimonides” who were to contribute not only to medicine but also to the esoteric subjects like Medical Ethics.

In later years Ibn Nafees was to write about pulmonary circulation and challenge the long held beliefs of Galen and even Ibn Sina.

The legacy left behind by these phenomenal scientists was to shape the practice of medicine for many centuries to come in the vast Islamic empire and later lay the seeds of renaissance of Medicine in Europe in the 14<sup>th</sup> and 15<sup>th</sup> centuries CE.

## The need for collection and preservation

If one looks at the lists of bibliographers like the 10<sup>th</sup> century Ibn Nadeem and the descriptions of historians like Ibn Abi Usaibiya it is evident that only a few of the original works of these great medieval masters have survived. Many of them have been destroyed by the ravages of time or the lack of preservation. Others are either buried in some unknown libraries in the vast dominions that constituted the unified Islamic empire of those times. The vast Islamic Empire that occupied at one time almost one fourth of the known world has now been broken up into much smaller countries and nations. After the colonization of these countries by the West much of their knowledge and wealth that existed in the form of ancient manuscripts, books, scientific and art works, have been pilfered, usurped, looted or destroyed. What exists in the libraries of the Eastern world is unkept and dilapidated and will require enormous effort for restoration and preservation. With newer methods of preservation and restoration now being made available an enormous task has to be undertaken to preserve the available and surviving treasures. This will require the resources and manpower of a wealthy nation that can devote these resources towards these ends.

## The need for dissemination

Besides the task of collection and preservation there is also the task of dissemination of this knowledge. It is in the dissemination of this knowledge that a center like the “**Museum and Library of Islamic Medical History**” would prove to be an invaluable resource. The Museum and Library would serve as a center of collection, preservation, and dissemination of this knowledge. Its ongoing research and learning would provide and attract scholars from all over the world, and hopefully uncover secrets that may continue to benefit humanity. It would boost our knowledge of “**Islamic Medicine**” and help us to look at Medicine from an *Islamic perspective*, a vantage point to which Islamic Scholarship has yet to pay attention. This would be a step in the right direction to spring forward and try and emerge from the dark ages that we the Islamic Nations are presently in.

## Why Now ?

Two main reasons exist for this project to be undertaken now. The first one is that many Islamic nations have the wealth, the scholarship and the human resources that are necessary to undertake this ambitious project.

The second reason is that we now have the technical resources and capability with computers, internet and digital media of not only collecting but also of permanently preserving this knowledge base in a digitized format.

## The modern technology: Digital, Cyber and Virtual age

We have entered into the age of digitization of knowledge. Libraries and Museums within the foreseeable future will have less books and more computer based storage. Digital imagery and virtual recreation is now enabling us to preserve entire books and collections in the digitized format with virtually no fear of deterioration or loss, due to ravages of time and elements. A Museum and Library based on these concepts would be amongst the foremost in the world and achieve fame and attraction.

## Turning the pages

This is a novel innovation where a book or manuscript is digitized and enables the viewer to literally “turn the pages” without having to ever touch the original book or manuscript. It is now available to museums and libraries around the world to harness and use its utility. A Museum based on this concept would revolutionize the preservation and dissemination of knowledge of Islamic Medicine.

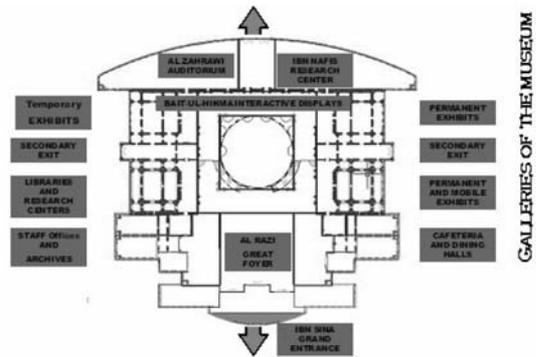
## Conclusion

There is a need for a Museum and Library of Islamic Medicine as one does not exist in the world today. The knowledge of Islamic Medicine is scattered in many parts of the World and needs to be collected, collated and if necessary translated by eminent scholars of today in order to rejuvenate and revive its eminence. This can only happen in a wealthy Islamic Nation. This can be accomplished by building a showpiece Museum and Library of Islamic Medicine in a central place of Islamic Heritage and Culture.

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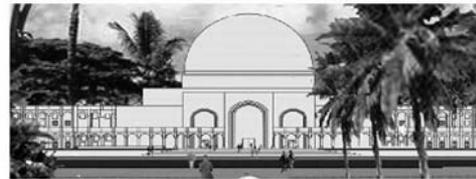
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**THIS MUSEUM DESIGN HAS A STRONG CENTRAL AXIS AND ROOM FOR EXPANSION WHICH WILL INSPIRE CREATIVITY AND PROVOKE INQUIRY**

FRONT ELEVATION



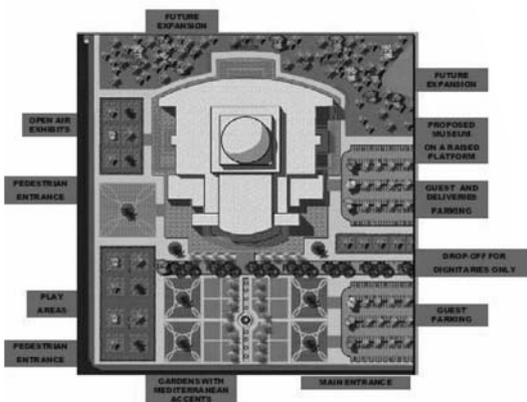
High arches and ceilings give timelessness of space



**This is not only a collection based museum but an "experience museum."**  
Experience of learning, truth and accuracy

GALLERIES OF THE MUSEUM

museum of Islamic medical



Architectural site plan



**Today's public is increasingly eager for experiences rather than static objects.**  
This design creates drama, immersion, adventure and involvement.



INTERACTIVE DISPLAYS



**Dr. Abdul Nasser Kaadan the President of ISHIM**  
was Elected as a Counselor of the Commission on the  
History of Science and Technology in Islamic Societies



The Commission on the History of Science and Technology in Islamic Societies <http://islamsci.mcgill.ca/> is made up of scholars throughout the world who are dedicated to understanding the multifaceted historical role of science within an Islamic context. The Commission is part of the International Union for the History and Philosophy of Science. It was founded in the 1980s, and it is now 149 members from over 30 countries.

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# 7-8 December 2009, Istanbul, Turkey International Workshop on Advanced Clinical Research Ethics: Experts Meeting and Regional Country Reporting

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Hanzade Dogan from Istanbul University and Reidar Lie (Bioethics Department, N.I.H, U.S.A) have organized an international workshop on advanced clinical research ethics on 7-8th of December 2009, in Istanbul.

Participants from Ministry of Health, Turkey, Head of Chamber of Health, Province of Istanbul, representatives from Istanbul University, participants from N.I.H, U.S.A, Representatives of Clinical Research from Egypt, the Sudan, Oman, Kuwait, clinicians from various countries, academicians, ethics committee members, Representatives of Istanbul Medical Association, different civil organizations have come together in Armada Hotel.

In this workshop, basically normative frameworks about the new research topics in medicine on human subjects have been successfully discussed and experts have come together on new horizons.

Also an honorary visitor from N.I.H, who is the health consultant of the White House, has participated in the workshop, as well. Prof. Dr. Ezeikel Emanuel, who has been widely recognized as a leader of health economics, health plans and framework descriptions in medical ethics has enriched the workshop with his presentations on Framework of Research Ethics and on Conflicts of Interest.

Also the new legislation about Clinical Research that has been organized by Ministry of Health in Turkey, together with the establishment of newly organized independent and multidisciplinary ethics committees. This information has been compared with regional country reports and with the reports from U.S.A.

Ethics is the essence of medical thought. There is a very delicate border between treatment and research on human subjects. Rational questions, dilemmas and solutions are raised by medical ethic and not only rational but humanistic answers are reached by medical ethics, as well.

Medicine is always in progress today and progress is usually through research. Risk assessment should be delicately made in research, benefit should be in front of risk, respect should never be neglected, and all those should be balanced with the Dynamics of health economics.

Stored tissue samples, informed consent, psychiatry patients, new technological developments, etc are today's important research topics. There might be cultural differences in practice but as we have seen very clearly in this workshop there are very common rationales, as well.

It is difficult to move from theory to practice but it is essential. So, we wish to come together with those ethics workshops, ethics consultation services etc... to reach our goals in medicine to serve humanity.



**Opening Speech: Hanzade Dogan**



**Opening Speech: Aysegul Demirhan Erdemir,  
Founder of Turkish Society of Medical Ethics and  
Law**



**Opening Speech: Prof. Dr. Ezekiel Emanuel The  
Health Consultant of the White House, N.I.H Chief of  
the Department of Bioethics**



**David Wendler (N.I.H), Ezekiel Emanuel (N.I.H, Chief, Bioethics), Reidar Lie (N.I.H), Hanzade Doğan (I.U. Cerrahpasa Faculty of Medicine), Donald Rosenstein (University of North Carolina), Mahmut Tokaç, Hanefi Özbek (Turkish Ministry of Health), Kemal Arıkan (I.U. Cerrahpasa Faculty of Medicine, Psychiatry Department), Ahmet Erözenci (I.U. Cerrahpasa Faculty of Medicine, Urology Department), Christine Grady (N.I.H, Acting Director, Bioethics)**

# CONGRESS AND SOCIETY NEW

## Turkish Bioethics Society VII. Medical Ethics Symposium

It was held in İstanbul in 9 March 2009.

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## VI. Lokman Hekim Medical History and Folkloric Medicine Days

It was held in Hatay in Turkey in 27-30 May 2009.

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## 10. History of Medicine Congress

It was held in İstanbul in 30 September- 1 October 2009

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**e-mail:** arinnamal2002@yahoo.com

## 7 th International Turkish Culture Congress

It was held in Ankara in Turkey in 5-10 October 2009

**Contact:**akmkongre@gmail.com

## The VII<sup>th</sup> National Congress of History of Medicine and IV<sup>th</sup> Congress of Balkan History of Medicine

It was held in Brasov in 22-25 October 2009.

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## 2. International Congress on Medical Ethics And Medical Law (Life Maintenance Treatments at the Beginnings of the 21<sup>st</sup> Century)

It was held in Bursa in Turkey in 4-7 November 2009.

### Congress President

**Prof. Dr. Ayşegül Demirhan Erdemir**

**Congress Secretary**

**Dr. Sezer Erer**

**e-mail:** tipetigivetiphukuku@gmail.com

## International Workshop on Advanced Clinical Research Ethics: Experts Meeting and Regional Country Reporting

It was held in İstanbul in Turkey during 7-8 December 2009

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**email:** hanzadeym@yahoo.com

## 42nd World Congress of the International Society for the History of Medicine

It will be held in Cairo in 10-13 October 2010  
[www.ISHMcongresscairo2010.com](http://www.ISHMcongresscairo2010.com)

### Congress President

Prof. Dr. Giorgio Zanchin

### Contact Address

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[manuscripts@ISHMcongresscairo2010.com](mailto:manuscripts@ISHMcongresscairo2010.com)

## 5<sup>th</sup> International Congress of the International Society for the History of Islamic Medicine

Istanbul University with Collaboration the International Society for History of Islamic Medicine will hold in İstanbul, Turkey, in October 26-28, 2010.

### Congress Presidents

Prof. Dr. Nil Sarı

Prof. Dr. Şafak Karamemetoğlu

### For more details please contact:

[ISHIM2010@googlegroups.com](mailto:ISHIM2010@googlegroups.com)

## Istanbul 2010- Health in Istanbul – From the Past to Present

It will be in İstanbul in Turkey in 3-6 November 2010

### Congress Presidents:

**Prof.Dr.İbrahim Başağaoğlu**

**Prof.Dr.Ayşegül Demirhan Erdemir**

### Contact

**Dr.Hakan Ertin**

**e-mail:**ertin@gmail.com

**Dr.Sezer Erer**

**e-mail:**turktiparihikurumu@gmail.com



**1. A Group from Members of Turkish Society for the History of Medicine in Institute for the History of Arabic Sciences in Aleppo.**



**2. Congress Members in 2009 Balkan Congress in Brasov**



**3. Prof.Dr. Jochen Taupitz in Bursa Ethics Congress in 2009**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## الجمعية الدولية لتاريخ الطب الاسلامي

International Society for the History of Islamic Medicine

(ISHIM)

طلب التحاق

### Application for Membership

- Regular member (\$25 or QR 95) (عضو منتظم (25 دولار أميركي أو 95 ريال قطري)  
 Student member (\$10 or QR36.50) (عضوية الطلاب (10 دولارات أو 36,5 ريال قطري)  
Name : الإسم :

Occupation/work :

المهنة :

Postal Address :

العنوان البريدي :

Tel :

Fax:

الفاكس :

الهاتف :

E-Mail :

العنوان الإلكتروني :

Personal Data :

(Attachment of a short CV copy is preferred)

معلومات ذاتية :

(يستحسن إرفاق نسخة من السيرة الذاتية مع الطلب)

Signature: .....

الإمضاء : .....

Payments :

طريقة الدفع :

Credit Card number : ..... Exp. Date.....

Visa

Master card

American Express

Draft/Money order (payable to the: International Society for History of Islamic Medicine - ISHIM)

Bank details: QNB – Doha/Qatar ( US\$ Acct # 0055-068990-060 - QR Acct # 0055-068990-001)

Signature:.....

For Official Use :

للاستعمال الرسمي :

Date : .....

التاريخ : .....

Please send this application to:

الرجاء إرسال الطلب إلى :

Dr.H.A.Hajar Al Bin Ali

د.حجر أحمد حجر البنعلي

P.O.Box : 5666

ص.ب : 5666

Doha – Qatar

الدوحة قطر

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