

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



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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 2007-2008 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 21 papers, ISHIM news and news of some scientific meetings are present.

The first paper by Wasim AHMED and Khalid Zaman KHAN is on "Cardiology with Special Reference to Al-Qanoon Fil Tibb and Al-Advia Wal-Qalbiya". The second paper by Mostafa SHEHATA is about "Medicine in the Pagan Arab State". Another article by A. HALOUBI and A. KASSAB is "The Achievements of Albucahis in the Field of Oral Surgery". The fourth paper by Rosanna GORINI is on "Bimaristans and Mental Health in Two Different Areas of the Medieval Islamic World". The fifth article by Arin Namal and Arnold REISMAN is "They Introduced Modern Radiology in Turkey: Refugees from Nazism 1933-1945". Another paper by Moustafa MAWALDI, Abdul Nasser KAADAN and Hamed Ziad JABBAN is about "Maintenance of Dental Health in Manuscript "Mujiz Al-Qanun" by Ibn Al-NAFIS". The seventh paper by Oya DAGLAR MACAR is about "The Fight against Diseases with Medicine and Wound Care in the Ottoman Army during the Greco-Ottoman War of 1897". The eighth paper by Nurdeen DEURASEH and Siti Nor Azhani Mohd TOHAR is on "Healing Through Ruqyah (incantation) with Special Focus on the Perception of Malay-Muslim Society in Kelantan and Terengganu on Ruqyah as an Alternative Way of Healing in Malaysia". The ninth paper by Fethiye ERBAY is on "The Role of Technology in the Medical Museum". Another article by Mostafa SHEHATA is on "Medical Instruments in Islamic Medicine". The eleventh article by Jasser Mohamed TAHA is about "Unknown Contributions of the Arab and Islamic Medicine in the Field of Anesthesia in the West". The other one by Farid ALAKBARLI and Esmira HAJIYEVA is "Tuhfat Al-Muminin" (1669 Ad) By Muhammad Mumin as an Important Source on Traditional Islamic Medicine". The thirteenth article by Gulay DURMAZ and Ozlem ERCAN is about "Patient, Illness and Physician in Kutadgu Bilig". The fourteenth article by Oztan ONCEL and Aysegul DEMIRHAN ERDEMIR is on "A View of the Development of Some Anaesthetic and Analgesic Drugs in the Western World and in Turkey and Some Original Documents". The other one by Altaf Hussain SHAH, Amanullah HAJI, M.A. SIDDIQUI, Abdul Nasir ANSARI, A.M.K. SHERWANI and G. SOFI is "Etymology of *Warne Shoab Muzmin* (Chronic Bronchitis) and Its Management in Unani (Greeko-Arab) System of Medicine". The sixteenth article by Aysegul DEMIRHAN ERDEMIR and Hanzade DOGAN is on "Medical Information and Medical Reports in the Ottomans". Another article by Aysegul DEMIRHAN ERDEMIR and Hanzade DOGAN is about "The Developments in the Patient-Physician Relationship from the 19<sup>th</sup> to the 20<sup>th</sup> Century". The eighteenth article by Rossella CARNEVALI and Alice MASILLO is on "A Brief History of Psychiatry in Islamic World". Another article by Jihad HAJ NASSAN is about "Facilitate Children Dentition in the Arabian and Islamic Medical Textbooks at 4<sup>th</sup> AH, 10<sup>th</sup> AD Century". The twentieth article by Abdul Aziz KHAN, Mohd.ZULKIFLE, A.Haseeb ANSARI and Khan Najma ABDUL HAI is "Persian Contribution to Greco-Arab Medicine: A Review". The other article by Mostafa SHEHATA is about "History of Museums". The article by M. Nazrul ISLAM and A.M.K. SHERWANI is "Conceptual Amalgamation for Pathogenesis of Fever: A Scientific Perspective". The last one by Mostafa SHEHATA is on "History of Legal (Forensic) Medicine".

Wishing April/October 2007-2008 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**

# Cardiology with Special Reference to Al-Qanoon Fil Tibb and Al-Advia Wal-Qalbiya

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## Summary

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Cardiology, was always important and has always been a topic of discussion even as early as 4000 B.C. Ibn Sena (980-1037) was among the first physician and Arab scholar who contributed in this field remarkably. He has provided proper understanding about the anatomy, physiology, mechanism of contraction and relaxation, the concept of pathophysiology of heart diseases, the parameters of diagnosis and its management are described in his books Al-Qanoon Fil Tibb and Al-Advia wal-Qalbiya. He also suggested various psychical states such as anger, anxiety, joy, grief and other feelings are governed by the structure of heart, constituents of blood and other fluids.

The present paper discussed different research and management with the help of exercise, diet, and drugs suggested by Ibn Sena.

Key words: Ibn Sena, Al-Qanoon Fil Tibb, Al-Advia wal-Qalbiya, Cardiology.

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## Cardiology with Special Reference to Al-Qanoon and Al-Adviya wal-Qalbiya

Heart has always been a topic for research and discussion among medical scholars since the beginning of medical world. Now almost every detail regarding anatomy and physiology of heart is known, but when we look at the historical evidences, it is amazing to find that the knowledge of heart and its functions was much clear to the man even in 4000 B.C. (1). This is evident from the descriptions on various papyri-the source for history of Egyptian medicine. The two main papyri, which provide these details are: the *Ebers papyrus* and the *Edwin Smith papyrus* (2).

The very first organized and systematic description about heart and its functions is found in Greek medicine. Greek medicine roughly covers the millennium from 500 B.C. to 500 A.D. (3). With the decline of Greco-Roman civilization, the movement of culture drift was eastward, passing through the hands of Syrian scholars of Asia minor to the Arabic scholars and it was these people who took from the hands of Galen and Hippocrates the flickering torch of Greek medicine and prevented its extinction and handed it back after five centuries burning more brightly than before. Among Arabs, the most remarkable contribution to the field of cardiology was made by Ibn Sina (980-1037 AD) the prince of physicians. The following descriptions about heart and its diseases were found in his book *Al-Qanoon Fil Tibb* and *Al-Advia Wal-Qalbiya* and are described here under different headings.

## Anatomy and Physiopathology of Heart

According to Ibn Sina "Heart is made up of special fibres, though not affected by minor injuries. Its longitudinal fibres, absorb nutrients and oxygen and its oblique and horizontal fibres to hold nutrients and oxygen. These discrepancies of fibres help the heart performing its normal activities" (4).

Apart from this he also says that all psychosomatic factors are the characteristics of spirit and the characteristic of spirit are the essence of humours (bilious, sanguineous, melancholic, and phlegmatic) (5). Left side of the heart serve both as store house of spirit and seat of origin of spirit (6). He was the first who has shown that intimate relations exist between psychology and medicine. He describes various psychical states such as anger, anxiety, joy, grief and other feelings are governed by the structure of the heart (7), constituent of blood and other body fluids. Further he clearly proved that moral qualities are based on the functioning of the heart in combination of the spirit (8). In the 3<sup>rd</sup> volume of *Al-Qanoon*, he claimed that, moral qualities are treated as diagnostic signs of cardiac constitution and it is possible for therapeutic measures to control human feelings such as envy, malice, courage, cowardice, miserliness, generosity, joy, grief and anger etc. He says that joy and grief, fear or anger, weeping or laughing etc are effects of the cardiac



spirit, their intensity widely differ in individuals. The difference is due to the capacity of the cardiac spirit (i.e. animal spirit). Thus everyone is liable to these effects but some are being affected more than others. The human being is liable equally to two opposite states of emotions but the capacity is different. One man is capable of feeling his grief more while another may enjoy his happiness to a greater degree (9). Further he has classified the cardiac condition in two ways:

- (1) *Zof e Qalb* or Cardiac asthenia (weakness of the heart)
- (2) *Zaiyiq Sadr* or Dyscardia or disquietude (pressure felt on the chest).

He discusses the difference between the two conditions. Similarly, a subtle distinction are drawn between two others, one of which is regarded as “strength” and the other is “lightness” accompanied by a feeling of opening out in the chest. Generally these two conditions go together hence, it is difficult to differentiate between them. Now with this regard the distinctions he maintains, firstly, that it is not necessary that “weak hearted” person should also be prone to grief, nor that every individual afflicted with mental disquiet be also a “weak hearted”. Similarly, one with a strong heart may not be cheerful, nor is every light hearted person gifted with a strong heart.

Secondly, a weak hearted person cannot bear fearful things, while one afflicted with pressure on the chest cannot stand that which excites disquiet. He then points out the difference between fear and disquiet. The fear causes physical torment while the disquieting asserts the soul and the spirit. Third, in a weak hearted condition one is inclined to avoid and feel from the fearful, but in disquietude and “pressure” on the chest a man may sometimes offer opposition to repel the source of his affliction. Fourth, in a weak hearted condition when faced with something fearful, motor powers become weekend or dormant, but in disquiet these get excited. Fifth, when a fearful situation has to be faced by a weak hearted person his innate heat abates and a cold sensation is felt, while in a state of pressure on the chest the metabolic rate get raised. Sixth, weakness of the heart arises when the spirit is too “thin” and “cold” in its constitution, while weight on the chest and disquietude are the result of its “coarseness” and “cold” constitution (5, 7, 9).

Further more, about the pathological changes he says, the cardiac tissues get inflamed by bad temperament (*Sue Mizaj*) and congenital anomalies etc. either by *Maaddi* factors in vascular system, cardiac muscles or in between pericardium and myocardium. When fluid of pericardial cavity became excessive or vice versa the normal cardiac

diastole is to be checked. [Another factors like, shape of the chest (Kyphosis, lardosis, Scoliosis), lung diseases (Pleurisy, pneumonia) and cor-pulmonale, tuberculosis gland, metastasis, and diphtheria etc]. Blood disorder i.e. some things produces impure quality of blood (4), bacteraemia, viraemia, toxoemia, parasitaemia, spirochetal etc. (10). Further he classified the pathological conditions in four ways:

- (1) Fluid collection – *Ijtema-e-Rutubat*
- (2) Inflammation – *Itihaab*
- (3) Embolism / Thrombosis – *Suddadiyat*
- (4) congenital anomalies – *Azwi Naqais*

In case of myocardial infarction (*Ihtesha-e-Qalbi*) he says that cardiac tissue degeneration sets in. If degeneration extends up to ventricular endocardium sudden death may occur otherwise patient survive for short period (4, 11). Recently it has been proved by Price in 1978 that pathological evidence of myocarditis found in many cases of fatal generalised infection (12).

## Diagnosis

Ibn Sina has formulated some distinctive parameters for the diagnosis of cardiac ailments through “*ISTEDLALE AHWAL QALB*”(4)

1. Pulse	<i>Nabz</i>
2. Respiration	<i>Tanaffus</i>
3. Built of the chest	<i>Khilqat-e-Sadr</i>
4. Hair on the chest	<i>Sharus Sadr</i>
5. Palpitation	<i>Malmas</i>
6. Manner of the patient	<i>Akhlaq</i>
7. The Energy Status of the Body	<i>Quwat wa Zof e Badan</i>
8. Emotional and psychological attitude.	<i>Auham</i>

## Management

Ibn Sina was the first man in the history who has provided the proper guidelines of cardiac management and explained the properties of drugs in detail. He also explained how does the drugs effect on heart and *Ruh* in very scientific manner. Before the treatment of cardiac ailments it should be known that heart is a noble organ though, it required a very scientific management and considerable attention. Though he has given some distinctive features as follows (4).

- Elimination (*Istifragh*) and change of temperament (with drugs) is very supportive in this regard.

- In case of fluid collection in heart, blood letting (*Fasad*) is helpful.
- Along the eliminative drugs (*Istifragh e-Advia*) Cardio tonic drugs could be added.
- *Tiryag* and Antidote should be added with eliminative drugs for effective response they carry to the target tissues.
- Old physicians preferred to use cold and hot tempered drugs together in case of *Sue Mizaj Har Qalb* (bad hot tempered heart); cold tempered drugs make equilibrium of heart and hot tempered drugs (*Gawzuban*) strengthening *Ruh*. Besides this, hot and cold tempered drugs act as synergistic effect e.g. *Zafran* and *Qurs-e-Kafoor*.
- In addition extract of fruits (*Rubub e Tuffahe Shami, Safarjal*) were given in hot tempered patient. On the contrary *Maajeen-e-Kebar* and *Sharab-e-Rehani* for cold tempered patient.
- Light morning walk, use of cold water, easily digestible foods (*Ghiza-e-Mahmoodul Kaimoos*), *Kahoo*, Apple, *Maul Laham*.
- Application of refreshing paste.
- Avoid any strenuous work and provide mental relaxation.

Ibn Sina has categorised the cardiac drugs in “*Al-Advia Wal Qalbiya*” scientifically in quite detail. According to Ibn Sina drugs interact with human body in two ways:

(i) Conditional drugs attached with tissues (Diuretic, diaphoretic, purgative, haemostatic) (ii) Unconditional, to be common and not related with tissues. (attenuant, resolvent, detergent, calorifacient, deobstruent, relaxant, abluscent, diluting agent, absorbent etc.). They are 64 in number. They are effective in cardiac diseases and protect the cardiac nobility. Details of some drugs are as follows (2, 7, 10).

1. Abresham, (*Bombyx mori*): strong exhilarant, cardio-tonic, brain tonic
2. Amla (*Emblica officinalis L.*) : exhilarant and cardio-tonic
3. Utruj (*Citrus medica Linn*): cardio-tonic
4. Aas (*Myrtus communis Linn*): exhilarant and cardio-tonic
5. Ushna (*Usnea longissima Asch*): cardio-tonic
6. Ustukhuddus (*lavendula stoechas Linn*): exhilarant and cardio-tonic
7. Armuk (*Pandanus tectorius Linn*): cardio-tonic and brain-tonic
8. Azarboya (*Helianthus annus Linn*): cardio-tonic

9. Paneer maya (*Rennet of Arabian Camel*): exhilarant
10. Badaranjboya (*Nepeta hindostana*): exhilarant and cardio-tonic
11. Bussud (*Corallium ruburum*): exhilarant and cardio-tonic
12. Tabashir (*Bamboo manna*): exhilarant and cardio-tonic
13. Lajward (*Lapis lazuli*): desiccant, exhilarant and cardio-tonic
14. Tej Pat (*Cinnamomum tamala*): tonic for vital organ
15. Zafran (*Crocus Sativus Linn*): strong exhilarant and tonic for spirit.
16. Zarnub (*Taxus baccata L.*): exhilarant and tonic for spirit.
17. Kaphoor (*Cinnamomum Camphora*). exhilarant and tonic.
18. Gawzuban (*Borago officinalis Linn.*) : exhilarant and cardio tonic.
19. Mushk (*Moschus moschiferus*): exhilarant and cardio tonic.
20. Water lily (*Nymphaea alba Linn.*): cardio-tonic.
21. Sumbul ut-Teeb(*Nardostachys jatamansi DC.*): tonic and exhilarant.
22. Anar (*Punica granatum Linn*): cardio-tonic.
23. Kahruha Shama (Vateria indica Linn): cardio-tonic

## Discussion

The drugs mentioned in *Al-Qanoon* and *Al-Advia Wal Qalbiya* here being screened for different type of cardiac diseases both by *in vitro* and *in vivo* studies and about 30 drugs have seen reported to be effective for the management as well as prevention of the cardiac diseases like hypertension and coronary artery diseases. Zarnab (*Taxus baccata L.*) : the brief survey of the yew (*Taxus baccata L.*) shows that its active principle taxine, has negative inotropic, negative chronotropic and atrio-ventricular blocking effects which results from its Na and Ca current inhibiting properties (15). Badranjboya (*Nepeta hindostana*) : the pharmacological investigation of *N. hindostana* showed that the alcoholic extract when given in a dose of 20 mg /kg /day to a group of four pigs (3-4 months of age) of both sexes [in which hypocholesteremia was artificially produced by daily feeding of cholesterol (4 gms) and Vanaspati Ghee (250 gms) produced a marked hypocholesteremic effects over a period of 15 days. It also produced some beneficial effects in the histopathology of myocardial infarction](16). It has also shown cardiac stimulant activity on normal and hypo dynamic heart of frog and rabbit

(17). The alcoholic extract has shown marked protection to rats with isoproterenol induced experimental myocardial necrosis. The aqueous extracts of *N. hindostana* (50 mg/kg, i.v.) has been shown to produce significant hypotensive response without affecting the rate of respiration in dogs (16). Amla (*Emblica officinalis L.*) : Hypolipidaemic effect of fresh juice of amla was investigated in 0.5 gm cholesterol and 1 gm clarified butter fed albino rabbit once a day for 4 weeks. Mean serum cholesterol was found to be increased in all experimental group except animal treated with amla and the difference was more pronounced at the end of 3<sup>rd</sup> and 4<sup>th</sup> week (17). However, reported the hypocholestraemic effect in cholesterol induced hypercholestraemic in albino rabbit. Serum, aortic and hepatic cholesterol were significantly reduced in amla group as compared to control group (19). In other experimental studies, it was also observed that administration of fresh juice of amla fruit in rabbits and rats lowered the triglycerides, phospholipids, LDL (low density lipoprotein) and tissue lipid along with the poor absorption of fat in diet (20-22). Probably, flavanoidal components in amla are responsible for its hypolipidaemic effect as reported by Anila et al (23). In a clinical trial, Amla supplement in diet was found to lower the cholesterol level in normal as well as hypercholestraemic volunteer. However, two week after withdrawing the supplement, the total serum cholesterol level of hypocholestraemic subject rose almost to initial level (24). Khamira Abresham Sada and Jawahar Mohra : Out of 14 patients of paroxysmal nocturnal dyspnoea after completion of the treatment there was overall improvement of 71.4% which may probably be due to better tissue perfusion and positive inotropic and chronotropic effects of Jadwar, moreover Kahruba has a property to increase the cardiac glycogen thereby increasing the cardiac contractility and reducing the congestion. Palpitation was the only symptoms which shows the maximum improvement in 93.3% of cases. Decrease in this symptom can almost certainly be attributed to the Nafa-e-khafqan effect of Abresham, Badranjboya, Frunjmushk and Gauzuban. Moreover, the active principle of Abresham has certain cholinergic substances which decrease the heart rate, decrease oedema, increased JVP (jugular venous pressure) and regression in hepatomegaly might be due to the effect of cardio tonic and diuretic drugs (Bussud, Mastagi, cacinetine in Gauzuban, cardiac glycogen in Kahruba) described earlier (25). Khamira Aabresham Hakim Arshad wala is a reputed polypharmaceutical preparation of Unani System of medicine (most ingredients of this compound formulations are mentioned in *Al Advia wal Qalbiya*). It is extensively used with success in the treatment of arrhythmia, tachycardia and hypertension. It has marked and prolonged hypotensive and hypocholesteremic activity where as, Rahman observed anti-arrhythmic activity. Khamira Abresham Hakim Arshad wala contains 27 ingredients derived from plant, animal

and mineral resources. Five ingredients of this preparation namely *Bombyx mori*, *Nardostachys jatamansi* (26), *Moschus moschiferus* (27-30) peel of *Citrus medica* (31) and *Vateria indica* (32) have already been investigated for their pharmacological activity related to cardio vascular system. In a study of Khamira Abresham Hakim Arshad Wala on myocardial metabolism and in myocardial necrosis in rats there were significant rise in serum free fatty acids (SFFA). High level of SFFA is associated with higher incidence of arrhythmia and increased myocardial oxygen demand. The level of SFFA was significantly lower in the animals treated with Khamira as compared to untreated group. Cardiac glycogen was significantly decreased after isoproterenol induced myocardial necrosis. The utilisation of glycogen is increased by myocardium under anaerobic conditions. The disturbances in serum electrolytes produce cardiac arrhythmias and have been responsible in the production of myocardial damage. There was a rise in serum Na and K level after experimental myocardial necrosis (27, 32). The level further increased after treating the animals with Khamira. The mechanism of this rise in serum electrolytes is not clear. SGOT (Serum glutamic-oxaloacetic transaminase), SGPT (Serum glutamic-pyruvic transaminase) & SLDH (Serum Lactate dehydrogenase) have long been used in the diagnosis of myocardial infarction (33, 34) and showed a direct relationship between myocardial necrosis and enzyme levels. The level of SGOT and LDH were significantly less in the groups treated with all the samples of khamira as compared to untreated group with myocardial necrosis. These findings regarding the serum enzymes and serum FFA suggests a significant protective effects of Khamira Abresham Hakim Arshad wala against isoproterenol induced myocardial necrosis.

## Conclusion

The contribution of Ibn Sina to the medical world can not be neglected. In his book "*Al Qanoon Fil Tib*" and "*Al-Advia wal Qalbiya*", the anatomy of heart, its possible physiology and mechanism of contraction and relaxation, the concept of pathophysiology of heart diseases and the parameters of diagnosis and its management are given in detail. His scientific discussion of cardiac diseases and its management is clearly indicated that he was well aware and conscious about rapidly spreading fatal outcomes of heart ailments. The present study shows the above discussed drugs are cardio protective either by significant protective effect against isoproterenol induced myocardial cell damage, negative inotropic, negative chronotropic and atrio-ventricular blocking effects producing significant hypocholesteremic effect and congestive heart failure. Overall improvement of 71.4% which may probably be

due to better tissue perfusion and positive inotropic and chronotropic effects of Jadwar. Moreover Kahruba has a property to increase the cardiac glycogen thereby increasing the cardiac contractibility and reducing the congestion. It is imperative that the drugs mentioned by Ibn Sina for cardiac ailments, should be given due attention and attempts should be made to isolate the active principles. More pharmacological studies are required in this direction.

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# Medicine in the Pagan Arab State

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## Summary

**Introduction:** Arabia is the region lying between Yemen and the borders of Syria and Iraq. Its people are the original Arabs who have a common linguistic and cultural heritage.

**The Origin of Medicine:** Ancient people in Arabia understood medicine as the relief of pain, by the available empirical and rational means. In this respect they believed in the power of natural forces as air, heat, light and water in cure of their ailments.

**Medical Practice:** Medicine was practiced by three types of healers, the priest, the magician and the physician. Dealing with disease was mostly empirical, based on superstition, magic and charlatanism. The rational medical practice was also known where medicinal plants, natural elements and organic matter were frequently used, beside minor surgical procedures and thermocautery.

**Eminent Physicians:** The long pagan pre-Islamic history comprises the name of many healers, who practiced empirical and rational medicine, with reasonable good experience.

- Lukman **لُكْمَانُ**: a well respected sage and good healer, who perfected philosophy, wisdom and medicine and got high reputation when his name was mentioned in Al Quran with high respect.
- Zohair Ibn Hobal **زُهَيْرُ بْنِ حُبَالٍ**: A well known priest physician, who lived in Arabia few centuries before the Islam mission.
- Ibn Huzeem **عَبْدُ الرَّحْمَنِ بْنِ حُزَيْمٍ**: a highly experienced physician related to the tribe Teem El Rubab, who was the main eminent physician of the fifth century A.D.
- Abagar Al Kenami **أَبَاغَارُ كَنْعَانِي**: Learned medicine in Alexandria, Egypt at the sixth century and got high medical reputation in Egypt and El Sham.
- Harith Ibn Kilda **هَارِثُ بْنُ كَيْلِدَةَ**: An eminent physician of the seventh century, who got his medical learning at the School of Jundi Shapur in Persia.
- Sergios Rass El Ain **سَرْجِيوسُ رَاسَ عَيْنٍ**: A Christian physician, who lived during the fifth century, studied medicine in Alexandria, then returned back to Arabia.
- Ibn Abi Ramsah **عَبْدُ الرَّحْمَنِ بْنِ أَبِي رَمْسَةَ**.
- El Shamardal Ibn Kibab **عَلِيُّ بْنُ شَمْرَةَ**: Eminent physician of the seventh century who witnessed the beginning of Islam mission.

### Women Physicians and Nurses:

- Sahar Bent Lukman **سَهْرُ بِنْتُ لُكْمَانَ**
- Hind Bent El Hassan **هَيْدَةُ بِنْتُ هَاشِمِ بْنِ عَبْدِ اللَّهِ**
- Khomaa Bent Habis **خُوْمَاءُ بِنْتُ حَبِيبِ بْنِ أَبِي سَلَمَةَ**
- Bent Amer Al Edwani **عَمْرَةُ بِنْتُ عَدْوَانَ**
- Al Shifaa Bent Abdol Allah **شَيْفَاءُ بِنْتُ عَبْدِ اللَّهِ بْنِ أَبِي سَلَمَةَ**
- Om Atia El Ansariah **عُمُّ أُتْيَا بِنْتُ أَنَسِيَةَ**
- Rofaidah El Ashamiah **رُفَيْدَةُ بِنْتُ أَشْمِيَةَ**

**Conclusion:** Arabia during its long past history was the land of good medical practice and the appearance of many well experienced physicians, who practiced medicine on a reasonable rational basis.

Key words: History of Medicine, Eminent Physicians, Pagan Arab State.

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## Introduction

The Arabs are originally the people of the Arabian desert who have a common linguistic and cultural heritage of Semite origin (1).

Arabia was the region with some sedentary, agricultural and commercial life centred between Yemen and the borders of Syria and Iraq (2)

Yemen as a part of the classical Arabia was the earliest seat of Arabian culture dating from the early part of the first millennium before Christ. It saw the rise and fall of three

major peoples, the Minaeans (1300-650 B.C.) the Sabaeans (950-115 B.C.) and the Himyarites (115 B.C to 525 A.D.) (3, 4).

The oldest history of Arabia goes back to about 3500 B.C., when the Semites moved from Arabia and formed the high civilization of Sumerians. The Semites who settled in southern Mesopotamia became known as Babylonians. Those in the north, were the Assyrians. The Assyrian empire was followed by the empires of Persia, that were the Achaemenids, Parthians and Sassanides (5, 6).

Adopting a severe physical environment over thousands of years, the Arabs constructed three kinds of community or social organizations, the nomadics (bedouins) the agriculturals and the urbans (1).

The nomads occupied the vast deserts, over which they wander in regular patterns. The society was based on the family and the families were organized into larger groups of clans and tribes. They have always maintained important relations with the villages and cities along their routes of travel. They were animists and polytheists in religious belief. They recognized no authority outside the patriarchal leadership of the clan Sheikh (2).

The agricultural Arabs were those living in agricultural villages along the rivers and natural wells.

Urban Arabs were those living in urban centers and exercised cultural, economic and political influences and were centers of finance, commerce and crafts (1).

The most advanced Arab communities were at the oases of Meeaa, El Ta-if and Yathrib. Mecca was a sanctuary settled in the fifth century A.D. by tribemen called the Quraysh. Its shrine, the Kaaba became a center for Arabian pilgrimage and trade and this traditional sanctity of family ties and tribal values were undermined by commercial and political ambitions. Yathreb was an agricultural oasis divided by bitter feuds among the Arabs pagans and Jewish clans of the oasis (2).

The Arab peninsula was greatly influenced politically and culturally by the highly developed Byzantine and Sassanian empires that surrounded it (2).

Military techniques, weapons, material goods and above all the ideas of the Jewish and Christians religions were spreading by settlements, itinerant preachers and contacts with the converted border people (2).



Map of Ancient Arabia

## Origin of Medicine

The study of the earliest origins of medical thought and development in Arabia goes back to the most distant periods of history (7). The history cannot be separated from the history of ideas and struggles against superstition and charlatanism (7).

Ancient people understood medicine as the relief of pain by their own means or with the help of others. This shows how empirical medicine arose in primitive people, where they got the concept of the removed of the visible cause of pain or invisible cause of internal disease when physical removal is impossible (7).

Searching in nature, in the action of the sun, the moon, the sea, the thunder and lightning, for the cause and cure of infirmities, people learned to know the therapeutic value of the natural forces as air, heat, light and water. This shows how empirical medicine was often related to the magic concept. The aid of some supernatural powers became necessary, whether invoked directly or by means of deified animals or men expert in communicating with these superior forces (7). It is in this atmosphere of mysticism and faith in which the life of ancient people was evolved, at the moment when vague superstitions were crystallized into precise customs and religious ideas (7, 8). Amulets representing organs of man and of animals were the materials that have most frequently served for this purpose (7, 8).



Medical Consultation at Home



Serpents as a Spell in Magic Medicine

## Medical Practice

As medicine in ancient Arabia was a mixture of empirico-rational, religious and magical that were inextricably combined, the treating physician was not usually a medicine man, as there were three types of healers, the physician, the priest and the sorcerer (9).

The physician was the man who treat his patients with drugs and may be surgical interventions based on empirical knowledge and practice (9). The rational practices were numerous and efficient. They treated fevers with a liquid diet, purgatives, diuresis, sweat and even with blood letting. They used emetics, laxatives, carminatives, antispasmodics and enemas for digestive disorders. Lobelia, flax and other medicines as cupping and moxas for respiratory disease (7). Abdominal and occasionally vaginal manipulations were used in prolonged labour or to expel the placenta (7). They observed the curative virtues of some plants, natural elements and organic matters and found that some are useful and others are poisonous (7, 10).

Minor surgery was done based on rational basis or magic concept. The most common operations were infibulations, extraction of arrows, castration, circumcision and amputations (7). Amputations were done by knife, saws, files and may be other surgical implements. Thermo-cautery using hot iron bars was an emergency practice to arrest bleeding and for ulcerating and fungating external lesions (9). Blood letting by venesection was a frequent practice for the relief of pain and some other body ailments (11).

Religious and magic medicine was practiced by priests and magicians. Religious medicine depends on the healing power of the local gods that require constant attention by prayers and manifold rites. The spirits, demon and evil forces that threaten the health of people were reached directly with prayers or by writing letters to them (9, 12).

The way to control the world of spirits was magic by a series of actions, rites that had to be performed, of objects that to be worn and of formulae that had to be recited at the right moment (9, 12).

The defence against evil eye, to which has attributed great malignant power constitutes one of the most important items of magic therapy. Amulets representing organs of man and of animals, especially eyes and genital organs were the materials that have most frequently served for this purpose (7).

The magician healer by his mysterious power claims to predict the future by observing the stars or natural phenomena. This power increases inordinately in times of epidemics or catastrophes. Therapy was suggested by formulas and spells as well as recourse of bones and ashes of the dead or of animals, carried about the neck (7, 12). The practice of tattooing was also a form of defence against the evil demon (7).



Preparation For Thermo-Cautery



Thermo-Cautery of The Chest



Thermo-Cautery of The Head



Thermo-Cautery of The Back

## Eminent Physicians

The long pagan pre-Islamic Arab medical history comprises the name of many medical practitioners who lived in the region and practiced empirical medicine on a reasonable rational basis (13).

Those who rose to eminence and deserved distinction received the attention of writers as eminent physicians during that time are:

– **Lukman** ناملق

A well respected story teller and sage belonging to Arab tradition, who was bestowed wisdom by God (14). He is usually associated with long life and referred to by Arab writers to Ad people. He is the type of perfect wisdom, philosophy and medicine. Many tales circulate in Arabic literature about him and many instructive apologues are credited to him (15, 16). One of his well known aphorism “Do not bother yourself by worries or property collection as there is no alternative for good health” (11, 12).

– **Zohair Ibn Ganab Ibn Hobal** نب بانج نب ري مز لب

He lived few centuries before Islam mission. He was well known as a priest physician and enjoyed a long life (10).

– **Ibn Huzeem:** مَيَّزَح نب

A well known medical man, from the tribe of Teem El Rubab, who gained good fame in Arabia few centuries before Islam mission. Ancient writers always refer to his high medical skills in comparison to the successor physicians (10-12).

– **Harith Ibn Kilda Al Thakafi:** تلاك نب ثراح لا يفتقلا

One of the eminent efficient physicians, of the tribe Tha-qif, who practiced medicine in El Ta-if during the sixth century. He learned medicine in the medical school of Jundi-Shapur, that was established in Persia by the Nestorians. He got a high medical reputation after his historical argument with the Persian Emperor Kisra Anushirawan. It appeared later in his main work, “The Conversation in Medicine”. El-Harith witnessed the early beginning of Islam mission, and received good respect by prophet Mohammed, and died later at 634 A.D (11, 12).

– **Abgar Al Kenani:** بنانقلا رجب

A clever man from Kinana tribe who left Arabia to Egypt at the early beginning of the sixth century to study medicine in Alexandria under the supervision of the Greek physician Paul of Aegina. He practiced medicine efficiently in Alexandria and became well known in the region. He

conveyed his medical knowledge and experience to his son Abdol Malek who became the main physician of the Ommiad Khalifs (11, 17).

– **Sergios Rass El-Ain:** ني علا سار سوي جرس

A Christian physician of the fifth century from Rass El Ain city in Persia. He studied medicine in Alexandria and returned back to his country to practice medicine there. He wrote some manuscripts in medicine and chemistry. After a long active life he died at 536 A.D., few decades before the declaration of Islam mission (17).

– **Ibn Abi Ramsah El Tamimy:** يم يمتلا قشمر يبا نب

An eminent physician and surgeon, who lived at the late sixth century and witnessed the beginning of Islam mission. By chance, he met prophet Mohammed and noticed the coloured melanoma between his shoulders and thought it is a painful lesion and offered his medical help but the prophet clarified the matter, that it is a birth landmark (10, 11).

– **El Shamardal Ibn Kibab El Ka-aby:** نب لدرمشلا يب عكلا بابق

An intelligent physician from Nigran city, who came with a delegation group from Nigran to meet the prophet Mohammed in Yathrib to declare their adoption of Islam. He requested the advice of the prophet to perfect his practice of medicine and was very much impressed by the valuable instructions he got from the Messenger of God (10-12).

– **Damad Ibn Tha-alaba El Azdy:** تبال عث نب دامض يدزالا

A well known Arab physician of internal medicine and neurology. On the day of his coming to Mecca for pilgrimage, at the early beginning of Islam mission, the Mecca unbelievers informed him of their persuasion of the madness of prophet Mohammed and requested his consultation. He met the prophet and had a long conversation with him. He was very much impressed by the prophet talks and ideas and so he announced his adoption of Islam (10, 11).

## Women Physicians

– **Sahar Bent Lukman** ناملق تنب رحص

– **Hind Bent El Hassan** نسحلا تنب دنه

– **Khoma Bent Habis bin Malil.** لي لم نب سباح تنب ةعمخ

All were known at different periods of the preislamic time. Occasionally mentioned in Arab literature with limited information (12).



– **Bent Amer Al Edwani:** بن امرعلا برظلا رماع تنب

Ancient lady physician, who lived few centuries before Islam mission. She practiced medicine and limited surgery.

– **Al Shifaa Bent Abdol Allah:** مللا دب ع تنب ءافشلا

She was an active physician well experienced in dermatological troubles and their management. She adopted Islam and gained good fame and died at the time of Omar Ibn El Khattab at 640 A.D (10).

– **Om Atia El Ansariah:** ةيراصلأل ةيطع م أ

Her full name is Nasibah Bent Kaab Ibn Amro Ibn Oaf. She gained good medical fame in medical practice and surgery. She declared, her Islam in Yathrib and became an active lady physician for moslims at war time (10, 12).

– **Rofaidah El-Aslamiah:** ةيراصلأل ةديفر

A well experienced medical practitioner lady, from Aslam tribe, who was a well known physician and surgeon in Al Medina at the beginning of Islam mission. She established a medical center in the form of a large tent, near the mosque to take care of her patients that can be considered the first hospital in the Islam State.

Some of the prophet companions who were injured at the war time were among her patients. Historians refer to her the successful medical care of an injured pagan soldier who lost his nose and she offered him an artificial nose prosthesis made of gold. This nice medical care and good behaviour convinced that soldier to declare his Islam (10, 12, 18).

Many other healers are occasionally mentioned in Arab literature. They were mostly sorcerers, magicians and quacks. They practiced variable forms of ancient medicine and were of little experience and limited publicity, hence most of them are still anonymous and have been forgotten by history or worn off by time.

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# The Achievements of Albucaſis in the Field of Oral Surgery

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## Summary

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Albucaſis “Khalaf bin Abbas Al Zahrawi” is one of the famous physician during Andalusia period. He lived in the 4<sup>th</sup> H. century and was unique in surgery, the great abutment of modern Surgery, and the first who supported his book “Al Tasreef”<sup>1</sup> with surgery tools pictures which the most of them were of his design.

In this research, we are going to study the Historical period where Albucaſis lived, and the famous physicians there. Then we have to study the most important achievements of Albucaſis in oral surgery through these points:

1. On scraping the teeth with iron instruments.
2. On the extraction of teeth.
3. On the extraction of broken pieces of mandible.
4. On the sawing-down of teeth growing on the top of others.
5. On interlacing loose teeth with silver or gold wire.

Finally, we are going to end the research by results summarizes the importance of Albucaſis’s oral surgery and the original of his present.

**Key words:** Albucaſis, Al Zahrawi, History of oral surgery, History of Islamic Medicine.

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## Albucaſis (Bibliography and Publications)

Abu Al Kasim Khalaf Ibn Abbas Al Zahrawi, who named in Latin references Albucaſis or Abucasis, is one of the famous Arabic medicine scholars and one of the famous physicians during Andalusia period.

The historian Ibn Abi Usaybi<sup>2</sup> described him as a noble physician expert with simple or compound medicines, a good in rehealing, and has a famous characterization in medical industry (1).

The best of his publications is his great book known as “Alzahrawi” or “Al-Tasreef Li Man ° Ajiza ° an Al-Ta’ Lif”.

His bibliography is not greatly revealed, born in Al Zahraa suburb of Cordoba on 327 H. / 936 Ac. Died also in it on 404h./1013Ac. where the Andalusian Caliph Abdul Rahman Al Naser has put the foundation stone for Al Zahraa city on 327 H. He recruited his son Alhakam who where known by AlHakam the second as a supervisor for its construction.

Albucaſis was unique in Surgery, and the great Abutment and dependability of modern surgery. He was the first who supported his book with surgery tools pictures which he invented, developed, and used. And he presented a lot of surgical principles which proved importance and use fullness, although more than ten centuries passed after his death. So he may be considered the dean of surgery and the first establishers.

His book “Al-Tasreef Li Man ° Ajiza ° an Al-Ta’ Lif ” consisted of thirty essays, the second longest one is N<sup>o</sup>30, which is designated for surgery and he called it “Al °Amal bilyad, alKay wa-Ljiraha wa’jabr al-°Izām”, which means handwork, cautery, surgery, and bone setting.

He concentrated in Anatomy and physiology studies and it is clear that he saw they are the eminent foundation of medical sciences, and the actual start for who wishes to study medicine.

It was not out of Albucaſis mind the importance of clinical characterization of various illnesses which he has presented, so he has spared a great deal of time for that study. He concentrated on surgery, he was skill full to a great extent, and he presented more than 200 drawings for the surgical tools which shows that most of them where of his design.

He verified in the forward of the thirty’s essay his motive for writing it and addressing for medicines and surgery practitioners saying (2):

*“for the skilled practitioner of operative surgery is totally lacking in our land and time, so the knowledge of it is on the point of being blotted out and its remains lost, and is nothing left of it except a few traces in the books of ancients, therefore, I decided to revive this art by expounding, elucidating, and epitomizing it in this treatise, and to present the forms of the cauterizing irons and other operative instruments.”*

## The Historical and Scientific and Cultural Situation of Albucasis Period in Fourth and Fifth H. Century

The Arab arrived to Andalus in 92 H. / 711 Ac. The Omayyad state established there in 138 H. / 755 Ac, led by Abdul Rahman Al Dakhel. The country developed in a speedy way culturally and architecturally (3).

In 316 H. / 929 Ac, Abdul Rahman Al Naser crowned himself a Caliph for the Muslims and announcing the transfer of Andalusia from an Emirate to Caliphate (4).

The famous architectural structure is Al Zahraa city far 8 km north-west of Cordoba, and the ruins are still their called in Spanish Medina Zahra (5).

The famous physician who served Al Naser and his son as the historian Ibn Juljul said (6):

*Abu Hafs Omar bin Ibreek, Asbagh bin yahya, Muhammad bin Tamlekh, abulwaleed bin husein AlKatani, abuhamad bin jaber, abu abdulmalek Al Thekafi, and others.*

Al Mostanser was a devoted scientist, hunting for rare books from all over the world, he has some agents in the Arabic Capitals and others whom their duty to copy or buy those books what ever the prices. A great publications from east countries where supplied to him before their citizens read them. As a result of this noble capacity, a scientific library had been established in the Royal palace in Al Zahraa city contains about 400000 volumes in different arts, and the strange comment says that each book of this library viewed by Al Hakam and he commented on its margins (7).

So, culture was the most apparent factor in the Andalusia life, and was one of the most important of communication with the west. This communication helped to transfer the outcome of the Arabic Andalusia culture, and accelerated arising of advancement era of Europe.

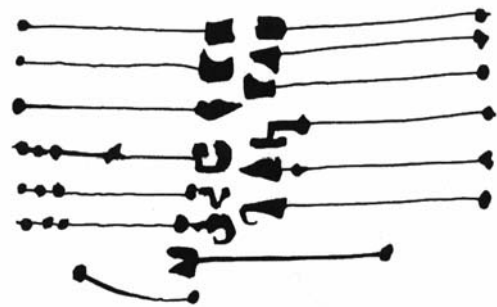
### Albucasis on Oral Surgery

Albucasis talked in the thirty's essay about many clinical cases, the most important of them were:

#### 1. On scraping the teeth with iron instrument

*"sometimes there collect upon the inner and outer surface of the teeth and also between the gums, rough, scales, ugly, sometimes black or yellow or green, from which corruption is communicated to the gums and thus the teeth become unsightly. The patient should sit before you, putting his*

*head in your lap; and you should scrap the teeth or molars on which you can discern crusts or gritty substance, till nothing remains; do them all in the like manner; black, green, yellow, and the rest, until they are all gone. If they disappear at the first scraping, good; but if not repeat the scraping on the following day and the second and the third until you attain your purpose. You should know that molars need scraping-tools of many diverse forms and shapes according to the character of your under taking; for the tool with which the inner surface of the teeth is scraped differs from the tool with which the outer surface is scraped, and that for scraping between the teeth is different again" (8)*



Scraping-Tools of Albucasis, Spink & Lewis, p, 275.

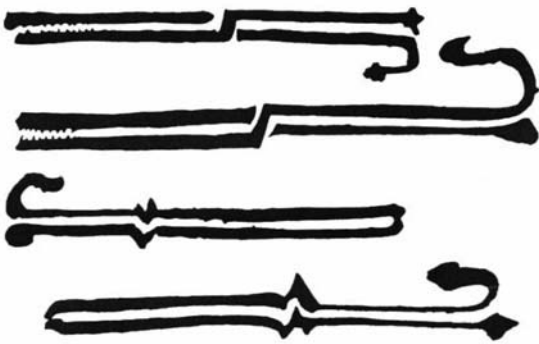
#### Discussion:

Albucasis links between the scaling of teeth and the healthy position of teeth and gums. He presented a very good description of this practice, and he verified the difference between scraping-tools due to the various teeth or the surfaces of them.

#### 2. On the extraction of teeth

Albucasis assured that the tooth is very noble substance you should treat it carefully, and he said about this subject:

*"when there is no means of avoiding extraction, you should be very sure of the painful tooth, then cut away all round the tooth with a scalpel having a certain measure of strength, until the gum is separated all round. Then, with your fingers, or with a pair of fine forceps, first move the tooth slowly and gently till you stir it, then get a good grip on it with a pair of large forceps, holding the patient's head between your knees so that it does not move. Then draw the tooth straight out so as not to splinterit." (9)*



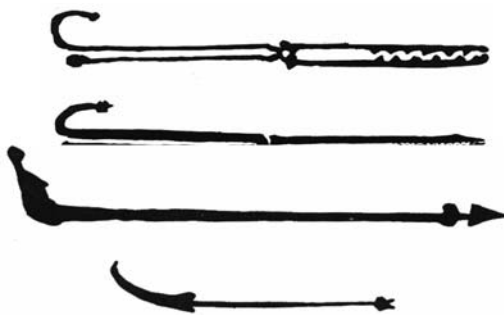
Extraction-Tools, Spink & Lewis, p, 279.

**Discussion:**

It's a very advanced understanding and a very good knowledge of Albucasis who said that the tooth is a noble substance, and he concentrated to make all the efforts to treat the tooth, and then to be sure of the one you should extract. All these things are great practices of him.

**3. On the extraction of roots and broken pieces of mandible**

*“when in extracting a tooth, a broken-off root remains behind, you should apply to the place cotton wool soaked in butter for one or two days to soften it, then insert the tongs or forceps with stork-bill jaw which Albucasis named “jift ” or “kalalib.” (10)*



Spink & Lewis, Albucasis on Surgery, p, 281.

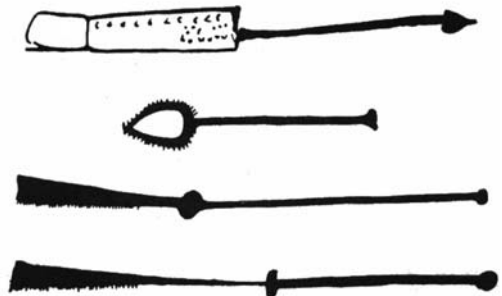
**Discussion:**

Spink & Lewis “..in their comments “ assure that this chapter of Albucasis is original (11).

We think that the practice of Albucasis of extraction the broken roots out is very important, and it seems to be very similar to what we do nowadays.

**4. On the sawing-down of teeth growing on top of others**

*“when teeth grow in other than their natural place the appearance is very bad, specially when it occurs in women or slaves. So you should examine; if the tooth has grown out behind another tooth and it is impossible either to saw or file it down, then extract it. But if it be attached to another tooth, cut it down with an instrument (small chisel and should be of Indian steel with a well-sharpened end)” (12)*



Spink & Lewis, Albucasis on Surgery, p, 289.

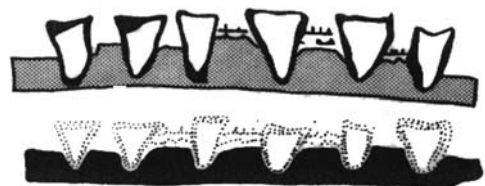
**Discussion:**

We think that Albucasis put the first abutment of cosmetic treatment of teeth.

Spink & Lewis “in their comments” assure that the names of the instruments of this chapter is unique.

**5. On interlacing loose teeth with silver or gold wire.**

*“when the front teeth are loosened by some blow or fall and the patient cannot bite, you should treat them with styptic medicines, the technique in this case is to bind the teeth with gold or silver wire. Gold is the better; for silver oxidizes and corrodes after some days, but gold remains for ever in its state and does not suffer this change. The wire should be moderate in thickness in accordance with the distance between the teeth.” (13)*



Spink & Lewis, Albucasis on Surgery, p, 295.

**Discussion:**

It's important to say that the technique which Albucasis advise to practice in this case is very similar to what we do now. The description of Albucasis on wiring loose teeth is very interesting.

**Conclusion**

1. In the thirty's essay, Albucasis was very unique in his surgical achievements and well-advised in the most of his practices.
2. Albucasis was very unique in his pictures of surgical instruments, especially the instruments of teeth-extraction, roots-extraction, and scraping-tools. We calculated 74 pictures of oral surgery-tools; it seems to be that he is the designer of most of them.
3. Albucasis linked between calculus and the ugly teeth. And he assured the great importance of scraping teeth.
4. Albucasis put the foundation stone of cosmetic dentistry and orthodontics.
5. We can do assure that the some of surgical techniques of Albucasis are original and they are like what we do now.

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# Bimaristans and Mental Health in Two Different Areas of the Medieval Islamic World

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## Summary

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From the very beginning of its history, Islam has demanded the respect for madmen. For this reason, mental health is a considerable aspect in the Muslim's life and the special attention paid to the lunatics was an important component of the Islamic bimaristans, which often comprised facilities for people affected by mental diseases. In fact in many of these hospitals, which consisted of specialized wards, dealing with different diseases, such as internal medicine, orthopaedics, surgery and ophthalmology, there were special isolated places for the insane.

The Muslim physicians were very expert in the psychosomatic medicine and they considered the constant connection between physical and psychic phenomena as an essential principle. In this paper, some of the more relevant Moroccan and Syrian bimaristans, which dealt with mental illness, will be considered.

**Key words:** Bimaristan, mental health, Medieval Islamic World

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As it is well known, the planning and the building of an institution typologically comparable to the modern hospitals, i.e. exclusively devoted to the clinical treatment of patients, to the education of medical students and to medicine development, represented, both medically and architecturally, a great achievement of the Islamic society. The term bimaristan, which is used still at the present time in the Islamic world to indicate the hospitals in general and particularly the psychiatric ones, is derived from the Persian words *bimar*, id est sick, and *stan*, id est place. Generally, these hospitals were secular institutions open to everybody, without regard to sex, age, religion or wealth. They consisted of specialized wards dealing with different diseases, where physicians treated the patients at public expense. All the Islamic hospitals were in fact financed by endowments, called *waqfs*. Some bimaristans had special places for treating the mentally infirm. From the very beginning of its history Islam has indeed demanded the respect for madmen. The approach of Islam to mental illness can be traced back to the Holy Qu'ran, which among the other things recommends to take care of the lunatics and to administrate their properties. Moreover, the Prophet's Hadits recommend the encouragement and the spiritual consolation of the patients. This, according to some authors, might prelude to the concept of psychotherapy. For these reasons, the Arab Muslim physicians, particularly the Maghrebian ones, were for the majority great experts in psychosomatic medicine.

The mental illness treatments inside the bimaristan were of several kinds. They were based on the use of simple (*muffradat*) and compound (*murakkabat*) drugs, which were utilized to stimulate the apathetic, to soothe the violent patients and to support the depressed persons. A famous drug for melancholia, which was expected to relieve grief and sadness turning it into joy, was the *mufarrih an-nafs*, meaning the merry-maker of the soul. It is interesting to note that, most probably, in the medieval period the word *mufarrih an-nafs* was a familiar term for a drug which is active against depression. Some authors suggest that it would be a precursor of the modern antidepressants (1). Opium, cannabis and hellebore, as well as mandrake were used as therapeutic elements (2). As reported by the medical medieval texts, the drugs utilized for the mental illness comprised purgatives, sedatives, digestives and emetics. These drugs were of animal and mineral, but mostly of vegetable origins, fact that testifies an in-depth knowledge of the curative properties of herbs. Frequently associated with the bimaristan there was the pharmacy, called "*al Sharabkhana*" which could function as a dispensary and which contained in addition to drugs and medicaments, precious instruments, glass containers, porcelain and metal vessels. The pharmacist or "*saydalani*" gave out the drugs, according to the physician's prescription.

Music too was a very important part of the mental diseases treatment. During the medieval era, music seems to have been frequently used in the hospitals in the Arabic

countries, where the physicians largely utilized it to entertain and to soothe the patients. In particular, musicians were engaged to calm and to cheer the madmen with the songs of their voices and the sounds of their instruments and their salaries were provided as a part of the health care. The *oud* (the ancestor of the European lute) and the *nay* (a vertical reed flute) were the most utilized musical instruments for this purpose. The *nay* symbolizes the human soul “torn up by its condition of primordial unit” while the *oud* symbolizes the earthly world and its sound is considered to represent the four elements, fire, water, air and earth (3). It is thought that some physicians classified the different temperaments of their patients depending on their reactivity to a certain musical mode (*maqamat*), to a certain rhythm (*wazn, iqa' a*) or to a certain melody (*Khariât -Mouwachahât*). It must be noted that the tradition of treating diseased persons with music goes back to antiquity and musical therapy was also recommended in the Greek texts. In ancient Phrygia and Mysia the inventors of the reed-pipe played on these instruments to heal the body and the mind. According to an Arabic legend, these inventors were the first medical men of mankind.

Other therapies were water-based treatments. Life-giving strength of water always attracted the attention of mankind and all its possible usage methods were developed with a great inventiveness during the different periods of the history and have always received a vital consideration in Muslim countries (4). At an early stage Muslim engineers were exploring new methods for increasing the effectiveness of water raising machines. The 13<sup>th</sup> century mechanical engineer Badi' Al-Zaman Al-Jazari, was responsible for the design of five of these machines. One such machine was located in Damascus in the canal called Nahr Yazid and it is thought to have supplied the needs of the nearby bimaristan Al-Qaymari. Praying five times a day is an important pillar of Islam. It is an Islamic obligation both for ill and for healthy persons. And before praying, where possible, one must wash face, head, hands and feet. So generally, the bimaristan provided the patients and the employees with water reserves and with bathing facilities.

Water treatment was used by the Arabic physicians as a mean in order to modify bodily equilibrium (5). A great importance was given to the temperature of the water as well as to the duration of the bath. Essential oils and aromatic and fragrant essences added to bathwater were also considered beneficial for example to eliminate melancholy. The sound of the water was considered therapeutic too: it seems that the lunatics were calmed down by the quiet gurgling of the fountains gushing water.

The view and the scent of the plants were considered treatments too and it was believed in particular that the scent of the plants reached the brain and influenced it.

The medical treatments used in the bimaristans also included fomentations especially to the head, baths, bloodletting, cupping, bandaging, and massages with different oils, compresses, particular personalized diets. It seems that also ergotherapy was largely utilized and that dancing, theatrical performances, as well as poems and Qu'ran recitation were part of the therapy.

Many physicians of different faith and origin contributed to the development of psychological medical studies in Islamic countries. Among them, Ibn Sina and al-Rhazes were famous for applying during the treatment psychological methods and a kind of psychotherapy. Among the numerous books written by Al-Razi, the *Kitab fi sifat al bimaristan* (Book on the characteristics of the hospital) deals with the necessary characteristics of a hospital, while the *Kitab al Mansuri fi al Tibb* (The book on medicine for Mansur) deals among other things with the definition and nature of temperaments and gives an important guide to physiognomy and the *Kitab al Hawi fi al Tibb* (The comprehensive Book on medicine) is a very important medical encyclopaedia.

In his approach to the treatment of the mental patients, Ibn Sina combined, as different remedies, persuasion, psychotherapy and pharmacotherapy (6). In his *Kitab al Qanun fi al Tibb* (The Canon of Medicine) Ibn Sina stressed out the close relationship between emotions and the physical condition and noted that music had a definite physical and psychological effect on patients. It is important to note that in the attention paid to the mental illness, Islamic physicians considered body and psyche as an unicum.

The aphorism of the 9<sup>th</sup> century physician Al-Tabari could summarize the Islamic concept of a sound life: “You have not to live in that country where do not exist four things: running water, suitable drugs, a cultured physician and a right government”.

After this overview of mental health therapies, some bimaristans will be considered, where most probably these therapies were applied, searching to explain how inside them the needs of the madmen were supplied, both from a therapeutic/organizational and from an architectural point of view. It is important to remember that, in general, these bimaristans were princely palaces with a cruciform ground plan and a central courtyard inside which a basin with a bubbling fountain was located. The architectural disposition of the bimaristans is never hardly gratuitous. The distribution of the space and of the elements inside it

as well as the beauty based on the proportion and on the balance of the buildings, was very often considered as a part of the patients' therapy. Usually the ornaments were calligraphic motifs of Koranic verses on the health and its maintenance.

It is due also to the medieval travellers's descriptions that we have today informations about the bimaristans and about the mental health therapies inside them. Even though there could be some doubts concerning their credibility, these descriptions give us an idea on the hospitalization during that period.

## Syria

The bimaristan Nur al Din, the still intact structure of Bimaristan Nur al Din is located in the heart of the old city at the southwest of the Umayyad Mosque in Damascus and represents the oldest cruciform ground plan's example retained until now. It was built in 1154 by the sultan Nur al-Din and in 1242 Badr al-Din added an extension which allowed the bimaristan to serve a larger number of patients. It functioned both as a hospital for the treatment of diseases and as a medical school. According to the historian al-Maqrizi (1364-1442) the revenues of this hospital were due to the ransom paid to Nur al Din by a Frankish crusader king to obtain his freedom.

The entrance is located on the western side of the building. Its grand double gate is decorated with elegant clay ornaments and leads into a square chamber that divided the outer and inner gates. A smaller room leads in turn to an open court with a central rectangular basin made of carved stone. Three iwans surrounds this court. The southern one, the most decorated, was used for the pray, the largest iwan, in the east side, was used for the doctor's meetings and lectures. This iwan had two storage spaces containing many medical books donated by Nur al Din. The building was divided into different sections and wards dealing with different diseases including mental diseases. The travel book (*Rihla*) of the 12<sup>th</sup> century Andalusian traveller Ibn Gubayr, who described the activity inside the bimaristan, attests that the internement and the cure for the mentally retarded were provided: "physicians every morning visit the sick and prescribe them remedies and food...the lunatics have a particular treatment...the most seriously ill are in chains...some of them crack witty jokes as we really heard". It seems that in this bimaristan opium therapy, in which opium was dissolved in water, was largely utilized to treat the disease called maniya (2). The cells of the lunatics do not exist any longer and the bimaristan is today a History of Arab Medical Sciences Museum.

## The Bimaristan Al-Qaymari

As regards the bimaristan Al-Qaymari, it is well known in the Arabic and Western literature for the Damascus landscape, which could be enjoyed from the windows in the back of its *iwān*-hall, no more existing at our time (7). It was located in the al-Salihyya quarter in Damascus, outside the boundaries of the city, by the 13<sup>th</sup> century amir Sayf al-din Abu al-Hasab al-Qaymari. Later on the city has expanded and it has been absorbed into the Damascus urban fabric. It is an heavy stone-walls structure with detailed ornamentation. Its cruciform ground plan built around a central rectangular courtyard, looks like the Nur ad Din one. The building is accessed from the north through a monumental portal. Its central courtyard opens into a iwan to the south and gives access to rectangular rooms to the east and west. In this bimaristan too, in the center of the courtyard, a simple rectangular basin is located. Notices about the madmen internement as well as the water plant utilization are given by Ibn Tulun, who quotes the 15<sup>th</sup> century author Jamal al-Din, :'' ..on the West side of it there is a place (*qā`ah*) for the lunatics and next to it there is an enclosed room (*hâsil*) for the restraints of the madmen ...an apartment (*bayt*) ...in the middle of it there is a large tank (*birkah*) continuously supplied with water by a waterwheel (*nā`ûrah*) installed in the Nahar Yazid'' (7). A quotation too from the *waqf* charter of this bimaristan informs us on the mad women's restraints: "...to the nurses who look after the sick and mad women, every month 10 dirham and a sixth of wheat's jar each one".

## The Bimaristan Al-Arguni

It is not sure if it was exclusively conceived as a place for the care and the treatment of the lunatics, but it is sure that the treatment of the insanity has been one of its aims. Located in the centre of the Alep city near the Qinnisrin gate, originally it was a princely palace, which the governor of Aleppo Arghun al-Sagir al-Kamili converted into a bimaristan on the fourteenth century. Its plan, differently from those of Nur ad Din and al Qaymari is more complex and consists of some buildings asymmetrically placed. Its main monumental entrance is located on the west side of the building. The main rectangular courtyard is flanked by a series of columns and houses a bubbling fountain inside a basin whose rims is thick and can support flowerpots and many kinds of basil. Two iwans are located in the southern and in the northern sides: the bigger at the southern side could be used as stage for musicians. By the main entrance, through a series of narrow and dark passages it is possible to enter three different wards particularly secluded, where the patients were placed, depending on the degree of their



pathology. The smallest one, the square ward, was fully closed and its windows were equipped with strong iron bars: most probably it hosted the dangerous madmen. The other two wards, one octagonal the other rectangular were characterized by less caution and the less dangerous madmen would have lodge there. According to some authors, the rectangular ward was reserved to the women. The disposition is very classic, with the cells around the court and a fountain in the centre. A dome with a big central opening, an oculus, covers these two courts and it causes an alternation of light and shade: the natural light never reaches directly the cells and the court benefits by a softened light. It may be possible that this architectural device had therapeutic aims.

## Morocco

As regards Morocco, as a general rule, the bimaristans were built in the principal towns, set up by the rulers at their own will. Unfortunately, there are few sure notices on these bimaristans and most of the information are due to the descriptions of medieval travellers.

Marrakesh Hospital: At the end of the 12<sup>th</sup> century, a hospital was built in Marrakesh by the almohade king Al-Mansur Ya'qub Ibn-Yusuf (1184-1199). As concerns the description of this bimaristan, the main source are the reports of the 12<sup>th</sup> and 13<sup>th</sup> chronicler of Almohades, Abd al-Wahid al-Marrakusi (1185-1224), who exalts both the site choice, a wide verdant area with fruit trees and flowers, and the efficacy of the irrigator, through which a continuous water change was secured. Inside this bimaristan named Sidi Ishak a well-stocked pharmacy existed. Most probably this is the earliest mention referred to the existence of professional chemists (*sayadlah*) inside the Maghreb. Al-Marrakusi refers that the caliph visited the bimaristan every Friday after the mid-day prayer, to make sure of the patients's conditions and that he invited famous physicians such as Ibn Tufayl and Ibn Rushd to his court. According to the historian S. Ammar, in this bimaristan the mental diseases were treated too. No traces of this bimaristan remain.

M'hammad El-Ghazi bimaristan-Rabat (Salè): We have very few and not sure information about the bimaristan M'hammad El-Ghazi built by Mawlay Abd al-Rahman. It seems that in this bimaristan lunatics by all over Morocco were interned, benefiting from *waqfs* intended to this aim.

Fez (Sidi Frej) bimaristan: Some authors refer that in Fez, in the seventh century there was a place where the mentally ill were treated (8). But even if no more information exists at this regard, it is possible to affirm that the 13<sup>th</sup> century Sidi Frej's or Fez bimaristan is

Morocco's main and most famous bimaristan. A plaque installed on the building by the Moroccan Association of Medical History in 1933, refers that it was built in 1286 by the merinides sultan Youssef ibn Yakoub and that most probably it was taken as a model for the first psychiatric hospital in the western world, built in Valencia, Spain, in 1410. It seems that in this bimaristan, which was located in the centre of the city, the patients affected by depression were treated with music, herbs and spices.

It must however be noted that different are most of the reports of this bimaristan given, three centuries later, in the "Description of Africa" the most famous book of the lawyer and diplomat Hasan al Wazzan best known in Europe as Leo Africanus. The figure of the Andalusian/Maghrebian Leo Africanus was, and still is, very enigmatic and controversial. In his description of Sidi Frej we cannot make a sure distinction between facts and fictions and we do not know for sure what were the references he relied on. In any case, this is a part of the description of the Sidi Frej bimaristan derived from the aforementioned book:

"In this hospital there are some rooms for the madmen, id est for those who throw stones and also hurt in other way and they are closed and in chains. The sides of these rooms, which face the passage and the cover, seem to be fitted with iron, but they are fitted with some very tough wooden rafters. The person instructed to feed these madmen, when sees one of them to be agitated, hits him with a stick, that always brings for this purpose. Sometimes it happens that a foreigner gets near these rooms and then the madmen call him and complain that, even if they are recovered from the madness, they must be kept in prison, putting up every day with thousands of affronts by the guards. If one of these foreigners believes the madmen and leans against the window, they seize him by the cloth with one hand and with the other they dirty his face with excrements..... This hospital employs numerous persons, as notaries, bailiffs, guards, cooks and others who take care of the sick and everyone is well paid. When I was young I worked in this bimaristan for two years as a notary, according to custom of the young students and for this work I received three ducats monthly".

It is interesting to note that in this bimaristan (as perhaps in that of Marrakech) the storks were treated, mostly those suffering for fractures. In the Arab tradition there is the conviction that storks which are believed to be "holy birds", incarnate the souls of dead Muslims, who had not the possibility to fulfil their duty of pilgrimage to Mekka. Thus, they can make this journey in the body of a bird. For this reasons the Muslims have a great respect for storks, and their killing could be considered as the killing of a man.

Some authors disagree with the importance attributed to the medieval Islamic society as regards the attention paid to mental health. According to some researchers in fact, Islamic medical texts are largely non-clinical regarding insanity and the treatment of the Muslim lunatics was not so benevolent (9). Surely in some bimaristans constriction instruments as chains, pillory, shackles were used. But it seems that the number of the cases of non human treatments was comparatively low and, according to some authors, the use of these constriction instruments had above all therapeutic rather than punitive purposes. Moreover, although psychiatric therapy and pharmacology in Medieval Islam were based on the ancient Greek tradition (10), the original Arabic contribution to the introduction and the use of new substances as well as the decisive impetus given by the Arab physicians to the concept of psychical therapy are undeniable. Unfortunately until now only a very little part of the huge Islamic contribution to medicine in general and to psychiatry and psychology in particular is known, and it is mainly committed to thousands of unpublished manuscripts preserved in many libraries all over the world. A study of these texts by the historians together with teamwork with psychiatrists, architects as well as linguists, could help us to find an answer to the questions: who was considered a mentally ill person within the Islamic middle age? Did the Islamic physicians really know the causes of the mental illness? And how they searched to treat it?

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# They Introduced Modern Radiology in Turkey: Refugees from Nazism 1933-1945

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## Summary

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Starting in 1933, Turkey reformed its health care delivery system as well as its system of higher education using refugees fleeing the Nazis and given a safe haven by way of formal government invitations. For these souls America was out of reach because of restrictive immigration laws and wide spread anti-Semitic hiring bias at its universities. Among the invited was a team of radiological doctors, physicists, engineers, technicians and nurses. German and later Austrian scholars and practitioners played a large role in westernizing the new Turkish republic's medical practice and in introducing radiology into its universities and health care delivery institutions. They designed built and implemented several devices to serve the special needs of a country with at the time an underdeveloped infrastructure. The government wanted to serve a large geographically dispersed rural population while operating with very limited budgets. This paper will discuss that episode, its legacy, and present several newly discovered, highly relevant archival documents.

**Key words:** Turkey; Medical History; History of radiology; Educational Policy; Government Policy; Nazi persecution; Nazism; Holocaust; Migration; Diaspora; Exile.

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## Introduction

The political tug of war in Turkey today is seen by some as pitting the staunchly secular Republicans against the Islamists currently in power. Others see it as tension about Turkey's becoming a pluralist, freer and more open civil society. Still others see it as questioning the ideologies and taboos of the Turkish nation-state model and the role and place of the now very powerful military (which sees itself as the guardian of "secularism") in Turkey. There are claims that those that have been portrayed as "Islamists" may not necessarily be less secular or less democratic than those portrayed as "staunchly secular republicans." Moreover a debate is emerging about the worth of pursuing the EU membership. Injected into the media discussions are memories of Turkey's emerging years. Those years are often glorified as having been full of ideological pursuits and good deeds. In some respects there is a basis for the glorifications. The republic of Turkey was founded in 1923. In 1931 it was proclaimed a secular state with all its ramifications. A new Latin-based<sup>1</sup> alphabet was created to increase literacy and most significant to the subject at hand is the fact that Turkey's system of higher education including medical education was thoroughly revised. Because there were few Turkish citizens sufficiently educated to accomplish these medical/educational reforms, the new government turned the tragedy beginning in 1933

when Nazi Germany expelled many of its citizens from their positions into an opportunity for the new Republic. Some 190 eminent intellectuals were invited to Turkey and thereby were rescued<sup>2</sup> – a fact hardly known outside of Turkey and in smaller circles Germany. The medical contingent was by far the largest within the group.<sup>3</sup> Among them was a group of medical practitioners cum scholars, including several crossover intellectuals with expertise in biochemistry, pharmacology, X-Ray physics, engineering and radiological nursing, as well as many of the life sciences.

Their collective impact on all aspects of Turkey's health care delivery structure, education, and practice was monumental. "In its essence, the affair that we call or understand as Mustafa Kemal Atatürk's (1881–1938) *Üniversite Reformu* was not merely a university reform, but the ultimate apex of the Atatürk cultural movement started in the years 1925 to 1926."<sup>4</sup> Stephen L. Parente and Edward C. Prescott used the words "ideas," "knowledge," and "technologies" interchangeably in their Nobel-winning development rationale.<sup>5</sup> The transfer of so many intellectuals/professionals while at the cutting edge of knowledge in their respective fields, and providing them with all necessities to adapt and continue their work in a rather different society is tantamount to the transfer of much technology. So it was in this situation.

The Turkish nation, including members of its Diaspora, remember and continue to acknowledge the émigrés' multifaceted impact on Turkish society. Several symposia have been conducted and many stories documenting the gratitude felt for the émigrés' contributions have recently been published in Turkish media.<sup>6</sup> There are memoirs written by the émigrés themselves and by their progeny who were old enough to remember.<sup>7</sup> Yet in the English language literature this episode/epoch remains history's blindspot.<sup>8</sup> To be sure there were a number of excellent accounts of this migration both in the German and the Turkish literature.<sup>9</sup>

This paper documents and discusses the modernization of radiology education and practice in Turkey which began in 1933. The expellees from Nazi Germany and Austria who were invited to Turkey for this purpose introduced many reforms including *team-radiology*. This concept called for close collaboration between medical doctors who specialized in the field and research physicists, engineers, nurses, and shop technicians. Western Europe's cutting edge knowledge in radiotherapy, electro diagnostics, electrotherapy, diathermy, measurement of radium preparations, control of radioactive materials, control of dosimeters, testing of protective substances, filters and measurement equipment, etc, as well as the commensurate knowledge of facilities design, including relative locations of facilities, shielding, and ancillary units was also introduced.

Equipment such as various metrology, display and color printing facilities was also introduced in Turkey for the first time.<sup>10</sup> Significantly for its time and place and never recognized before by Anglophone historians the expats designed, had built and implemented, portable X-Ray equipment devices to serve the special needs of a country, operating on limited budgets, having an underdeveloped infrastructure, yet recognizing the need to serve a large geographically dispersed rural population.<sup>11</sup>

Decades later, it is fair to say that while the émigrés' sojourn in Turkey was an episode, their legacy is an epoch. This paper offers a story to create a context of origin, that the people may not live alienated from their ancestry and in ignorance of the events that have given shape to their present<sup>12</sup>

## Background

In July 1923, the *Lausanne Treaty of Peace* was signed and on October 29, the Republic of Turkey was proclaimed out of a segment of the defunct Ottoman

Empire. In short order "a sweeping of social reforms was implemented .... In 1926 the *medreses* (religious colleges), *tekkes* (dervish lodges), and *zavies* (dervish cells) were closed. In 1927 religious education was abolished in all schools,"<sup>13</sup> and an edict required that by 1928 all Arabic script had to be replaced with a newly created Latin-based alphabet, including all public signage.<sup>14</sup>

Under Atatürk's leadership Turkey's new government was keenly aware that the *medrese*-based system of civilian higher education was woefully lacking compared to the education provided by western research universities. As its entire system of post-secondary education, the Republic inherited three to four hundred Ottoman vintage (Islamic) *medreses*,<sup>15</sup> the *Dar-ül Fünun* (house of knowledge), a fledgling state university<sup>16</sup> teaching some western sciences based on the French university model, and three military academies. The system and its components needed to be redesigned if not replaced. Once all *medreses* were abolished the country was left with the three military academies and the *Dar-ül Fünun*. The latter was transformed into the University of Istanbul, Istanbul Technical University was created in 1944 from one of the military academies that in the interim served as an engineering school, and Ankara University was founded from the ground up. The three universities were to be fashioned on the prevailing German university model. However, since qualified personnel were not readily available to do all this, they had to be educated abroad<sup>17</sup> or "imported."

In 1933, the Nazis' plan to rid themselves of Jews beginning with intellectuals who had Jewish familial connectivity became a windfall for Mustafa Kemal Atatürk's determination to modernize Turkey. The passage of Germany's Civil Service law forced the departure of undesirables employed by the state. A select group of Germans with a record of leading-edge contributions within their respective disciplines was invited with the Reichstag's backing to transform the new Turkish state's entire infrastructure including its higher education system. Occurring before the activation of death camps, this arrangement, served the Nazis' aim of making their universities, professions, and their arts not only *Judenrein*, cleansed of Jewish influence, but also free from intelligentsia opposed to fascism. Because the Turks needed the help, Germany could use this as an exploitable chit on issues of Turkey's neutrality during wartime.<sup>18</sup> Thus, the national self-serving needs of two disparate governments served humanity's ends during the darkest years of the 20th century. According to Norman Bentwich,<sup>19</sup> approximately 1,200 scholars and scientists

were dismissed from German institutions in 1933-1934, “some 650 of whom emigrated.” Considering that 190 of those went to Turkey this is a mighty significant salvage percentage.<sup>20</sup>

Among the first fired professionals was Hungarian born Frankfurt pathologist, Dr. Philipp Schwartz (1894-1977) who fled with his family to Switzerland. Schwartz’s father-in-law, Professor Sinai Tschulok (1875-1945) had taken refuge in Switzerland after the 1905 Russian Revolution and was a close friend of Albert Malche (1876-1956), a Swiss professor of pedagogy who had been invited to Turkey to prepare a report on the Turkish educational reform in 1932. Malche’s *Rapport sur l’universite’ d’Istanbul* was submitted on May 29, of that year. Recognizing the double opportunity of saving lives while helping Turkey, Malche contacted Schwarz who in March of that year established the *Notgemeinschaft Deutscher Wissenschaftler im Ausland*, (The Emergency Assistance Organization for German Scientists) to help persecuted German scholars secure employment in countries prepared to receive them.<sup>21</sup>

On July 5, 1933, Schwartz went to Ankara and brought with him CVs from the *Notgemeinschaft*<sup>22</sup> while Minister of Education *Resit Galip* arrived with a list of professorships needed at Istanbul University.<sup>23</sup> Their mission was to select individuals with the highest academic credentials in disciplines and professions most needed in Turkey. After nine hours agreement was reached on names to be invited. Because it was clearly understood from the outset that the German professors were meant to stay only until their Turkish pupils could take over. Five-year contracts became the rule. Courses were to be taught as soon as possible in Turkish, using textbooks translated into Turkish.<sup>24</sup>

On July 31, 1933, the *Dar-ül Fünun* was closed by government decree. All existing good-for-life faculty contracts were thus cancelled.<sup>25</sup> Next day Istanbul University was opened using *Dar-ül Fünun*’s physical plant, a small fraction of the original faculty, and more than thirty world-renowned émigré German professors who were on their way to Turkey. Incredibly, courses began on November 5, 1933, as reported in various media.

## Turkey’s Medical reforms

By western standards circa 1930s, the Ottomans’ medical legacy left much to be desired. Much of the medical practice was not based on science let alone recent science. Infant mortality was high and longevity short. Epidemiologic “data” were rudimentary and

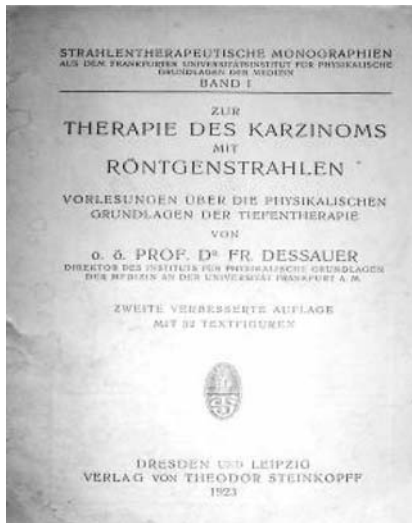
primarily based on anecdotal information. There were issues concerning public health issues, such as concerns for local water quality standards. The majority of the country was rural with traditional food distribution, preparation, and consumption and with no access to X-ray equipped clinics. In an agrarian society where meat was scarce or predominantly consumed by the upper class, protein was rare unless one lived on a seacoast. There were few doctors and few clinics for the rural population and those those who attempted a practice did not have access to the latest technology, especially in radiology. It was obvious that Turkey desperately needed medical schools based on western standards. Major infusions of western medical technology, the know-how to use it and doctors educated in modern medical methods were an absolute necessity. The country’s few X-Ray instruments had to be made accessible to large and geographically widely scattered populations.

## From Roentgenology to Radiology

Radiology was still in its infancy worldwide in the 1930s. People were fascinated with its potential for diagnostics and even more so as a cure of disease. Wilhelm Conrad Röntgen (1845-1923) received his Nobel award in 1901 and Maria Sklodowska Curie (1867-1934), her second such prize in 1911. In 1933, the latest medical X-ray technology in all of Turkey involved two machines which “were brought in 1902 and 1904 and used in Istanbul.”<sup>26</sup> Among the physicists and engineers invited to Turkey, several had worked in the emerging field of “roentgenology.” They were brought to Istanbul to set up the university’s Institute of Radiology and Biophysics. Turkey’s founding fathers were keenly aware of the usefulness of X-rays in medical diagnostics. To simply invite physicians who knew something about the extant X-ray techniques was understood to be folly. As a result of their fast paced scientific developments in the West, these techniques each had a short lifespan as it was improved upon. It was also folly to bring even the best and the latest equipment to a country without the infrastructure to maintain and upgrade it. The Turks understood that wisdom. It proved to be critical during the ensuing wartime years.

## The Individuals involved: The First wave

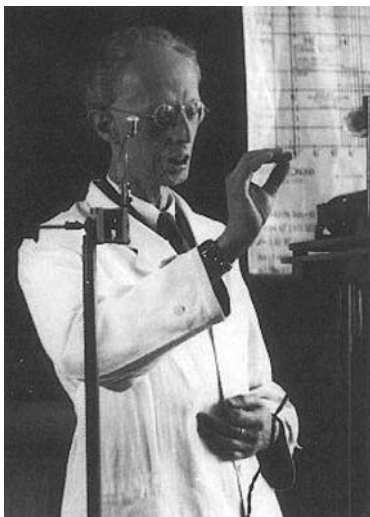
Invited were research physicists and experienced engineers as well as knowledgeable doctors and nurses. *Friedrich Dessauer*<sup>27</sup> (1881–1963)



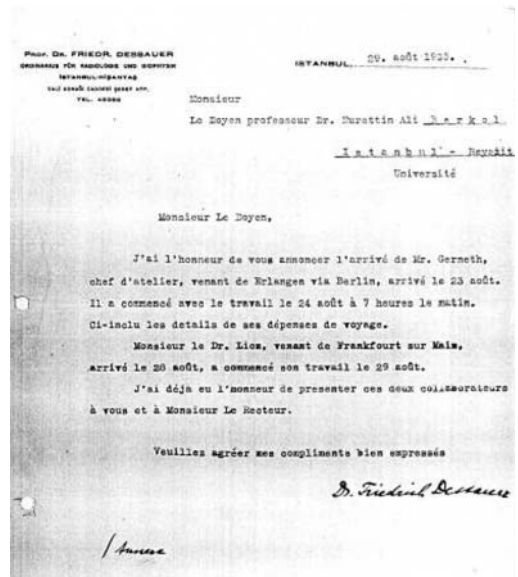
A 1923 Dessauer Monograph on Radiotherapy

was the first physicist invited and was the most senior of the “Roentgen machine” pioneers with Carl Weissglass (1898-?) Nikolaus Wolodkewitsch, and Kurt Lion (1904-1980), his engineers. Erich Uhlmann, born in 1901 was a radiologist with a record of scientific publications in radiotherapy dating back to 1923. Expelled from Frankfurt University in November 1934 he went to Turkey.<sup>28</sup> Uhlmann and Dessauer were the first instance of a physicist/physician collaboration in the field of radiotherapy in Turkey. Later on, physician Hans Salomon participated in this team.

The “Frankfurt” team also included Grete Lindenbaum, a nurse experienced in radiology.



A photo of Dessauer showing a face scarred by overexposure to X-Ray radiation.



Dessauer informs the Dean of Medical Faculty that Workshop chief Gerneth and Dr. Lion had arrived. İstanbul University İstanbul Medical Faculty Personnel Department's Archive. Gerneth, File Nr: 58



F. Dessauer, T. Berkman, Röntgen şüalarıyla derin tedavinin hal ve istikbali [About the current state of the art and the future of deep therapy with x-rays]. Tıp Dünyası 1936 (IX) 11-103: 3313-3319

## FRIEDRICH DESSAUER

Born in Aschaffenburg, Germany, Friedrich Dessauer studied at the Goethe university in Frankfurt am Main where his design of high-energy X-ray power supplies earned him a doctorate in 1917. Dessauer was also famous for his work on the philosophy of technology, defending it and describing it as “a new way for human beings to exist in the world”. As an inventor and entrepreneur Dessauer developed techniques for deep-penetration X-ray therapy in which weak rays are aimed from different angles to intersect at a point inside the body where their combined energy can be lethal to a tumor while having less of an effect on the surrounding tissues. He dedicated most of his life to the study of radioactivity.<sup>29</sup>

Interested in politics, Dessauer registered as a member of the Catholic Central Party in the year 1918. As an intellectual businessman arguing catholic and social policies, he gained prestige in a party to which everyone was welcome. In 1923 he started the *Rhain-Main Public Gazette*, in which he published articles on economy under the umbrella of the Carolus Publishing House. He was elected a deputy to Reichstag in 1924 and served there as the representative of the left wing. Due to various accusations by the National Socialists, he was under political arrest for 104 days. He was articulate in defending himself in court and was released. Because of the decree establishing restrictions upon civil servants<sup>30</sup> implemented on April 7, 1933 he was suspended from his office. Late one February 1934 night, he was assaulted in his home; the door and windows of his house were broken. He was informed that an investigation on him would be carried out because, although he was a practicing Catholic, his roots went back to Judaism. He was banned from issuing publications and declared *persona non-grata* by the Union of Nazi Professors. It is supposed that while Dessauer was under arrest, he applied to the *Notgemeinschaft* in Switzerland for a position in Istanbul.<sup>31</sup>

As a leading member of the Catholic Central Party, he had taken part in negotiations between the Weimar Republic and the fledgling NS Party (Hitler, Göring, Strasser, Frick and Goebbels). He thought that a coalition might be established with the Nazis, thus holding them in bounds (in retrospect a very naïve assessment of the situation). The only result of the negotiations was Dessauer’s arrest. It appears that his imprisonment was terminated because of his appointment and invitation by the government of Turkey.<sup>32</sup>

On December 3, 1933, Albert Einstein wrote a letter to David L. Edsall, Dean of the Harvard Medical School.<sup>33</sup>

I take the liberty to write to you, because I feel strongly a need to do what I possibly can to relieve the misery of those in Germany who are suffering despite being innocent. I am referring to Prof. Dr. Friedrich Dessauer, University of Frankfurt who has made a name for himself in the field of experimental physics applied to Medicine.

The man is in prison on a trumped up charge, in reality because of his activity in the Center Party. I consider it our human responsibility to do the utmost to save this esteemed individual. I think it would help the man’s fate if the Hitler regime would learn that people abroad were interested in this man. Of course there is no hope that he would be released soon or permitted to leave the country but it would be a loud and human gesture on his behalf, if one could send some letter of interest from an American university.

Einstein concluded his letter to Dean Edsall by asking him to write such a declaration for Dessauer. By design or happenstance, Edsall misinterpreted the plea<sup>34</sup> and responded by pointing out that there were no positions open at Harvard at that time. Undaunted, Einstein replied<sup>35</sup> “It seems that I have not properly expressed my intentions. I was not talking about a real invitation for Professor Dessauer, just a pretended one. The idea is to show that there is an interest abroad for this person. The aim is to stop the legal proceedings against him which were initiated on spurious grounds. It is known that these things often occur for political reasons.”

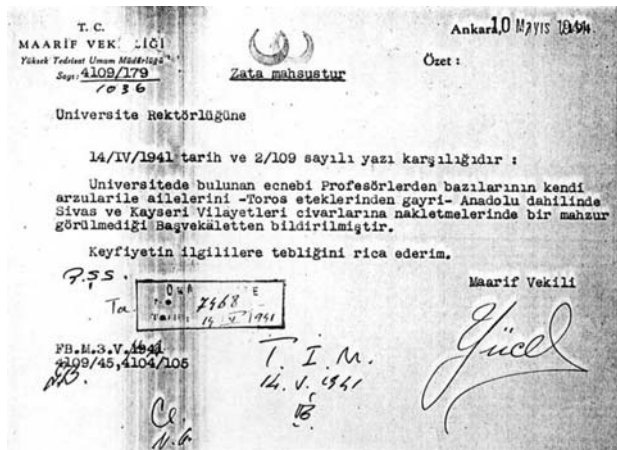
## The second wave

Even though they were invited to Turkey by its government in the first place, the young scientists with doctorates did not have the right to Associate Professorship appointments at Istanbul University nor at any other institutions. Naturally they started to look to other countries for refuge soon after arriving in Turkey.<sup>36</sup> Because, such individuals were viewed as part of a technical workforce and asked to teach and raise indigenous Turks so as to replace them as soon as possible. An article in their contract specified this requirement. Moreover these contracts were valid for 1 or at most 2 years, while the contracts of professors were generally valid for 5 years along with several 10 year-long contracts. Workers such as nurses, physical therapists, and engineers had a 1 year contract, as well. As a result of those conditions, refugees who were not professors, felt themselves less secure in Turkey.

Due to expanding threats of national socialism migration of refugee scientists from Turkey, is began in 1937. The preferred countries were England, Switzerland, and USA.<sup>37</sup> Moreover by an 29 August 1938 Cabinet decree Turkey had closed its borders to further immigration

## Max Sgalitzer

of German, Hungarian, Romanian, and Italian Jews.<sup>38</sup> After that date, the only Jews invited by government were permitted to enter Turkey. This decree caused a surge of discontent among the Jewish emigre community. Being in a country located close to the upcoming war, was another source of anxiety for them. Correspondence between Istanbul University Dean's Office and the Ministry of Education, in which the University asked permission from the Prime Minister to permit the refugee professors to transfer their families across inner regions of Anatolia, reflected the prevailing unease among that community.



### Letter to the Dean of Istanbul University from the Minister of Education 10. 5. 1941.

*To the Dean's Office of the University: Response to your note bearing date of 14.4.1941 with reference number 2/109: Prime Minister's Office declared that there would be no restrictions against several of the foreign professors' wish to move their families to inner parts of Anatolia, particularly around Sivas and Kayseri provinces, provided that they won't pass the Toros mountains. Please inform the relevant personnel of this resolution.*

*Signed: Hasan Ali Yücel, Minister of Education,  
Date: 10.5.1941.*

Consequently some members of the first wave of emigres did leave their original country of refuge for others that would accept them.

After the first radiology team left Turkey, an "Austrian" team was quickly assembled. Max Sgalitzer (1884-1974) was the radiologist/physicist and Walter Reininger (1899-1969) the engineer. To aid in the team's research and applications, Margarethe Reininger (1896-1959), a nurse specializing in roentgenology and Walter's wife, was invited.

Max Sgalitzer was born on September 20, 1884, in Prague, as the son of Karl Sgalitzer. He earned his medical degree in Prague on June 8, 1909. After working in several clinics, he became assistant to Prof. Holzknacht and started working at the Central Roentgen Institute in Zurich. He worked there for 3.5 years. During the First World War, he was assigned to the Russian front. After being kept in Vladivostok for 2 years as a prisoner of war (POW), he was sent to Vienna following the agreement for bilateral releasing of prisoners. In Vienna, he started to work as head of the Roentgen division in the surgical Eiselsberg Clinic. He became Associate Professor in 1921, and Professor in 1930. He remained head of this institute which then housed 10 different roentgen devices until 1938.<sup>39</sup>

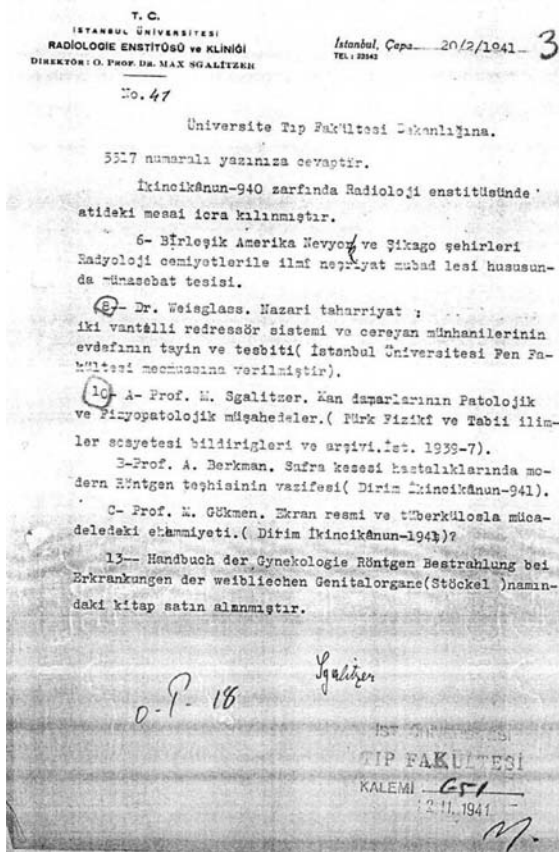
Based on his excellent credentials Turkish consular requests helped secure visas for Sgalitzer's arrival in Turkey even after the Anschluss. Sgalitzer, had authored over 100 scientific publications in leading journals worldwide when he was dismissed from the University of Vienna. He lived in Istanbul from 1938 until September 1943, when he re-emigrated to the US.

While in Turkey, Sgalitzer worked at the University Polyclinic where he raised issues concerning the quality of service provided and the number of patients processed. He continued his novel research, mostly in radio diagnostics, and published internationally. In doing so, he established bridges between the Institute and the worldwide scientific community.

In Istanbul Sgalitzer found a well organized institute and equipped with state-of-the-art technology. The Institute's configuration was used as a prototype and followed by all major hospitals in the country. Recognizing that hospitals unnecessarily purchased expensive devices like those in the Institute, Sgalitzer suggested to the Dean of the Faculty of Medicine that the Institute provide consultancy for selecting future instruments to be acquired.

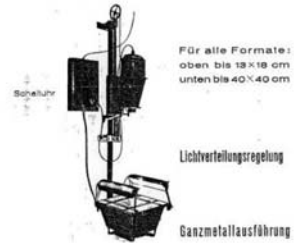
Unlike Dessauer, Sgalitzer favored radiodiagnostics in his research and most of his scientific publications were on radiodiagnostics. However, in his administrative duties he focused equally on both Institute departments. He also organized post-occupational courses on diagnosis and treatment. By 1940 Sgalitzer was able to lecture in Turkish. Sgalitzer and his colleagues' pursued international visibility for their their work, and, became a conduit for increasing cooperation between Istanbul and universities worldwide. In his annual report for the year 1941, Sgalitzer announced that his Institute, and the University Chicago as well as New York University had agreed to send each other copies of their publications.





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**Vollautomatisch**



Ing. Walter Reiningger, Wien III, Bechardgasse 23, Tel. U-13-6-95

**An introductory brochures first page of a device produced by Walter Reiningger in Vienna which can reduce and enlarge X-ray films. Istanbul University Istanbul Medical Faculty Personnel Department's Archive. Walter Reiningger, File Nr: 41010-558**

**A 12 November 1941 Note sent by Sgalitzer to the Dean's Office of the Istanbul University, School of Medicine. In this note, Sgalitzer reported activities carried out by the Radiology Institute starting January 1940. (Istanbul University, Medical Ethics and History Department, Professorial Archives, Max Sgalitzer File).**

In Sgalitzer's annual report to the dean for the year 1943, he mentioned writing a 250-page book in cooperation with Walter Reiningger titled "Fundamentals of X-Ray Examinations" and requested that the book be translated into Turkish.

During Sgalitzer's recruitment in Vienna, he was asked to identify an engineer who was highly qualified and experienced in roentgenology and would be willing to join the team in Istanbul. A similar request was made for an experienced radiology nurse.<sup>40</sup> On April 27, 1938, Sgalitzer wrote a letter from Vienna to Istanbul University's Rector that he would look around in Austria for appropriate personnel. In an August 31, 1938 letter from Prague written in French, Sgalitzer informed the Rector that he found both desired candidates in a husband-and-wife Viennese pair, *Walter and Margarethe Reiningger*.

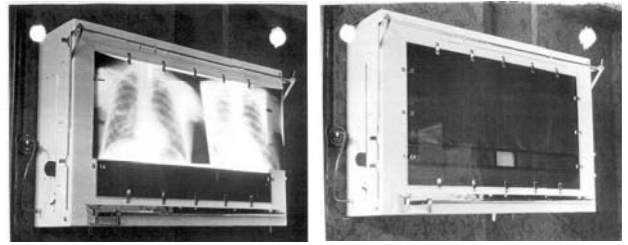
The possibility of going to Turkey and having jobs waiting for them in their respective professions came as a timely gift for the Reininggers. Austria had already been *Anschlussed* to the German Reich and Reiningger had been dismissed from his job at the University of Vienna. In the job application he sent to Istanbul, Reiningger pointed out that he was born in Vienna in 1899 and was a Technical University graduate in electro-technology and mechanical engineering. He had worked for *AEG*, Germany's electrical equipment manufacturer in Berlin starting in 1923 and in 1931, he had switched to the Strauss Laboratory in Vienna where one of the inventors of the TSF (flexible medical) tube worked. There, Reiningger developed X-ray radiology-measuring devices including some that were already in use in Turkey such as the *Mecapion*.

At University of Vienna Reiningger was responsible for all measurement and calibration of instruments for all university institutes. In collaboration with Rudolf Pape, Reiningger invented a dosimeter to measure exposure to X-rays and completed a project on the use of radiation on the esophagus. In the application letter, Reiningger wrote that this experience gave him skills necessary to use, repair, and calibrate X-ray equipment used for diagnostics and for therapy. He claimed that if given the opportunity he would be capable of teaching and running a State or National research laboratory, and he had also published papers in various radiological journals. Reiningger was fluent in German, English, and French. Since

he had been fired from the laboratory job and forced to sell his small manufacturing company, he wrote that “if the required papers are made available, I could leave immediately. It would be a great honor for me to help you in your national efforts.”

On September 2, he sent a follow-up letter to the Rector mentioning his wife’s capabilities. Five months and a week after the Anschluss and Austria’s official acceptance into Nazified Europe, Reininger was delighted to sign a four-year contract at the Turkish Embassy in Vienna on September 17, 1938. Soon the Reingers and their daughter, Eva-Ruth, arrived in Istanbul and remained on their jobs until 1948 when the family re-emigrated to the United States. During the years they were in Turkey, Walter Reininger, and physicist/engineer Carl Weissglass, taught many Turkish physicists, engineers, and technicians on all aspects of radiology and kept the university’s x-ray equipment in repair and calibrated. During wartime when parts were in short supply, Reininger and his team personally remanufactured many components. Significantly a well-trained and capable professional cadre of engineers and technicians became part of the legacy he left behind.

Margarethe Reininger contributed to this legacy by training many Turkish professional nurses in all aspects necessary to facilitate effectiveness and efficiency within medical radiology’s operational domains.

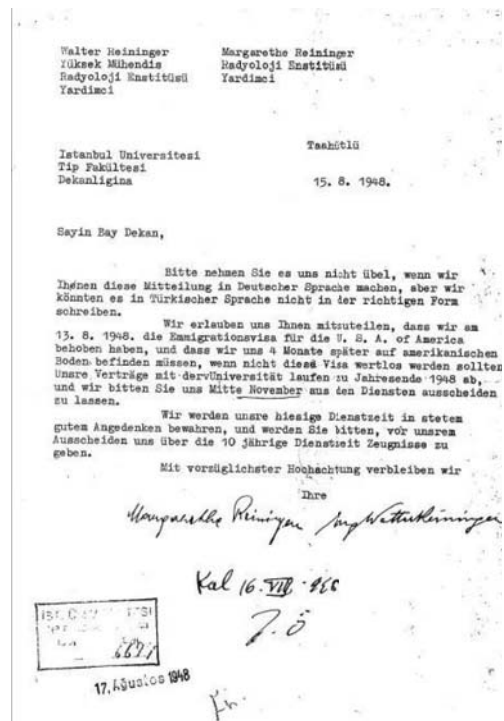


**Device produced by Walter Reininger in Istanbul which secures the examination of X-ray films with different light levels. Istanbul University Istanbul Medical Faculty Personnel Department’s Archive. Walter Reininger, File Nr: 41010-558<sup>42</sup>**

While in Turkey, the radiology group was active in conducting experiments supporting their theoretical constructs. For instance, Carl Weissglass published several research reports on the “Double-Valve-Rectification System” and on its “Lapping Period in X-ray technology.”<sup>43</sup>



**In the front row on the left W. Reininger, behind him Weissglas, and the lady standing next to W. Reininger is his wife M. Reininger. Standing next to M. Reininger is Prof. Dr. Max Sgalitzer.<sup>41</sup>**



**Reingers inform the Dean of Medical Faculty about their intentions of leaving for the United States of America and also mention that they will always preserve good memories for their working period in Istanbul. Istanbul University Istanbul Medical Faculty Personnel Department’s Archive . Walter Reininger, File Nr: 41010-558**

T. C.  
DAHİLİYE VEKÂLETİ  
Emniyet Umum Müdürlüğü

7109-216 / 194  
24 Ocak 1944

Sıra	Derece	Numara
4.C.	41942/105	43.91

OZU: Vesikası yenilenen bir uzman ve eşi HK.

EKİ  
2

Istanbul Üniversitesi Rektörlüğüne

C : 10/7/944 gün ve 12620 sayılı yazıya  
Uzmanı :

Adı, sırası : Carl Weissglas ve eşi Waleria Weissglas  
Tabiiyeti : Haymatloz  
İkamet tez. sayısı : 1257 ve 1257 - A.

Istanbul Üniversitesinde Uzman olarak çalışan yabancı için 1 / 7 / 1945 tarihine kadar bir yıllık Uzman ikamet tezkeresi verilmektedir. Bilgi edinilmesini rica ederim.

Emniyet U. Müdürü Y.

13. K. 28

15760  
Tarih: 25 Ocak 1944

**Official document issued by the Department of Security of the Turkish Republic's Ministry of Interior informing Carl and Valerie Weissglas, who are stateless as having been granted working residency status for one year. İstanbul University Rectorate Personnel Department File Nr: 4109/216**

## The Radiology Institute



**Istanbul University Institute of Radiology and Biophysics – 1935** <sup>44</sup>

For his Institute, Dessauer was given a pre-war [WWI] constructed building on the European side of the city which had been used as a tobacco warehouse. The building located near the *Gureba* Hospital was restored

starting April of 1934. Dessauer said that they used the smaller machine to take the simple X-rays while for the complicated X-ray examinations they used the *Titanos* unit made by Koch & Sterzel in Dresden (Germany). <sup>45</sup> Opposite the roentgen diagnostic department there was the deep therapy hall. Both locations had the 200kV and 400kV machines present and both were equipped with full protection units. In addition to the built-in protection systems, a 4mm-thick lead protection was added to the 200 kV machine, and the 400 kV machine had a 6mm-thick lead protection for safety of its users. The room prepared for the operators was also arranged to enable 20 students to observe the treatments. The building contained a room for the *Chaoul* method close-range radiation, a skin treatment room and a darkroom for endoscopic examinations. According to Dessauer the majority of the patients under radiation therapy had to be admitted to the hospital, and that a note of this point was made during the layout of the clinic. Resting places were reserved for those patients who had to spend long periods of time in the clinic during the day due to radiation effects, etc. but went home in the evenings. The basement had a room for storing radium and two radium laboratories with the necessary equipment. Dessauer also cited the existence of a transformer unit, laboratories, a measurement hall, and a research room in the basement. Patients had no tess nor other dealings in the basement floor. The first floor housed the *Finsen* unit made by Finsen-Lombholt, the diathermy room. The electrodiagnostic, electrotherapy and light therapy units were located in proximity of the waiting room as well as a laboratory for patient tests and microscopic examinations were also on this floor. In the hall reserved for those who were going to specialize in radiology, students would be engaged in various applications, starting with simple electrical circuit connections and electric current measurements to building their own X-ray machine, evaluating spectrograms and doing absorption analysis. From a scientific and environmental point of view it is interesting to note that Dessauer also mentioned his future plans for conducting climatologic research on the large balcony of the clinic. <sup>46</sup>

According to the Dessauer curriculum, for two hours a week the students in the 4<sup>th</sup> term, a preclinical year, were educated to gain awareness on matters of physics that they would encounter in their upcoming clinical work. The student had to provide an opinion about an electrocardiogram, diathermy and obtaining ultraviolet rays. When shown an X-ray film the student would not only have to recognize the normal shadow of an X-ray but also how it was obtained. The students were taught medical physics, especially radiation physics.

The students in the 6<sup>th</sup> and 8<sup>th</sup> terms, as well, had to take a one hour lesson every week in order to learn what the staff physician (not a radiology specialist) should know about radiology.<sup>47</sup>

This Institute trained specialists to pass an exam following two years of residency and offered post graduate education in radiology. Towards this end, yearly course programs were planned including evening conferences at the Radiology Association.

While technicians were assigned for the maintenance and repair of the X-ray equipment and other related equipment, in the Institute importance was given to the training of X-ray nurses.<sup>48</sup>

Dessauer and colleagues decided that Institute operations had to be carried out in cooperation with the clinics. He planned treatments in cooperation with the clinic physicians in accordance with that decision<sup>49</sup> and described his activities at the Institute as follows: “As the Institute was beginning to be famous, patients from all over the world began to come. We had established an institute which had no peer in Europe. Sometimes there were 80 people waiting in the queue for treatment. All of them had cancer.”<sup>50</sup>

Fast forwarding to 1943, in a letter to the Dean on April 22, Sgalitzer stated that numerous patients had been directed from clinics to his Institute; but the instruments and personnel were not sufficient to treat all of them. He emphasized his concerns about not being able to protect the health of Institute personnel. His letter ended as follows: “It does not seem possible for us to import the devices required under the present world conditions; still, the necessary steps should be taken. I think it will be easier to import the equipment from USA. I have 2 recommendations to reduce our workload:

1. Let us not accept severe cases who cannot benefit from radiotherapy. Otherwise, we cannot accept cases who will benefit from radiotherapy.
2. We have to be selective also in our radiodiagnostic department. Please care for our device needs indicated in the attached list.

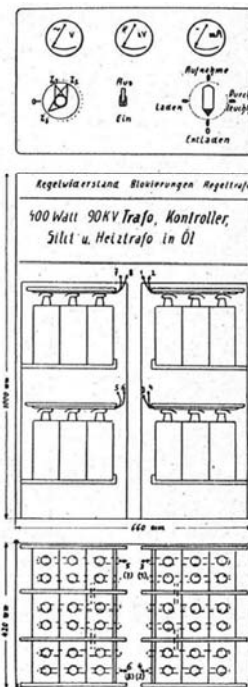
The list of needs:

1. Therapy division
  - a) 2 deep therapy device 250 kW
  - b) 1 Deep therapy device to apply the rotation radiation method which has considerable run in Europe and America.
  - c) Close radiation device for column cancers
  - d) 300 mg radium
  - e) Dosimeters for the mentioned instruments

2. For diagnostics division
  - a) Spare parts of the x-ray transformer and the planigraph
  - b) A second device for radioscapy and one more instrument for radiography”

### Public health radiology

Turkey’s government recognized the need for lung screening of patients located outside the major metropolitan areas and in large numbers. Walter Reininger developed radioscapy device which was easily transportable and was capable of executing 60 examinations per hour. German firms had developed “portable” x-ray equipment but their weight amounted 500 kg. Buses containing such capability were indeed locally manufactured. However, these buses were both very expensive and required smooth roads. The Reininger device weighed only 30 kg. With all ancillary equipment the total weight reached maximum 176 kg. Hence, taking the x-ray capability to Turkey’s outlying areas became both affordable and feasible costing one fourth of similar devices in Europe. Reininger easily took the device to *Zonguldak*, a city on the Black Sea coast, mounted it in an hour and made it ready for use. While the other equipment manufactured in Germany for the same purpose required 10 kW, the Reininger device needed only 400 Watts. The device required dividing the condenser into very small units, shunted charge, serial connected discharge, using the x-ray tube as a charge valve and starting the current in the tube by heating the cathode.



## Construction Diagram for the Reininger Device

This alone was a significant, development in technology, radiology, and in public health. To put this late 1930s development into a temporal perspective; *the anti-TB league of the Canadian province of Newfoundland purchased a US naval boat fitted with mobile x-ray equipment in 1947, christened it the M.V. "Christmas Seal" and sent it out to visit all maritime communities for TB Screening and treatment.. "Due to a lack of roads, a major portion of the population could not reach the screening centres, so this floating TB clinic came to them."*<sup>51</sup> A Brief History of Public Health in Muskegon County Michigan states that "During the 1940s several public health advancements were made, such as the creation of mobile x-ray units,"<sup>52</sup> The Silver Cross Hospital of Joliet, IL proudly announces that in 1944 it introduced the use of the First portable X-ray machine.<sup>53</sup> During July 1949 the Arizona State Department of Health started introducing mobile X-Ray units in its public health services.<sup>54</sup> The Industry got into the act during the 1960's. because of the "emergence of mobile mammography as a breast-examination tool to find and treat cancerous tumors at early, curable stages.... mobile chest X-rays to view patients lungs and to determine a host of respiratory diseases, including tuberculosis and cancer" were manufactured by Medical Coaches of Philadelphia, PA<sup>55</sup>. The St. Anthony's Memorial Hospital in Effingham, IL. proudly announces that in 1983 a parking space-pad was constructed for a Mobile Computerized Tomography van.<sup>56</sup>

Reininger emphasized that this transportable unit could also be used for military purposes. He bequathed his device's patent rights to Turkey saying: "I hope you'll use this device not in war but in peace!"<sup>57</sup>

## Perceptions of the Émigrés in Turkey Today

Memories of the émigré professors and the appreciation of their contributions to Turkey's modernization linger on in that country and among the educated Turkish Diaspora. Recently several symposia were devoted to keeping the memories alive. One conference organized by the Turkish Academy of Science (TÜBA), was devoted to "The Evolution of the Concept of University in Turkey (1861-1961)" (November 18, 2006). At the meeting, the evolution of the "university" concept during a 100-year time span was discussed. Much of the discussion focused on Atatürk's university reforms, the realization of which

was attributed to the émigrés from Germany. The Preface to the published Proceedings of that conference<sup>58</sup> written by the Academy's President Prof.Dr. Engin Bermek begins with:

*The University Reform was the most important event in the evolution of the university concept in our country. In the continuous pursuit to prevent the new university from just remaining on paper but to make it into a real modern institution of superior education with qualified scientists to be employed, a historical opportunity was met when Hitler took over power in Germany and Legislation to Restructure Official Positions (Gesetz zur Wiederherstellung des Berufsbeamtentums) and similar laws were enacted to eliminate Jewish scientists or those opposing the regime. Originally 30 scientists were selected from the names proposed to the Turkish government by A. Malche through the offices of the Emergency Assistance Committee to German Scientists Outside the Country (Notgemeinschaft Deutscher Wissenschaftler in Ausland) founded in Switzerland by Philipp Schwartz to support scientists fired by the Nazi regime.*

The original 30 emigre professors before the war's end numbering 190 produced many of the initial cadre of indigenous Turkish intellectuals who in turn spawned others so that no fewer than 72 universities are currently staffed by competent and many world-class professors including those who spoke at the above symposium.

Significantly also is the fact that on April 7, 2006, the University of Istanbul conducted a symposium on the 1933 University Reform. The conference opened with a welcoming speech by Dr. Mustafa Keçer, the dean of the Istanbul Medical Faculty, who reiterated that "Turkey owes a great debt to the émigrés. They did great work here, although some jealous colleagues tried to denigrate them." Reiner Möckelmann (b. 1941), Germany's recently retired Consul General in Istanbul, organized a symposium at the Consulate conducted on August 6, 2006, dealt with the contributions of the medical contingent.<sup>59</sup>

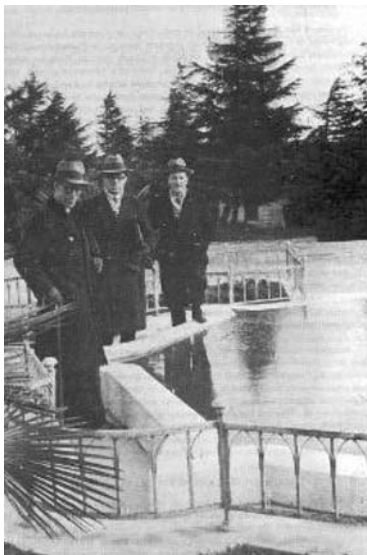


**Dessauer and his treatment staff (Photograph courtesy Dr. Seyfettin Kuter archives).**

## Concluding remarks

*Professor Dessauer came to Istanbul when the X-Ray Institute of the Faculty of Medicine, was moved to the Gureba Hospital and was reestablished there. He was one of the professors who came from Europe, we met him there. He was not a medical doctor; he was a worldwide famous, and esteemed physicist. I worked with him for a while. Especially on Tuesdays, he used to follow the x-ray treatments of cases performed in my clinic. He was closely interested in skin cancer. We benefited from his knowledge very much. Due to early exposures he had wounds on various parts of his body which turned to cancer. He used to have them removed from time to time by means of surgeries. He did not stay long. He received invitations from Europe and he left.*<sup>60</sup>

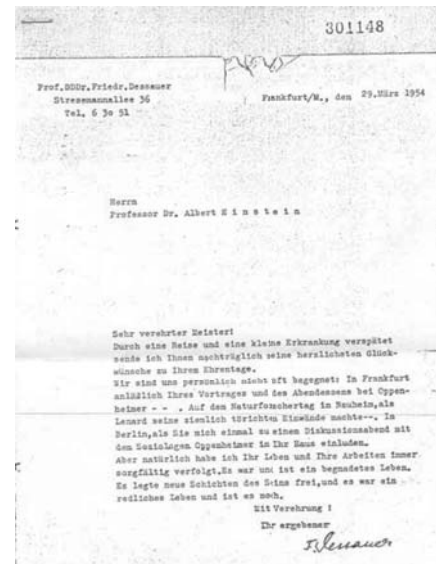
Dessauer's colleague Turkish citizen Prof. MD. Tevfik Berkman, who worked on deep treatment as part of Dessauer's team, assessed Dessauer's studies for Turkey as follows: "The history of actual radiotherapy in Turkey began with Atatürk's university reform and the foundations of this history were laid by Friedrich Dessauer. He showed the principles of organization, theoretical, practical and academic studies and created a scientific atmosphere in our country in the field of radiotherapy in a short time. We worked with him for three years in a sense of a family. Our debt of gratitude to him is great."<sup>61</sup>



**F. Dessauer, the year he came to Turkey (1934) in the courtyard of Şişli Etfal Hospital with T. Berkman and M. Gökmen.**<sup>62</sup>

When the émigrés arrived, Turkey had two fledgling universities<sup>63</sup> one having no Faculty of Medicine. It now has over seventy and most offer medical curricula. At least two generations of educated Turks owe their positions to the implementation of those reforms and Turkey's entire population owes its health status to those reforms. Turkey's unfortunate brain-drain has contributed to medical education and practice in all western countries.

## Appendix



**A 29 March 1954 Dessauer letter to Albert Einstein. Document 301148,**

Courtesy Albert Einstein Archives, Hebrew University of Jerusalem.

## REFERENCES

1. Adopted to include Turkish language sounds.
2. One way to recognize the caliber of people involved is to note that prior to, during, and after their exile in Turkey at least sixteen of them are known to have corresponded with Nobel laureates including Max Von Laue, James Frank, Linus Pauling, Max Planck, Max Born, Erwin Schroedinger, Neils Bohr, Enrico Fermi, Herman J. Muller, Albert Szent-Györgyi, Bertrand Russell and Albert Einstein.
3. A survey of all academic Personnel Department files identified no fewer than seventy-six unduplicated "exile" names who worked in the Istanbul University Faculty of Medicine between the years of 1933 and 1950. There were others at Ankara University's medical school, as well as at various government agencies.
4. A. Kazancıgil, I. Ortaylı, and U. Tanyeli, "Türkiyenin Yabancıları," *Cogito*, (Istanbul:Yapı Kredi Yayınları, Üç aylık düşünce dergisi, Sayı:23, Yaz, 2000), 119-132.
5. Parente, S.L. and Prescott, E.C. (2000). *Barriers to Riches*, The MIT Press, Cambridge, MA.

6. See *Cimen Gunay-Erkol and Arnold Reisman* "The Founders of Turkey's System of Modern Higher Education: An Anthology of Testimonials from First, Second, and Third Generation of Students." (2007) Working paper. Available from the authors.
7. Most of these are discussed or fully captured in Arnold Reisman, *Turkey's Modernization: Refugees from Nazism and Atatürk's Vision* (Washington, DC:New Academia Publishers, 2006. .
8. A. Reisman "Turkey's Invitations to Nazi Persecuted Intellectuals Circa 1933: A Bibliographic Essay on History's Blind Spot." Working paper, 2007. <http://ssrn.com/abstract=993310>
9. See Horst Widman's fundamental book on Atatürk's University Reforms *Exil und Bildungshilfe: Die deutschsprachige akademische Emigration in die Türkei nach 1933* (Bern: Herbert Lang; Frankfurt am Mein: Peter Lang, 1973); Turkish translation: Atatürk Üniversitesi Reformu: Almanca konuşan ülkelerden 1933 yılından sonra Türkiye'ye gelen öğretim üyeleri—Hayat Hikayeleri—Çalışmaları—Etkileri; İstanbul: İstanbul Üniversitesi Cerreahpaşa Tıp Fakültesi Atatürk'un Yüzüncü Doğum Yılı Kutlama Yayınları,1981; translated by Aykut Kazancıgil and Serpil Bozkurt]; *Haymatloz*, Schriftenreihe des Vereins Aktives Museum, 8 (Berlin, 2000); Neumark, Fritz. *Zuflucht am Bosphorus: Deutsche Gelehrte, Politiker und Künstler in der Emigration 1933–1953*. Frankfurt a. M.: Knecht, 1995.  
Schwartz, P. *Notgemeinschaft zur Emigration deutscher Wissenschaftler nach 1933 in die Türkei*. Marburg: Metropolis-Verlag, 1995; Namal, A. "Prof. Dr. Max Sgalitzer (1884–1974). Ein österreichischer Leiter des Radiologischen Instituts der Universität Istanbul." *Zeitgeschichte* 1 (2003): 37–49; Namal, A. *Zwischen Emigration aus NS-Deutschland und Ankunft in Palästina bzw. Israel: Jüdische Wissenschaftler an der Universität Istanbul*, Paper presented at: MEDIZIN UND JUDENTUM, 8. Medizinhistorisches Kolloquium, Dresden, September 7-8. (2005)
10. F. Dessauer, The new Radiology and Biophysics Institute in Istanbul. *Strahlentherapie* 1936, (56) 3: 389-396.
11. It took additional decades for the US to implement the public-health practice of placing full-service X-Ray laboratories on wheels.
12. For a more comprehensive discussion of this concept see Staudenmaier, J.M. (1985), *Technology's Storytellers*. MIT Press, Cambridge, Massachusetts.
13. O.S. Bahadır, and H.H.G. Danisman, "Late Ottoman and Early Republican Science" in *Turkish Studies in the History and Philosophy of Science*, ed G. Irzik and G. Guzeldere (Boston Studies in Philosophy of Science, Berlin & New York: Springer, 2005), 290
14. M.O. Williams, "Turkey Goes to School" *The National Geographic Magazine*, January (1929), 94-108 offers 17 photos and an essay depicting the process of implementing the edict.
15. E. Ihsanoglu, "The Medreses of the Ottoman Empire," *Publication 4055, Foundation for Science, Technology and Civilisation*, Manchester, UK (2004)
16. The *Dar-ül Fünun* continued to provide religious education.
17. Starting in 1926 Turkey sent a large number of students to receive academic training in Western Europe, During the 1930s they started returning and assumed academic positions in Turkey's emerging institutions of higher learning.
18. The Bosphorus and the Dardanelles held strategic importance. So did an uninterrupted supply of chromium and other scarce materials needed by Germany's munitions factories.
19. Norman Bentwich, *The Rescue and Achievement of Refugee Scholars: The Story of Displaced Scholars and Scientists, 1933-1952* (The Hague, Netherlands, Martinus Nijhoff, 1953) p1 and 2
20. Clearly of the 190 who found their way to Turkey a small number came from Austria after the 1938 *Anschluss*, and one each came from Czechoslovakia and France.
21. F. Neumark, *Zuflucht am Bosphorus: Deutsche Gelehrte, Politiker und Künstler in der Emigration 1933-1953* (Escape to Bosphorus: German scholars, politicians, and artists in exile 1933-1953) (Frankfurt: Knecht, 1995), 13. noted that three revolutions came together to make the 1933 "miracle" happen in Turkey: Russian in 1905, Turkish in 1923, and Nazi in 1933
22. For details see L. A. Burk, "An Open Door: German Refugee Professors in Turkey" in *The Dispossessed-An Anatomy of Exile*, ed. Peter I. Rose (Amherst, MA: University of Massachusetts Press, 2005), 235-257
23. H. Müller, "German Librarians in Exile in Turkey, 1933-1945." *Libraries & Culture*, 33.3, (1998): 294-305.
24. Ibid.
25. On September 26 1933, Shepard wrote to Lambert. *In order to have an effective reorganization however it was necessary to abolish the old University because according to law all the professors held office for life*. With the abolition of the University the old Arabic name "Dar-ül Fünun" has also been abolished. (emphasis added) Rockefeller Archives Center.
26. N. Bilge, History of Radiotherapy in Turkey. *International Journal of Radiation Oncology and Biologic Physics*, 35(5) pp 1069-1072. (1996).
27. German philosopher associated with the philosophy of technology Dessauer a devout Catholic, wrote books on theology, was a University lecturer, and opposed Hitler. For this last act he was forced to flee his country. See C. Mitcham, *Thinking Through Technology: The Path Between Engineering and Philosophy* (Chicago, University of Chicago Press, 1994) p. 29. According to Mitcham, Dessauer defended technology in the strongest possible terms, he also sought to open up dialogue with existentialists, social theorists, and theologians. As a result, it is Dessauer's work that is most often cited when philosophers of science first acknowledged the philosophy of technology. Also see See "Friedrich Dessauer as Philosopher of Technology: Notes on his Dialogue with Jaspers and Heidegger", by Klaus Tüchel. In *Research in Philosophy and Technology*, vol. 5, pp. 269-280, (1982). Paul Durbin (Ed.) Greenwich, CT: JAI Press  
Dessauer maintained a long standing cordial relationship with Albert Einstein. On December 3, 1933 Einstein wrote an impassioned letter [Courtesy Albert Einstein Archives, Hebrew University of Jerusalem. Document 49-476.00] to Harvard Medical School Dean David L. Edsall in which he tried to find a position for Dessauer. Edsall responded with a two page letter explaining all the reasons why Harvard could not offer Dessauer an appointment at any level any where. [Document 49 477-1 and 2] As is shown in the Appendix the relationship was maintained through the 1950s.
28. Some of Uhlmann's publications at the time of his invitation to Turkey are shown below. [Uhlmann specified only the titles of the articles in the publication list he submitted to Istanbul University. He did not specify in what periodical the articles were published.]  
"Soll man in der Röntgenoberflächentherapie filtern oder nicht" (1928), "Über die sogenannten Grenzstrahlen"(1928), ... "Histologische Untersuchungen über die Wirkung der Grenzstrahlen auf die Haut" (1929), "Über die Abhängigkeit der Pigmentbildung von der Wellenlänge der Strahlung" (1929), ... Indikationen und Methodik der Strahlenbehandlung bei Hautkrankheiten. Verlag Georg Stilke 1930, "Zur Behandlung der Röntgenspätchäden" (1930), "Über die Möglichkeit der Vermeidung von Strahlenschäden der Haut" (1930), ... Wesen und Bedeutung von Grenzstrahlen"(1931),

- ... "Zur Biologie der Strahlenwirkung. Untersuchungen zur Erythemfrage" (1932), "Beitrag zur Biologie der Strahlenwirkung. Untersuchungen zur Pigmentfrage" (1932), ... "Indikationen und Methodik der Röntgenstrahlen Anwendung" (1933), "Experimentelle Untersuchungen über den Einfluss der Ernährung auf die Strahlenempfindlichkeit des Gewebes" (1933), "Neue Methoden der Dosierung von Röntgenstrahlen" (1933), "Die Grenzstrahlen und ihre Bedeutung für die Dermatologie" (1933), ... "Die Dosierung von Röntgenstrahlen in r-Einheiten" (1934), ... "Erfolgreiche Behandlung von Strahlenschäden der Haut" (1935), ... "Über eine durch Barbitursäurederivate ausgelöste Röntgenstrahlenreaktion" (1936).
29. *Encyclopedia of Science, Technology, and Ethics* on Dessauer, Friedrich
  30. The *Gesetz zur Wiederherstellung des Berufsbeamtentums* or the Reestablishment of the Civil Service Law.
  31. C. Kleinholz-Boerner, *Friedrich Dessauer 1881-1963. Bibliographie eines nichtärztlichen Röntgenpioniers*. Inaugural Dissertation aus dem Institut für Geschichte der Medizin der Freien Universität Berlin. 1968, pp. 7-21<sup>32</sup>) There are other examples. In 1933 the Nazis had taken Public Health Dentist Alfred Kantorowicz "into 'Protective Custody' and had kept him for four months in the prison at Bonn. He was then transferred to the Gestapo, S.A., and S.S. run Boergermoor hard labor concentration camp near Papenburg. There he spent another four months after which he was transferred to the concentration camp for prominent socialists, Jews, and intellectuals in Lichtenburg." A. Reisman, *TURKEY'S MODERNIZATION: Refugees from Nazism and Atatürk's Vision*. New Academia Publishers, Washington, DC. (2006). p 167.
  33. Courtesy Albert Einstein Archives, Hebrew University of Jerusalem, Document 49 476-1 and 2.
  34. At the time Harvard University had very strong ties with Nazified German universities under the leadership of its president James Bryant Conant. Reisman, *TURKEY'S MODERNIZATION: Refugees from Nazism and Atatürk's Vision*. p. 515, 516. Also, A. Reisman, "Harvard University's Tercentenary celebrations and Albert Einstein: 1936." Working Paper (2007).
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# Maintenance of Dental Health in Manuscript “*Mujiz Al-Qanun*” by Ibn Al-NAFIS

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## Summary

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*Mujiz al-Qanun* is considered one of the most important books by Ibn Al-NAFIS about Ibn Sina's the head of scientists (Al-Sheik AlRaees) *Kitab al-Qanun Fil-Tub*.

*Mujiz al-Qanun* attracted the attention of many physicians who explained it for many centuries. Ibn Al-NAFIS was not a merely transmitter for others work, but he was the person of experience and work because he explained many ambiguous idioms and scientifically analyzed the dental prophylaxis pieces of advice that are widely spread nowadays so that shows his deep experience and information.

**Key words:** Dental Health, Islamic Medicine, Ibn-Sina, Avicenna.

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## Introduction

The studies of the anthropology showed that the concept of the dental prophylaxis was not that old because the prehistoric man of about 12000 B.C didn't suffer from dental caries [1] which is considered one of the most common disease among people with different ages, and it works side by side with the nations' development [2]. Since we have this wide dental disease research and the development of the prophylaxis's ways, so the oral hygiene becomes a science which was known among the Arabic physicians as the maintenance of dental health not Preventive Dentistry[2].

Our prophet Mohammed peace and blessings be upon him urged us to use different ways to protect our teeth like rinsing out the mouth three times during the ablution or by using cleaning teeth stick, in his Hadith he said: “unless I found it difficult for Muslims, I would order them to use the cleaning teeth stick regularly with every prayer” [3-4].

And there are many sayings concerning the usage of the cleaning teeth stick, in his book *Al-tub Al Nabawi Ibn al-Qayem al-Jawziah* mentioned the advantages of using the cleaning teeth stick because it cleans, strengthens *Al Amour*<sup>1</sup> and scents the teeth [7].

Although dentistry was not an independent branch in medicine, but most physicians paid attention to its

importance since our body is one whole unit; and some of the Arabic physicians wrote special books for how to keep your teeth healthy, and that what we call now Preventive Dentistry like *Al-Sewaq wal-Sanonat* for John Ibn Masaweh (d. 243H/857AD), and another book *fi Hifz Sihet al-Asnan wal Litheh wa Estislahiha* by Hunayn Ibn Is'haq (d. 260 H/857AD).

After the flourishing of the medical sciences in the Islamic Arabic civilization, many encyclopedias were written by many scientists like *al-Qanun Fil-Tub* for Ibn Sina (d. 428H/1037A.D), which is summarized by Ibn Al-NAFIS (d. 687H/1287A.D) in his book *Mujiz al-Qanun*; those encyclopedias became the main resources for many students and practitioners of medicine, so they wrote different interpretations for them like *Sadid al-Din al-Kazaruni* (was still alive 752H/1351A.D), *Jamal al-Din Al-Aqsara'i* (800H/1398A.D), *Nafis Ibn Awad al-Kirmani* (d. 853H /1449A.D) and *Hakim Shah Ibn-Mubark* (d. 920H /1514A.D).

## Biography

### His name

IBNAL-NAFIS, ALA'AL-DINALIIBNABIL-HAZM IBN AL-NAFIS AL-QARASHI AL DEMASHQI [8]. (Al-Haram, AL-Qrshi) two wrong spellings [9]; because Al-Qarshi from Qarash (beyond the river) [10] from which his family originally came [11] (Quraishi) affiliated to the tribe of Quraishi according to the tribe of Quraish [12-13], but actually Ibn AL-NAFIS is from Qarash a small

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<sup>1</sup> -*Al Amour*: the flesh between teeth [5] *Amer plural Amour*, a word for the pedicel structure of the tooth, *Al Ein* for the bone, *Al Ra'a* for the tie and *Al Mem* for the cement [6].

village near Damascus in Syria [8-14]. What proves his name IBN ABI L-HAZM was that the manuscript that was found with his signature at the end of it, it was *Sharh Tabi't al-Insan li-Buqrat* [15].

Birth and death: IBN AL-NAFIS was born in (607H/1211A.D) and died (687H/1288A.D) [11-14].

His books: IBN AL-NAFIS wrote many books, the most important are *Sharh Tashrih al-Qanun*, *kitab al-Shamil fi'l-Sina'a al-Tibbiyya*, it was said to consist of 300 volumes, *al-Muhadhab fi'l-kuhl*, *Bughyat al-Talibin wa Hujjat al-Mutabbibin*, *al-Risala al-Kamiliyya fi'l-Sira al-Nabawiyya* and others [8-11-16]. What we care for is *al-Mujiz* which is described by Hajji Khalefa the best long and short manuscript [17].

The checked manuscript of *Mujiz al-Qanun* for Ibn Al-Nafis:

There are different written copies for this manuscript in different libraries of the world [18], but we depend on four copies on a microfilm and stored in The Institute for the History of Arabic Science in the university of Aleppo

1. The manuscript of Amprozyana which symbolized by (A), this manuscript was well written, it was the nearest to the author's age, the date of copying was (693 H), so we depend on it to compare other copies with it in order to have the authentic scientific source of Ibn al-Nafis.
2. The manuscript of the Maronia library which symbolized by (B).
3. The manuscript of Al-Zaheriaya library (59 T) which symbolized by (C).
4. The manuscript of Al Zaheriaya library (62 T) which symbolized by (D).

To prove the authenticity of the manuscript we checked only the manuscript which are in the copies and are related to the maintenance of teeth Health the we follow the following modern rules of the manuscript checking:

- a. We pointed out / the first page of the manuscript.
- b. We used printing brackets < > to add what is suggested.
- c. We used the brackets () to refer to (B) manuscript only.
- d. Because we have different covers for the copies, we choose only the cover of Amprozyana only.

We don't point out for that in the margins.

We mentioned in the bottom margins:

-Letter (r) for the face of the paper and (v) for the back of the paper and prove to the paper page number, except Manuscript (B) because it have a numbers.

-The explanation and the usage of some words.

-The difference among the copies.

### **The edition Text / <sup>2</sup> (Al-Mujiz fil-Tub)**

Categorized by Alshikh al-Immam<sup>3</sup>, the expert of experts, and the chief of doctors Ala Al-Din Ali Ibn Al-Nafis Al-Qarashi (God bless his soul)

### **<sup>4</sup> In the Name of Allah the Most Gracious the Most Merciful**

### **We depend on Allah<sup>5</sup>, I am only Blessed by the help of Allah<sup>6</sup>**

Alshikh -Al Immam scientist<sup>7</sup>, the expert of experts, the example for scientists, and the chief of the wise people (Abo al-Hasan Ala` Al-Din Ali Ibn Hazm<sup>8</sup> Al-Qarashi<sup>9</sup> (known as Ibn al-Nafis) <sup>10</sup> -said:

### **.../<sup>11</sup> The disease of the gum and the teeth<sup>12</sup> and the lips:**

If a person wants to keep his teeth / <sup>13</sup> healthy one should pay attention to eight<sup>14</sup> things:

**First:** Keep oneself away from the surfeit of food or<sup>15</sup> drink in the stomach, either for their core or transformation like: fish, yogurt and Sahn<sup>16</sup> al-Masria<sup>17</sup> (or the misuse of this food or drink e.g.: eating or drinking very fast or not in the eating time, over drinking during the meal followed by too much movement).

- **2<sup>nd</sup>:** To keep away oneself from vomiting specially the acid one.
- **3<sup>rd</sup>:** To keep oneself away from chewing things, (because such things affect teeth because of its mechanism) especially sweet, e.g. *al-kurradeiah*<sup>18</sup>, and the dried fig.
- **4<sup>th</sup>:** Avoid sour fruits (citroen, raw, astringent sour fruits), very cold food or drink followed by hot<sup>19</sup> ones / <sup>20</sup> specially after cool, and every thing which harms teeth specially leek.(uncooked)

<sup>2</sup> -Cover (A).

<sup>3</sup> -Immam: Amam, (A).

<sup>4</sup> -Start manuscripts, 1 v, all copies.

<sup>5</sup> -Only (D) we depend on Allah.

<sup>6</sup> -Only (A).

<sup>7</sup> -Only (B) and (D).

<sup>8</sup> -Only (C).

<sup>9</sup> -Al-Qarshi in (D) Al Qershi in (A) and not stressed in (C) and (D).

<sup>10</sup> -Only (C).

<sup>11</sup> -93 v in (A), P 104 in (B), 75r in (C), 56 r in (D).

<sup>12</sup> -The diseases of the teeth and the Gum, in (C).

<sup>13</sup> -94 r in (A).

<sup>14</sup> -Eight in (B).

<sup>15</sup> -Or: and, in (B)

<sup>16</sup> -Al Sehna'a: a kind of Egyptian food made from fish.

<sup>17</sup> -Omitted in (C).

<sup>18</sup> -Al-kuradeiah (B) or Al Karaseiah in other copies which is a kind of sweet (19).

<sup>19</sup> -Heat only in (B).

<sup>20</sup> -P 105 in (B)

- **5th:** /<sup>21</sup> Avoid breaking hard things with teeth<sup>22</sup> such as nuts and almonds.
- **6th**<sup>23</sup>: Keep cleaning the teeth (from all kinds of remains) without hurting or weakening the teeth<sup>24</sup> and the gum.
- **7th:** Use the cleaning stick moderately (so that it doesn't affect) and reach to the water of teeth, (water of teeth: glittering color) /<sup>25</sup>, if such a thing happens the teeth will be target for vapors coming out and into.

The best of wood sticks which are included /<sup>26</sup> bitter and shrink<sup>27</sup>, as sticks and olive<sup>28</sup>, and stick cleaning the teeth, strengthens, scents and prevents the teeth.

- **8th:** To use the rose ointment habitually specially before sleeping if they need to be cooled down, or the Nardrin ointment if they need to be heated, honey or sugar<sup>29</sup> are very good to scrub because honey helps to make them clean (and it is very suitable for the phlegm of senility)

### And other things which maintain the health of teeth are:

- To rinse out two times a month with a syrup cooked originally from the Yatoa'a (which is a plant with a milky liquid e.g. the Roman spicate) this will prevent the toothache, also salt knead<sup>30</sup> with honey, burn and not burn. (Method of burn: blot burn salt with iron.

.../ <sup>31</sup> We conclude our book by thanking Allah and pray for our prophet <our Master> Mohammed <peace and blessing be upon him> his family and companions.

Our book finished in Zel 'Quadah month 693 <Hijra>.

### The scientific and historical study of the book:

1. Ibn al-Nafis summarize exactly what were in *Mujiz Al-Qanun* for Ibn-Sina about the health of the teeth, but not in the same order. But Ibn al-Nafis gave priorities to some points.
2. Ibn al-Nafis assured on the bad effect of acid vomiting, because the lack of (PH) is the main reason of Dental Caries [20].
3. Ibn al-Nafis assured that chewing the sticky sweets is harmful, because it leads to Dental Caries [21]. Also

because the soft and sticky kinds of food are easily to be stuck on the teeth; besides sweets are considered the worst among different kind of food because they produce acids which dissolve the dental structure [2]. This acidity increases and has bad effect on the enamel of the teeth if we eat extra food after our main meals.[22]

4. Ibn al-Nafis assured that eating or drinking hot followed by cold food or drink and vice versa, will lead to cracks in the tooth structure and enamel because of the sprawl and shrink factor[19] and this is still scientifically valid up till now.
5. Ibn al-Nafis assured something that is still assured by scientists, which is not breaking hard things with teeth.
6. For Ibn al-Nafis using the cleaning sticks moderately is very important because it helps to lessen the rate of the dental Caries, and this noticed among people who eat a lot of carbohydrates. Using the cleaning sticks helps to remove the remaining of the food in and on the teeth as well the bacterium and that leads to white and clean teeth [23]. Scientist noticed out that the calcium crystals of the cleaning sticks helps to clean the dental surface plaque [24]. Nowadays in England, they design the toothbrush as the round shape of the cleaning sticks [25].
7. Ibn al-Nafis as well as Ibn Sina insisted on the usage of scrub for keeping the teeth healthy before sleeping, and also using this scrub for rinsing out twice a month, which was bad for teeth because of the bad effect of both sugar and honey on the teeth.

### Results:

1. Ibn al-Nafis was very faithful and careful to quote the opinion of Ibn Sina exactly as it was, but not with the same order.
2. Ibn al-Nafis was not only a transcriber, but he had his own scientific opinion and experiments; he explained some scientific ambiguous items, spoke about some medicines and showed which ones were the safest.
3. Ibn al-Nafis insisted on many teeth preventive things which reflect his very long experiences and experiments, and those preventive things become now very important to keep the health of our teeth.
4. Ibn al-Nafis as well as Ibn Sina didn't succeed to form scrub mixture before sleeping and rinsing out because both of them contain sugar and honey which have a very bad effect on our teeth
5. For three centuries *Mujiz al-Qanun* remained the most important for the physicians to interpret.

<sup>21</sup> -75 v, in (C).

<sup>22</sup> -Omitted in (B).

<sup>23</sup> -Omitted in (C).

<sup>24</sup> -Only in (C).

<sup>25</sup> -56 v, in (D).

<sup>26</sup> -94 v, in (A).

<sup>27</sup> -Omitted in (D).

<sup>28</sup> -Only in (B) and (C).

<sup>29</sup> -Sugar : By Sugar in (B) and (D).

<sup>30</sup> -Knead omitted in (D) and (B).

<sup>31</sup> -The end of the manuscript P. 225 r, in (A).

## Conclusion

Ibnal-Nafis is august scientist. We found out that many scientists took interest in Ibnal-Nafis as an authentic and great scientist, they wrote lots of books about him because he was very faithful transcriber, besides he mentioned his opinion after he experienced every single detail and that meant he was an open minded scientist. Ibn al-Nafis left a kind of scientific heritage still used for centuries by many physicians around the world.

So, we can consider him as a very good example to the development of science and one of the most important chains in the evolution of the dental preventive principles.

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# The Fight Against Diseases with Medicine and Wound Care in The Ottoman Army During the Greco -Ottoman War Of 1897 ¶

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## Summary

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It is estimated that during the Greco-Ottoman War of 1897 more than 30,000 Ottoman soldiers and military doctors died because of epidemics in Thessaly alone. The Ottoman Red Crescent Society, which was founded just before the war, offered its services for the first time in the Greco-Ottoman War. During the same war the International Red Cross Foundation sent health assistance to both the Ottoman Empire and Greece. The Greco-Ottoman War of 1897 witnessed the inauguration of a number of medico-technological advancements in the Ottoman Empire. In short, this paper examines the epidemics which appeared during the war, front line hospitals, transportation of wounded soldiers, as well as the assistance provided by the Red Cross Societies.

**Key words:** Ottoman Bank, Red Cross, Ottoman Red Crescent, Diseases, Health services, War surgery, Radiology.

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## Introduction

For Greece, it is claimed that there were two main reasons behind the Greco-Ottoman War of 1897: the Crete issue and the economic situation of Greece after the bankruptcy of 1843.<sup>1</sup>

The conflict between the Ottoman Empire and Greece due to border disputes began in 1896. Greece, which became an independent state with the Conference of London held in 1830, wanted to include within its own territorial borders regions where Ottoman Greeks comprised the majority of the population. The counties of Epirus and Ioannina, where the Rums (Ottoman Greeks) comprised nearly two-thirds of the whole population, could be mentioned as the most prominent among such regions.<sup>2</sup> Greece proclaimed this aim for the first time during the Berlin Treaty of 1878 under the name of *Megali Idea* and demanded that the Ottoman Empire leave Thessaly, Epirus and Crete to Greece.<sup>3</sup> Even though the Ottoman delegation strongly opposed this demand during the Berlin Conference held two years later (1880), the Great Powers decided that the Sublime Porte should make border arrangements in favour of Greece. In this respect, in 1881 a border arrangement was made to leave Thessaly to Greece and thus the dispute between the two countries was settled for a brief time.

<sup>1</sup> This paper was presented as "The Unknown Actors of the Turkish-Greek War of 1897: The Struggle of Microorganisms with Medicine and Wound Care", in MESA 2008 Annual Meeting in November 22-25, Washington DC.

However, this settlement was to the satisfaction of neither Greece nor the Ottoman Empire. In 1895 an insurgency began in Crete in order to join Greece. On February 10th, the Greek government sent a torpedo-boat flotilla under Prince George to Crete and three days later Colonel Vassos proclaimed "the annexation of Crete to Greece." Great Powers didn't accept this *fait accompli* and decided on international intervention. Meanwhile, in 1 February 1897 the Greek government of Deliyannis determined to forestall them by sending an expeditionary force to capture the island.<sup>4</sup> The Greek government decided to distract attention to the Balkans.

The war started first with battles between border guards. On 28 March 1897, approximately 1,800 armed men and 70 Italian volunteers of *Ethniki Etairia*<sup>5</sup> (National Society) attacked the Turkish-Greek border in Teselya/Arta. And Turkish border guards responded to the attack.<sup>6</sup>

The attacks initiated by the organisation of *Ethniki Etairia* grew into armed conflict on the border of Thessaly and Macedonia.<sup>7</sup> As a result of these incidents, the Ottoman government decided that partial mobilisation should be ordered on February, 15<sup>th</sup>, and on 17 April 1897, it declared war on Greece.<sup>8</sup>

The Ottoman army had been undergoing modernisation by German Major Von der Goltz since 1883. But, it could not be said that the army was ready for this war. Serious deficiencies were being experienced especially in transportation and health services.

In accordance with the operation plan, the Ottoman armies would be organised under two armies as the Ellasona Army and the Ioannina Army. Accordingly, the operation area of the Ellasona Army, which consisted of 7 divisions, included the Ellasona, Kozkoy, Cayhisar and Deskati regions; whereas, the operation area of the Ioannina Army, which consisted of 2 divisions, included the Metsovo, Ioannina, Pigadia and Loros (Filipiadis) regions.<sup>9</sup>

During the Ottoman-Greek War, two fronts were opened in Thessaly and Epirus. The war was fought mainly in north-eastern Greece. The first battle began on the Thessaly front in Milona on April 18th. According to Stephen Crane, Greece was totally unprepared. In Thessaly some 60,000 Turks under the command of Edhem Pasha moved against some 45,000 Greeks under Crown Prince Constantine, the Duke of Sparta, and resulted in the victory of the Ottoman forces.<sup>10</sup> Upon the Ottoman invasion of Trikala, where the general headquarters of the Greek army was located, on April 24th and of Larissa a day later, the Greek army had to retreat to Varda. Since the Greeks had to leave Larissa in a hurry, many weapons, ammunition, materials and a mobile hospital were left to the Ottomans.<sup>11</sup> On April 27th, the Ellasona headquarters was moved to Larissa. On April 30th, Turkish forces were defeated by the Greek forces in Velestin. On May 5th, the two armies engaged again, this time in Pharsala. Ethem Pasha inflicted great losses on the Greek side. Since the Greek Supreme Military Command had gathered most of its forces in Domoko, which was located south of Pharsala, the outcome of the war would be evident at this location. In the battle fought on May 17th, the Greek army was totally ruined.<sup>12</sup>

On the Epirus front, however, the Greeks passed the Arta River and attacked the Ioannina Army Corps on April 19th. During the battle, which lasted for a day, the Ottoman forces managed to halt the Greek forces. However, on April 21st, Greek warships bombarded the Preveza Castle in two groups. At the end of the skirmish, which continued until April 29th, the Greek forces had to retreat to the Arta River. On May 13th, the Greek forces organised an assault by landing in Caygazı, Preveza. At the end of an armed conflict which lasted three days, the Greeks retreated, leaving behind 200 dead, many weapons and materials. Two days after this operation, on 17 May 1897, the Ottoman Chief of Staff decided that the military operation should cease.<sup>13</sup> It was reported by commander Edhem Pasha that 1105 soldiers died, 3250 soldiers were wounded, 202 soldiers were captured and 63 soldiers were missing from the Ottoman Army during the Greco-Ottoman War in 1897.<sup>14</sup>

Military failures following one after another had a political impact in Greece and resulted in the dissolution of the cabinet in Athens. The new cabinet appealed to the Great Powers for immediate armistice. Tsar Nikola sent a telegram to Abdulhamid II and requested that the war be stopped at once. Thereupon, an armistice was signed on May 19th and the war that had lasted for 32 days was ended. In accordance with the Treaty of Istanbul, signed on 4 December 1897, it was decided that Thessaly should be left to Greece, provided that some minor border changes were made, that the borders should be restored to the pre-war conditions<sup>15</sup>

## Mobilisation Period

It is known that the health services provided by the Ottoman Chief of Staff during the mobilisation period suffered various deficiencies. Some of the arrangements remained on paper and were never implemented. Therefore, during the war many difficulties were experienced mainly in field health services and also in health staff, transportation means, and health materials. The Second President of the Medical Office, Ahmet Hilmi Pasha, was appointed as the President of the Health Department of the Army within the framework of war preparations.<sup>16</sup> Dr. Mehmet Fahri, Professor of Hygiene at the Imperial Medical Society, was also appointed as the President of Mobile Health Services in order to be in charge of health care and treatment of the injured during transportation.<sup>17</sup> Based on the new organisation of the mobilisation period, a health team comprised of a physician in chief, an operator, a surgeon and a pharmacist would be appointed to each division. It was further decided that two hospital tents, a patient transportation squad, hospital equipment for 50 beds and medicine and materials in sufficient amounts should also be assigned to each division.<sup>18</sup> Nevertheless, these decisions could not be implemented properly due to insufficiencies experienced in medical staff and materials. Besides the material insufficiency, only one or two physicians, three or four surgeons or caregivers could be appointed to each division.<sup>19</sup>

The conditions of the hospitals were also discussed within the framework of preparations for the war. Areas that could be used as hospitals were determined in this region immediately after declaration of the mobilisation. In this respect, a big central hospital of 800 beds was established in Ellasona. In accordance with the plan, this hospital would be the centre for the injured and sick soldiers who would be gathered and transferred to hospitals behind the front. Furthermore, it was decided that a hospital of 50 beds should be

established in Amyntaion; whereas, hospitals of 200 beds should be established in Preveza and Loros. Hospitals of 350 beds were established in Neapoli, Servia and Veria. The capacity of the military hospital in Ioannina was increased to 1000 beds by assigning a proper building.<sup>20</sup>

The most serious difficulty during the war was experienced in mobile hospitals, and therefore, in field health services. These hospitals were of the utmost importance since the soldiers injured at the front received their first medical attention there. At the beginning of the war, mobile hospitals were opened in Katerini, Kozkoy, Ellasona, Domenik, Cayhisar, Deskati and Grebena. The injured, whose wounds were dressed there, would then be transferred to the central hospital of 800 beds in Ellasona.<sup>21</sup> However, this hospital was moved to a nearby village named Kilise due to the large number of injured transferred from mobile hospitals and since the general environment of Ellasona was found inadequate for health services.<sup>22</sup>

Some of the arrangements made in health services focused on the supply of pharmaceutical materials. There was a great need for health equipment and pharmaceutical materials. As a matter of fact, efforts were made to supply sufficient medicine from Istanbul at the beginning of the war. Sterilisation solution pastilles (sublime pastilles), chloroform and phenol were ordered from Vienna. Some of the soft and cotton material used for wound dressing, hydrophilic gas and tincture diode were supplied from the stores in Istanbul and the rest was purchased from Vienna. Chloroform was the only anaesthetic used and was highly deficient in stock.<sup>23</sup>

Another issue dealt with during the preparations was the supply of transportation vehicles, which was significant for both transferring the soldiers to the front and transportation of the injured to the hospitals. At the beginning of the war, animals of the immobilised battalions were seized and assigned to the mobilised units. On the other hand, "The Law on Supply of Transportation Vehicles" was enacted on February 16th, and it was ordered that each reserve troop should bring 209 pack animals with it. Furthermore, two commissions were established in Southern Russia and in Ottoman Empire and animals began to be purchased via these commissions. The Sultan ordered that the injured be transported in carriages equipped with springs, and four-wheeled horse carriages with opening roofs called *landau* or *londonet* were brought from abroad.<sup>24</sup> Yet, despite all these efforts, the deficiency experienced in the transportation vehicles could not be overcome.

## War Period

After the mobilisation preparations were finished, it was time to transfer the military units to the front. By imperial order, the military units were forbidden to go to Istanbul. Thus, the units to be transferred from Asia Minor to Rumelia were taken from the Black Sea and Marmara ports without entering Istanbul and carried to Rodosto via sea lane. The units that landed at Rodosto (Tekirdag) marched to Muratlı Station and then transferred to the Thessaloniki and Bitola (Manastir) lines over Pition (Kuleliburgaz)-Alexandroupoli (Dedeagac). Thereafter, the units were divided into two and those to be sent to the Ellasona region went to the Veria and Amyntaion stations on the same line; whereas, those to be sent to Ioannina went to the Bitola Station.<sup>25</sup>

The war began on the Ellasona front on April 18th. After the first battles, the defects in the Ottoman health services became visible. Military health authorities did their best and endeavoured to provide both mobile and fixed hospital services. The biggest hardships, however, were experienced in field health services.

## Health Services Provided by the Ottoman Bank

Soon after war broke out, Edgar Vincent, Manager of the Ottoman Bank, took steps to help the injured. He sent a telegram to Clive Bigham, *The Times* reporter in Ellasona on April 19th and declared that the bank was engaged in health assistance preparations and asked him to notify the bank regarding the equipment and materials needed there. He further informed the Ottoman government that they intended to establish a health team and a fully-equipped hospital, provided that all expenses would be financed by the bank.

On April 20th Ahmet Hilmi Pasha, Health Chief and Inspector of the Greek Border, accepted Vincent's offer for medical assistance.<sup>26</sup> Thereupon, the health team established by the Ottoman Bank left Thessaloniki for Thessaly on 23 April 1897 with a considerable amount of medical equipment and materials.<sup>27</sup> Dr. Edmond Lardy, who had worked as the chief of the surgery clinic of the French Hospital in Istanbul, presided over the team. Members of the team were: Dr. Severin Bilinski, Harold Woods, C.H. Holmes, Imam Seyid Ali Muhtasa Efendi, Dr. Fuad Süreyya, Dr. Pertev Tahsin, Dr. Semsi Omer, and Captain Fuad. Furthermore, 10 male Muslim caregivers, who were scrupulously picked, and three reliable stewards were also working for the team.<sup>28</sup> The team had 200 beds, mattresses, many medical tools and equipment, medicine and foodstuff with them.<sup>29</sup>

Upon the arrival of the Ottoman Bank team to Serovic, it became apparent that there were problems in communications and other organisational arrangements. The basic arrangements with regards to which hospital the team would work in, how the medical equipment they had brought with them would be replenished and who would be responsible from the same had not yet been made. In view of the circumstances, Dr. Lardy, Physician-in-Chief of the Ottoman Bank Mobile Hospital, contacted the Commander-in-Chief Ethem Pasha and requested from him that the organisation necessary to enable the team to start working as soon as possible be made. Ethem Pasha, considering the high amount of the injured, decided that the team should start working in Larissa. Thereupon, the medical team was to start work in the 200 bed hospital assigned to them on May 1st.

In accordance with information provided by Dr. Lardy, there were many injured in the city. In spite of the fact that there were 200 beds in the hospital, the number of the injured was far greater.<sup>30</sup> Besides the Turkish soldiers, there were also many Greek soldiers in the hospitals. After the Greek armies were defeated, the physicians in the hospitals left sick and injured Greek soldiers behind them while running away. Until the Turkish physicians entered the city the day after, most of the sick and the injured had lost their lives due to lack of medical care.<sup>31</sup> Upon arrival of the Ottoman soldiers, the number of sick and injured multiplied. Although everywhere was full of injured soldiers, more were being transported from the front via carriages. There were severely injured and those whose conditions worsened due to lack of medical attention among them.<sup>32</sup> Members of the team provided the first medical treatment and then discharged the slightly injured, thus opening more space for the severely injured.

In the count made in the hospital on the first day, there was a total of 212 injured and sick, with 62 transfers from the military hospital. Services were provided with the help of the veteran physicians and translators. Doctors Pertev, Remzi and two medical students from Paris, who were born in Thessaloniki and could speak Turkish, worked as translators. Imam Ali Muhtasa Efendi was engaged in religious services and burials. Autopsy was absolutely forbidden.<sup>33</sup> The medical team of the Ottoman Bank treated at least 200 patients in Larissa. The hospital became to be known as the "Bank hospital" among the Ottoman soldiers due to the perfect health services it provided.<sup>34</sup>

Two more health teams came from France and Switzerland in order to help the injured and sick Ottoman soldiers, again thanks to the support of the Ottoman Bank. On May 11th, first the French team and then the Swiss team of the Ottoman Bank arrived at Pharsala and started

their duties there. Bonkowski Pasha, Chief Chemist of the Ottomans and the General Inspector of Good Hygiene offered the team to establish a field hospital of 400 beds outside the city for those injured during the battle in Domoko. Nevertheless, when the team arrived at Pharsala, it was understood that no preparations were made for the hospital and that even arrangements to accommodate the team in the city were not ready. Thereupon, Bonkowski Pasha ordered that soldiers should clean some of the city dwellings and turn them into a hospital. Wound dressing materials and tents were demanded from Ahmet Pasha, Health Chief of the Greek Border, and his assistant Mahmut Pasha. Upon the arrival of materials, the buildings were ready to serve as a fully-equipped hospital. Staff of the health team of the Ottoman Bank regularly supervised the hospital in Larissa to ensure that everything was in order there. The French team treated approximately 2000 injured while they were in Elassona.<sup>35</sup>

The health team of the Ottoman Bank established a wound dressing centre immediately behind the conflict area in Domoko. Those wounded at the front would receive initial medical attention there. Before the war broke out, bandages provided by Bonkowski Pasha were distributed among the officers and non-commissioned officers. Therefore, there were sufficient amounts of bandages. These bandages were among the equipment left behind by the Greeks when they abandoned Larissa. Wound dressing of the soldiers coming to the centre with their own bandages was immediately made. Their wounds were cleaned and dressed. Then the soldiers the diagnosis reports in their hands had to walk 300 km in order to reach the transportation vehicle.

On the 18<sup>th</sup> of the same month, M. Robineau, M. Monod, Dr. Lardy, Bonkowski Pasha and his men left Pharsala for Domoko accompanied by a convoy of 20 vehicles assigned to them. Intensive armed conflicts took place in Domoko and there were many injured soldiers who could not receive official health services on the battlefield. On the other hand, the reserve squad in Edirne was engaged in burying the dead. Bonkowski Pasha, who visited the battlefield, left the materials he had brought with him for the injured. Among these materials, Genest and Herscher brand disinfecting and soothing sprays facilitated wound dressing considerably. Physicians in the medical team of the Ottoman Bank used these sprays to clean the wounds of the injured. Furthermore, Bonkowski Pasha sent motor vehicles and ox carts to this region to transfer soldiers to the hospitals behind the front. Thus, as a first step, 200 slightly injured could be transferred from this region to Larissa. Transfers continued until the 24<sup>th</sup>. Russian ambulances were also used during these transfers.<sup>36</sup>



## Hospitals

Hospitals opened and enlarged during the mobilisation were inefficient during the war.

Since injured soldiers kept coming from the front in successive groups, new hospitals were needed. Soon after the war broke out, Sultan Abdulhamid II ordered that two new hospital barracks, one with 600 and the other with 100 beds, should be built near Yildiz Palace. Three wards from these barracks, construction of which was completed at the end of May, were assigned to the German Red Cross team.<sup>37</sup>

On the other hand, a central hospital with 800 beds was established in Thessaloniki, which was reserved for gathering and discharge of the sick and the injured. This hospital was clean and very well organised.<sup>38</sup> After Larissa was taken by the Ottomans, the central hospital in Ellasona was moved to the quarters in Larissa and turned into a hospital of 300 beds. Since Larissa was connected to the newly invaded places with railway and highways, it was very suitable for the transfer of patients.<sup>39</sup> The Ottoman army was settled in three hospitals in this city: 1-The new hospital (on Penee coast of the city); 2-the old hospital (a wooden building in the centre of the city. Mostly the sick were accepted to this hospital); 3-the central military hospital (at the military base in the south of Larissa).<sup>40</sup>

Furthermore, hospitals of 150 beds and convalescent hospitals of 400 beds were established in Karditsa, Phanar and Tirnovos each. Together with these hospitals, the number of hospitals increased to 17 including the hospitals in Domoko, Pharsala, Volo, Larissa, Trikala, Ellasona, Deskati, Grevend, Neapoli, Lithor, Katerini, Veria, Amyntaion and Kozkoy.<sup>41</sup>

Parallel with the increase in the number of hospitals, new staff was needed in order to staff these hospitals. Until 19 April 1897, 172 physicians, 146 pharmacists, and 151 surgeons were sent from Istanbul to the hospitals on the Greek border.<sup>42</sup>

## Transfer of the Injured to the Hospitals

Throughout the war, various difficulties were experienced in the transfer of soldiers to hospitals behind the front. The injured to be transferred to these hospitals either marched to the hospitals or were transferred there on horse back, in carriages or oxcarts. At the beginning of the war, Sultan Abdulhamid II ordered that the injured be carried to the hospitals behind the front in carriages equipped with springs and that longer distance transfers should be made via trains. Carriages equipped with

springs were purchased from abroad for this purpose. Since these carriages were few in number, they could be used in some regions on a limited scale.<sup>43</sup> One of those regions was the Ioannina-Bitola line. Injured and weak soldiers coming out of the Ioannina hospital were sent to Bitola with these carriages.<sup>44</sup> On the other hand, trains specially designed to transfer injured and sick soldiers were ordered for the Thessaloniki, Bitola and Eastern Railway Companies. Two specially designed trains were prepared and supplied within a short time and began to be used on May 7th. In each of these special trains, there were 10 wagons with 8 beds each. Transfer of the injured from Ellasona would only be made via these trains. These trains were further used in the transfer of injured soldiers from Bitola to Thessaloniki. After these special trains were acquired, a medical team consisting of President of the Mobile Hospital Dr. Mehmet Fahri, Dr. Rıza Tevfik, and Dr. Fuad Bey went to Bitola. After the members of the team examined the injured who arrived at Bitola from Ioannina, they transferred 38 injured to Thessaloniki in Pullman cars.<sup>45</sup>

On May 1<sup>st</sup>, 244 injured were sent to Thessaloniki from the front via train. Some of those were hospitalised in Yildiz Hospital; the rest were accepted into Gumussuyu Hospital. Fevzi Pasha, Vice-President of the Commission of Military Inspection, visited the hospitals on May 2nd to see the condition of the injured and to convey to them the Sultan's regards.<sup>46</sup>

Some of the injured treated in hospitals established by the Red Cross Societies in Pharsala and Domoko were sent to Larissa and later transferred to Istanbul from there over Volo via trains.<sup>47</sup>

After the Domoko battle, some problems arose during transfers due to the high number of injured. The existing transportation means were not sufficient to carry all of the injured. For this reason, the injured sometimes had to wait for a long time in order to be transferred to the hospitals behind the front. It was seen that some sick soldiers were gathering in a disorderly fashion, or sometimes standing all alone in the train stations or lines under miserable conditions. For instance, 52 injured soldiers waited in Pharsala for a long time to be sent to a hospital without wound dressing. Due to these problems and troubles during the transfer of the patients, the Ottoman Bank sent a letter to Edgar Vincent requesting money for a hospital ship. With the efforts of Edgar Vincent, an Italian hospital ship entitled *Roma* was leased with the money deposited in the account of the Swiss Red Cross and all of the injured together with five sick soldiers were taken from this region.<sup>48</sup> This ship, which was organised to carry more than 300 injured, was

equipped with medicine, food, beds and other equipment and physicians were appointed to provide medical services to the injured. Therefore, as of June, transfers via sea lane also started besides the land route.<sup>49</sup>

Organisational defects played a major role in the problems experienced during the transfers together with the insufficiency of the transportation means. In the documents kept in the archives of the Chief of Staff, it is also seen that there were problems in the transfer of the sick and injured soldiers to the hospitals. It is written in these documents that some of the patients, while being transferred via carriages, got off with some excuses and were left all alone on the roads. Since transfer of patients in a disorderly fashion would cause the dissemination of diseases, it was ordered that the transfers should be seriously followed up and made in an orderly fashion. The Ottoman Chief of Staff, evaluating the reports received on this issue, reorganised the transfers and adopted new measures. Accordingly, it was required that the sick and the injured be made comfortable during the transfers and that the transfers be made in an organised manner. It was absolutely forbidden to let the patients get off the transportation means by themselves due to any reason whatsoever. On the other hand, it was further required that patients under these conditions be accommodated in places nearest to the railways or roads. Until the trains arrived, they should be, if possible and deemed necessary, examined by the physicians during waiting. When the train arrived, they were to board in groups accompanied by an officer and be taken to Larissa and everyone was to be attentive to these matters.<sup>50</sup> After these arrangements, transfers began to be made in a more orderly fashion and serious problems were eliminated.

### **Assistance Provided by Red Cross Societies**

When the war broke out, the Ottoman Red Crescent Society was not active. The Society served during the Ottoman-Russo War of 1877 for the first time and after this war ended, it ceased to be active. After the Greco-Ottoman War of 1897, it was decided that the Society should be re-established. Six of fifteen members announced that the Ottoman Red Crescent Society had an account of 9000 pounds in the Ottoman Bank and a store full of medical equipment in Tophane and that the Society would become active again.<sup>51</sup> On April 25th, it was decided that the number of members should be increased. Furthermore, with the money collected from the public and the monetary aid of the Red Cross Societies, two ships were hired from Volo in the name of the Red Crescent to carry the injured.

The Society sent quinine sulphate, medical equipment and materials to the front.<sup>52</sup> Nevertheless, since the Society was in the phase of establishment, its services for this war were limited. Military health services were mainly provided by the army and foreign Red Cross Societies.

After the war broke out, the International Committee of the Red Cross Society in Geneva, under the scope of the Geneva Convention of August 22nd, requested permission from the Ottoman Empire and Greece to help the sick and injured soldiers. Permission was granted by the Ottoman government on April 25th. Thereupon, Swiss, Swedish-Norwegian, English, French, Belgium, German and Austrian Red Cross Societies presented their assistance proposals to the Sublime Porte.<sup>53</sup>

At the beginning of May, the Russian Red Cross sent a mobile hospital of 500 beds with full surgical equipment to Pharsala. A medical team of five physicians, 10 nurses and two male caregivers provided significant health services in this region until June 5th.<sup>54</sup>

Furthermore, it was learnt that another Russian mobile hospital was sent by the Grand Duchess Elizabeth which would arrive at the region around the middle of May. The Russian medical team came to Pharsala on 16 May 1897. The team consisted of two physicians, three medical students and 12 nurses. This team started its duties by establishing a hospital of 25 beds in Pharsala. However, soon after the battle started in Domoko, everywhere was full of injured soldiers and the Russian Field Hospital of 25 beds had to treat more than 150 injured and sick soldiers.<sup>55</sup>

The Swiss Red Cross also provided health assistance to the Ottoman soldiers. The Society sent a mobile hospital with eight physicians, a pharmacist, an administrator and a caregiver to Thessaloniki, provided that all of the costs and expenses would be on its account. This hospital served until the end of the war.<sup>56</sup> Moreover, the German Red Cross also sent a team to Istanbul.<sup>57</sup>

It is known that besides the Red Cross Societies, some important persons also came to the Ottoman lands for health assistance. In a letter sent to the Chief of Staff it was stated that General Kolon, President of Sweden-Norway Health Affairs, would come to Istanbul to examine sick and injured soldiers and to provide health assistance and would go to Thessaly from there, and it was asked that everything necessary be done to provide convenience to him during his visit.<sup>58</sup>

In a letter sent from the Ministry of Foreign Affairs to the Ministry of Internal Affairs on 24 April 1897, it was stated that Donovlar, a German military physician, left for Ellasona to provide medical services to Ottoman soldiers. Again, it was ordered that all necessary help be given to him.<sup>59</sup>

## Diseases

While efforts were being made to treat the war injuries, epidemic diseases were seen in some hospitals and health personnel endeavoured to stop the dissemination of these diseases with the help of precautions taken based on medical information of the era. For instance, after the medical team of the Ottoman Bank working in Larissa reported that there was a serious risk of tetanus in their hospital, the hospital administration gave importance to sterilisation and after-surgery care. Taking into account the sterilisation formula of Germany, the usage of tincture diode and phenol in wound dressing was begun and tools were sterilised after usage. Therefore, infections after surgery were minimised and the risk of tetanus was decreased. Furthermore, Dr. Lardy reported that the injured brought to the hospitals in Larissa could not receive the service of wound dressing for three-four days and that cases of septicaemia and gangrene were frequently seen.<sup>60</sup>

In a letter sent to Ethem Pasha, it was reported that some of the soldiers in hospitals suffered from gangrene in their feet. These patients had not been treated and it was asked that necessary precautions be taken to prevent this disease.<sup>61</sup> Thereupon, letters were sent to all of the hospitals and precautions to eliminate this disease were initiated.

In a letter written by the Corps Commander Halil Fehmi, it was reported that typhoid fever was seen in Domoko Hospital, that patients were treated under quarantine there and that those who recovered would be transferred with patients sent for transfer to another climate for medical reasons.<sup>62</sup>

The medical team of the Ottoman Bank saw pneumonia cases in the hospital in Tirnovos.<sup>63</sup> On April 23rd, there were 1,895 patients in total, 800 of which were injured in the Ioannina and Ellasona armies.<sup>64</sup> It was argued that the medical condition of the Ioannina army was better compared to the condition of the Thessaly army during the war.<sup>65</sup> Since the general environment of Loros was not so good, many deaths were seen in detachments there after July, 1897. For this reason, the units in the 2<sup>nd</sup> division in Loros with the highest amount of sick soldiers were exchanged with the units positioned around with better climate. At the end of the war, it was officially recorded that the sickness rate in the Ioannina army was 2 %; whereas, the death rate was one in 4000.<sup>66</sup>

In spite of the fact that epidemic diseases did not pose a significant threat during the war, this condition changed after the war. In those days epidemic diseases caused mass death due to the absence of an organisation to fight contagious diseases and epidemics and the ignorance of physicians. The epidemics were first seen towards the end

of June and caused the death of many soldiers. Malaria and typhoid fever were the most frequently seen diseases that caused most of the losses.<sup>67</sup> It is argued that typhus fever, malaria, typhoid fever and dysentery epidemics caused the death of many physicians and around 30,000 soldiers in Thessaly.<sup>68</sup> On June 28th, four big units of the hospital in Larissa were full with the sick. Physician-in-Chief of the Army Ahmet Hilmi Pasha visited the hospital and ordered that dysentery and cholera patients follow a special diet.<sup>69</sup> Venereal diseases were rarely seen in the Ottoman army.<sup>70</sup>

In accordance with the report of the Chief of Staff dated 14 November 1897, in six days -from November 6th to November 11<sup>th</sup>-723 sick soldiers were admitted to the hospitals in Ioannina and its vicinity and 580 of them died.<sup>71</sup>

According to Dr. Lardy, within 6 months following June, approximately 15000 people were lost due to various diseases. This number is 20% of the total sum. The most important reason underlying the outbreak and the dissemination of the epidemics after the war was lack of hygiene. During the war, maximum efforts were successfully made to ensure the hygiene of the soldiers, barracks and the hospitals. Especially in Thessaly, with the efforts of Bonkowski Pasha, contamination of water resources was prevented and necessary care was given to water supplies. Therefore, no serious problems arose with regards to hygiene during the war. However, this condition changed after the war; hygiene was widely ignored, and religious officers had the dead buried in a disorderly fashion. It was understood that especially in Pharsala and Domoko, the dead were buried near or sometimes within water sources, which caused the contamination of water sources becoming the main source of epidemics.<sup>72</sup> Another reason underlying the epidemic diseases was that soldiers were sent to their hometowns without taking preventive measures based on bacteriological rules. After the war ended, the soldiers were sent to Istanbul, Gallipoli and Dardanelles with ships leased by the Ottoman Red Crescent without any bacteriological precautions. These soldiers, who carried the diseases, caused epidemics.<sup>73</sup>

## War Surgery

Throughout the war, the most important surgeons of the era from the Imperial Medical Society, Haydarpara Hospital, Naval Hospital, Zeytinburnu Military Hospital and Humbarahane Hospital in Istanbul were sent to various fronts. These surgeons performed successfully many difficult operations under trying conditions.<sup>74</sup>

According to Lardy, information and practice in war surgery was scarcely sufficient in both Europe and in the Ottoman Empire in 1897. Many deaths were reported due to bullet, shell and cannon injuries. Causes of death were determined as encephalitis, peritoneal inflammation, chest (23%), abdomen (85%) and cranial (29%) injuries and poisonous gangrene. Based on the information given by Lardy, death due to abdomen injuries was frequently seen.

The most frequently seen surgeries with the least success rate in war surgery were surgeries performed due to injuries on the hand and foot. Loss of the injured in cases where medical treatment was delayed was occasional. Sometimes, in these cases, deaths were due to infections after surgery.<sup>75</sup> The injured who needed to undergo serious operations were sent to the Yildiz Military Hospital in Istanbul. There, the radiographies taken by Dr. Salih Bey went down in the history of radiology as the first systematic diagnostic cases in military surgery. The radiographies conducted by Dr. Salih were the first systematic applications,<sup>76</sup> which were followed by those taken by the physicians of the German Red Cross in the Yildiz Military Hospital and by the physicians of the English, French and Russian Red Cross Societies Red Cross in Athens.<sup>77</sup>

Which were followed by those taken by the physicians of the German Red Cross in the Yildiz Military Hospital and by the physicians of the English, French and Russian Red Cross Societies in Athens.

Bone fractures were usually left to heal by themselves without any medical treatment. In cases when an organ needed to be fixed, fractures were treated with the application of splint, brace or cast. Chloroform was only used in important surgeries. Effects of the lack of sterilisation devices were felt throughout the war. According to Lardy, pressurised *autoclave* was used for sterilisation due to its practicability, since it could be operated very fast in spite of the fact that it was heavy. This device could be heated with oil, alcohol or even wood. Steam flow sterilisation devices or well known devices like Lautenschlager were not preferred since they caused excessive waste of time. In case a sterilisation device could not be found, the tools used were boiled in water with 1 % phenol.<sup>78</sup>

## Other Problems

It is seen that various problems were observed in some hospitals during the war and that they were reported. Larissa Hospital was one of them. It was evident that some organisational issues were seen in the hospital and the patients were kept waiting for a long time for the procedures in the hospital. Accordingly, it was reported that incoming patients were kept longer than they should

have been in quarantine wards before they were examined and, as a result, a significant amount of laundry had to be done. As a solution, it was ordered that since the dirty clothes gathered had the risk of disseminating epidemics, a laundry near the hospital should be established and wage-earning female workers should be hired to do the laundry. Within 15 days upon execution of this order, it was seen that Larissa Hospital became a hospital with the same standards of Haydarpasa Hospital and that all kinds of cleaning problems were solved.<sup>79</sup>

In a telegram sent to the Chief of Staff, it was indicated that the patients in Larissa Hospital were not properly taken care of and that the health personnel were not attentive to what the patients ate and drank. Therefore a complaint was raised against them that they breached their duties.<sup>80</sup> As a result of the necessary proceedings, it was understood that the complaint was in fact not baseless and the problems in the hospital were eliminated within 50 days.<sup>81</sup>

One of the problems encountered during the war was related to the passage of Red Cross ships carrying the injured. Accordingly, after Preveza was captured by the Ottoman army, the German Red Cross decided to send a team to rescue the injured Greek soldiers confined there. It was notified that the team would embark upon a Greek vessel with the Red Cross flag that would leave Korfu to help these injured soldiers and that they intended to enter Preveza Bay to take the soldiers. Necessary permission was requested from the Ottoman government. The Ottoman authorities expressed their concern that such an act of assistance in accordance with the Geneva Convention and for totally humanitarian purposes might cause the escape of Greek warships stuck in the bay. For this reason, the passage of the said ship was permitted on 8 May 1897 on condition that she would not carry a Greek flag, but a Red Cross and a German flag and that she would not draw close to other ships at the bay.<sup>82</sup>

## Transfer of Soldiers from the Front

At the end of the war, transfers from the front were made via land route and sea lane. Above all else, military physicians on the battle field were replaced with the physicians of the 3<sup>rd</sup> Army. The soldiers were transferred to Istanbul, Gallipoli and Dardanelles via land route and sea lane.<sup>83</sup> In accordance with a telegram sent by the Chief of Staff to the Ioannina Army Corps on 11 June 1897, it was decided that injured soldiers to be transferred to Istanbul after the war should be sent via sea lane from Volo and Preveza. Furthermore, it was requested that the soldiers who had already left both Larissa and Ioannina for Thessaloniki be kept waiting in Thessaloniki before being transported via ships for counting purposes and that their

numbers be separately recorded.<sup>84</sup> It was further decided that the sick and injured in Bitola should be sent to their hometowns via sea lane from Preveza.<sup>85</sup>

Railways were used for land route transportation; whereas, ships leased by the Red Crescent Society called *Roma*, *Van*, *Asir*, *Mekke* and *Taif* were used.<sup>86</sup> It was ordered that each of the transferred soldiers be paid double salary until he arrived at his hometown and that transfers would be made accompanied by an officer and a health officer.<sup>87</sup>

It was recorded that after the armistice, 1,699 injured and 29,328 weakened privates were sent from Larissa to Volo by trains. Then they were transferred to their hometowns via ships of the Red Crescent.<sup>88</sup>

It is understood that some organisational difficulties were faced during the discharge procedure. For instance, it was reported that significant numbers of discharged soldiers who were sent from Larissa and Domoko to Pharsala suffered major problems mainly from congestion and hygiene concerns. Accordingly, everyday 150-200 newly discharged soldiers arrived at Pharsala from Larissa to be sent to their detachments. Nevertheless, these soldiers could not be transferred to their detachments due to the weakness they suffered and also due to insufficient transportation means. On the other hand, in spite of the fact that soldiers sent from Domoko brought pack animals and their food supplies with them, the officers could only transfer them gradually to other places. With the problem of finding appropriate accommodation for the soldiers already transferred -for new soldiers continuously kept coming from Larissa and Domoko-the issue of congestion increased even more and, understandably, brought the problem of hygiene with it. The greatest danger posed by lack of proper cleaning was the possibility that epidemics might arise and spread rapidly among the soldiers who were already weak. In accordance with a document in the archives of the Chief of Staff, the possibility of the emergence of another epidemic besides typhoid fever, which continued to be seen as an epidemic in this region, posed a highly serious threat. Upon the increase of this threat, it was requested from the Commandership of Pharsala on September 28, 1897 that transfers be stopped and that the soldiers be sent to another clean location with appropriate climate. During this period, the municipality, with the single car that could be allocated, tried to remove the dirt on the streets in order to keep the city and the surrounding area clean.<sup>89</sup>

Some defects were seen during the disinfection procedure on the trains used for transfers. Proper cleaning and disinfection were especially important during the

transfer of the sick to prevent the spread of epidemics. In a telegram received on June 28, the central commission in Sirkeci gave notice that a train that arrived at Istanbul with the injured, which, as a rule, should have been disinfected as soon as it arrived, was disinfected in the afternoon of the next day. As far as is understood from the report, the disinfection undertaken was, in fact, not in accordance with the law, because the disinfection should have been made immediately after the sick got off the train. Thereafter, the personnel were asked to initiate measures to ensure that all discharging and cleaning procedures were carried out in accordance with the rules and on time.<sup>90</sup>

Soldiers transferred to Istanbul via railway got off the train at the Sirkeci Station and then were sent to their hometowns by the commission set up there. Some of the trains carried the sick and the injured. Successive trains carrying hundreds of sick, injured and discharged soldiers accumulated in Sirkeci Station and people coming to the station to meet them caused congestion. The Chief of Staff sent a letter to the Eastern Railway Company and requested that appropriate precautions be taken to prevent congestion when the trains arrived at Sirkeci Station. In the said letter it was asked that necessary arrangements be made on the arrival hours of the trains in order to prevent accumulation of the public at the station when the trains arrived and, thus, avoid any possible accidents.<sup>91</sup>

## Conclusion

The Ottoman Empire was devoid of a strong organisation that could manage the health services in this period, which hindered proper provision of such services. In the army reform initiated in 1883 by experts who had come from Germany upon the request of the Chief of Staff, matters like army health or field health services were of secondary importance. During the Greco-Ottoman War of 1897, the deficiencies in the medical organisation and services of the army became evident. Most of the plans made during the mobilisation period could not be fully implemented due to the shortage of medical staff, hospital or medical equipment or problems experienced in organisations. This caused the Chief of Staff to handle this situation after the war, initiating new reforms to improve the military health organisation.

Apart from these deficiencies in the military area, there was no civil organisation in the Ottoman Empire that could conduct health services both in war and peace time either. The Ottoman Red Crescent Society existed merely on paper. The Society, which became active for the first time during the Russo-Ottoman War of 1877-78, ended its activities at the end of this war. The Greco-Ottoman War of 1897 caused the Ottoman Red Crescent to restart

its activities. The efforts made during the war, though limited, nationwide aid campaigns launched and joint works carried out with the teams of foreign Red Cross Societies from various countries caused the Society to gain significant experience in its phase of establishment.

In 1897, medical knowledge was limited. Information and practise on war surgery were insufficient both in Europe and in the Ottoman Empire. Information available on military medicine and war surgery usually did not go beyond theories. It was widely known that most of the physicians had difficulties in treating severely injured soldiers on the battle field. It was officially recorded that many soldiers were lost due to lack of or delayed surgical operations after the war broke out. On the other hand, it is a fact that in spite of limited medical information and materials and under trying conditions at the fronts, surgeons showed the courage to perform some very difficult operations in this war and were successful. The Greco-Ottoman War of 1897 is the first war during which radiographies of systematic military diagnostic cases were taken in both fronts after the discovery of the X-ray. During the war, patients who needed to undergo significant surgeries were transferred to the Yıldız Military Hospital in Istanbul. There, the radiographies taken by Dr. Salih went down in the history of radiology as the first systematic diagnostic cases in military surgery, which were followed by those taken by the physicians of the German Red Cross in Yıldız Military Hospital and by the physicians of the English Red Cross in Athens. During this war, both the Ottoman physicians and foreign physicians who came with the Red Cross teams gained significant experience in the field of surgery.

Defects in medical information were also existent in the area of bacteriology. The physicians, apart from their duties in their divisions and hospitals, could not be proven efficient in their struggle against the epidemics since they had no proper education or knowledge for being organised to struggle against contagious diseases and epidemics. Defects in medical information was one of the major reasons why the epidemics that emerged, especially after the war, spread fast and caused great losses. On the other hand, transferring the soldiers to their hometowns after the war without taking the preventive bacteriological measures enlarged the dissemination area of the epidemics. Ignorance and negligence in hygiene was also an important factor in the emergence and spread of diseases.

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# Healing Through *Ruqyah* (incantation) With Special Focus on the Perception of Malay-Muslim Society in Kelantan and Terengganu on *Ruqyah* as an Alternative Way of Healing in Malaysia

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## Summary

This paper is an attempt to discuss healing through *Ruqyah* (incantation) focus on perception of Malay-Muslim society in Kelantan and Terengganu on *Ruqyah* as an alternative way of healing in Malaysia. Healing through *Ruqyah* (incantation) especially by using the Qur'anic verses, recitation of *Du'a* (prayer) and *Ruqyah* (incantation) with *Mu'awwidhat* verses are among the most widely and popular traditional practices intended to afford protection and healing of diseases caused by *Jinn* and Devil in Malay-Muslim society. The fact is that nearly all primitives and the people in the ancient civilization believe that God answers prayer if it is performed in the proper ritualistic way. After the arrival of Islam in Malay world, the Malay-Muslim, who used to practice *Ruqyah* (incantation) by reciting and asking the Hindu goddess, *Dewa Sakti*, has changed their way of *Ruqyah*. It is found that with the influence of the Qur'an and the traditions of the Prophet (s.a.w), especially through *Kitab al-Tibb* of *Sahih Bukhari*, on the Malay-Muslim's world view, the Malay-Muslim society in Malaysia practice *Ruqyah* (incantation) in Islamic way for the purpose of prevention and treatment of disease caused by *Jinn* and Devil. Methods: The nature of this study will be one of library (textual) and field research. *Al-Jami' al-Sahih*, known as *Sahih al-Bukhari*, is chosen as a primary reference for library research since 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). In the course of studying perception of Malay-Muslim society on *Ruqyah* as an alternative way of healing in Malaysia, data were collected by using questionnaires which have been distributed among Malay-Muslim society in two states of the peninsular of Malaysia, namely Kelantan and Terengganu.

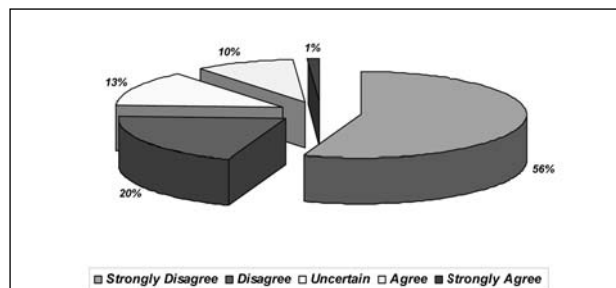
**Key words:** Islamic Medicine; Prophetic Medicine (*al-Tibb al-Nabawi*); Malay Traditional Medicine in Southeast Asia; *Ruqyah* (incantation) with the Qur'an, *Ruqyah* with the *Du'a* (the Prayer); and *Ruqyah* with the *Mu'awwidhat* verses, Perception of Malay-Muslim Society in Malaysia on healing through *ruqyah*.

## Introduction

This paper is an attempt to discuss healing through *Ruqyah* (incantation) focus on Islamic medical perspective with special reference to the perception of Malay-Muslim society in Kelantan and Terengganu on *Ruqyah* with the verses of the Qur'an as an alternative way of healing in Malaysia. Healing through *Ruqyah* (incantation) especially by using the Qur'anic verses, recitation of *Du'a* (prayer) and *Ruqyah* (*jampi*) with *Mu'awwidhat* verses are among the most widely and popular traditional practices intended to afford protection and healing of disease caused by *Jinn* and Devil in Malay-Muslim society.<sup>1</sup> The fact is that nearly all primitives and the people in the ancient civilization believe that God answers prayer if it is performed in the proper ritualistic way. After the arrival of Islam in Malay world, the Malay-Muslim, who used to practice *al-Ruqyah* (incantation) by reciting and asking the Hindu goddess, *Dewa Sakti*; has changed their way of *Ruqyah*. With the influence of the Qur'an and the traditions of the Prophet (s.a.w), especially through *Kitab al-Tibb* of *Sahih Bukhari*, in regards to the Malay-Muslim's world view, they practice the *Ruqyah* in Islamic way for the purpose of prevention and

treatment of disease caused by the *Jinn* (Devil). The current Malay-Muslims worldview in Kelantan and Terengganu can be understood via the following response.

**Pie chart on the Respondents Response to Question Part 3.14: "I don't really care the Religion of the Traditional Healers I am looking for. But the most important thing is my Problems can be solved".**



The above pie chart indicates that more than 70% of Malay-Muslim society in Kelantan and Terengganu are concerned about the religious status of traditional healer with regard to healing through incantation. They believe that the *Raqi*, the one who recites verse of the Qur'an or *du'a*, has



to be a Muslim. He should possess sufficient knowledge and has to know the recitation of the Qur'an, that he used in *Ruqyah*, besides he has to be a sound believer, righteous and pious (*taqwa*) person. On how Islamic worldview has been shaped in Malay-Muslim society, S.M.N. al-Attas, a Malay Muslim thinker and scholar, in his *Preliminary Statement on a General Theory of the Islamization of the Malay-Indonesia Archipelago*, found that Islamization of the Malay world was the most influential factor for shaping Islamic worldview, as it is considered the most momentous event in the history of the Archipelago.<sup>2</sup>

## Methods

In the course of studying perception of Malay-Muslim society on *Ruqyah* as an alternative way of healing in Malaysia, data were collected by using questionnaires which have been distributed among Malay-Muslim society in two states of the peninsular of Malaysia, namely Kelantan and Terengganu. Both states have many similarities in respect to ethnic group, religious belief, geography, social and politics. The people in both states, which border each other, have always been known as socially conservative and devout Muslim. The majority of population in Kelantan and Terengganu or 95% of population of Kelantan and Terengganu are Malay-Muslim and they not receive many Indian or Chinese migrants. According to the 2005 census, Terengganu has a population of 1,055,943 of which Malays make up 94.8% of the population and Chinese 2.6%, while Indian 0.2% and other ethnic groups comprise the remainder; 2.4%.<sup>3</sup> In the year 2000, the state's population was only 48.7% urban; the majority lived in rural areas. By the 2005 census, the proportions had changed significantly, with 51% of the population living in urban areas and 49% in the rural areas.

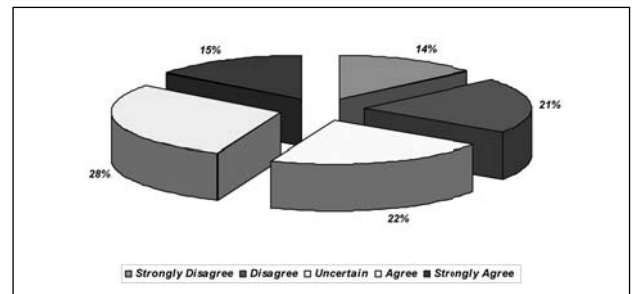
It is a significant to choose Malay-Muslim society in Kelantan and Terengganu as sample of the study because both, Kelantan and Terengganu, represent Malay cultural influences predominate and the only states in Malaysia ever been ruled by the Islamic Party of Malaysia (PAS). Kelantan, for instance, has been ruled by Islamic Party of Malaysia (PAS) since 1990, with re-elections in 1995, 1999 and 2004. The influence of PAS in Kelantan followed by Terengganu after decades of governing by *Barisan Nasional* (National Front) shows the dominance of PAS in these states.<sup>4</sup>

## Results and Discussions

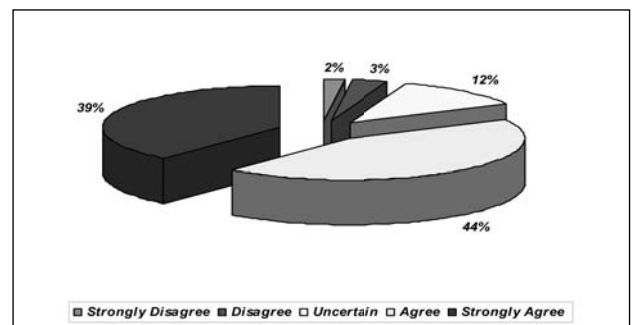
In spite of the significant contribution made by modern medicine into many aspects of life of Malay-Muslim society in Malaysia, many Malaysians still use many forms of traditional health care. For example, *al-Ruqyah* (incantation) with Qur'anic verses is one of the most widely

used traditional practices intended to afford protection and treatment of diseases caused by *Jinn* and Devil in Malay-Muslim society. It is found that many patients in Kelantan and Terengganu are in favor to consult traditional healers (*bomoh*) who have practiced *Ruqyah* with recitation of the Quranic verses.<sup>5</sup>

### The Respondents Response to Question: "I prefer to see the Traditional Healer that used al-Quran and Du'a (prayer) in al-Hadith in Ruqyah (incantation)"



### The Respondents Response to Question Part 2.6: "Healing through Incantation especially by using the Quranic verses, Recitation of Du'a (prayer) and Incantation with Special Section in Quran verses can give an Afford Protection of Diseases that Caused by Jinn and Devil".



It is found that 83% of the respondents agree that healing through incantation especially by using the Quranic verses, recitation of Du'a (prayer) and incantation with special section in Qur'an verses can give protection from diseases that are caused by Jinn or Devil. *Surah al-Fatihah* (The Opening Chapter) has been used widely in Malay-Muslim society for incantation. The official ceremony and meeting usually commence with recitation of *Surah al-Fatihah* and ending with Du'a (prayer) in Malay-Muslim society. *Surah Al-Fatihah*, the first Surah of the Qur'an, is regarded as an infallible aid in healing. The recitation of *Surah al-Fatihah* is one of the most frequent exercise especially during compulsory *Salah*, five times a day in the prayers. The Prophet (s.a.w) had expected the Muslim to be able to recite and use it for medical purpose. In reference to the

medical benefit of *Surat al-Fatihah*, Ibn al-Qayyim (691-751 A.H/1292-1350 C.E) in his *al-Tibb al-Nabawi* said: "If one's faith, soul, and spirit are strong, and if he adapts himself to the essence of the Opening Chapter (*Surah al-Fatihah*), and by Allah's leave, by reciting its holy words and blowing them on the affected person followed by his spittle upon the victim, Allah willing, such reading will incur the reaction of the evil spirits and cause the elimination of their evil act--Allah knows best."<sup>6</sup>

We are aware that the recommendation to recite *Surat al-Fatihah* over a patient is strange and not logical to some people, however, we have to understand that the social condition in the ancient time where disease is well understood as the logical consequence of patient's falling to the evil spirit, needed to be treated by the spirit power of verses of the Qur'an. Now, why is exactly *Surat al-Fatihah* commonly used in prevention and treatment of disease? Some commentators of the Quran were of the opinion that the central point of medical benefits in *Surat al-Fatihah* which is known as *umm al-kitab* (*The Mother of the Book*), is in the power and blessings of the words: "Thee we worship (*iybaka na`budu*), and Thy help we seek (*iybaka nasta`in*)". These words, worship (*na`budu*) and help (*nasta`in*), are the strongest elements of the most effective cure for illness. This is an extremely noble means because, we directly ask the help from the Healer (*al-Shafi*) whom we rely on, trust, shelter for recovery, recognizing one's need and dependence upon the Sole Sustainer who acknowledges one's need. This is why *Surat al-Fatihah* is one of recommended *surah* to be recited for recovering from illness: spiritual, mental or physical.<sup>7</sup> In *Bab Fadl Fatihat al-Kitab of Kitab Fada'il al-Qur'an*, Imam Bukhari reported that:

Narrated Abu Sa'id Al-Mu'alla: While I was praying, the Prophet called me but I did not respond to his call. Later I said, "O Allah's Apostle! I was praying." He said, "Didn't Allah say: 'O you who believe! Give your response to Allah (by obeying Him) and to His Apostle when he calls you?'" (8.24). He then said, "Shall I not teach you the most superior *Surah* in the Qur'an?" He said, '(It is), 'Praise be to Allah, the Lord of the worlds. ' (i.e., *Surat Al-Fatihah*) which consists of seven repeatedly recited verses and the magnificent Qur'an which was given to me."<sup>8</sup>

The Malay-Muslim society in Malaysia occasionally used *Ayat al-Kursi* (Verse of Throne) for prevention and treatment of disease and self protection. Allah 's Apostle said: "...when you go to your bed, recite *Ayat-al-Kursi*, for then there will be a guard from Allah who will protect you all night long, and Satan will not be able to come near you till dawn."<sup>9</sup> This view has foundation from the meaning of *Ayat al-Kursi* itself:

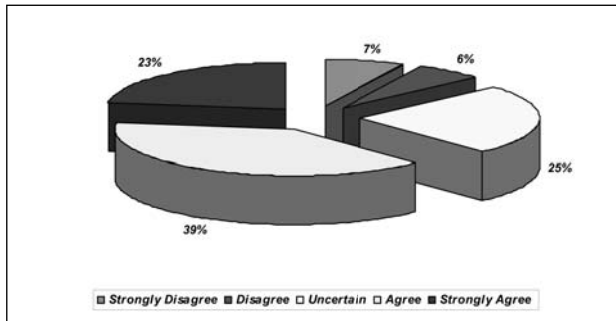
Allah. There is no god but He, the Living, the Self-subsisting, Eternal. No slumber can seize Him nor sleep. His are all things in the heavens and on earth. Who is there can intercede in His presence except as He permitteth? He knoweth what (appeareth to His creatures as) before or after or behind them. Nor shall they compass aught of His knowledge except as He willeth. His Throne doth extend over the heavens and the earth, and He feeleth no fatigue in guarding and preserving them for He is the Most High, the Supreme (in glory).<sup>10</sup>

In spite of the fact that we have no scientific and rational explanation of the saying of the Prophet: "when you go to your bed, recite *Ayat al-Kursi*, for then there will be a guard from Allah who will protect you all night long, and Satan will not be able to come near you till dawn," however, psychologically, there can be no doubt if the reader recites the verse sincerely with full of concentration to God alone, such a prayer can be considered as a means for protection, prevention from evil. Because, when he recites the verse, he believes that Allah (s.w.t) alone is the true God who is the only One worthy for worship. He is alone lives absolutely and everlasting who is looking after all of His creation and providing them with everything they need in maintaining their respective living process.

There is another *Surah* which is commonly used by Malay-Muslim in prevention and treatment of disease namely *Surah Yasin*. Whoever has traveled to the Malaysia may see the Malay-Muslim recites certain verses of *Surah Yasin* for different medical purposes. For instance, it is said that if one is suffering from toothache, verse 78, *wadaraba lana mathalan wanasiya khalqahu qala man yuhyi al-izam wahiya ramim*, to the end of the *Surah Yasin* is advised to relieve the pain by writing the mentioned verse on paper and hung over the ear on the side of the aching tooth and it will cure the pain. In addition, Malay-Muslim society uses certain verse of *Surah Yasin* to protect his property and his household. Thirdly, they are of the opinion that if one has an enemy he wishes to harm and that without injury to himself or one whose love he wishes to gain, he recites seven parts of *Surah Yasin*. At each *mubin* part, which ending with the word *mubin*, which means open or clear, he ties a knot in a cord he has ready at hand. When the recitation is completed he nails the cord into the ground, then, he might get his desire.

In regard to *Ruqyah* with the Qur'an especially *Mu'awwidhat* verses, the respondents response to question part 2.12: "I believe that Diseases caused by Jinn and Devil are exist" as follow.

**Pie Chart: “the Respondents Response to Question Part 2.12: “I believe that Diseases Caused by Jinn (Devil) are exist”**



The above indicates that 62% of Malay-Muslims in Kelantan and Terengganu believe that diseases may be caused by Jinn and Devil. This belief, in fact, is similar with major culture and society in the world. They view that the religious and the cultural values of the indigenous population have a significant impact on the health and well being. Many Malay-Muslims in Kelantan and Terengganu have attempted to use the Qur’an not only by recitation of its verses but also by writing it especially the *mu`awwidhat* verses on a certain materials. These are commonly practices in Malay-Muslim society for the purpose of prevention, treatment of disease as well as protection one’s property, his life and his household from Jinn and *syaitan*. The Malay-Muslim believes that the evil spirits, *Satan* and Jinn can be protected by hanging the verses of Qur’an most notably by *mu`awwidhat* verses. According to Ibn Hajar the *mu`awwidhat* verse consisted in three major surah of the Quran namely *Surah al-Falaq*, *Surah al-Nas* and *Surah al-Ikhlās*.<sup>11</sup> In other words, the *mu`awwidhat* is used primarily in the case of spiritual disease to counteract the devil (*Satan*) that had taken hold of an individual in a general way or, more commonly, to derive out a devil from the body. As we have known that *surah al-Ikhlās* has special medical benefits since *surah al-Ikhlās* contains the perfect affirmation of God’s Unity. The confirmation of God’s Unity its self necessarily confirms that all perfection is His, as well as, all created beings betake themselves to Him in their needs: that is, creation, from highest to the lowest, seeks Him and directs itself towards Him. *Surah al-Ikhlās* denies begetter and begotten and any equal. His name the Eternal (*al-Samad*) confirms all perfection; the denial of any equal declares none is like unto Him. Therefore, it is said that *Surah al-Ikhlās* equals a third of the whole Qur’an.<sup>12</sup>

Reciting *al-mu`awwidhat*, as the word means, is crucial for protection from the devil i.e., Satan and Jinn. In *Bab Ruqyah al-Nabiyy (Ruqyah of the Prophet)* of *Kitab*

*al-Tibb* (Book of Medicine), Imam al-Bukhari, in order to show the spiritual benefit of *mu`awwidhat*, reported that ‘Aishah (r.a) said: “Whenever Allah’s Apostle went to bed, he used to recite *Surat-al-Ikhlās*, *Surat-al-Falaq* and *Surat al-Nas* and then blow on his palms and pass them over his face and those parts of his body that his hands could reach. And when he fell ill, he used to order me, her wife, to do like that for him.”<sup>13</sup> We are aware that it is too difficult to accept this, but as mentioned before, *al-tibb al-nabawi* is rational in its own orbit and time. There is rationality of reciting *mu`awwidhat* before going to the bed since we are not able to control ourselves during sleep. In this case, it is reasonable to recite the *muawwidhat* verses seeking to a protection from everything hateful. As we agreed, seeking refuge from the evil of which Allah (s.w.t) has created by reciting *surah al-mu`awwidhat*, carry an immense impact on safety and protection against evils before they occur.

### Conclusion

It is found that despite the advances in modern medicine, however, the use of several traditional forms i.e., incantation (*ruqyah*) with the verese of the Holy Qur’an remains popular among Malay-Muslim communities in Malaysia. One of the reasons is the belief that incantation (*ruqyah*) is a holistic approach. In addition, incantation can be used to treat ailments which are resistant to cure by herbal medicines, such as ailments caused by ancestral spirits in retribution for the behaviour of an individual who has contravened societal norms. Many Malay-Muslim believe that illness may arise from the malevolent acts of humans, or from evil beings who can harm and potentially kill humans by ‘sending’ an illness or injury to a chosen victim. In these cases, community members with special healing powers must be called upon to divine the source of the ailment, and incantations are employed, usually in combination with natural products, to cure the patient.

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  - 4 The Pan Malaysian Islamic Party (Malay: *Parti Islam Semalaysia*), commonly known as PAS, has been claimed as an Islamic Political party in Malaysia. Its aim to establish Malaysia as a country based on Islamic legal theory derived from the primary sources of Islam, the Quran and Sunnah.
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  - 8 *Sahih Bukhari*, Kitab Fada'il al-Quran, Bab Fadl Fatihat al-Kitab.
  - 9 The *verse of al-Kursi* is commonly used for prevention, treatment and self-protection. Whoever has traveled in Muslim countries, where Muslim occasionally celebrated the annual festivals, has seen the group of Muslims used to recite *Ayat al-Kursi* in a very significant way just as they recite in spare time and some of them recite the verse without thinking and knowing its medical benefits. First they recited *Ayat al-Kursi* followed by the salutation to Prophet Muhammad and his household in three times. Then, it followed by the recitation of *Surah al-Fatihah* in ten times. After finishing them, they raised the hands to the sky praying God. All fingers should be pointed upward and the suppliant should blow his breath upon them, and then express all his needs and desires.
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# The Role of Technology in the Medical Museum

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## Summary

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Swift changes at the all levels of technology especially the technological changes that are related to the science, health and medical museums is surprising. The increase in the number of medical museums in which modern researches are displayed has led to the emergence of the need to utilise from the latest technology.

The revolutionary movement in the museums coming with the technological changes in 1980s are not enough today. The developments in the areas of medicine collections and professionalism made it necessary to have educated experts. We cannot be blind to the opportunities that the technology has created at the museums. In the museums, there are different usage areas of technologies such as new data finding systems, management and security of collections that have enabled presentation, education and research of collections. Moreover, the innovations in the desing of museums and exhibition can be added to the new opportunities that technology has brought. In these museums multi media presentations, simulation devices, walking platforms, cabins and cableway systems creates new visiting areas that display both technical sufficiency and the history of medical development.

In conclusion, the medical museums should confront with technological development. The visitors in huge numbers can't be channelled to the medical museums with insufficient sources and obsolete understandings of directors. With the long term plans the exhibitions should be in, accordance with the features of the museums and collections. The opportunities that the technology has brought to the museums can't be underestimated. The recent Technologies have a significant role in creating new opportunities for the museums.

**Key Words:** Medical museum, technology, archiving system, security systems.

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The medical museums compose an important part of the historical and scientific heritage of a nation. As an instructional instrument, the medical museum collections are directly information purpose.

The treatment history shows the people what and how the cost of being modernized by presenting the documents which content the health problems of the people.

They have been institutionalized by the developments on scientific studies in 19<sup>th</sup> century. The health institutions, which were constituted worldwide after war, had the most important role for constitution of these museums.eg; 1930-Committee on American Museum of Hygiene by the American Public Health Association

Since the 1960s they were taken place as department in the Science, Biology, Earth Science, War, Ethnography and national museums.



**Picture 1. Londra War Museum**

After the 1960s, usages of the medical museums has been rapidly increased.

As service institutions, they had to follow a particular technology.

- The change of the Science and War museums have been effective factors on the changes of the medical museums.
- The change of the marketing understanding for the museums have been effective factors.

The intention of keeping the visitors in museum for long time have been effective factor.

The medical museums enable us to discover the diversities, cultural and scientific similarities and differences in the medical field. Nowadays, the variety of the medical museums are increased and their institutional structures are changed (1).

## 1. The Variety of the Medical Museums has been Changed

The medical museums have diversification according to specification of the collection presented by them and their subject matter expertises.

Medical Museum

Museum of Medical Technology History

Museum of Medical History  
 Museum of Medical Biology History  
 Health Museum  
 Health Education Museum  
 Dentistry Museum  
 Psychiatry Museum  
 Forensic Medicine Museum  
 Hygiene Museum  
 Pharmacy Museum  
 Nature Science and Medicine Museum  
 Museum of Natural Treatment Methods  
 Museum of Veterinary History  
 Veterinary Museum  
 Alternative Medicine Museum  
 Medical Patent Museum  
 Museum of Nursing History

While the variety of the medical museums increase, the institutions which they depend on, have been differed.

## 2. The Institutional Structures of the Medical Museums have been Changed

While the variety of the Medical museums increase, the institutions which they depend on, have been differed.

- The Military and National institutions,

For example; National Museum of Civil War Medicine (Maryland), The Rose Melnick Medical Museum, The National Military Medical Museum (Columbia), U.S. Army Medical Department Museum, Fort Sam Houston, Gülhane Gata Medical History Museum (Ankara), Florans Nighthale Military Medical Museum (İstanbul), The National Medical Museum (Ukrayna)-Schools and Universities.

There are medical museums which were constructed by numerous universities such as Arizona, Michigan, California North Carolina, Texas, Florida, Birmingham, Cambridge, Manchester University Oxford Vaterloo Helsinki, Alberto, İstanbul Cerrahpaşa-Trakya and -Erciyes University, Kawasaki Medical University Museum of Modern Medical Education, South Africa Museum of Medicine Egyptian Alexandropolis University (Forensic Medicine Museum) Cleveland's Academy of Medicine (The Health Museum of Cleveland), Kawasaki Medical School Okayama Medical Museum-Japanya University of Kansas Medical Center, Clendening History of Medicine Library and Museum, Kansas City, KS American School Health Association

American Association for Health Education, National Association of Biology Teachers National Association of Health Education Centers -Hospitals.

- Medical and Health Centers, e.g; Ditttrick -Medical History Center -The companies who produce material and device in the medicine field have taken their places in this classification by constructing medical museums.

The medical museums which depend on the university has presented an ideal source for an educational museum that aims to teach technological development of the medical history. They undertake the central task of the health education and information. The medical museums in the world, which are located in the university campuses, are outnumbered. There are medical museums linked to the hospitals and health centers, which undertake the information and research tasks while they show their pieces.

In recent years, the companies who produce material and device in the medicine field, medicine and cosmetic firms, the companies which market medical technology have taken their places in this classification by constructing medical museums in their structures.

Briefly, the health sector has taken its place in the museum field. The medical museums have been turned into the scientific research institutions that enable the public health to be protected and shown, despite of their different structures. Nowadays, changes of the medical museums against the developing technology in many fields from the architecture to the shown pieces are observed (2).

## 3. Architectural Structures of the Medical Museums have been Changed

Designs of the medical museums begin to change, as the localities, which show scientific development. The old hospitals had to combine their classic historic architectural designs with the modern designs as is the science museums.

Ultra modern buildings were designed for the prospective medical museums. In the museum buildings, the moving staircases have superseded the elevators. The electronic ticket booths have taken their places in the visitor entrances of the museums in addition to the turnstiles, X-ray devices, sensor doors and sliding cabins.

The museum specialists have shown the museum workings publicly by performing their works behind the transparent walls. The glass offices were constructed in the museum to enable the visitors to observe them. For the presentation of the museum, firstly the building and subsequently the museum restaurants has been important besides the special pieces in the collection (3).



Picture 2. Tokyo National Museum



Picture 3. Louvre Museum-The electronic ticket booths

#### 4. The Exhibition Designs in the Museums have been Changed

Some physical factors such as light, voice, heating and moisture were renewed by the development of the technology. The auditory effects have been effective for preparing the special atmosphere. Ideal lighting systems were researched. The ultraviolet lamps, filters and fiber optic lighting devices have taken their places. Security systems were developed for the museum showrooms and external places of the museums.

The physical protection measurements, moisture absorbers, moisture control and protection devices have taken their places. The standard glass sections have given their places to the aesthetic viewed, colored and serviceable display windows. The fixed and moving shelves have taken their places in the display windows. Versalit and Inca type display window designs has begun to be used. These display windows have taken their places in the museum field by their unbreakable-lustreless glasses. A new format has been emerged for exhibition by the moisture and climatic adjustment in the display windows.

Moving, remote operating and sliding doors which are works by electronic card system were used at the inside and outside of the buildings. Electronic security systems were used. Automatic thief and fire dedectors were used at the inside and outside of the museum and at the exhibition places. Closed-circuit TV systems were preferred for the security of the showrooms, inside of the museum and surroundings (3).



Picture 4. TESS domontable Showcases

#### 5. Collection Interpretation in the Medical Museums have been Changed

The collections in the medical museums have been changed as to be exhibited in terms of the History, Physiology and Technologic.

- a. In the classic exhibition; the museum exhibit the change on the current subjects, besides the information about healthy life.

The collections content various medical devices, hospital equipments, data about the madical education, manuscript formulas, medicines, books and archive informations.



Picture 5. İ.Ü. Cerrahpaşa Medical Faculty-. Medical History Museum

- b. In the modern exhibition; the target is reciprocation between the exhibited pieces and the visitors.

By this way, the stationary exhibition has been turned into interactive.

In the exhibition; it is aimed to present changes in the lifes of the people about the public health, child deaths, medicine and health.

Different presentation methods for children and adults have taken their place.

Operating theatres, birth rooms and patient admittance rooms were designed as three dimensional. In these places, the presentations which aim digital information have taken their places. As three dimensional, plastic anatomic models have taken their places which are informative for the system of our bodies, digestive-system and operations of our sense organs (1).

Operations of the various organs were exhibited by means of the dummies.

Developments of the both modern and classic medicine were tried out by the visitors in the museum

In 20th, the medical museums have turned into the scientific research centers.

## 6. Three Dimensional Presentations of the Exhibition have been Changed

Nowadays, the presentation and interpretation method of the science history have been changed in the medical museums. Three dimensional presentations were provided to prolong the staying time of the visitor in the museum. Designs of the dummies, billboards, information boards and direction signs have been changed.

The robots have taken their places in this museum in accordance with the content of the museum. In many museum, the dummies which their heads, arms and bodies are moving and with verbal functions have impressed the visitors. Usage of robot guides was taken into the agenda while the museums meet the technology.

One-touch systems for disclosing information to the visitors, and information transfer by Keoks have been prominent. Electronic information transfer in several languages has been important. Scientific presentation of the museums has begun to be used for show purpose. The animations with visitor involvement were presented which in stationary copies of the medicine collection are used (3).

## 7. In the Museum, the Presentations for the Visitors have been Changed

Atelier-laboratory, classroom and temporary exhibition areas were designed besides the exhibition areas.

Laboratory, research center and archives were formed. In the laboratory, chemical analysis of the material in the pill bottles were made by the visitors. Audible and visual medicine preparing methods were presented that explains the illnesses which these medicines are used for. The laboratory condition was formed which in the medicines are be bottling or produced.

The Activities and Courses about the Health were organized. The localities of the medical museums were opened by the meetings. Medical museums have taken their places in the activities related to the universities and hospitals. Continuity of the communication between the health institutes and education units was aimed. First aid and public health courses for the public were organized.

Temporary exhibition areas were formed. In these courses; temporary exhibitions were organized which content the health, prevention, medical history, Cancer, Diabetes, Hepatitis, Child health and contagious disease. Community awareness were aimed to be formed by the temporary exhibitions (2).



Picture-6. İ.Ü. Cerrahpaşa Medical Faculty-. Medical History Museum

## 8. The Digital Presentations by Utilization of Computer have been Improved

The computer technology has created possibilities at the medical museums. After the 1980s, keeping the information by the best method, research, entering new information and calling the old one back have been more important in the studies of the medical museums. In the museum technology; reaching to information, collection management, security, exhibition technics, education and research branches have taken their places. The digital archiving system has been a requirement. In the one touch system, numerous services were presented by pushing on the button. The virtual and electronic ambients have taken their places in the medical museums.

Access to the information and the latest news about the museum was provided in the internet introduction page.



The internet introduction page has been more important for the community to be conscious about health. Access to the information about health and research facility were presented for the community, besides the access to the collection by computer. For the all people, the museum has supplied access to the studies about it's collection (5).

Eventually: The technologic developments have supplied new opportunities for the medical museums. The medical museums have undergone identity and concept change. Development of the technology creates differences in terms of the function and exhibition of the medical museums.

- It is an effective factor for the medical museums to be used by people of all ages.
- The researchs about the medical history serve the researchers and community as centrally.
- The universities establish connection with the other education units.
- They supply focus on the health education because of their cooperation with the health institutes.
- They assemble the developments in the medical field.

The technologic development has brought the medical museums many advantages as above mentioned. Besides these advantages, it is being a problem with the technologic development that which technology will be adopted and how by the medical museums. To solve this problem, the technology management must be utilized in the science field. The specialists and plan makers for the museum are needed to follow the developments in the technology management field.

These specialists; supply source for the institutional identity and concept changes of the medical museums. The medical museums have to follow the technologic changes to sustain their functions.



**Picture 6. İ.Ü. Cerrahpaşa Medical Faculty. Medical History Museum founded by Prof.Dr. Nil Sarı**

Shortly, in case of using the technology of medical museums, will effect their service quality, contributes to the museum and makes the solving of the problems easier. Constructing a medical museum will be worthy of all the efforts to bequeath a healthy future for our community.



**Picture 7. Doha Islamic Arts Museum**

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# Medical Instruments in Islamic Medicine

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## Summary

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Medical instruments are essential tools for the practice of medicine. Ancient healers, throughout all the past ages devised some tools that were used to facilitate their management of man diseases. These tools were very simple, primitive and made of iron, bones, wood or pottery.<sup>(1)</sup> This manufacture of medical instruments progressed slowly by time with the development of some new instruments.

Key Words: Medical Instruments, Practice of Medicine, Ancient Healers, History of Medicine, Islamic Medicine

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## Introduction

The most ancient medical tools are those used by ancient Egyptians. The earliest ones were those used for circumcision, that go back to the twenty seventh century before Christ.<sup>(5)</sup>

On the wall of an ancient temple in Kom Ombo city in Egypt is an engraved picture of the very ancient Egyptian tools that include needles, probes, pincer, scalpels, horns for enemata and mortar for drug preparation.<sup>(2)</sup>

The Edwin Smith medical papyrus written in the 17<sup>th</sup> century before Christ is the oldest known medical manuscript dealing with surgery practiced at 2500 B.C in Egypt, showing the use of the previously mentioned medical tools.<sup>(4)</sup>

The Mesopotamian civilization that was contemporary to the Egyptian civilization showed complete absence of any surgical writings, as surgery was discouraged by the harsh penalties for unsuccessful treatment in the Babylonian legal codes of Hamurabi.<sup>(4)</sup> Few medical instruments were shown in the engraved pictures in Bable that were made of bronze metal and were of very limited surgical use.<sup>(6)</sup>

The Greek and Roman medicine enjoyed a good flowering medicine but a limited addition to the previously known medical instruments. Hippocrates the father of the Greek medicine disliked surgery and had never opened the body of any patient. His principle for cure was to leave patient for nature, depending on the power of the body to heal itself.<sup>(7)</sup>

Their instruments were made of iron, lead or copper, shaped into knives, bistouries, syringes, cannulas, forceps and cautery tools.<sup>(6)</sup>

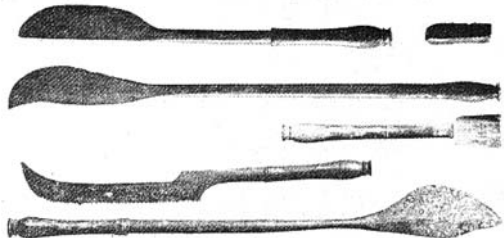
At the seventy century Islam arose and soon spread to vast areas of Asia and Africa. The Islamic civilization that flourished at that time witnessed a high revolution in the addition of many new medical instruments, beside the improved manufacture of the previously known ones.

The leaders of the Islamic medicine and the pioneer inventors of the new medical instruments are many and their additions to the progress of medicine is well documented.

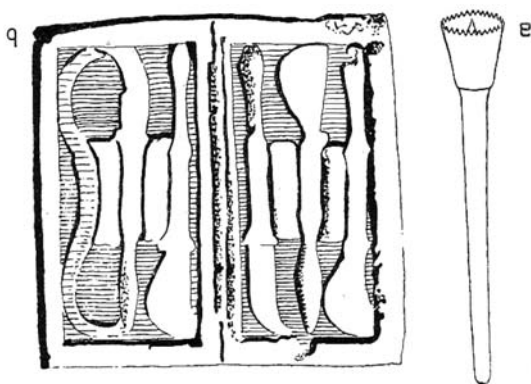
## Islamic Medical Instruments



Ancient Egyptian Medical Instruments



Babylonian Surgical Instruments



### Greek Surgical Instruments

The greatest advance in the manufacture and additions of medical instruments appeared early during the Islamic civilization. These instruments were used in different fields of surgery and thermo-cautery. This progress was not only in the addition of new instruments, but also in the improvement of the manufacture of the previously known tools.<sup>(4)</sup>

#### Instrument Inventors:

A good number of the Islamic physicians practices surgery in the different fields of medicine. They added a lot of their own experience to that specialty beside the invention of new tools that were used in their practice of surgery.

Those who can be considered the pioneers in this field are:

- **Ali Ibn Rapan El Tabari (..... died 861):**

He was an efficient physician, born in Khurasan and later moved to Baghdad where he got a high medical reputation. He was the main teacher of El Rhazi (Rhazes) and the main medical consultant to the Kaliph El-Moo-tasem and El Mota-wakel.<sup>(24)</sup>

His two main works are Firdouce El-Hikmah and Al-Din Wa-al Dawlah. The first book contains seventy treatises, some of them showing his experience in surgery. He used the available known metal tools, made of iron, that were used fore thermocautery, incisions, punctures, venesection, scarification and extraction of arrows.<sup>(21)</sup>

- **Abo Bakr El Rhazi (Rhazes) (850-932):**

The most eminent physician of the ninth century, who gave his high knowledge and medical experience to the progress of medicine at his time. He wrote 113 books, the most important ones are El Hawi (The Continens) and Almansouri. El Hawi is a large encyclopedia of medicine composed of twelve treatises. El-Mansouri is the book granted to the Prince El-Mansour, the ruler of Khorasan, composed of ten treatises. The seventh treatise deals with general surgery and bone fractures.<sup>(1)</sup>

In surgery-El Rhazi-dealt with umbilical and inguinal hernia, tumours of the breast, skin and legs and the removal of leg varices. In his practice he used the previously known tools as the scalpels, hooks, retractors, pringers, scissors, needles and cautery tools that were made of iron or copper.<sup>(22)</sup> He used also some new instruments of his own invention.<sup>(10)</sup> For the removal of nasal polypi he used the knotted rope, that passed from the nose to the mouth and different shapes of scalpels in surgery of the tumours.<sup>(11)</sup> He is accredited of being the first inventor of the suture thread made of the intestine of animals, the catgut, and the first one to use pure alcohol for wound cleaning and dressing.<sup>(1)</sup> The most marvellous addition is the use of the soporific sponge for inhalation anaesthesia. It was a sponge saturated with dissolved powder of opium, hyocyanus and mandragora, placed on the nose and mouth before any operation to induce narcosis.<sup>(9)</sup>

- **Ali Ibn Abbas El Magousy (.....died 994):**

An eminent physician of the tenth century. His main work is the medical book titled "El-Malaky" composed of ten treatises.<sup>(24)</sup> In his book de described the practice of surgery as the hand work (Al-Amal bi al-yad).<sup>(23)</sup>

- **Abo Ali El-Hussein Ibn Sina (Avicenna) (980-1037):**

The most active and distinguished physician of the eleventh century. His main works have exceeded 107 books. The most important one is the Kanoon in Medicine, the highly valuable encyclopaedia in medicine. The book is composed of five volumes, the third one deals with all body diseases from the top of the head to the feet. The fourth volume deals with fevers, tumours and orthopaedic disorders.<sup>(1)</sup>

In his surgical practice he added new tools and improved the manufacture of many others. He introduced silver and gold in the manufacture of some tools.<sup>(19)</sup>

In thermo-cautery he used tools made of gold and presented a new innovation of a cautery tool enveloped by a tube, to be used inside the nose, mouth or rectum.

In tumour surgery he used different sizes of scalpels, hooks, dilators, scrapers and needles.

In oral and pharyngeal surgery he used tongue depressors, hooks, scalpels, extractors and grasping forceps.

In orthopaedic surgery he used scalpels extractors, pincers, scissors and hand saw beside the wood splints to support fractures and dislocations.<sup>(19)</sup>

He is the pioneer physician who invented the first endotracheal tube, made of gold, to be introduced through the mouth to save suffocating patients.<sup>(25)</sup>

- **Abo El-Kasem El-Zahrawy (Abulcasis) (936-1013):**

He is the unique genius physician and surgeon of the tenth century who is accredited by many historians to be the father of Islamic surgery. He is the author of the highly valuable text book (El Tasreef), the essential reference to Islamic surgery and the first reference to all European countries during the subsequent centuries.<sup>(8)</sup> The book is composed of thirty treatises. The most important one is the thirtieth treatise, that deals with surgery, and the description of all used instruments. He is the first surgeon to describe and draw the pictures of more than 150 medical instruments. Most of them were of his own invention. They include scalpels of different sizes and shapes, forceps, hooks, retractors, dilators, scrapers, canulas, depressors, deceivers, crushers, trocars, extractors, pencers, scissors, tweezers and catheters beside many tools for thermo-cautery.<sup>(8) (15)</sup>

The cautery tools were of different shapes and sizes. They were of single or double blade, forked, olivary or myrtle-leaf shaped. Their tips were slender, punctuate, crescentic, rounded or lenticular.

The scalpels were of different sizes and shapes to suit the incisions at different parts of the body.

The forceps were of the wide or pointed tip to be used for catching wound edges, palpation of the lesions and foreign body extraction.

The hooks were made of hard metals, with a single, double or triple curved ends. They were of different sizes to be used in the different sites of the body.

The dental tools were small fine scalpels, pincers, scrapers, teeth extractors and silver or gold wire for bridging mobile teeth.

Trocars, made of iron or copper, with hallow cannulas were used to withdraw fluid from the abdomen, chest or cystic swellings.

Pincers made of hard metal were used to crush urinary calculi, extraction of diseased bones and the extraction of the dental roots.

In obstetric surgery, vaginal speculum made of metal or wood with a metal screw was used beside the classical surgical tools. A large toothed metal crusher was also used for the extraction of dead infants.

In orthopedic surgery, most of the previously mentioned tools were used beside the hammers, hand saw and wood splints.<sup>(8) (15) (21)</sup>

- **Abo Marwan Abdol Malek Ibn Zohr (Avinzoar) (1091-1162):**

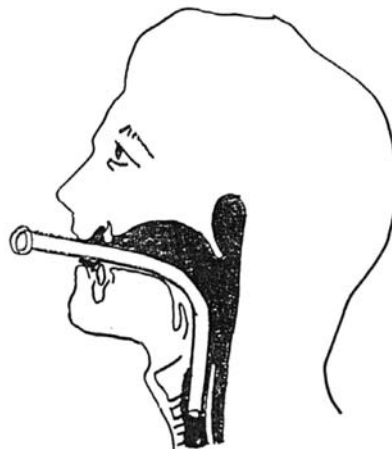
An eminent Andalusian physician with good medical efficiency. His main text book in medicine is El Tayseer

(El Tayseer fi El-Medawat wa al Tadbeer) in which he described his personal experience in surgery, with some new additions. Using the surgical instruments described by El Zahrawy he perfected surgery of the kidney and urinary bladder and practiced a new technique for tracheostomy operation.<sup>(1)</sup> He is also the innovator of the malleable catheter for oral feeding.<sup>(10)</sup>

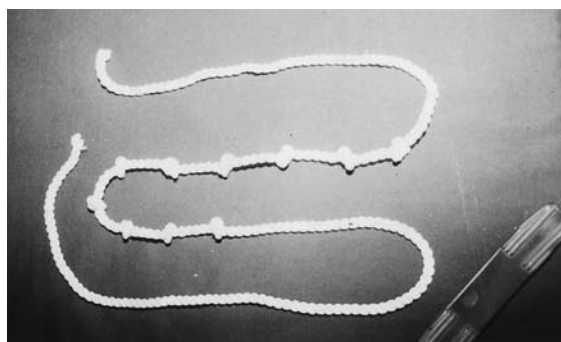
- **Abo El Farag Ibn El-Quff (1233-1286):**

A clever physician, surgeon and obstetrician who lived in Damascus. He got his high medical efficiency from his teacher Ibn Abi Usaibeyah.

He wrote many medical books. The most important one is the Al Omdah in surgery (Al-Omdah fi Sinâ-at al Jirahah). It comprises twenty treatises, in which he gave a detailed description of surgical hand work of cautery, skin incisions, punctures, venesection, cupping, scarification and the extraction of arrows. In his surgical practice he used variable metal instruments that were invented and used by the previous physicians.<sup>(23)</sup>



**Laryngeal Intubations by Golden Tube by Avicenna**



**A Rope with Knots for Removal of Nasal Polypi by Rhazes**

### Manufacture of The Instruments:

The Islamic medical instruments took the great interest of the Islamic physicians, who gave their high knowledge and experience to the manufacture of these instruments.

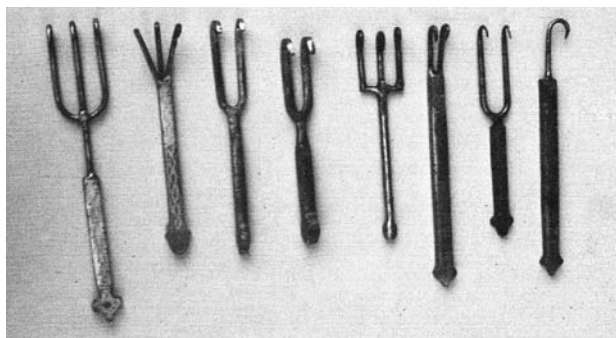
The material of manufacture was the metals of iron, brass, lead, silver and gold. The instruments were characterized by fine finishing and shaping, to be suitable for good performance. Wood was also used for manufacture of the splints and other orthopedic tools. Drug containers, mixers and droppers were made of glass, pottery or ceramic.

The manufacturers of these instruments were the blacksmith for iron tools, the goldsmith for silver and gold tools and the carpenters for wooden tools. Many physicians used to make their instruments by their own hands to assure the proper making of them.<sup>(8)(11)</sup>

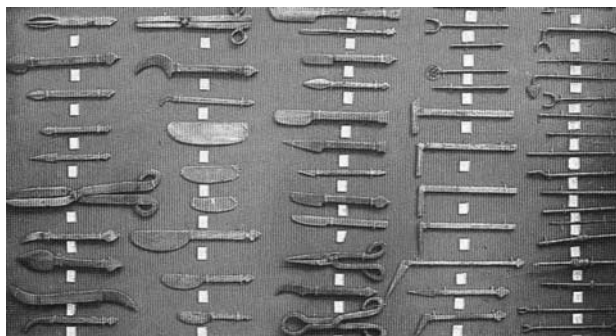
### Categories of Islamic Medical Instruments:

Instruments in Islamic medicine were numerous and of various shapes and sizes. To give a detailed description of all these instruments, they can be classified into the following kinds:

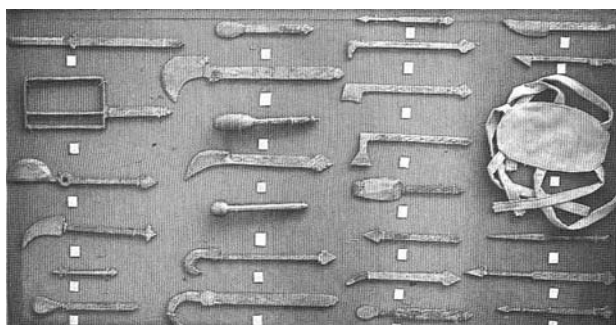
- General surgery tools, that comprise needles, forceps, scissors, scalpels, probes, retractors and dilators.<sup>(12)</sup>
- Tubes including syringes, catheters and cannulas.<sup>(12)</sup>
- Thermo-cautery tools including the single pointed tip, double tip, triple tip, circular tip, cutting tip and crescentic tip cautery tools, and a new addition by Abulcasis of a protected cautery tools enveloped in a cannula.<sup>(13)</sup>
- Orthopedic tools, that include surgery instruments, hammers, pillars hand saw and splints.
- Face, ear and nose surgery tools.
- Dental surgery tools.
- Obstetric tools are a collection of surgery tools, speculums, crushers, dilators and hooks.<sup>(8)</sup>
- Eye surgery tools.<sup>(14)</sup>
- Anaesthetic tool. These include the soporific sponge for inhalation anaesthesia, the enema tube for rectal anaesthesia.
- Feeding tubes for oral or rectal feeding.
- Pharmaceutical tools. These are the spoons, flasks, jars, bottles, mortars and leather bags that were used for drug preparation.
- Measured blood letting device, was a special tool made of a stand and four pillars, for safe control of blood letting.<sup>(17)</sup>
- Patient transportation devices, these were the wood stretchers and hand carts.<sup>(16)</sup>



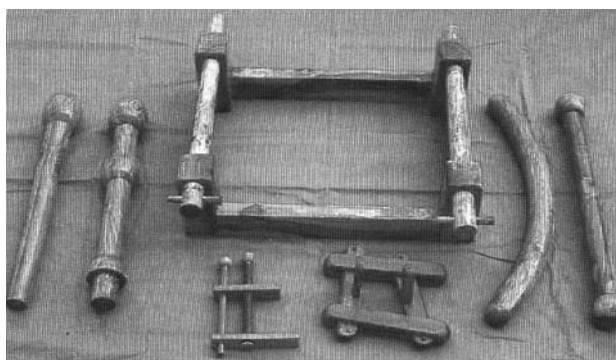
**Surgical Hooks and Retractors**



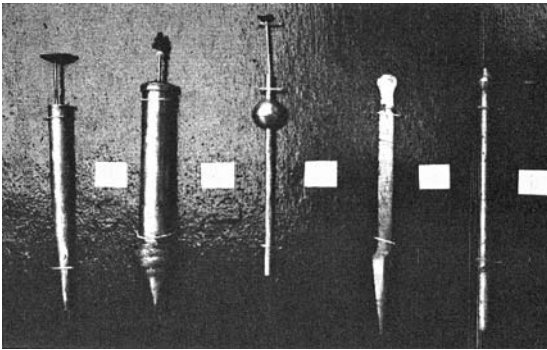
**Collection of Instruments**



**Orthopedic Metal Instruments**



**Orthopedic Tools of Wood**



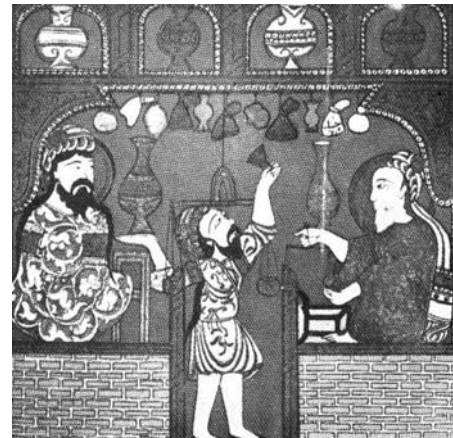
**Syringes and Cannulas**



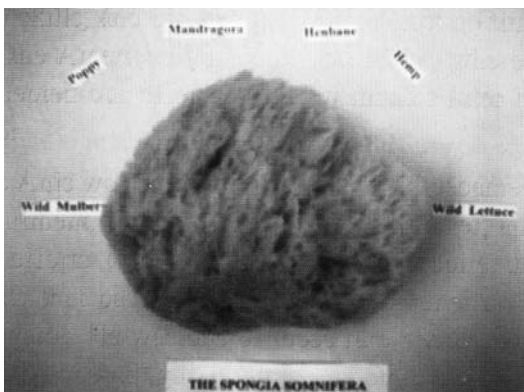
**Utensils for Preparation of Drugs**



**Spoons of Wood**



**A Drug Store**



**The Anesthetic Sponge For Drug Inhalation**



**Umayyad Pharmacist's Measuring Cup With Inscribed Glass Seal; Measures 3 Inches High. (Courtesy The Metropolitan Museum of Art; Gift of Helen Miller Gould, 1910.)**



**The Anaesthetic Sponge for Inhalation Anaesthesia**



**Utensils for Preparation of Drugs**



**Patient Transportation**



**Hand Carriage For Patients**

**The Instruments in Medical Practice:**

The great number of the efficient medical instruments used in Islamic medicine were made of solid durable material and effectively used by the Islamic physicians in their practice of medicine.

For clean and safe use of these instruments in surgery, many antiseptic measures were strictly followed to minimize wound infection or suppuration. This was based on good rational basis at a time where microorganisms were not known or discovered.

Rhazes by his high medical experience recognized the phenomena of putrefaction and so he wisely selected the most clean site in Baghdad to establish a new hospital. He was also the pioneer physician who used pure alcohol as an antiseptic agent for wound cleaning and operative dressings.<sup>(20)</sup>

Preservation of the instruments in fresh liquid bile before their use, was advised by Avicenna as an effective antiseptic measure.<sup>(19)</sup>

Fire heating of the instruments was advised by Rhazes and Avicenna for the surgical tools and cautery instruments before their use as a safe antiseptic measure.<sup>(18)</sup>

**Conclusion**

I hope that this proper honest study of the Islamic Medicine and Instruments can reveal the great precious role played by the Islamic physicians in the progress of medicine and the perfection of medical practice, based on good observation, judgment and high knowledge.

The subsequent civilization in Europe got benefit of this high progress in medical knowledge and manufacture of surgical instruments to start their own renaissance. They quoted all the Islamic medical innovations, without any acknowledgement of the previous precious role of the pioneer Islamic physicians. They even accredited some of their physicians of being the pioneer inventors of many Islamic medical instruments.

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# Unknown Contributions of the Arab and Islamic Medicine in the Field of Anaesthesia in the West

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## Summary

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Humanity is indebted greatly for introduction of modern anaesthesia to Morton, Wells and others but most of the text books suggest that; inhalational anaesthesia was not known before, although there may have been some attempts by Greeks and Romans who are reported to have used magic and superstition, hypothermia and analgesic mixtures.

There is evidence that Moslems used to administer sedatives and analgesic mixtures before a surgical operation. A quotation from Avicenna reads: (A patient who wants to have an amputation of one of his organs must have a drink prepared from a mixture of mandagora and other sleeping drugs)<sup>(1)</sup>. The Moslems scientists can also be credited with introduction of inhalational anaesthesia by using the “anaesthetic sponge”. A quotation from Sigrid Hunke reads; (The truth is and history proves it, that the art of using the anaesthetic sponge is purely Moslem technique which was not know before. The sponge used to be dipped and left in a mixture prepared from cannabis, opium, hyoscyamus and a plant called Zoan)<sup>(2)</sup>.

The Zoan is a pure Arabic word for a sort of thin black-brownish coloured grain which is one of impurities of wheat in northern Syria, because its ears looks like the ears of the wheat but thinner and more prickly. When its ratio is high in the flour, the bread causes dizziness and longer sleep. A group of research workers in the American university of Beirut studied the plant and reported that its name (Bearded Darnel) in English and (Iolium temulentum L.) in Latin. A study of its pharmacologic effect is needed – the existence of the Zoan in the mixture used by the Arab scholar is another evidence of the Arabic origin of the anaesthetic sponge (Haddat, F. S. 2005)<sup>(3)</sup>.

In the field of chemistry, there is disagreement on who deserves the credit of producing the ether bond (-O-) which is the basic radical in a group of anaesthetics in common use today. Some credit it to Valerius cordus, others to Paracelsus<sup>(4)</sup>. However, there is evidence which indicates that physicians of Islamic medicine were the discoverer of alcohol and probably of ether radical. It is well documented that alcohol was distilled by al-Kindi<sup>(5)</sup>. The name is pure Arabic, coming from “Al-Goul” the word used by the Arab to describe the damaging portion of wine and it is mentioned in the Holy Quran, describing the wine served in paradise as (Al-Ghoul free and does not cause hangover)<sup>(6)</sup>. There is also evidence that sulphuric acid was discovered by Al-Razi<sup>(7)</sup>. They used to distill alcohol by treating it with sulphuric acid. Considering that diethyl ether can be produced by extracting water out of alcohol; it becomes likely that the old moslems were first to lay down the basis of this essential anaesthetic substance.

Recently it was reported that, Avicenna deserves the credit of the first orotracheal intubation 1000 years ago. A quotation from Avicenna’s Arabic and original book, Al Kanoun fit-tib, known in the west: Liber canonis reads, “when necessary, a pipe made of gold or silver could be passed through the larynx to assist in breathing”, (Brandt, L-1989) (Haddat, F.S. 2003)<sup>(8)</sup>.

In the field of resuscitation, the use of bellows for respiratory resuscitation is credited to the Society of Resuscitation of Drown Persons of Amsterdam (1767) and some even credit it to Paracelsus (1493-1541)<sup>(9)</sup>. However, there is evidence that Moslems of the 13th century AD were familiar with resuscitation of respiration by using bellows. When a Moslem physician with the name of (Saleh bin Bahla) used the bellows to resuscitate prince Ibrahim, cousin of the great Khalif Al-Rashid, who was announced dead due to depression of respiration.

A quotation from Ibn-Abi Usibia’s Classes of Physicans written in the 13<sup>th</sup> century reads; (Saleh brought a bellows and a snuff called El-Kundus and started to inflate through the nose of Ibrahim for around twenty minutes. Soon the body of Ibrahim began to shake, then he sneezed and sat up in front of Al-Rashid)<sup>(10)</sup>.

Key Words: Islamic Medicine, Anaesthesia West

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Science and medicine do not belong to any one ethnic or national group. Of the innumerable scientific discoveries made by man, only a few are really the work of a single person, nation, locality and generation. Often a medical discovery is the summation of many contributions made by scholars throughout the ages.

It is unfortunate that leading historians have ignored the achievements of the orient as a whole and of Moslems in particular, in the various fields of science and medicine. It will suffice to mention the names of but a few great Arab and Moslem scientists, whose gigantic contribution to the progress of civilization is presently enjoyed by all

mankind. The description of the pulmonary circulation by Ala Aldeen Ibnul Nafies antedated the discoveries of the renaissance period, by 300 years (1) Ibn EI-Heitham was the founder of optics and EI-Khawarezmi the originator of algebra. The purpose of this paper is to highlight some prime contributions by some Arab and Moslem scientists in the field of anaesthesia.



(Figure 1)  
Ala-Eldeen Ibnul nafees

## Anaesthesia in Islamic Medicine

The delay in the introduction of pain allaying drugs is partly attributed to the old belief in the west, that pain and suffering was the price paid by humans for their sins (2). Humanity is indebted greatly for the introduction of modern anaesthesia to Morton, Wells, Simpson, Snow and others,



**(Figure-2) Avicenna**

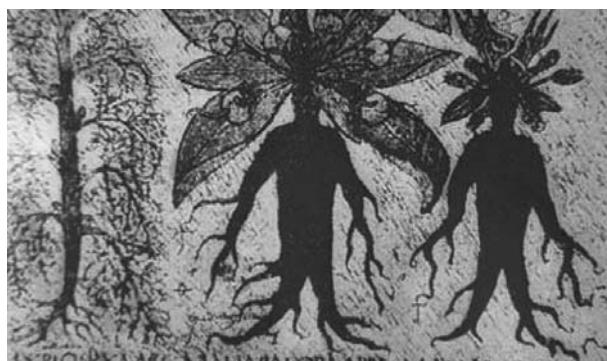
(3) but most textbooks suggest that inhalational anaesthesia was not known previously, although there may have been some attempts at anaesthesia by Greeks and Romans who are reported to have used magic and superstition, hypothermia and oral analgesic mixtures (4).

The physicians of Islamic civilization were familiar with surgery and undertook a number of operations including amputations, tonsillectomies, and excisions of tumours (5). Such extensive surgery could not have been performed without some method of allaying pain. In addition, one of the reasons why the Moslems could make their way into the field of anaesthesia was the fact that the concept of pain as punishment from God had no place in their belief and tradition.

There is evidence that Islamic physicians used to administer sedatives and analgesic mixtures before a surgical operation. A quotation from Avicenna reads:

‘A patient who wants to have an amputation of one of his organs must have a drink prepared from a mixture of mandragora and other sleeping drugs.’ (6) Other plants used for the same purpose were: Indian cannabis (Hashish), opium poppies (El-Khishkash), hemlock (Shweikran), and hyocyamus.

The Islamic scientists can also be credited with the introduction of inhalational anaesthesia. Ibn Al-Quff (1233-1286) in his book (Al-Omda Fil-Jiraha “The Mayor on Surgery”) of the 13<sup>th</sup> Cent. in part-1 under the Subject of “Relief of pain” of surgery, mentions the need for anaesthetic; and on page 219 mentions 3 kinds of “benj” which can be used by local



**(Figure-3) Mandragora**

application or inhalation. The inhalation here could be by using the ‘anaesthetic sponge’: A quotation from Sigrid Hunke reads:

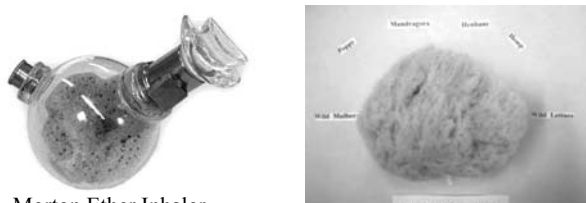
“The science of medicine has gained a great and extremely important discovery, that is the use of general anaesthesia for surgical operations, and how unique, efficient and merciful, for those who tried, the Moslem anaesthetic was. It was quite different from the drinks the Indians Romans and Greeks were forcing their patients to take for relief of pain. There had been some attempts to credit this discovery to an Italian or to an Alexandrian but the truth is, and history proves it, that, the art of using the anaesthetic sponge is a purely Moslem technique which was not known before. This great Scientific discovery entered Europe and was used until 18<sup>th</sup> cent. when inhalational anaesthesia become known in 1844. The sponge used to be dipped and left in a mixture prepared from cannabis, opium, hyoscyamus and a plant called Zoan (7)”.

Zoan is a pure Arabic name for a thin and black – brownish coloured grain, which is one of the impurities of wheat in Syria, because its ears look like the wheat one, but thinner and more prickly. At the past when perfect sieving and purification of the wheat was not possible, it was recorded a pandemic of complaints of dizziness and long sleep following eating bread in Aleppo, and it turned up to be due to high ratio of the zoan in the flour. A group of research workers at the American University of Beirut, studied the plant and reported its name (Bearded Darnel) in English and (Lolium Temulentum) in Latin. A study of its pharmacologic effect is needed. The existence of zoan which was not known in the west, among the mixture used by the Arab scholar, is another indication of the Arabic origin of the spongia somnifera (F. S. Haddad – 2005)<sup>(8)</sup>.



**(Figure-4) An Arab physician operates under Inhalational Anaesthesia with soporific sponge**

In the article (Keeping an open mind)<sup>1</sup>: there are numerous references to the use of soporific sponges in the period from 800 AD to 1200 AD, particularly in Germany, Spain and Italy. Typical of them is the recipe of Nicolaus Salernitanus. (RODN, WESTHORP, FANZCO 1996) Since those years are in the period of the Arab rule in Spain, it is Possible that the technique was transferred to Europe From Spain via sicily. The earliest known description of the soporific sponge is found in the Bamberg Antidotarium (a materia medica) of the 9th century. In the Antidotarium of Nicholas, a text book in salerno Medical school, the Antidora parva contained a formula for anaesthtic sponge. The Arabic origin of the sponge is reconfirmed by Campbell who stresses the Arabic origin of Antidora Parva (8) and Talbot describes it as having additions and modification imported from Arabic sources (9) (Figer -5) Since the Arab Scholars have shared in establishment of Salerno School of Medicine founded by Benedictines and were members of the Teaching Board; it is clear that, the Somnifera sponge brought to salerno by the Arab and from Salerno it was transferred to School Monte cassino which has close relationship with the School at salerno, and from there to Germany and the rest of Europe.



**(Figer-5)**

## Ether and Alcohol

In the field of chemistry, the ether bond (-O-) which is the basic radical in a group of anaesthetics in common use today (diethyl ether, methoxyflurane, enflurane,

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isoflurane, sevoflurane and desflurane) deserves special consideration. There seems to be some disagreement as to who synthesized ether first. Some sources credit Valerius Cordus who is said to have described the technique of its manufacture in his book Annotation on Dioscorides printed in 1561, and called it 'sweet vitriol'. Other sources claim that Paracelsus described the synthesis of ether in his Opera Medico Chemica Sive Paradoxa (printed 1605) and reported its effect on chicken (10).

There is evidence, however, which indicates that physicians of Islamic medicine were the discoverers of alcohol and probably unknowingly of the ether radical (-O-). «Al-Ghoul», the original name of alcohol, is one of the most commonly used chemicals and therapeutic substances known in the Arab and Islamic world over the years. Apart from it being a good disinfectant, it is an ingredient in many therapeutic mixtures, a solvent (next to water) and it is the basic substance of several inhalational anesthetics just mentioned above, all have the ether bond (-O-), the product of treating di-ethyl alcohol which was distilled by Al-Kindy from wine with sulfuric acid<sup>9</sup>; Which was introduced by Razes (11).

A valuable compound such as alcohol had raised the interest of many western researchers, who because of their lack of knowledge of the intricacies of the Arabic language, tend to make mistakes with regard to the historical origin of alcohol.



**(Figer-6) Al-Razes**

## The Western Confusion of Arabic Words

A historian and orientalist Eric Holmyrad, 1973, in his book Makers of Chemistry presumed in advance that alcohol must necessary be of western origin. He credited its production and naming to Paracelsus, 1541, a credit the man himself did not claim. To justify this claim., Holmyrad made desperate attempts to find an Arabic word which fits the origin of alcohol. In doing so he made a series of mistakes which indicated that he had no idea of the intricacies of the Arabic language. A quotation from his book reads:

«It was Paracelsus who first gave the name Alcohol to the spirit of wine. Al-Kuhl originally signifying the black eye-paint used by eastern women, had gradually acquired the meaning of any very finely divided powder, thence by a natural transference it came to mean the best or finest part of a substance. Possibly Paracelsus regarded spirit of wine as the best part of wine and therefore named it alcohol of wine or simply alcohol»(12).



(Figer-7) Paracelsus

Holmyard made the mistake of relating the word alcohol to Al-Kuhl (black paint used by eastern women as a make-up for the eyes) and also was unable to distinguish between the word Fine (meaning tiny particles) and Fine (meaning well or good). In the Arabic Language another default on alcohol, M.Y. Hachimi, 1968 adopted Holmyard’s view and added that, alcohol could be the plural of Al-Kuhl in Arabic(13). It is clear that both of Holmyard and Hachimi are far from being correct.

The history of science is full of mistakes made by western researchers when it comes to the study of the history of Arab and Islamic civilization. Some conclusions made by them were incorrect. There is no such word (alcohol) in the major Arabic dictionaries and encyclopedias, and Al-Kuhl cannot be pleural. The confusion is further worsened by lack of distinction between Al-Kuhl which is a remedy in solid powder for the eyes and Al-Kuhl used for make up by women which is a liquid. The Arabs do not call the spirit or extract of any substance it is like Al-Kuhl; rather they say «as fines, meaning very tiny particles as the powder of Al-Kuhl».

The original name Al-Ghoul referred to earlier, means something which affects the brain, leading to loss of control of behaviour, and Judgment and this word has been mentioned by the Arabs before Islam. Abou Ubaida, a poet, says that Al-Ghoul is something which assassinates the brain and he added that wine keeps assassinating us’ (14). Furthermore, that word is documented in the Holy

Quran describing the wine served in paradise as Al-Ghoul-free(15). Nevertheless, the word Al-Ghoul has transpired to alcohol in English and alchool in French.

## Sublimation

Two references from Arab and Islamic civilization are worth mentioning. The first, Jaber Ibn Hayyan’s book Al-Khawas where one reads that: the flames which are ignited at the head of wine bottles(16) are an indication to that portion of wine which is flammable. The second one, Jacob Ibn Ishak Al-Kindi’s book Chemistry of Perfumes and Sublimation where he describes in detail the technique of sublimation and preparation of the equipment used for a variety of perfumes. He adds “and so wine is sublimated to emerge in light pinky colour and by the same technique, the vinegar is also sublimated to emerge in light pinky colour”(17). There is evidence then that Arab and Islamic chemists were familiar with sublimation of wine and that Al-Kindi has distilled alcohol in the 9th century, antedating Paracelsus by 600 years.



عن كتاب «يعقوب بن اسحق الكندي»  
في طبيا العطر والتصبينات

### From the Chemistry of Perfume & Sublimation

#### (Figure-8) The Set-up used by Al-Kindi for Distillation of Alcohol

Recently, it is reported that, Avicenna deserves the credit of the first endotracheal intubation. A scholar named: Brandt, while looking at a Latin. Version of the book: Al-Canoun fit-tib, known in the west as canonis, in Venice came across this phrase: “when necessary a pipe made of gold or siler could be passed through the larynx to assist in breathing” (Brand t.L. 1987) (18).

This fact was more recently verified in the Arabic original of the book published in Rome in 16<sup>th</sup> cent. The same phrase found in the page 225, book 3 – fen. 19 (Haddad, F.S. 2003) (19). (عساتل ان فلدا – ثل اشلا با تكلل). (19).

## Resuscitation:

In the field of resuscitation, the use of bellows for respiratory resuscitation is credited to the Society of Resuscitation of Drowned Persons of Amsterdam in 1876 and to the Royal

Humane Society of London in 1771 and some even credit the use of bellows to ventilate the lung to Paracelsus (1493-1541) (20). However, there is evidence that Moslems of the 13<sup>th</sup> century AD were familiar with resuscitation of respiration by using the bellows. The following abridged anecdote is taken from Ibnu-Abi Usibia *Classes of Physicians* (21) written in the 13<sup>th</sup> century. The author was a learned physician and oculist who lived chiefly in Cairo and died in 1270 AD) (22). Ibnu-Abi Usibia (23), tells us "El-Rashid (Emir El-Mou'mineen Prince of Believers) would not eat unless his physician Gabreal Ibn Boukhtaishou was present. One day Gabriel arrived late for dinner and begged the forgiveness of El-Rashid saying that he was busy trying to give medical care to the cousin of the begged (Ibrahim Bin Saleh), who was very ill and that he did not think that the cousin would survive longer than the time of sunset prayers. On hearing this, The Grand Vizir Jafar Ibn Yahya intervened and said: 'Great Emir ElMou'mineen I know one by the name Saleh Bin Bahla who is familiar with the Indian way of medicine and I would suggest seeking his services.' Saleh Bin Bahla was summoned and ordered to examine the Emir's cousin Ibrahim and report back to the Emir.

On completing his examination, Saleh Bin Bahla reported saying: 'Be humble enough your Highness, Prince of Believers to be my witness that if your cousin expires tonight, every livestock I own is to be sacrificed to god and whatever fortunes I have will be gifted to the poor. "When the time of the evening prayer came, the death of cousin Ibrahim was announced", On hearing the news El-Rashid started to blame Saleh. Saleh kept silent for a while and then shouted: Allah! Allah! Your Highness, Prince of Believers, I urge you not to bury your cousin alive. Your cousin is not dead. Please allow me to see him again. 'Permission was granted, Saleh brought a bellows and a snuff called El Kundus, and started to inflate through the nose of Ibrahim for around twenty minutes. Soon the body of Ibrahim began to shake, then he sneezed and sat up in front of El-Rashid". Ibrahim subsequently married El-Rashid's sister, Princess El-Abbassa and was appointed governor of Egypt and Palestine.

## Conclusion

Science has no native home of its own and every person has the right to ask for it. When the talents and circumstances exist, new horizons can be discovered. The Moslems are the first in the list of nations who had the honour of holding the torch of civilization for quite a while and made a great contribution to basic sciences, upon which modern technology, and progress is raised. In the Field of Anaesthesia and resuscitation, the contribution of Islamic civilization is enormous and the discoveries made have laid down the foundation of modern practice.

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# “Tuhfat Al-Muminin” (1669 Ad) By Muhammad Mumin As An Important Source On Traditional Islamic Medicine

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## Summary

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In the recent paper «Tuhfat al-Muminin» by Mir Muhammad Mumin (died in 1697) have been studied. Muihammad Mumin was a prominent scholar who collected and evaluated rich heritage of the traditional Islamic medicine. This author described medical properties of thousands of species of plants, animals and minerals, and mentioned their names in 27 languages and dialects. In the resent study the biography of Muhammad Mumin, structure and content of “Tuhfat al-Muminin”, as well as role and place of this book in development of Islamic medicine have been studied. It may be concluded that «Tuhfat al-Muminin» is a comprehensive work, which deeply influenced development of medicine and pharmacy in the Near and Middle East. This work was used as a reference book by medieval Muslim scholars during the 17<sup>th</sup>-early 20<sup>th</sup> centuries. Recently, numerous manuscripts of «Tuhfat al-Muminin» are kept in the Institute of Manuscripts of the Azerbaijan National Academy of Sciences.

**Keywords:** pharmacy, traditional medicine, Islamic medicine, manuscripts, Iran, Azerbaijan.

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## Introduction

Seyyid Muhammad Mumin ibn Amir Muhammad Zaman Huseyni Deylami Tunkabuni Mazandarani (died in 1697) was a famous physician, talented scholar, philosopher and poet. He was born in Isfahan, but the native land of his ancestors was Deyleman, the city between Lahijan and Langrud in the north of Iran. This city for a long time was a capital of sultans of Deylam, and was known as an important center of culture and science in Iran. It was a homeland of a number of distinguished physicians including Muhammad Mumin.

In the 17<sup>th</sup>-18<sup>th</sup> centuries, Isfahan was the capital of Safavid shahs of Iran. The ancestors of Muhammad Mumin were physicians in of Safavid shahs, and, therefore they resided in Isfahan too. Father and grandfather of Mumin, as well as his other relatives were prosperous physicians. Mumin informs about himself that: “The father and grandfather of this humble person (*i.e. Mumin himself – F.A.*) served to many khagans, sultans and descendants of Prophet Muhammad” [6].

Muhammad Bagir Khansaria in his “Ravzat al-Jannat” (“Secrets of Paradise”) writes about Mumin as follows: “The descendant of Prophet Muhammad, the scholar Mumin ibn al-Amir Muhammad Zaman Huseyni ad-Deylami at-Tunkabuni al-Mazandarani is the author of the book “Tuhfat al-Muminin” (“Gift of True Believers”)

which was dedicated to high-ranked owner of supreme title and wonderful name shah Suleyman as-Safavi al-Musavi. Mumin was a skilled physician, the son of the “House of Knowledge”, and the first one among persons seeking the truth. He knew perfectly secrets of treatment with the help of food and medicines... His grandfather was great healer and physician, and Mumin, like other his relatives and compatriots, achieved wonderful skill in medicine” [8].

Muhammad Mumin was born in Isfahan city, but the date of his birth is not known. He perfectly learned medicine and pharmacy, made good professional career and gained popularity among wide range of people. As a result, he was invited to the palace of shah Suleyman Safavi (1669-1694 AD).

## Muhammad Mumin in the Safavid Court

Mumin was a court physician of shah Suleyman Safavi (1669-1694 AD), the son of shah Abbas II who was one of last Safavid rulers. Safavid (Safavi, Sefevi, Sefevid) dynasty came to power in Azerbaijan and Iran in 1501 AD. They were leaders of influential Sufi order, which was founded in Ardabil city by their ancestor sheikh Safiaddin (died in 1334 AD). The Safavids were a Shia dynasty of Azeri Turkish origin which ruled Persia from 1501/1502 to 1722. [4]

Safavids played a great part in development of culture in Azerbaijan and Iran. For example, Shah Ismail I wrote verses in Azeri Turkish, and his descendants supported fine arts and literature [2]. Muhammad Mumin served to Shah Suleyman Safavi who was a philanthropist and poetry-lover. Court of Suleyman attracted scholars and poets from different cities and countries. The talented Azeri poet Saib Tabrizi certain time lived and wrote poetry at the shah's court. Besides, in this palace there worked also Muhammad Bakir as-Sabzavari (died in 1671), the author of “Novruzname” (“The Book about New Year”) and several treatises on astronomy and chronology. According to the order of shah Suleyman, Muhammad Bakir composed the comprehensive “Glossary of Turkish Words”. Namely by the order of shah Suleyman Muhammad Mumin created “Tuhfat al-Muminin”, the book in Persian that played important part in future development of medicine and pharmacy in the Muslim World.

As a skilled and knowledgeable scholar, physician and pharmacist Muhammad Mumin influenced development of medicine and pharmacy in Azerbaijan, Iran, Minor and Central Asia, North India, and other regions where Persian was widespread and understandable. “Tuhfat al-Muminin” was very popular in these areas, and local physicians used it as a reference book.

## “Tuhfat al-Muminin” by Muhammad Mumin.

“Tuhfat al-Muminin” (1669 AD) was one of the most informative and reliable sources on medicine and pharmacy in Islamic world. The book provides information about hundreds of species of medicinal plants, animals and minerals. The author mentions names of these pharmaceuticals in 27 languages and dialects like Persian, Arabic, Turkish, Berber, Chinese, Hindu, Syriac, Greek, Coptic, etc. [6].

Muhamad Mumin collected information from different sources, analyzed, elaborated and enriched it with the results of his own experience and observations. He included into “Tuhfat al-Muminin” only facts, which were tested personally by him or his father or his grandfather, or facts provided by good and reliable books.

Muhammad Mumin widely used works of his predecessors and he mentions their names in “Tuhfat al-Muminin”. These are as follows: Ibn al-Baitar, Hippocrates, Dioscorides, Galen, Razi, Biruni, Ibn Sina, Ibn Juzla, Ibn Kabir Khoyi, Sheikh Davud Antaki, Ibn Tilimiz, Bakhtishu, Huneyn Ibn Ishaq, and such Indian scholars as Susruta ana Charaka, etc. [1].

Muhammad Mumin writes in preface of “Tuhfat al-Muminin” that: “the book was compiled on the basis of “Jam al-Baghdadi”, which is reliable in most cases. The author

of the mentioned book (*Ibn Kabir Khoyi – F.A.*) extracted without negligence all necessary information from “Jam” by Ibn Baitar and other books on medicine. Besides, I used all information from “Tazkira Alva al-Albab” which is known also as “Jameyi-Antaki” by Sheikh Davud Antaki. This book was written after “Jameyi-Baghdadi”, and in some cases supplements the abovementioned book. I also widely used “Mugni” and works by Ibn Tilimiz who critically approached to “Jam al-Baghdadi” and quoted facts that were not mentioned in this book. And I have extracted all necessary information from “Kamil al-adviyya”, “Jam al-Adviyya”, and from works by Amin ad-Dovlat. Besides, I benefited from other reliable sources, for example, from “Qanun” by Ibn Sina, “Mualijati-Bukrati”, “Ikhtiyarati-Ibn Habal”, “Havi Kabir”, “Havi Sagir”, “Shafa al-Asqam”, “Mualijati-Ilaqi”, “Kunnash Fakhir”, “Kunnash Sakhir”, and from works by Bakhtishu and “Munkaz as-Samum” by Galen, as well as from works by Ibn Zakariyya, “Kamil as-Sanaa” [...] as well as from “Manqulat” by Huneyn ibn Ishaq, and from the books by Indian physicians like “Tarjumai-Bahir”, “Kitabi-Charak”... “Furuzshahi”, “Susrut”, etc.” [6]

Mumin demonstrates critical approach to the used sources. He severely criticizes some works, especially “Ikhtiyarati-Badii” by Zeinalabdin Attar (Ali bin Husein Ansari). Muhammad Bagir Khansaria writes about it that: “to compile the book, Mumin used principal parts from the works of his predecessors, and he benefited from their experience and activities, and used the written heritage of his ancestors most of which were physicians. General structure of this work is similar to “Ikhtiyarat-i badii”, the book in Persian. Nevertheless, Mumin was sure that the author of “Ikhtiyarati-Badii” was not accurate and serious when studied and described medical substances and, as a result, became a victim of mistakes...” [8].

Mumin writes in the introduction of the book: “One of reasons why I decided to write this book is that the author of “Ikhtiyarati-Badii” (the book in Persian) was irresponsible studying pharmaceutical compounds and describing their medical properties. Many pharmacists use his book and forgot reliable sources, and, as a result the effective medicines were substituted with useless compounds. Therefore, all people who learn sciences wanted me to provide them with correct information, which is not found “Ikhtiyarat-i badii” [6].

Describing his own book, Mumin writes: “As the book is shortened, I have not described all properties of medicines, and have not inserted here the names of compounds with unknown composition. As to degrees of effectiveness, I was satisfied with experience and comparison, and mentioned only important information related with it. All these constitute advantages of “Tuhfat al-Muminin” above other informative and reliable sources” [6].

Thus, Mumin shows following main reasons why he wrote "Tuhfat al-Muminin". It is shortage of comprehensive and reliable pharmacy books in Persian, and numerous mistakes and shortcomings in the widely spread pharmacopoeia "Ikhtiyarati-Badii". Evidently, the author had wide knowledge about medieval Islamic medicine and its rich heritage. When writing the book, he attracted numerous sources, and refers not only Muslim and Greek, but also Indian scholars. [6]

The above mentioned facts create the basis for the following conclusions.

1. "Tuhfat al-Muminin" is independent, original work, which was written on the basis of evaluation of rich heritage of Islamic medicine, as well as on the basis of personal observations and conclusions of the author.
2. Mumin often provides references to the used sources. When he quotes other authors he usually provides their names or titles of books.
3. Mumin demonstrates critical approach to the used sources, and exposes them to critical analysis agreeing or disagreeing with this or that author, and criticizing incorrect or mistakenly information.

Owing to all these advantages, the book by Muhammad Mumin gained great popularity in all countries where Persian language was in use: Caucasus including Iran, Azerbaijan, Afghanistan, Central Asia, Ottoman Empire, North India, present-day Pakistan, etc.

In Ottoman Empire the book by Muhammad Mumin was translated from Persian into Turkish in 17<sup>th</sup> AD. "Tuhfat al-Muminin" gained wide popularity in the present-day Pakistan and India. During life of Mumin these two countries constituted entire national-cultural area and were named respectively Sind and Hind. In the 18<sup>th</sup> century AD the book by Mumin was published by lithographic method in Delhi and Karachi. Besides, the famous Indian physician Muhammad Azam khan widely used "Tuhfat al-Muminin" as a source, when he compiled his own famous book "Mukhiti-Azam" ("Great Ocean"). In Iran itself the Mumin's work was published several times in 19<sup>th</sup> and 20<sup>th</sup> centuries [7].

In Central Asia Mumin's work influenced development of pharmacy and formation of new books in the field of pharmacy and medicine. For example, the famous 19<sup>th</sup> century's scholar from Samarkand Muhammad bin Husein Alavi Samarkandi was famous not only in Central Asia but in the entire Near and Middle East. He used Mumin's work when compiled his famous encyclopedias "Makhzan al-Adviyya" ("Treasure of Medicine") and "Qarabadini-Kabir" ("Big Pharmacopoeia").

"Tuhfat al-Muminin" was very popular in Azerbaijan. The Institute of Manuscripts of the Azerbaijan National Academy of Sciences treasures 33 entire manuscripts and 4 fragments of "Tuhfat al-Muminin" [1]. For a long time, "Tuhfat al-Muminin" was a reference book of physicians and pharmacists of Azerbaijan. During the 18<sup>th</sup> century AD, such followers of Muhammad Mumin in Azerbaijan as Haji Suleyman Irvani, Hasan bin Riza Shirvani, Abulhasan al-Maragi (Maragayi) widely used and repeatedly quoted Muhammad Mumin in their own books.

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# Patient, Illness and Physician in Kutadgu Bilig

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## Summary

Despite being a work of 11<sup>th</sup> century, one of the most valuable pieces of Turkish culture, Kutadgu Bilig of Yusuf Has Hacip contains the values of contemporary issues. Therefore, it is possible to find views about the patient, illness, physician and some therapeutics in the piece that was shaped around four main characters (Küntoğdı, Aytoldı, Ögdülmiş, Odgurmış).

After giving a short description of the piece, poet and the content in the introduction, couplet samples regarding the opinion of the poet about the patient, illness, physician and some therapeutics will be followed. Subject will be examined under the titles of "Looking at the Illness, Looking at the Patient, Looking at the Physician, Others Treating the Illness, Metaphorical Elements about the Illness, Metaphorical Elements about the Physician, and Metaphorical Elements about the Medicine". In the text, the numbers given in the parentheses show the couplet numbers and belong to Reşit Rahmeti Arat who published the text in his book *Kutadgu Bilig*.

**Key words:** Kutadgu Bilig, patient, illness, physician.

## INTRODUCTION

*Kutadgu Bilig*, which is accepted to be the most valuable work of art of Turkish Culture as well as Turkish Language and Literature, was written in Eastern Turkic (Khaqaniye) language by Yusuf Has Hacip in 462 /1069-1070 AD and formed by poems of couplets.

The information regarding the poet is limited. Despite having no information in the ancient resources, from the indirect descriptions about himself in the introduction section of the piece it can be understood that he was approximately sixty. The title of "Has Hacip" (chief advisor of the ruler) in his name shows that the poet had a governmental occupation in the service of Khanates.<sup>3</sup>

*Kutadgu Bilig* meaning "The Wisdom which brings Happiness" was written in the purpose of showing the way that is necessary to be happy in both of the worlds. The work is far beyond giving advices like a morality lecture but instead teaches how to acquire and use the knowledge, mentality and the virtue that are necessary for reaching the ideal measures for the individual, society and government.<sup>4</sup>

In the piece, four characters represent the four main principles in an allegorical debate:

1. Küntoğdı = ruler, köni töri (order, justice); character: sun.
2. Aytoldı = happiness (sacred, glory, government, fortune); character: moon.

3. Ögdülmiş= mind; son of Aytoldı; in the service of the ruler.
4. Odgurmış= mystic values, metaphysical; secluded, zahid; relative of Aytoldı.<sup>5</sup>

Brief summary of the book is as follows:

There was a knowledgeable, virtuous and justice ruler named Küntoğdı. Hearing the fame of him, Aytoldı wanted to work under the service of this ruler. He found a way to be a vizier. However, he got sick and died. Before he died, he advised his son Ögdülmiş, to believe in God, to obey his rules, to be good and honest, listen everyone but not to believe everything he heard and to be patient. He, also left a will to the ruler and gave him information on how to rule the government and the society.

At this point, we think that it is useful to know the dialogues between Aytoldı and Küntoğdı regarding Aytoldı's illness as information about the description of the illness and the cure is presented:

Tadu teğşürüldi aşı boldı yig  
Ağır boldı köngli katig tuttu ig (1054)<sup>6</sup>

The situation of the components has changed; his food came raw; his heart was filled with boredom and got a heavy disease.

Tutup çaldı yirke ağır ig kelip  
Töşekke kirip yattı munglug ulıp (1056)

*A heavy disease came; it made him fell to the ground; he stayed in bed groaning.*

Otaçı tirildi tamur kördiler  
Ol ig kem ne ermiş ayu birdiler (1057)

*Priests came around him and looked at his pulse; they told their opinions about the sickness.*

Kayu aydı kan tutmuş emdi munı  
Aça birgü ekçek akıtgu kanı (1058)

*One of them said that he was taken by blood, his vein should be cut and his blood should be spilled.*

Kayu aydı ötrüm içürgü kerek  
Özi katmış emdi boşutgu kerek (1059)

*The other one said that he had to drink an evacuant; he had constipation, it had to be cleared out.*

Kayusı sogık itti kattı cülab  
Kayu kıldı birdi kereklig serab (1060)

*Another one prepared grout and poured rose water; the other one prepared a drink he thought necessary and gave it to him.*

Ot em kalmadı kör neçe kıldılar  
Yaraşık ne erse anı birdiler (1061)

*No treatment or medicine left; they gave everything they thought beneficial.*

Asıg kılmadı künde arttı igi  
Koradı küçi künde yitti ögi (1062)

*However, it was of no use; his illness got heavier day by day; he got weaker day by day and gradually lost his conscious.*

Kerek tut otaçı kerek erse kam  
Ölüglike hergiz asıg kılmaz em (1065)

*Even if you bring a physician or a kam (ecclesiastic in Shamanism), no medicine can cure a person who is about to die.*

Bu ay toldı halin eşitti ilig  
Ölüm tutgakı ig tegürmiş elig (1067)

*The ruler Moon learned about the situation of Aytoldı, the preceding of death has captured him.*

When Aytoldı died, ruler called Ögdülmiş to continue the same position as he is coming from the same family line; he thought that he was noble and virtuous. He had conversations with him about mind, knowledge, physical and moral pleasures, sultanate, justice, generosity, and politics.

One day the ruler asked him “One day I may lose you but I need people that are beneficial in the state occupations. How can I find such a person?” Ögdülmiş advised him his relative Odgurmuş. However, Odgurmuş was a zahid who did not care about earthly matters and devoted himself to eternity and death.

Odgurmuş, Ögdülmiş and the ruler had talked about religion and world either face to face or via letters. Odgurmuş stated that he did not want earthly blessings.

In these conversations, they talked about Islamic faith, Sufism, manners, marriage as well as scientists, poets, physicians, magicians, fortune tellers, farmers, animal breeders, artists; and they thought how to treat them.

At last, the ruler understood the reason why Odgurmuş did not want to deal with worldly matters, but preferred to be on his own; and he found him right. In addition, Odgurmuş gave him advices about his ruling responsibilities towards his people.

At the end of the piece, Ögdülmiş and the ruler understood that they could not do without Odgurmuş, but learnt that he was dead.<sup>7</sup>

In the following section the couplets in the piece are examined under the titles of “Looking at the Illness, Looking at the Patient, Looking at the Physician, Others Treating the Illness, Metaphorical Elements about the Illness, Metaphorical Elements about the Physician, and Metaphorical Elements about the Medicine”.

## 1. Looking at the Illness:

In the piece, eating excessively is pointed out to be one of the main reasons leading to a disease. Dyspepsia, caused by eating too much, was mentioned quite often in the work. For this reason, eating little was accepted to be similar to a medicine. Despite all the modern developments, even today doctors advise to eat less to be protected from many diseases. The following couplets offer samples for this:

İve kılmış işler neçe yig bolur  
İve yise aş suv neçe ig bolur (1998)

*The works that are done in a hurry turn out to be bad; sickness is caused by eating and drinking fast.*

Boguzdın kirür ig kişike kemi  
Boguzdın bolur hem angar ot emi (2895)

*Illness and discomfort come from throat; cure and medicine also come from throat.*

Kakı singmese aş tadu artarur  
Tadu artasa er ör iglep yatur (3579)

*If food is not digested, it damages the main components; if components are damaged, a person gets sick and falls to the bed.*

Öküş yigililerin aş yig bolur  
Aş yig kişi tutçı iglig bolur (4614)

*If people eat too much, they cannot digest; people who cannot digest food properly get always sick.*

Boguzdın kirür ig boguzug küçlez  
Aşig tenglegü yi yigü içgü az (4615)

*Sickness comes from throat, protect the throat, eat in moderate amounts; people should always eat and drink in small amounts.*

Esenlik tilese kör igzizlikin  
Az atlıg otug yi tiril ay tigin (4642)

*My dear prince: in order to be always healthy and not to get sick, take the medicine called "less" and live accordingly.*

According to the poet, although it can be cured from an illness, the possibility of death is not ignored. Although, Islamic perspective considers the death from an illness as a faith, it does not disregard the importance of the medical treatment:

İg ol aşnu erke ölüm tutgaki  
Ölümde tatıg yok aya er sakı (3580)

*Beyond everything, sickness is a messenger of death; dear precautious person, death is not pleasurable.*

Bu ig tutsa terkin kişig yavrıtur  
Anı emlemese ölüm tavratur (4616)

*When a person gets sick, he becomes weaker; if he is not cured, death runs to him.*

Bela mihnet ol ig ölüm tutgaki  
Ölümde tatıg yok azu yakşısı (4619)

*Sickness is a trouble and the preceding of death; there is no pleasure in death; there is nothing as a good death.*

## 2. Looking at the Patient:

In this piece that was completed centuries ago, the importance of motivating the patient as a treatment, was emphasized. In addition to this, poet also stated that a disease is not specific to one person if we consider the Islamic perspective. Furthermore, he also mentioned the importance of the patience during the sufferings. He even told that the sufferings in this world are the sufferings of the afterworld, there is a cure for every single disease; and not every person has to die due to illness. Hence, these show the faith of poet in God:

Kişi barça igler kör edgü bolur  
Sanga yalnguz ermez bu ig ay unur (1081)

*Everybody get sick, if you treat them, they heal; dear powerful person; this disease is not specific to you.*

İlig aydı ay toldı ivme serin  
İg ol bu yazuklarka yulğı yarın (1107)

*The ruler said: Aytoldı, don't be in a hurry, be patient; this disease will be a redemption from your sins.*

Bayat edgü kılğay bu igdin sini  
Köngülüng çökürme sen inç yat köti (1109)

*God will save you from this disease; don't be sad; be relieved.*

Kamug igke ot ol emi belgülüg  
Ol ig emlegüçi kamı belgülüg (3873)

*There is a cure and medicine for every illness; the person who cures this illness reaches his wish.*

Ölür erdi erse kamug iglegen  
Kişi kalmagay erdi ruzi yigen (1108)

*If every sick person died; there would be no person to eat food in the world.*

## 3. Looking at the Physician:

In the piece there is a section telling about the characteristics of physicians. There are couplets in these sections showing the importance of the works of physicians. Physicians, who treat illnesses with medicine, were considered to be indispensable:

Olarda birisi otaçı turur  
Kamug ig togaka bu emçi erür (4356)

*One of them is physicians; they treat all the illnesses and pains.*

Yime ök kereklig sanga bu kişi  
Anıngsız ongulmaz tiriglik işi (4357)

*They are necessary for you; a life cannot be sustained without them.*

Tirig bolsa yalnguk yime igler ök  
İgin emçi körs otun emler ök (4358)

*A person can get sick during his life; if he goes to physician, he treats the disease with a medicine.*

İg ol kör kişiğe ölüm koldaşı  
Ölüm ol kişiğe tiriglik tuşı (4359)

*For a human being, sickness is a friend of death; there is death for very living person.*

Another important point in this 11<sup>th</sup> century piece is the value given to the physicians and the emphasis to protect their rights:

Bularnı yime edgü tutgıl yakın  
Kereklig kişi bu küdezgıl hakın (4360)

*Treat them well and keep them in close distance; these are important people, protect their rights.*

Without forgetting the mortality of human beings, poet mentioned that everyone will die; if there were a cure to death, physicians should have lived till eternity:

Ölümke tıdar erse dünya nengi  
Bolup ölmegey erdi begler begi (1197)

*If any medicine or cure benefitted death, physicians should have lived infinitely.*

Another couplet that shows the necessity of physicians for the society by saying that if ever a physician gets, sick no one can do anything for him:

Kişi iglese ot otaçı birür  
Otaçı iginge otın kim bulur (2109)

If a person gets sick, a physician cures him; but if a physician gets sick, who will treat him.

#### 4. Others Treating the Illness:

In a piece that values physicians this much, other persons treating the illnesses can also be found considering the traditions of the society. One of them is the leader of drinkers. The drugs that the leader of the drinkers prepared with specific herbs can treat some of the illnesses:

Kamug türlüg otlar idişçi tutar  
Güvariş ya maëcun ya çurnı katar (2887)

The leader of the drinkers has all the herbs ready; he prepares drinks for digestion, power or evacuation.

Telim türlüg otlar anıngda bolur  
Yigü yalgagu ot ya içgü kolar (2888)

*He has all sorts of drug that can be eaten, drunken or swallowed.*

In the piece, there is also a section for magicians similar to the physicians. In that time, magicians also had occupations similar to the physicians. However, it can be seen that the kind of illnesses that the magician treated were quite different than the ones physicians treated. Magicians were rather interested in spirituals cases and their results.

Bularda basa keldi afsunçılar  
Bu yıl yeklig igke bu l emçiler (4361)

*After these people, magicians come; they treat the illnesses caused by spirits or elves.*

Bularka yime ök katılgu kerek  
Bu yıl yeklig igke okıgu kerek (4362)

*It is also necessary to meet and discuss with these people; the illnesses from spirits and elves should also be treated.*

It is always emphasized that there was an ongoing competition between the physicians and the magicians; in one case the cure comes from the medicine; in the other, it is from the amulet:

Otaçı unamaz muazzim sözin  
Muazzim otaçık evrer yüzün (4364)

*Physicians do not like the word of magicians; magicians do not value physicians.*

Ol aymış otug yise igke yarar  
Bu aymış bitig tutsa yekler yırar (4365)

*According to one of them, if a medicine is taken, the illness is treated; for the other if an amulet is carried, spirits get away from you.*

## 5. Metaphorical Elements about the Illness:

In addition to the sample couplets about the patient, illness and the physician, there are also metaphorical elements used to describe the illnesses and the components. When describing the weaknesses of a person, the word “disease” was used. Shamelessness, priggery, illiteracy, desire, greed, inappropriateness, jealousy were treated to be a disease:

### a) Shamelessness:

Uvut ol tıdıǵlı kaug tengsizig  
Uvutsuzluk erke idi tengsiz ig (1662)

*Every inappropriate thing is caused by shamelessness. Shamelessness is a severe disease for a person.*

### b) Priggery:

Bu beglik iginge otı öǵ bilig  
Ukuş birle emle ay kılkı silig (1970)

*The cure of priggery is mind and knowledge; treat it with mind.*

### c) Illiteracy:

Biligsiz kişi barça iglik bolur  
İǵig emlemese kişi terk ölür (157)

*An illiterate person is always sick; if it is not treated, the person dies quickly.*

Yorı ay biligsiz igingni ota  
Biligsiz otn sen ay bilge kuta (158)

*Oh illiterate person: go and get cured; Oh happy wise man: tell the cure of illiteracy.*

### ç) Desire:

Yana ma bu arzu manga boldı ig  
Munı emlemese özüm bargu yig (3871)

*This desire becomes a disease for me; if there is no cure for this, I have to go there.*

Köngül arzu birle kalı iglese  
Tilek bulsa onglur kemi belgülig (3874)

*If a heart desires something and this desire becomes a disease, it can only be cured by finding his wish.*

### d) Greed:

bu sukluk ig ol bir otı yok emi  
anı emleyümez bu dünya kamı (2002)

*Greed is a disease without a cure or treatment; it cannot be cured even by all the oracles.*

### e) Inappropriateness:

Közi suk kişining kılınçı yig ol  
Kılınç yiglikli erke tengsiz i ol (2848)

*Greedy man behaves inappropriately; behaving inappropriately is a disease that does not suit a human being.*

### f) Jealousy:

Tepizlik ig ol bir otatgu uzun  
Yimişi anı yir sızar bu özün (4253)

*Jealousy is a disease and needs a long treatment; the thing he eats, eats and melts himself.*

## 6. Metaphorical Elements about the Physician:

Mentioned in the introduction section, as Kutadgu Bilig is a book that gives advices about the responsibilities of the ruler towards his people, he was resembled to be a physician that cures the society in some of the couplets:

Ay ilig otaçı sanı sen bu kün  
Budun barça iglig sanga munlugun (5241)

*Oh ruler you are a physician today; your people are your patients as they need you.*

Kayusı kötürmiş bolur kür irinç  
Kayusı çıǵaylık bile yir sakınç (5242)

*Some of them are in a shortness and sad; the other are suffering in poverty.*

Kayu aç kayusı yalınmış bolur  
Kayu kadgu birle ulınmış olur (5243)

*Some of them are naked; the others are worrying in a doubt.*

Seningde turur kör bularning emi  
Otagıl daru birle bolgıl kamı (5244)

*The cure of all these are in you; be a physician to them, treat them and give their medicine.*

Kalı kılmasa sen emi ya oti  
Budunka bolur sen tiriglik yuti (5245)

*If you do not treat them by giving medicine, you become a disaster for your people.*

## 7. Metaphorical Elements about the Medicine:

Although the poet sometimes criticizes eating excessively from time to time, he asserts that eating appropriately is necessary, even can be seen as drug of a life:

Eginke kedim ya boguzka yimi  
Kerek ay kadaş bu tiriglik emi (3664)

*It is necessary to eat for your back and throat; oh friend: these are life drugs.*

## CONCLUSION

In the important piece of 11<sup>th</sup> century work Kutadgu Bilig, the views about the issues above are as follows:

The poet showed the main reason of a disease as eating excessively. He even found “less” similar to a drug and thought that an illness could be prevented by this way. Despite being one of the Islamic works, poet did not ignore the importance of treatment besides having a faithful perspective. The work emphasized the

importance of motivation of the patient for curing the illnesses.

Furthermore, there is a section in the piece that describes the characteristics of a physician. The most important of all is the one that sees a physician as the “indispensable of life”. In addition, it is worth mentioning that the piece values the physician and requires protecting the rights of physicians. Considering the traditions of the society, it is also believed to be other people treating illnesses other than physicians.

In the piece the word “disease” was used to describe some characteristics. Shamelessness, priggery, illiteracy, desire, greed, inappropriateness, jealousy were seen as a disease. In addition, the ruler was resembled a physician who treated the society.

In conclusion, it is possible to see that the views about patients, illnesses and physicians from a centuries old piece, can still exist unchanged in our contemporary world.

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# A View of the Development of Some Anaesthetic and Analgesic Drugs in The Western World and in Turkey and Some Original Documents

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## Summary

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Reason for this paper is to study historical development of some anesthetic and analgesic drugs in the Western World and in Turkey. Moreover, another aim is to comment on some historical documents in the Ottoman Archives and so, some original results are obtained. As a method, historical developments of these drugs are given as chronological and Ottoman Archives are commented.

Anaesthesia is one of the most important branches of medicine and also surgery. Sedation, analgesia and anaesthesia have become one of the most important topics of medicine since ancient ages.

In the Ancient Times, henbane (*Hyoscyamus niger* L), mandrake, opium and hellebore were used as analgesic and anesthetic drugs. For example, in the Indian period, *Cannabis Indica* was also used for that purpose.

In the Middle Ages, "soporific sponge" was used with the aim of analgesia or anaesthesia. These sponges contained opium, mandrake, hemlock, henbane etc.

In Turkey, in the Seljukian and the Ottoman Periods, analgesic and anesthetic drugs were also used for some aims. Some Ottoman Archives' Documents give some original knowledge on this topic.

In this paper, the development of these drugs are pointed out from the point of the history of Western Medicine and Turkish Medicine and some original results are obtained.

**Key words:** Anaesthetic Drugs, Ancient Ages, Anaesthesia in Turkey.

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These kinds of drugs have been used as analgesic and anesthetic since ancient ages. Ancient Mesopotamian clay tablets contain some prescriptions. For example, henbane seeds were mixed with gum and this mixture was applied to the tooth cavity for toothache. This was an analgesic prescription and it provides anesthetic effect. We suppose that this application was known as the earliest record of anesthesia in the history of medicine. We know that henbane contains hyoscyamine and scopolamine alkaloids. Hyoscyamine has anticholinergic effect and it decreases saliva and phlegm. Scopolamine shows sedative effects and today, it is used for premedication. Moreover, mandrake, henbane and opium were present in Mesopotamian codex. These drugs are analgesic.

In Ancient Egypt, surgical papyrus contained 40 surgical diseases and their therapies. This papyrus was discovered by **Edwin Smith** in Teb in 1862. It belongs to 2000 B.C. Ancient Egyptian physicians gave a syrup with opium to the patient before operation. Moreover, medical papyrus (**Ebers Papyrus**) who was discovered by **Dr. George Ebers** in Teb in 1862 belongs to 1550 B.C. and contained 700 drugs. Opium and henbane were recorded as analgesic drugs in this papyrus. Furthermore, in the ancient Egypt, analgesic effect of mandrake was known.

In the ancient India, henbane, opium etc were used for analgesic effect. According to an ancient manuscript, **Susruta** (622-542 B.C), henbane was used for analgesic effect. Moreover, hashish was also used for the same effect.

In the ancient China, a prescription with mandrake was administered to the patient in order to relieve pain before operation. Moreover, Chinese surgeons used opium, hashish for analgesic effect. Opium was also used before operation in ancient Israel and Iran.

In ancient Greece, both henbane and opium was also used as analgesic. Hippocrates used henbane, opium and alcohol in order to relieve operation pain in his operations with regard to dislocation, fractures, hemorrhoids and trepanation etc.

In ancient Rome, some surgical operations were applied. Some of them were operations with regard to spear wounds and orthopaedic operations. **Pedanius Dioscorides** (First century A.D) used mandrake for surgical applications. 2 parts mandrake and 2 parts opium were boiled with wine and this mixture was administered to patient before operation. **Dioscorides** mentioned another prescription with mandrake in his book with the name of **Materia Medica**

According to this author, mandrake was used for rectal anesthesia: Wine, quinquina bark and mandrake are mixed and this mixture is used in the form of suppository. We know that mandrake (*Mandragora officinarum* L) contains hyoscyamine and scopolamine and these matters are antispasmodic, analgesic and afrodisiac. Moreover, **Aulus Cornelius Celsus** who was a barber surgeon (3-64 A.D) mentioned henbane and opium as analgesic drugs in his book with the name of **De re Medicina**. **Pline l'Ancien** of Rome (23-79 A.D) used the mixture of wine and mandrake as anesthetic. He mentioned that cauterization and some surgical operations were applied with this mixture. Moreover, **Galen** who was a famous physician prepared opium in the form of suppository and used it as a hypnotic matter.

Analgesic drugs were also used in Europe in the Middle Ages. **Bamberg Antidotarium** which was a manuscript of the IX th century contained soporific sponge prescription. This sponge was massed with the juice of some plants and then it was applied to the nostrils of the patient and a kind of inhalation anesthesia was provided. A prescription of soporific sponge is as follows: 1 ½ ounces (ounce is equal to 28.3 grammes) opium, 8 ounces mandrake leaves' juice, 3 ounces henbane juice are mixed with sufficient water. A clean sponge is soaked with this mixture and is dried. When it is necessary, this sponge is soaked with cool water and is applied on the nostril of the patient and so, the patient goes to sleep.

After operation, the patient is woken up with clean sponge with vinegar.

According to **Henry Sigerist**, another soporific sponge was prepared from henbane, mandrake and lettuce leaves. This prescription was present in **Manuscript Montpellier H 185** belonging to the 11 th century. We suppose that it was used for anesthesia. Moreover, **Arnold of Villanova** from Montpellier Medical School wrote a manuscript **Breviarium Practicae** at the beginning of the 14 th century. According to this book, opium, mandrake bark and henbane were used for soporific sponge. **Lanfranchi of Paris** (the X111 –XIV th centuries) mentioned that opium was applied on the wounds and so, local anesthesia was provided in **Cirurgia Parva and Cyrurugia Manga**, his manuscripts.

Moreover, **Guy de Chauliac** (1300-1368) also used soporific sponge in the amputations. He also mentioned the side effects of opium. Opium caused asphxia, congestion and death.

According to **John Arderne**, a famous English surgeon, the patient's hands and head were washed with mandrake juice or opium powder was applied on his(her) head. So, when the patient slept, he operated him(her).

In the period of Renaissance, soporific sponge were also used. For example, according to **Antidotarium of Nicolaus Salernitanus**, a soporific sponge with poppy, henbane and vinegar, turnip and pig bile was used. Moreover, **Hieronymus Brunschwig** also used soporific sponge.

But, all the soporific sponges had some harmful effects. Because they couldn't prepared in the therapeutical doses.

As for Islamic world in 9th century, opium-addiction was not very much and opium was used in the treatment. **Ibn Māsawayh** (777-857), one of famous authors of that century, used opium in the cure of biliary pains. The same author gave this drug to patients as an analgesic matter in head-aches, tooth-aches, eye-aches, dysentery. **Abū'l-Hasan al-Tabāri** (9th century), one of the first Islamic authors mixed opium with some oils and used this mixture in coryza and migraine. Thus, the same author gave opium in the form of tablet in the treatment of cough. **Al-Tabāri** notified that opium with gum should be used as a narcotic matter. In addition, opium was an important agent of **theriac** and some other antidotes. **Hamarneh** wrote that **al-Tabāri** mentioned that opium was used in poisonings in Persian palaces.

Besides, **Cabir (Geber)** and some other chemists investigated poisoning characteristics of opium and notified that opium should be carefully used. **Sahl ben Sabour**, another investigator, administered opium to patients in the forms of electuary, pastille, lavement, powder, and decoction and wrote a codex. This investigator treated coryza, cough, head-ache and gout with opium. **Sahl ben Sabour** mentioned that opium was an antidotic matter.

**Abū Bakr al-Rāzī** (854-932) mentioned therapeutic characteristics of opium. According to him, a man who swallows 2 drachms opium shows the poisoning-symptoms and hot drill, the decoction of radish, salt and honey with water should be administered to the patient for treatment. This author also used poppy in the cures of head-aches, melancholy, stomach and kidney disorders.

**Ibn Sīnā** (980-1037) who dominated on medicine of that period because of **Canon (Al-Qānūn)**, his famous book, mentioned opium in that book and used it in various diseases. He dropped the solution of poppy in eye for eye-coryza. He mixed opium with the oil of bear and yolk and rubbed this medicine in the eye. Besides, he used opium as a drug in eye-cancer.

Moreover, this famous author made use of opium in ear-aches: "Some opium is mixed with woman milk and is dropped in the ear. Some opium is pounded and mixed with wine in the form of tablet which is administered to the patient for the treatment of ear-aches. 20 almonds, 1.5 drachms opium, 6 drachms saffron are pounded with



vinegar; the mixture is dried and then soaked with rose-oil to be given to the patient by drops. Moreover according to **Ibn Sina**: "Some opium is mixed with mother-milk and it is dropped in ears. In addition, some opium is pounded and it is mixed with wine and this medicine is administered to patient in the treatment of earache in the form of tablet." According to **Ibn Sina**, analgesic drugs also have anesthetic effect and so, they anesthetize the organ with pain.

Moreover, a famous Turkish-Islamic physician, **Ebu Reyhan Biruni** (973-1051) mentioned sedative and analgesic effects of henbane in his book with the name of *Kitab al-Saydala*.

Opium was also used in Islamic world in 12th century. Thus **Ibn Māsawayh Yūhannā** mentioned opiates in his book, called *De Medicinis Universalibus et Particularibus*.

**Ibn an-Nafis** (1210-1288) wrote narcotic characteristics of opium and suggested that the head of poppy should be mixed with honey and sugar and this mixture should be administered to children as a hypnotic agent.

As for Andalusia-Spain, a large number of physicians used opium. **Abū'l Qāsim Halaf Ibn al-Zahrāwī**, who was the father of modern surgery, applied opium as an anesthetic agent. Afterwards, **Ibn al-Baytār** (1197-1248), one of Andalusia's physicians and pharmacist-botanists, mentioned opium in detail in his book, *Kitāb al-Cāmi al-Mūfredat al-Edviye vel-agdiye*: "If opium in the size of lentil is administered to the patient, it cures cough. If this drug is mixed with rose-oil and is applied on head, it treats head-aches. Some opium is mixed with almond-oil, saffron, myrrh and this mixture is dropped in ears in ear-aches. Some opium is mixed with saffron and this mixture is administered to a patient of gout".

So, we know that opium and poppy were used in various treatments and in various Galenic forms in every period of Islamic civilization and they had hypnotic and analgesic characteristics.

In the Seljukian period Turkish physicians used soporific sponges. At that time, surgeon **Hugo Von Lucca Borgogni of Bologna** (?-1252) learned to prepare soporific sponge from Seljukian physicians during Crusaders. He learnt anesthetic methods in the operations of Seljukian surgeons in the hospitals of Moslem Armies. When he returned to Italy, made operations by using soporific sponges. **Theodorich Von Borgognoni, Hugo's son** also applied these methods. We can give an example from these prescriptions: "Opium, hellebore, henbane, mandrake, lettuce etc are mixed in the mortar and sponge is added to this mixture and is boiled. This boiled sponge is applied to the patient's nose and the patient sleeps. When the

operation finishes, the sponge with vinegar is applied to the patient's nose for his awakening.

We do not know the exact time when poppy cultivation started in Anatolia. According to pictures on some stones which have been obtained during archaeological excavations, it is probable that the cultivation of poppy began in Anatolia in the period of Hittites.

We know that some data about opium are found in some pharmacological manuscripts belonging to the 14th century. **Ishaq bin Murād** says in his *Muntehāb-i Shifā*, a Turkish medical book: "Opium gives sleep, has analgesic effect, heals diarrhoea and procedures a siccative effect on the throat".

Another famous Turkish physician-pharmacist **Hacı Pasha** (1335-1424) says on opium in his *Teshil-i Devā*: "Opium has cold characteristics, it is a wet drug in the fourth degree. It cures pains". So, this physician explained the analgesic character of this drug. About the wine of poppy he says: "The seed of poppy should be boiled with its park". The wine of poppy called **Tiryāq-i Erbaa** which contained opium was used especially for the treatment of sleeplessness. **Hacı Pasha** wrote about this topic: "This *theriac* cures pains of liver and spleen and all other pains".

**Nidai**, a famous physician of 15th century, specifies opium as analgesic and astringent drug. He says: "Some opium is prepared in the form of pill and it is applied on head". For example, he also used hellebore for acne therapy: "Hellebore, amyllum and gum arabic are mixed and this mixture is prepared in the form of a pill and these pills are administered to patient with acne".

Another Turkish physician **Salih bin Nasrullah** wrote an important medical manuscript with the name of *Gayet al Beyan fi Tedbir-i Beden al-İnsan* in 1665. This manuscript contained some drugs. For example opium was also used as a medicine in the seventeenth century. According to **Salih Efendi**: "Opium cures cough, pains, diarrhoea. If opium is mixed with rose oil and applied on head, it heals head-aches."

Moreover, opium had a great importance, from the stand-point of both internal and external trade, in 19th century. It is written in a document, dated 1807, that the income of electuary-house had decreased and a minister of state must be appointed for this kind of trade as the prices of opium were very high and the electuary of opium was not sent to the coasts of Black Sea and Mediterranean Sea which were closed due to wars. So the administration of electuary-house could not obtain income and could not pay off the debt it owed to the state.

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The Document of Turkish Prime-ministership archives (about opium)  
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# Etymology of *Warme Shoab Muzmin* (Chronic Bronchitis) and Its Management in Unani(Greco-Arab) System of Medicine

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## Summary

*Warme Shoab Muzmin* is a term which has been literally translated by the contemporary Unani physicians in an attempt to explain the disease entity applicable to present day etymology. While going through literature, the term *Warme Shoab Muzmin* has not been mentioned as such but the clinical features mentioned under the *sual barid maddi*, *sual ratab* and *sual nazli muzmin* as described by Ibn Sina, Jurjani and Azam Khan are similar to the clinical features found in *Warme Shoab Muzmin* (chronic bronchitis).<sup>1,2,3</sup>

**Key words:** *Warme Shoab Muzmin*; Chronic bronchitis; Unani medicine

## Introduction

The term *Warme Shoab Muzmin* or chronic bronchitis is clinically used in Unani medicine for those conditions where longstanding irritation in mucous membrane of bronchioles results in cough and excessive production of sputum.<sup>4</sup> Although *Warme Shoab Muzmin* has not been described as such in Unani literature but the features mentioned under the headings of *sual barid* (cold cough), *sual ratab* (wet cough) and *sual nazli muzmin* (chronic catarrhal cough) in various books correspond with the signs and symptoms of chronic bronchitis. *Warme Shoab Muzmin* is literal translation of chronic bronchitis rendered by contemporary Greco-Arab physicians.

## Historical Background

*Sual* (cough) has been described extensively by Greco-Arabs differentiating it according to various derangements in temperament, the nature of *Akhlate raddiyah* (morbid matter) and the site of *insibab* (descent) of matter to lungs. This gives an elaborate way of categorising various diseases of lung associated *sual*.

According to Mohammad Tabri (9<sup>th</sup> century AD), *Sual* (cough) is an abnormal reaction of lungs caused by the *Zoafe Quasbaturreyah* (bronchial weakness), which is caused by external factors.<sup>5</sup>

Ali Ibn Abbas Majoosi (10<sup>th</sup> century AD) stated that *Sual* is caused either by *nazla* (catarrh) or any derangement of *mizaj* (temperament) of the lungs.<sup>6</sup>

Ibn Sina (980-1037 AD) has defined 'sual' as

وضع نع يذا عي بطل اهب عفدت يتل تاكرحل نم لاعسل  
لصتت يتل اءاضع آل او ةئرل وه لاعسل ا يف وضعلا اذهو ام  
غاهدل ساطعلك ردهلل لاعسل او اءكراش ا يف و ا ةئرل اهب  
باجحل كرحو هضابقن او ردهلل طاس بن اب متي و

“*Sual* (cough) is an act by which *tabiyat* (medicatrix naturae) removes *aziyat* (irritating substances) from the lungs and adjacent structures. *Sual* originating from chest is like sneeze for the brain. *Sual* (cough) occurs by contraction and relaxation of the chest and movement of diaphragm”.<sup>1</sup>

Ismail Jurjani (11<sup>th</sup> century AD) further described that, *sual* is the movement of lungs in an attempt to remove or reduce the painful stress on the lungs or bronchi.<sup>2</sup>

In continuation of the same, Nafis Kirmani (15<sup>th</sup> century AD) has stated that

يذا عي بطل اهب عفدت ةئرل كرح وه ففرسل و لاعسل  
اهب لصتت يتل اءاضع آل او ةئرل نع

“*Sual* or *surfa* is a movement of lungs and thorax by which *tabiyat* (medicatrix naturae) eliminates the irritating substances from the lungs and its associated structures”.<sup>7</sup>

Akbar Arzani (18<sup>th</sup> century AD) has also reiterated the same presentation as mentioned by Ibn Sina.<sup>8</sup>

According to Azam Khan (1813 AD), the response of the lungs as cough has been described as the reaction of *Quwwate Tabiyah* (innate body power) as a defensive mechanism to reduce the distress.<sup>3</sup>

The chronic bronchitis was first introduced by Badham in 1808.<sup>9</sup> He recognized that chronic bronchitis was a serious and disabling disorder. Badham used the term '*catarrh*' to refer to chronic cough and mucus hypersecretion that are its cardinal symptoms. However not until the fog Catastrophe in London in 1952, provided motivation for the British Medical Research Council (BMRC) to guide and support the research in the field of chronic bronchitis during the following years. It was obvious among researchers that a standardized and uniform definition for chronic bronchitis was necessary for further survey, and questionnaires were developed to screen for chronic bronchitis. Chronic bronchitis was defined by the CIBA guest symposium published in 1959.<sup>10</sup> WHO made a statement two years later with a quite similar definition of chronic bronchitis as follows "...cough and sputum production on most days for at least three months in a year at least two consecutive years ...". The discussion of the definition of chronic bronchitis continued during the 1960's. The American Thoracic Society (ATS) definition of chronic bronchitis implied excessive sputum production, and added the condition "provided that other respiratory diseases had been excluded".<sup>11</sup>

#### Definition:

The term *Warme Shoab Muzmin* is clinically used in those conditions where longstanding irritation in mucous membrane of bronchioles results in cough and excessive production of sputum. *Zeeq* or *tangi* (narrowing) of the airways aggravates the condition that is called as *Muzmin Warme Shoab Tasdeedi* (COPD).<sup>4</sup>

Chronic bronchitis has been defined as the presence of chronic productive cough for 3 months during each of the two successive years in a patient in whom other causes of chronic cough, such as infection with *Mycobacterium tuberculosis*, carcinoma of the lung, bronchiectasis, cystic fibrosis and chronic congestive heart failure have been excluded.<sup>12</sup>

#### Classification of *sual* in classical literature:

Jurjani<sup>2</sup> has described five kinds of *sual* according to the nature of the cause:

- (1) *Sual har sada* (simple cough of hot temperament).
- (2) *Sual barid sada*. (Simple cough of hot temperament)
- (3) *Sual har maddi* (cough of hot humours) (4) *Sual barid maddi*. (cough of cold humours) (5) *Sual*, caused by *waram* (inflammation).

Azam Khan<sup>3</sup> has described the *sual* under following headings:

*Sual nazli har*, *sual nazli barid*, *sual yabsi* (dry cough), *sual damvi* (sanguinic cough) *sual safravi* (choleric cough) and *sual* due to *azeyat* (irritation) of trachea.

Thus, the clinical features of the above three categories i.e *sual barid maddi*, *sual ratab* and *sual nazli muzmin* reflect an analogy with the ATS definition and can be studied under the purview of chronic bronchitis.

According to Ibn Sina it occurs in winter and spring season and men are at more risk to develop this disease. According to Akbar Arzani and Jurjani it affects mostly older persons of *balghami mizaj*.<sup>1,2,8</sup>

#### Etiology:

Ibn Sina has described pathological aspect of *sual* as under

قباس امو لصل او امو داب امو ل اعسلل بجوملا ببسل او  
فف وؤم ردصل اءاضع ل عجت ةيدابل ل اعسلل بابس أف  
وأ سببم عيش وأ دراب ءام درب لثم اهتئيه وأ اهجازم يف  
فيرح وأ صرفع وأ ضم اءاذغ معط وأ ناخذ وأ رابغ لثم نشخم  
يرجمل ا يف عقي بيرغ عيش وأ  
نم ضررع ام لثمف قلصل اول ل اعسلل بابس امو  
وأ قبظرملا وأ قدر بملل وأ اجازم ل قن خسمل ةين دبلا بابس آل  
ةيم غلب وأ ةيوار فص وأ ةيومد قدامب وأ قدام ريغب قف جمل  
ةيوادوس وأ ققيقر  
ةين دب بابس مدقتو ءالتم الاف ققباسل بابس آل امو  
قلصل اول بابس آل

The causes of *sual* may be rendered from the above Arabic text of Al Qanoon as follows:

*Asbab Badiyah* (extrinsic factors), *Asbab Wasila* (intrinsic factors) and *Asbab Sabiqah* (predisposing factors).

*Asbab Badiyah* brings about some changes in temperament and structural constituents of the lungs and associated structures to produce cough. Cold weather, cold water, smoke dust, pollutants and drying agents are the prototypes of *Asbab Badiyah*. In addition to this sour, astringent, strong spicy diets and any foreign body in the airway passage can also cause the *sual*.

*Asbab Wasila* are the factors which produce the changes in the temperament of lungs and respiratory tract. Derangement of temperament may be due to *Sue Mizaj Sadah* (simple temperamental changes) or *Sue Mizaj Maddi* (temperamental changes by morbid materials)

*Asbab Sabiqah* are predisposing factors for *imtila* (congestion) and occur before *Asbab Wasila*.<sup>5</sup>

Jurjani has described the etiology broadly into three main causes:

1. *Sue Mizaj Sadah* or *Maddi*
2. Inflammation of airways caused by *Nazla Haar* or *Nazla Barid*.
3. Foreign bodies (cold air, dust, fumes etc) entering into the airways.

According to Majoosi,<sup>6</sup> two main causes are responsible for *Sual* i.e. *Sue Mizaj* of the lungs and *Nazla*.

### Pathogenesis:

In Unani classical literature, most of the scholars, while describing the pathogenesis of this disease, have mentioned *Asbabe badiyah* i.e smoke, dust, fumes, cold air and *Asbabe wasila* as causative factors in the development of disease. According to them *Asbabe badiyah* cause inflammation in the airways and produce *ratoobat* (mucus hypersecretion) that results in narrowing of airways. Cough is produced due to narrowing of airways caused by accumulation of secretion.<sup>2,5,6</sup>

Ibn Sina, Azam Khan and Arzani described that *Sue mizaj ratab* of lungs and *nazla* (catarrh) produce cough.<sup>1,3,8</sup> According to Ibn Zohar and others, accumulation of *ratoobat* (mucus hypersecretion) in bronchioles due to *insibabe mawaad* (descent of secretions) and *nazla* cause *sual* (cough) and *zeequnnafas* (breathlessness).<sup>13</sup>

### Clinical features:

All the mentioned types of *sual* (cough) i.e. *sual barid*, *sual ratab* and *sual nazli muzmin* are productive and usually occur at night. The cough is more prevalent in old age and *balghami mizaj* (phlegmatic temperament) persons.<sup>1,2,3,6</sup> Cough with sputum production occurs after the *nazla* (cold).<sup>8</sup> Cough mostly occurs in winter season. It is accompanied with wheeze and breathlessness. Breathlessness is due to accumulation of *ratoobat* (mucus hypersecretion) in the airways. Wheeze occurs due to narrowing of airways.<sup>1,2,3,7,14,15</sup> According to Ibn Sina, there is no sputum at early stage but as disease progresses sputum changes from white to yellow or green.<sup>1</sup>

### Usoole Illaj (principles of management):

The principle underlying the management is to remove the *Asbabe maddi* (causative material) and correction of *sue mizaj* (imbalanced temperament). The removal of *Asbabe maddi* is effected by taking into consideration the nature of *Akhlate raddiyah*. The nature of the morbid matter may be *raqeeq* (thin), *luzj* or *laisdar* (viscid) secretions. Thus,

it can be summarized that if the morbid matter is *raqeeq*, it needs to make it thick so that it can be expelled out easily. If it is *ghaleez madda* (thick matter), it needs to be made *lateef* (tenuous).<sup>1,2,8</sup>

Thus the *usoole illaj* for *Warme Shoab Muzmin*, can be reaffirmed as

- **Tanqiya (Purgation)**
- **Ta'deel (Modulation)**

#### 1. Tanqiya:

It literally means 'getting rid' of *akhlate raddiyah* by the process of *Nuzj* and *Istifragh*.

**(a) Nuzj (Concoction):** Here the viscosity of *akhlate raddiyah* is altered, in order to evacuate it conveniently from the diseased organ. The viscosity of *madda* in *Warme Shoab Muzmin* may be *Raqeeq* (thin) or *Luzj* (viscid). To concoct such matters, drugs having properties like *Tahleel*, *Taqtie* and *Talteef* are generally used to modify the *madda* and evacuate it easily. The drugs used for *Nuzj* should neither be too hot nor too cold as they may affect the process adversely. Generally drugs like *Ustukhuddus* (*Lavandula stoechas*), *Anjir zard* (*Ficus carica*), *Turanjabin* (*Alhagi pseudalhagi*), *Podina* (*Menthe piperetta*), *Tukhme khatmi* (*Althaea officinalis*), *Khubazi* (*Malva sylvestris*) etc are used for this purpose.<sup>1,2</sup>

**(b) Istifragh (Evacuation):** Once the *akhlate raddiyah* are ready for elimination from the superficial as well as deeper structures of affected organs after a course of *Munzijat* (concoctives), *Mukhriji balgham* or *Munaffise balgham* (expectorants) are brought into action. These drugs are considered to increase the upward ciliary motion to facilitate the expectoration of concocted material out of the respiratory tract. The drugs like *Zufah yabis* (*Hyssopus officinalis*), *Aslussoos* (*Glycyrrhiza glabra*), *Adoosa* (*Adhatoda vasica*), *Parsiaoshan* (*Adiantum capillu veneris*), *Gaozaban* (*Lavandula stoechas*), *Hulba* (*Trigonella foenum graecum*), *Kakra singi* (*Pistacia integerrima*), *Tukhm karafs* (*Apium graveolens*), *Sapistan* (*Cordia dichotoma*), *Sanai makki* (*Cassia angustifolia*) etc are used for this purpose.

#### 2. Ta'deel Mizaj:

It relates to restoration, normalization and potentiation of normal physiological function after purging out the *akhlate raddiyah* from the affected organ. In this phase of treatment, the altered temperament is brought back to normal by maneuvering *Tadabeer* (regimes) related to *asbabe sitta zarooriyah* (six essential factors) and drugs. The basic tenet of treatment to normalize the altered temperament in Unani medicine is to employ '*Ilaj Bil Zid*'

(anti temperament treatment). Thus, the drugs or measures having antagonistic effect on the disease are used in the treatment.

As the *Mizaj* of the disease is *Barid ratab* (cold and wet), the drugs endowed with opposite properties to disease, i.e. *Har Yabis* (hot & dry), should be used. The following drugs are used promisingly in the treatment of *Warme Shoab Muzmin* to expedite the restoration and rejuvenation of normal temperament of lungs. Anjir zard (*Ficus carica*), Irsa (*Iris ensata*), Aslussoos (*Glycyrrhiza glabra*), Gaozaban (*Borago officinalis*), Parsiaoshan (*Adiantum capillu veneris*), Zufah yabis (*Hyssopus officinalis*), Ustukhuddus (*Lavandula stoechas*) etc are the prototypes of *Moaddilat*.

After *Ta'deel*, certain drugs like Behdana (*Cydonia oblonga*), Gule banafsha (*Viola odorata*), kishneez (*Coriandrum sativum*), Sapistan (*Cordia dichotoma*), Tukhm khatmi (*Althaea officinalis*), Unnab (*Zizyphus vulgaris*), Filfil safaid (*Piper nigrum*), Filfil daraz (*Piper longum*), Zafran (*Crocus sativus*) etc are used for the *Taskeen* and *Taqweat* of the lung functions.

Ibn Sina has advocated the use of *mujaffif* (desiccant) and *jali* (detergent) drugs in the treatment of *sue mizaj ratab* of the lungs.

According to Ibn Sina and other scholars breath holding exercises are beneficial for the lungs<sup>1,2</sup>

#### **Preventive measures:**

Cessation of smoking, avoidance of cold water, cold air and cold bath, prevention from cold air in the morning, abstinence from salty, sour, bitter, astringent diet and avoidance of excessive fatty and *Murattab* diet<sup>1,2,8</sup>

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# Medical Information and Medical Reports in the Ottomans

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## Summary

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In this paper, Ottoman Documents are commented about medical information and Medical reports and original results are obtained.

**Key Words :**Medical Information, Medical Reports, Medical Ethics ,Ottoman Documents

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As for the historical development of the ethical problems about medical report writing, it can be mentioned that the medical reports in Turkey of the early 19<sup>th</sup> and 20<sup>th</sup> centuries were documents which were written by physicians themselves. A document dated 1887 is a forensic report about the use and medical and chemical examination of a knife doubted to have been used in a crime. An archive material dated 1894 is a report on the health of some wounded soldiers. Another one dated 1894 is about the report prepared after Major Halim Bey's, who was a physician of the Military Bureau, examination of a gendarmerie soldier sent from Çatalca in a train to be admitted to Dersaadet Hospital (29). A document dated 1895 is about the examination of a woman from Hasköy with a stomach inflammation (25).

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 .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 (26).

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 (1).

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 (27). 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 (30).

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 (28). 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 (3,4,5).

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. A medical report includes the physician's recommendations and information about the ways the patient needs to receive the treatment, rest, eat and work.
- II. A physician should not divulge his personal feelings and opinions in his reports. Doing that would prevent him from writing realistic reports and empathizing with patients, which risks their health.
- III. A physician should keep a copy of all his reports in a file chronologically (5,6,7,8).
- IV. A physician should not write about the diagnoses of dangerous diseases and deal with the symptoms only (9,10,11,12,13).

- 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 (20,21,22,23,24). 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 (14,15,16,17,18,19).

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.

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# The Developments in the Patient-Physician Relationship from the 19<sup>th</sup> to the 20<sup>th</sup> Century

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## Summary

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In this paper, the developments in the patient-physician relationship from the 19<sup>th</sup> to the 20<sup>th</sup> century are pointed out and Ottoman documents are also commented.

**Key Words:** Medical History, Ottoman Documents, Relationship

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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 Ayıntab (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 .An Ottoman document dated 1853 is about the requirement that physicians should never slack about the ways they treat their patients (8). 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 (3).

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 Istanili, who had prescribed drugs for him, was not at fault in any way (4). 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 (5). An archive material

dated 1894 deals with the inspection report on the malpractice at Gureba Hospital (2).

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 (6).

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 (10). Another one dated 1909 is about the rewards and promotion of the physicians who took care of the treatment of Zeki Pasha (9). 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 (7).

The modernization of medical training and enactment of new laws in the 19<sup>th</sup> century added new dimensions to the issue of physician responsibilities, which was involved in the penal law (38) and several books were written on it. Hayrullah Efendi, who was one of the renowned head

physicians of the 18<sup>th</sup> and 19<sup>th</sup> centuries, allocated a special section for Hippocrates's 24 rules in his "Makâlât-ı Tibbiye" (12).

**The Developments in the Patient-Physician Relationship in Senior Prof. A.S. Ünver's Book "A Brief Discussion of Medical Deontology Classes" written in 20<sup>th</sup> century.**

The book contains a closer analysis of the work that shows that it is full of medical ethics principles. Summarizing the content of the Medical Deontology classes Ünver gave, the book occupied a prominent place in the domain of medicine in 1940s. The author mentions in his preface that the Medical History and Medical Deontology classes were taught regularly in the winter and summer terms respectively in 1933, the year which Istanbul University was established in, and there were many valuable sources and documents not only about medical history but also about deontology in the Medical History and Deontology Department founded in the same year.

In the preface, Ünver also states that medical history and deontology were both placed profound importance then and physicians who do not know about medical deontology and preserve medical morality would never have a successful career. He also reminds that the book is a pamphlet compiling related information from the literature of the medical world.

The section on history gives a brief account of the development of medical deontology. It reports that interest in medicine is as old as humanity is, people have always practiced it and some ethical, social and technical rules have been set out to govern the ways it is practiced. Medical morality is as old as medicine itself. Therefore, medical ethics has a historical development on its own, which Ünver considers in terms of the periods of ancient Indians, ancient Israelites, ancient Greeks, Islamic civilization, Ottoman Empire, and Turkish Republic. He talks about the physicians' oath of ancient Greeks and states that it covers all the medical issues of that time. He refers to some of Hippocrates's rules of medical ethics in the following way: "Starting to study medicine at young ages, taking great care of bodily cleanliness, having moral virtues, being true and honest, not having relationships with bad people, not staying too much with patients, not reveling in money, not displaying unacceptable behavior and getting drunk, seeing patients on time and treating them kindly, keeping secrets, not preparing the drugs prescribed, not seeing patients until called again, following the developments about new works and operations, not prescribing new drugs until having an opinion about them, not depending on anyone, not performing abortions, not

insulting anyone, being humanistic, acknowledging and defending patient rights, not being haughty." It can be seen that they cover most of the ethical principles which we still adhere to. Ünver emphasizes the fact that such Ottoman physicians as Abbas Vesim Efendi and Hayrullah Efendi attached great importance on Hippocrates's pieces of advice above.

In the historical development section of his book, Ünver reports that the Islamic world of the Middle Ages attached importance on medical ethics too. For instance, Ebubekir Muhammed bin Zekeriya Razi (854-932) states that physicians are supposed to treat their patients well and keep secrets about them in terms of respect for medical privacy and ethics. İbn Sina (980-1037), who was an eminent physician, deals with similar issues in his works. Nizami-i Aruzi, a physician from Semerkand, wrote in his "Çehar Makale" in the 12<sup>th</sup> century the qualities he would expect to find in good physicians: "They treat patients kindly and always control themselves. A physician over the age of 40 is an experienced one and psychiatric treatments should be given by experienced and knowledgeable patients."

Ünver also gives examples from İbn Şerif's "Yadigâr" and talks about the information some other Turkish writers gave about deontology and ethics. He mentions that Dr. Nurican held conferences in 1877 on medical deontology and the instructors of the medical school dealt with deontology in their classes and conferences. Dr. Galib Ata taught deontology classes together with those of medical history between 1924 and 1926. Ünver reports that Prof. Dr. Akil Muhtar Özden organized two conferences on deontology in 1932 and 1933, Prof. Dr. Mustafa Münif Paşa translated but did not publish texts from some books on deontology and Dr. Marko, Dr. Henif, Dr. Aziz Fikret etc. published articles on deontological issues (13).

Ünver emphasizes that the professorships of deontology and medical history were controlled by the Medical History Institute he founded himself and the professorship of deontology had a big library of its own in the institute. As can be seen, Ünver notes that medical history and deontology were separate disciplines even at that time. The moral aspects of medical problems, i.e. the ethical rules and principles, were considered in terms of medical deontology then. Moreover, patient rights, which is viewed as a subject on its own now, was within the framework of such deontological issues as physicians' duties and patient-physician relationships. Thus, all the points recently investigated by medical ethicists were already examined years ago by the Senior Prof. Dr. A. S. Ünver as the founder of the discipline in Turkey and they had been taught even before him by some amateur people

teaching about related issues. However, it is an inevitable consequence of the developing modern medicine that medical ethics has been considered and researched independently from deontology and medical law.

Ünver ends his first lesson with renowned physicians' words about the ethical foundations of medicine. For instance, Louise Pasteur says that every patient must be treated without being asked about his nationality and creed. R. Hess wants physicians to empathize with patients.

Ünver mentions that the physicians who have made a mark did not only have knowledge but also their moral values. According to him, medical deontology investigates the rules that physicians are to obey doing their duties and physicians should have some moral principles to follow when treating their patients.

After providing the abovementioned information in the preface of his book consisting of 6 chapters, Ünver discusses some specific issues he taught about in his Medical Deontology classes.

The first chapter on the importance and aim of deontology is about what needs to be done to be a good and virtuous physician. The primary aim of medicine is to protect people against diseases and give patients' health back to them. Ünver states that physicians throughout the history have always done their duties considering several rules, which makes it necessary for them to be principled people to treat patients in the best way possible. Although medical law has changed much in time, suitable laws have always been enacted for different times and circumstances. Principles and rules concerning medical ethics have sometimes turned out to be outdated or modern in terms of the laws in force, but they have always been affected in a way by the philosophical views of their times and they have helped physicians to treat their patients properly.

In "The Duties of a Physician to Himself", the second chapter of his short book, Ünver talks about what kind of a person a physician is supposed to be. According to him; a physician to practice medicine should learn all about his profession and medical ethics principles, behave to the highest moral standards doing his duties and give up some things he wants or needs in order to help other people. If a physician inherently has the moral qualities he is supposed to have, he can improve them with decent education in family and at school. Ünver also mentions in this chapter that a physician should take care of his own health as good as their patients'. Moreover; physicians should be patient, kind, honest and conscientious people of principle who work attentively obeying the laws and rules.

In the third chapter called "The Duties of Physicians to Patients", Ünver talks about the responsibilities and duties of a physician to his patients. These duties can also be considered patient rights. Saying "There are no poor and rich patients for a physician and there are no patients with specific religions, nationalities and ideologies either. There are 'patients' only", Ünver underlines the fact that physicians must treat every patient equally. Besides, patients must treat their patients carefully, keep the secrets about them, have consultations when needed and act in accordance with their psychologies. In order to do these, physicians need to show consideration for patients and their relatives to allay their anxieties in critical cases.

Ünver says the following words on medical privacy: "Information about patients, their medical problems and secrets must always be kept confidential". He also mentions that physicians are supposed to show understanding towards their patients about the fees they can afford. On the other hand, patients have some responsibilities too. For instance, they are supposed to comply with the requirements of physicians' recommendations and treatments given.

The fourth chapter of the book called "Physicians' Duties to Other Colleagues" is about the relationships between physicians. Ünver considers the ways physicians treat one another in terms of some rules and thinks that respect and friendship between colleagues is a requirement which is more important than all the rules. It makes collaboration easier and gives the chance to share information.

Ünver states that a physician should never humiliate his colleagues, always show them respect, treat them honestly and give them moral and pecuniary support whenever they need it.

In the fifth chapter "Physicians and Psychology", Ünver says: "A physician is supposed to know much about psychology in order to help his patients and treat in accordance with their moods, problems and characters. Patients are treated not only with drugs but also with psychological inculcation". However, it is probable that some physicians abuse psychology like quacks do. Every patient has a different psychology and character. It is necessary to give the treatment not bothering the patient and make the diagnosis helping him feel relieved. In all these situations, there should be trust, respect and cooperation between patients and physicians and every physician should treat his patients according to a clear understanding of their psychologies.

In the same chapter, Ünver groups into four the conflicts between patients and physicians:

## 1. Social Conflicts

Ünver mentions that a physician with good education and high moral standards can modify the ways he treats his patients considering the social classes they are from. It is natural that they might have some difficulties in their relationship if there is a conflict between the social classes of a physician and patient in interaction.

## 2. Psychological Conflicts

There should be no psychological conflicts between a physician and his patient. There can be differences between the ways they consider things but the physician should never indoctrinate his patient.

## 3. Misunderstandings

If expressions hard to be clearly understood are used in communication, the patient might be offended to negatively affect his relationship with the physician.

## 4. Scientific Conflicts

Physicians should always improve themselves intellectually and never look ignorant to his patients.

Ünver also gives examples about some particular patients to emphasize how patients at any age and period should be treated. He says: "There are many variables a physician is to consider according to the ages and genders of his patients. Therefore, he needs to know much about psychology. A good and conscientious physician treating people like a psychologist is a successful person".

The sixth chapter of the book deals with the place of the medical profession in social life. A physician is supposed to be a person other people like and respect not only as an individual but also as a professional. This could

be possible only if the physician is an affectionate and respectable person caring about the problems of the people around. A physician should never make distinctions against or in favor of his patients according to their worldviews, religions, languages and creeds. A physician is supposed to be a person people can always ask for help, communicate and even be friends with. Physicians who are members of social clubs are respected more than anyone.

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# A Brief History of Psychiatry in Islamic World

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## Summary

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The purpose of this work is to make a brief report on history of psychiatry in Islamic world. Starting from Preislamic vision of mental illness as *jinn* possession, I analysed the notion of insanity in Islamic law and medicine in Middle Ages. Insanity for Islamic law means "lack of reason" and the direct consequence is that insane loses his legal capacity. Islamic medicine tries to define insanity studying aetiology, differentiating symptoms, inventing original treatments and creating places of therapy, such as *bīmāristān*.

This great development in the research on insanity decelerates around XI sec. We do not know the precise motive. In the same century had birth a religious movement, which was interested in understanding human mind: the Sufism.

The "decline" of Islamic medicine stopped with the colonization of Muslim world by Western countries. The last ones had gained a great progress and Islamic countries absorbed Western scientific discoveries. This assimilation also happened in psychiatry. Nowadays etiologic theories, diagnosis, and therapies are mostly Western ones.

**Key words:** Islamic law, Islamic medicine, decline, Western discoveries, Islamic culture.

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This study wants to resume briefly the history and the evolution in Islamic world of what we presently call psychiatry. In fact while in Western countries all the steps of the development of psychiatric science are well known, there are lots of things to deepen in the study of the vision of insanity in Islamic culture, which is so different from the Western one.

In Preislamic age there was the general belief that some illnesses, nowadays called mental illnesses, were caused by *jinn* possession. *Jinn* are elf, satyrs, and spirits, natural forces that inhabit deserts, forests and boondocks. They are still present in general beliefs of many Islamic countries.

*Jinn* could furiously aggress and kill who passed by, or take possession of him and make him fool or *majnun* (مجنون), that is a man possessed by *jinn*, this word is still present in the language to define the insane (1).

It is very interesting to notice that in Preislamic Arabia the thought on human mind is very similar to primitive African tribes' beliefs or to Nordic sagas, while similar thoughts are very difficult to find in Mediterranean region; only in the first millennium B.C. we can find something similar: in fact in the Greek Odyssey Ulysses fights against spirits of nature.

The therapy for *jinn* possession was the cautery of the temples or of the top of the head, because there was the general belief that *jinn* would be afraid of fire. *Jinn* also had the possibility to inspire poets, forcing those raving verses. We also find *jinn* in the Koran: «We created the man from the dry clay, taken from black kneaded mud,

and we also created the *jinn*, before, from fervent fire»(2). *Jinn* and men have similar importance in Islam, because they both are subject to crack of doom. The Prophet Muhammad himself sometimes was called by his enemies *majnun*, although He was inspired at first-hand by God, and He had to defend himself from this accusation.

These were general beliefs, but in order to deepen our research on the notion of insanity in Medieval Islam I have to consider two disciplines: Medieval Islamic medicine and law. In fact, Islamic law was the first discipline discussing the notion of insanity.

In the Koran, the problem of mental illness is present, but it is discussed in a formal and juridical way. In Islamic law in fact only the *mukallaf* is fully responsible. *Mukallaf* is «the free Muslim who is sane (‘*āqil*) and of age (*bāligh*)». He «(...) has the capacity to contract and to dispose, he is bound to fulfil the religious duties, and he is fully subject to criminal law, being capable of deliberate intent (...)» (3).

I think it is important because in Western culture, in which are unified the main ideas of the Bible and of the Greek *logos*, there is the general belief that the absolute truth on human being is the wide division between reason and irrational world, therefore there is an evil and in human part in every men, even in the most healthy man.

I wonder if this Koranic definition of fully responsible man could mean that irrational unconscious does not exist (and it would be a minus in the comparison with Western culture), or if for Islamic culture there is no division between reason and irrational and there is nothing of

inhuman in human being. The last concept agrees with my vision of Muslim relationship with God, which is irrational but, not at all, evil or inhuman: it is the top of human achievement beyond reason.

Perhaps I could say, although it is not explicit, that mental illness would be a pathological variation of that irrational and unconscious dimension. This concept would correspond to what we find in the Koran, that human beings are born without evil inside them because the original sin is not hereditary as in Christianity, in fact Adam is forgiven by God.

Therefore, if insanity appears, it is not because of the evil inside human nature, but because of the illness, which could be caused by a *jinn* or something else. My hypothesis is that the *jinn* could represent the influence of the unconscious dimension of a human being on another human being and this influence begins from the birth (4).

The reason (*'aql*) is a fundamental concept in Medieval Islamic law. In fact the reason is what differentiates men and animals and makes men similar to angels. Children have no reason until they are 14 years old. Loss of reason leads to insanity, which causes loss of honour (4).

The insane is interdicted, so he has no legal capacity, in fact he does not have the same rights and duties of an adult and healthy Muslim. The Koran assigns to the insane a guardian who attends to the interests of insane and his family and acts legal rights of the interdicted. In fact we read in the Sura II, verse 282: «And if the debtor be a fool (*safih*), or weak, or unable to dictate himself, then let his guardian dictate justly» (5). And we also remember an *hadīth* of the Prophet drawn from *The Kashf al-mahjub* by Al-hujwīrī that says: «The Pen does not record (evil actions) against the sleeper until he awakes, or against the boy until he reaches puberty, or against the madman until he recover his wits» (6). This sentence tells that the insane can recover his wits, so in Islamic culture there is the possibility to come out of mental illness. We also find in this sentence another way to affirm that insane, who has lost his wits, cannot be punished in the same way of other Muslims.

But who is the insane in Islamic law?

Michael Dols says that the *majnun* is one who is lacking in reason (*'adim al-'aql*), while the *ma'tūh* is one who is deficient in reason (*nāqis al-'aql*). An important distinction is present between violent madness (*junūn*) and pacific madness (*'athāha* or idiocy). The first is legally interdicted, the second is considered partially insane. Most of the law schools think that the definition of insanity also involves the foolish or prodigal (*safih*) and the imbecile (*dhū l-ghafla*): both have a limited legal capacity (6). Insane can have lucid intervals and during these intervals, he possesses full legal capacity. On

the contrary, in case of epilepsy and delusions, the insane is deprived of reason temporarily.

The few descriptions of insanity in Islamic law define it as a lack of reason and of the ability to understand. Individual legal capacity is the only subject of the discussions on mental illness.

The insane has not the capacity to decide properly of his action, so in the case that he commits a crime, he is not punished as provided for. For example if he commits a homicide he is not condemned to death punishment, as it happens to the healthy Muslim, because he is not capable to elaborate a criminal intent (6). He has to pay to the victim's family a sum of money called the "price of the blood" or a compensation, which is providing goods or undertaking work for the victim's family (7).

The family has the responsibility to recognize insanity and inform the judge, who decides if the subject will be interdicted and if he needs a guardian or not. The discipline does not consider the importance of medicine in this field, in other words Islamic law does not consider the existence of specialized doctors for the diagnosis of mental illness. The judge diagnoses insanity.

I already told about law, and I'm going to speak about medicine. Islamic medicine originates first from the nomad tribes' tradition of the Arabian Peninsula, then from Indian and Persian medicine and finally mostly from Greek sources. After the great Muslim conquest (happened mostly between 632 and 757 a. C.) medical texts by Greek and other conquered countries were translated in Arabic. Thus the works by Aristotle, Galen, Hippocrates, Rufus from Ephesus and other important authors of the time spread over Muslim culture.

In Islamic medicine exists a distinction between physiology, aetiology and semiology. The basic notions of physiology consist of seven categories which constitute human body, for example: elements (*ustuqus*), temperaments (*mizāğ*), unions (*hilt*), memory (*'udw*), power (*quwwa*), activity (*fi'l*) and pneuma (*rūh*). There are three basic functions of the human being:

1. Natural (*tabī'ī*);
2. Vital (*hayawānī* (8)) which is responsible for all vital function and all affections: emotions come from the heart and spread through the arteries over the whole body;
3. Psychic (*naḥsānī*) which involves sensorial faculty, voluntary movement and mental activity.

The seventh component of human being too (the pneuma) can be divided in natural, vital and psychic pneuma. The last origins from the brain and involves not only sensorial faculty and voluntary movement, but also «superior faculties of the soul, which are imagination, thought and memory» (9).



Because of the influence of the Hippocrates' theory of the humors, Medieval Islamic doctors consider illness as a condition of imbalance between different components of human being; health is a condition of balance, which is different from person to person. The doctor should have knowledge of this equilibrium in order to maintain it. Therefore in these countries arises a mostly preventive medicine; this discipline involves hygiene and care for lifestyle and eating.

Illness is called '*illa* which also means "cause" and it is a deviation from natural things. Ibn Sina (980-1037) in *al-Qānūn fi 'l-tibb* distinguishes different causes of illness.

Hunain ibn Ishāq (809-873) distinguishes between the "things against nature", which are causes, illness and symptoms, and "not natural things". When "not natural things" move away from habitual condition, they turn into causes, which determine in human body the shift from a balanced state to a pathological one. They are air, movement, rest, baths, eating, drinking, sleep, wake, evacuation, sexual affairs and others; some scientists add to this list psychical accident, which are emotions or passions.

Frequent causes of illness are psychological conditions. The last are divided into positive emotions (happiness or pleasure) and negative ones (depression or fear), in both conditions there is a movement of pneuma from the outer surface to the internal one. This sudden displacement can cause coma or death, anyway continuous negative emotions predispose to serious mental and physical illness.

In Islamic medicine, mind and body are tightly joined; in fact psychical health is of primary importance in order to maintain somatic health and vice versa. The Koran distinguishes between somatic and psychic dimension, but it does not accept a radical soul-body dualism in human being, human being is a unity of spirit and matter. Illness is the illness of entire organism and the recovery too (10). Therefore, the most important Islamic doctors such as Ibn Sina and al-Rāzī (865-925) theorize and practice a psychosomatic medicine.

Abu Said ibn Bakhtyshu too, refuses the Greek division between soul and body and argues that in clinical practice exist a mental illness deriving from the soma and a somatic illness deriving from the mind (1). Emotions, which belong to "not natural things", could cause in the patient a humoral imbalance, which could have, as a consequence, a somatic illness (6).

This way of thinking identifies mental illness with somatic one, so it could be modernly called organicist. In fact most of Muslim physicians refuse the thought that the cause of mental illness would be demoniac possession. I think that the thought of possession as a possible cause of insanity maybe could have allowed a deeper research on human mind, because it gave to

mental illness an external cause. Ibn Sina is the first to refuse the belief that mental illness could be caused by *jinn* and that the only possible therapy would be magical practice.

One of the first psychiatric nosographic work, maybe written by the doctor Najab ad-Din Unhammad from Samarcanda, distinguishes between different kinds of mental illness. The word used is *soudā* which in Persian means both melancholy and insanity. Melancholy is only a preliminary step toward madness. Different kinds of madness are divided depending on pathogenesis. They are:

- *Soudā ā tabēē* (somatic) with fever, conscience alterations and delirium;
- *murrāē soudā* (cerebral) characterized by sleeplessness, anxiety and doubts, which affects mainly people who "spent days and days studying law, philosophy, science and art";
- *mālīkhōlia ā marāk* (hypochondriac), caused by movement of humors from the stomach to the brain; *marākī* is the hypochondriac kind of melancholy.

There are also:

- *maniya*, which in Arab has two forms: the *jahoon tabēē* characterized by destructiveness and the *daul kulb* in which there are periods of mania and destructiveness and normothymic periods;
- *qutrub*, the clinical lycanthropy, with confusion, agitation, aggressiveness and hallucination;
- *qaranitis*, which comes from the Greek *phrenitis* (1, 6).

Melancholy is the most studied illness. Ishaq ibn Imran, starting from Galen and Rufus from Ephesus, sustains that it has a somatic origin. Black gall emits steam, which goes to the brain and has damaging effects on mind: delirium, mental confusion, hallucinations and mood disorders. Imran thinks that melancholy can be both congenital and acquired. He distinguishes melancholy symptoms between psychic (anxiety, sadness, visual and auditory hallucinations and delirium) and somatic (loss of weight and sleeplessness).

Ibn Sina affirms that emotions can interact with the four humors and influence or modify somatic reactions. The classical example of this belief is the '*ishq*, an excessive love which was considered a mental illness, in fact falling in love could imply a suffering, not only psychical but also somatic, indeed until death. Ibn Sina diagnoses '*ishq* through the pulse frequency, which increases when the insane hears the name of his lover.

There are only two cases in which madness is not considered as an organic illness, they are: *jinn*'s possession, as

we already said, and the so called “holy fool”. It was retained that the holy fool would be inspired by God and become crazy because of this love, for this reason he was highly respected by the entire society, despite his strange behaviour. The humoral theory is not at all involved in the pathogenesis of these two illnesses.

As Rosanna Gorini says (11), the insane are hosted in the *bīmāristān*. It is both an hospital and medicine teaching place, which arises in Muslim world in eleventh century and could derive from a Sassanid institution sited at Djundishapur in Iran and dating back to III century.

The first *bīmāristān* with a specialized section for mental ills is built-up in 872-873 in Cairo. This section is divided into parts depending on the pathology: most severe ills (dangerous to themselves and to the others) are kept in the cells, where they are chained, regularly fed and monitored by the doctors; less excited ills are hosted in large and sunny rooms which open on a court. At the centre of this court there is a fountain because it is thought that water’s sound could calm souls and decrease sufferance, as well as the odour and the sight of several plants sited on the edge of the fountain itself (12).

Drugs are extensively used in Medieval Islamic medical practice and they are also used in the *bīmāristān*. Moreover, in order to re-establish balance among the humors, purges, emetics, bloodletting and special diets are administered. Other therapeutic activities are the musicotherapy (the four chords of lute would be related to: four elements of the body, four humors, seasons, mental faculties and daily hours (1), occupational therapy and listening at poems and Koran verses.

The *bīmāristān* remains in activity in some countries until the end of 15th century, such as Arghūn hospital in Aleppo, which has a specialized section for mental illness. Lots of modern academics think that in Medieval Islamic medicine there was a psychotherapeutic practice. I only found anecdotes in which the relationship between doctor and patient would have caused the recovery through suggestion. For example, there is the case of a mental ill who is convinced that there is a jar on the top of his head. This delirium should be solved by the doctor Ahwad al-Zamān, when he pretends to break the jar. The patient sees a braked jar on the floor and the delirium ends because the patient thinks that the jar is the same that was on his head. This ability to suggest would be related to doctor’s intuition and charisma.

The word “psychotherapy” could have been created by al-Rāzī with the expression *tadbīr nafsānī*, which could mean “psychic therapy”, even if actually the term *nafs* means “soul”.

While in Islamic world the hospitals flourish, at the same time in Western countries monasteries and hospitals founded by religious orders host the insane. These organizations host voyagers, pious and castaways too, but there are neither specialized doctor nor section for mental illness.

As a conclusion I can say that Medieval Islamic law and medicine were far ahead from the West, which -except some rare cases- did not even consider the existence of insanity because of the belief in evil inside human nature.

It is thought that the first hospital for the mental ills in Western countries was founded by a Christian order in 1409 in Valencia in Spain. Surely in this region there was the influence of Islamic culture, in fact Muslim rule over Valencia lasted until 1238, when it was regained by the king James I of Aragon and from then on remained under Christian domain.

From the XI century on, in Islamic world the growth of science slows down more and more, until the period called “decline” of Muslim science. The cause of this decline is nowadays not clear. There are many hypotheses, such as Mongol invasion (1220 Iran, 1258 Baghdad’s conquest) and the birth of Ottoman Empire, regarding eastern regions; the end of Cordova’s Caliphate in 1031, with the consequent breaking of the Caliphate Omayyade of Spain in a lot of little states named *rejes de taifas* (13), and the fall of the Granada’s Emirate in 1492, regarding Western Muslim regions. Certainly America’s discovery has a significant role because of the consequent changing of trade routes. Some other historians also add to the list the shift from tribal dimension -power of Islamic culture- to the growth of cities, which would cause a gradual decline of the dynasties (14). Others actually mention the deep permeation between Greek and Islamic culture in IX and X century, and also the “stagnation” of Sunny Islam’s religious doctrines (15).

In the XI century arose the Sufism, maybe in opposition to the growth of this juridical and formal Islam. In fact, this ascetic and mystic movement opposed to rational Islam, promoting a detachment from the world. The word “sufism” origins from the Arab term *sūf*, that means “wool”, because the first mystics wore woollen dresses. It could also derive from the word *sophia* that means “wisdom” (16).

The Sufism opposed to the strict Sunny orthodoxy, in fact spiritual involvement of the Sufi did not necessarily respect legal obligation; there were pantheistic inclinations such as the saints’ grave veneration, which could not agree with God’s uniqueness; the act of pilgrimage was diminished, and excesses in words and behaviour were glorified. The aim of Sufi was to reach ecstasy gradually getting through phases. Useful means were deprivation and asceticism. This movement had important cultural, philosophic and poetic expressions, for example with ibn ‘Arabī, al Ghazālī, Rūmī and others.

In what concern human being, Sufi divided soul in “commanding soul” (*nafs āl Āmmāra*), “rational soul” (*nafs āl Nātiqa*) and “blaming soul” (*nafs āl Lawwāma*). They could interpret dreams and they gave to them a great importance in order to reveal a hidden human dimension. Besides, they practiced exorcism as an insanity healing method.

Sufi brotherhoods still exist and they actually reclaim the primacy on the Freudian theory of psyche’s division in Id, Ego and Superego.

Some academics assume that the decline of Islamic culture is not really a true decline, but rather a reversion to religious sciences and they think that, at the same time, in Muslim Western countries, Iranian region and Turkish world developed new cultural forms (15).

Beginning from XVI century, diagnostic and therapeutic approach to mental illness was more and more affected by the local religious traditions, astrology and occult sciences.

Families and communities began to assist their insane and mental ill were rarely isolated and excluded from society. The most famous and ancient *bīmāristān* collapsed while new ones were built, but they would never equal the previous. Medical practice in healing insanity did not evolve and was never applied with the same passion. This decline continued until there was some kind of contact with the Western culture (17).

It was as if Islamic world fell asleep until XIX century, when Muslim regions were submitted to western countries. Muslims opened their eyes and saw Western progress. They tried to regain their position in science by absorbing Western culture and discoveries.

We can find this process also in psychiatric field, in fact Islamic psychiatry nowadays make use of Western theories and practice. In most of Muslim countries psychiatry has the same etiopathogenetic, diagnostic, and therapeutic criteria of Western regions: the etiopathogenesis is seen, above all, as a neurotransmitter’s disequilibrium, the diagnosis bases on DSM-IV TR (Diagnostic and Statistical Manual of Mental Disorder) and the most spread therapy is the psychopharmacological one.

Islamic culture was years ahead of the Western world in studying human mind and this is surely due to the deep differences between the two in the way of thinking human being. The thought of Islam concerning man allowed a more free research on human mind, in respect to the West, where it was not possible because of the thought of a deep division between body and mind. I think that the value of Islamic culture, now and in the past, consists in thinking man as a unity of body and mind, but nowadays-intrusive

Western practice overshadows this vision.

I obviously believe that contact and exchange of information between different countries, mostly in scientific field, are fundamental. Despite that, I would like that local culture would have a greater measure of influence on psychiatry and therefore on the study of the human mind. In fact Islamic culture has valid bases to develop further on psychiatric research, even more than Western one.

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# Facilitate Children Dentition in the Arabian and Islamic Medical Textbooks at 4<sup>th</sup> AH, 10<sup>th</sup> AD Century

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## Summary

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The dentistry was part of medicine and not separate specialist. But most physicians gave dentistry big interest as the prophet Mohammed said:

The human body is complete unit if any part sick all the body recover this part. One of the important events in the beginning of live is temporary teeth dentition, and what accompany of this period from side effect. We search in the textbooks of Arabian physician in the 4<sup>th</sup> golden century of Islamic production when the textbooks widespread and the physicians increased. When comparing the treatment of 4<sup>th</sup> AH Arabian physicians together and with modern dentistry researches we find a big compatibility in the aspect of treatment teeth dentition in old and present time.

**Key words;** Facilitate children Dentition; Facilitate children dentition in the Arabian and Islamic Medical Textbooks at 4<sup>th</sup> AH, 10<sup>th</sup> AD Century; History Arabian medical.

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The Islamic and Arabian Scientist were attainments of world science. They start to develop the Greek science source after translated into Arabic. Then they add them contribution in the 3<sup>th</sup> AH century and continued for many centuries later.

Arabian science was not only in one field but represented to a large extent from Astronomy, Mechanic, Engineering, Chemistry, Biology and Medicine.

The Arabian and Islamic Medicine represent large part from the Arabian Scientific history, Text of Greek physicians like Hippocrates and Galen translated into Arabic Language, then the Arabian physicians star the different medicine specialties with the presence of great Arabian physicians like Avicenna, Atabbari, Abulcasis, Rhazes and others.

The Dentistry was part of medicine and not separate specialist. But most physicians gave dentistry big interest as the prophet Mohammed said: the human body is complete unit if any part sick all the body recover this part.

One of the important events in the beginning of live is temporary teeth dentition, and what accompany of this period from side effect. We search in the textbooks of Arabian physicians in the 4<sup>th</sup> AH golden century of Islamic production when the textbooks widespread and the physicians increased.

We classified the Arabian physicians as follow:

1. Abo Bakr Mohammed bin Zakariya al Razi (D. 316-320AH, 923- 932AD).
2. Yaccob Alkashkari (life befor 320AH, 932 AD).

3. Oraib bin Said Alkordobi (life befor 390AH, 971AD).
4. Abo Alabbas Ahmad bin Mohammed yahya Albaladi. (life before 360AH, 971AD).
5. Abo Alhasan Ahmad bin Mohammed Altabari. (life before. (366AH, 976AD).
6. Abo Abdullah Mohammed bin Ahmade bin saed Altamemi (he was life in 370 AH, 980 AD).
7. Abo Mansor Al hasan bin Nouh Alkomari, (D. after 380 AH, 990 AD).
8. Ali bin Abbas Majousi (D. 384AH, 994AD).
9. Abo sahl bin Issa bin yahya the Christian Jerrjani (D. 390 AH, 1000 AD).
10. Abo Jafar Ahmad bin Ibrahim bin Abi Aljazar (D. 396 AH, 1005 AD).
11. Abo sahel bin Jakob Alssejzy (D. 399 AH, 1008 AD).
12. Abo Alkasem khalaf bin Abbas ALZAHRAWI (d. 400 AH, 1009 AD).
13. Alhusain bin Abdullah bin Ali bin Sina (D. 428 AH, 1037 AD).

When checking the textbooks of these physicians we find that whom write about the dentition facilitating are:

1. **Abo Bakr Mohammed bin Zakariya Al Razi:** Possibly the most well known and most original of the Medieval Ages, Rhazes became physicians in chief. When his age became in fourty, he tend into medicine, he treat the patients depend on the test and experience. He reaches his glory depend on two basics:

- Researches by test and noting the clinical development of the patients. And his knowledge in chemistry help him to use the materials and its effects on the human body.
- His interest in basic sciences like histology and physiology. (8-9-11-15)

He taught medicine in terms of clinical cases, complete with patients symptomatology, therapy and result. Of Rhazes surviving works the largest is (**Al-Hawi**) and encyclopedic work on medicine and surgery in twenty three volumes. He mention the sources of Hippocrates, Gali, Oribasis, Ibn Al-Tabari, Paul of Azenia, Ibn Sarabion, Ibn masaweh, Sabor bin Sahl, Masih Aldamashki, Ihren Alkass, Maserjweh albasri and others he may forget them names and mention them as unknown and include many of his original experiences and mention them mine.

In the 1286 AD The Hebrew Sicilian Faraj bin Salem obtained a copy of Al-Hawi textbook and translated into Latin language and this book one of nine books still studied in Paris university until 1395 AD.

The book consist of twenty three part, he wrote about children dentition at the third part.

2. **Jacob Alkashkari:** Jaccob bin Zakaria Alkashkari (4<sup>th</sup> Ahioad). He was physician in Badr Hospital he wrote his textbook afted Badr death, then he work in the Mother of Alkalifa Al Muktader Hospital.

We depend in this article on what included of his textbook (ALKANASH), he depends on the practical Medicine More than theoretical, he gather a big quantity of sources and add his original experiences and his way in treatments and remedies when he was working in hospitals, his sources like Galen, Jaber bin Hayan Hypocrat, Thabet bin korah, Ibn saravion, Rophes, Al-saher, pholes, and others. The book consist of eighty one part, he wrote about children dentition at the twelveth part.(32)

3. **Oraib bin Said Alkordobi:** One of the famous physician at Cortoba in the (4<sup>th</sup> AH, 10<sup>th</sup> AD), he was poetry and literature, he was historian and has good knowledge in Grammer and Languge, beside to be famous physician, he depends on the old and new physician, his sources, Hypocrat, Demokrides Galen, and Indian physicians and he depend on Isaac Al Israely.

We depend in this article on the textbook (KHALK ALJANEEN MA TADBER ALHABALA WA ALMAWLODEEN) in 15<sup>th</sup> parts he wrote in the 10th part about children dentition. (23)

4. **Abo Alabbas Ahmad bin Mohammed yahya Albaladi:** He learn Medicine practice at Al mousel then he travel into Egypt in (353 AH, 964 AD).

He had only one work textbook (TADBEER ALHABALA WA ALATFAL WA ALSOBYAN WA HEFTH SEFATEHUM WA MUDAWAT ALAMRAD ALAREDA LAHUM) this book compared with the kortobi textbook with extended Material, the book consist of there articles, he wrote in the 3rd articles about facilitate the teeth dentition. (1,-21)

5. **Ali bin Al Abbas Al Majoussi:** His death in (383 AH, 994 AD) he stady Medicine by Moses bin Joseph bin Sayar.

He depend on Majousi in his sources textbooks of Hypochates Galen Auropacious, polos, Ibn Souravion, Ahren Alkis, Masih Aldamashki, he found Mixing in these textbooks and missing in the material so he wrote his textbook (ALKAMEL FE ALTEB) or (AIMALAKI), and gift to his Master Adad Aldawleh Khasroueh Albouaihi, this well organized Encyclopedia has an important style depend on practical experience with original test consist of twenty articles in two oparts. (34- 35- 38)

He wrote in the 2nd part 9th Article sub78 about facilitate the teeth dentition .

6. **Abou sahl bin Issa Yahya the Christian Jerjani:** (357 AH, 968AD) (390AH, 1000AD)

He was born in Georgan, he was phylosopher and physician with wide knowledge in Greek and Arab textbooks. Ibn Abi Osaibah Said (he was good skilled physician in medicine thearotical and practical, clear phrases, good classification with good writing understanding Arabic language). We depend on his textbook (THE HUNDRED IN MEDICINE) he spoke facilitate teeth dentition. (4-17)

7. **Abo Jafar Ahmad bin Ibrahim bin Abi Aljazar:** One of three physicians famous in Tunis at (4th Ah10th AD), his Islamic religion family in Medicine as currier, his father Ibrahim bin Abu Khaled and his uncle Abo Baker Mohamad bin Abi Khaled from the pratician physicians, but the Big Achivement of Ahmad bin Al-jazar and his famous textbooks cover and the position of his father and uncle and he was the most famous. He was the most famous in Medicine; we depend on his book (SEYASET ALSOBYAN WA TADBEREHOM), this textbook consist from twenty two part search in treating the children in the case of health and sickness, and he spoke in the part fourteen about facilitate teeth dentition in children. (26-31)

- 8. Abo Sahl bin Jakob isaak Alssjzi:** Beshr bin Jakob Alsejzi practice medicine Abo Sahl, the references mention the date of this birth before (399AH, 1008 AD), and he died as slave in (399 AH, 1008 AD).

He was editor and friend to the prince of sajistan.

Abo Ahmad Khalaf bin Ahmad to whom gift his famous book (ABRASAEI ATTEBIA ASSEJZIA) which known by the title (KINASH ABI SAHL IN MEDICINE) which we depend on our research. This book editen by an order from the prince of Sajistan to gathes what separated in different book in body Science and which not complete in everything we need in this Art beside to gather what separated in these books from kinds of treatment Art, his sources from other physicians like Hanin bin Isaak, Alrrazes, Masih Al Dimashki, Galin, Isaak bin Hanin. His book consist from articles he spoke in the first article about from the 8<sup>th</sup> letter in 13<sup>th</sup> part about accelerate children teeth dentition. (16-38)

- 9. Abou Alkasem Khalaf bin Abbas Alzahravi:** from the pioneer physicians in his period and famous physician in the Middle ages absolutely and one of Arabian physicians that known by Europea and depend on them text books as Medicine.

We depend on his textbook (ALTASRIF LEMAN AGERA AN ALTAALEF), he spoke in 2nd part about facilitate teeth dentition. (12-33-37)

- 10. Alhussain bin Abdullah bin Ali bin Sina:** Known as chief of physicians and intellect of Islam (370AH- 428 AH) (980- Ad- 1037 AD). Study (Holy Quraan) before 10 years old and continue to study language and philosophy before 20 years old then study Astronomy and Mathematics Mineralogist and Medicine Edit books in all of these sciences then he learn Metaphisic Hardly so he famous as philosopher and physicians with his interest to read books and learning he was faithful in God and pray in Mosques to beg the God for solving the problem. In the year (428AH, 1037 AD) he died in the 53 years old by stomach he treat himself by injecting celery, but he died. He start editing in 22 years old. We depend in our research on his book (Canon) the most famous Medical textbook ever for good archiving and wide scientific contents: Pharmacology, terminology, for treatment, he tend to the treoretical side for making the book easy to understandable from phisycians and usual peoples as other phisycians his sources Hippocrates, Gali, Democritus, Ibn Masweh, Al Rhazes, Hanih bin Isaak, Ibn Tabbari and others, he did not reference the original of the treatment so

we do not know which is from his work or from other physicians, this is not the habit of Arabian physicians whom known by scientifically faith. **(2-6-10-19-30)**

The wide spread of this text book not only in East but also in west Granada and Europe translated and teach in Moblie and Luvan Universities till (1060 AH, 1950 AD).

## Facilitate teeth dentition in children

- Alrrazes said in ALHAWI textbook: “if the time of teeth dentition period reached then rub the gum with honey, and theime and continue because this extend the tunnel and facilitate the growth, and the child stomach purgatives. The brain of rabbit if Roastect facilitate the teeth dentition like butter and honey. If you feel teeth of child dentition then past butter and honey on his gum”.
- Yaccob Al Kashkersaid in kanash textbook said: “paste the source of teeth with caw butter, and the pulp of caw bone or rabbit bone or butter facilitate teeth dentition in children with out pain.
- Oraib bin Said Al Kordobi said in his text books: “Paste the fun with butter round cooked chicken fat, and paste his neck with fat and corn and use. Oil of sesame and chicken fat or rabbit brain then mixed with honey semi cooked with out bubbles and kira gum and Arabic gum and some oil, then put on the head cooked camomile and put band, when the teeth start growth brush his neck and head with soft wool and wash it with warm water and paste his head with oil mixed warm water and drop in his ear, and prepaire quantity needed, and frequently wash it by warm water take quantity of caw butter and brain and rub the gum”.
- Abo said Alabbas Ahmad bin Mohammad bin Yahya Al baladi :  
He says in His book “If the time of teeth dentition period start you must paste the gum with butter and chicken fat, then paste with butter and paste the neck properly. the rub the gum in every bath by chicken fat and rabbit brain and wash the child with warm water.”
- Ali bin Abbas Almajousi; he mention in his book the complete in medical profession to facilitate teeth dentition at children: “ Paste the gum with butter and rabbit brain or bone pull “.
- Abo sahl issa bin Yahya Almashihi Aljerjani said in his text book “To help in facilitate teeth dentition to paste teeth sources with butter and pulp of bone and cook head of rabbit and paste “.
- Abo Jafar Ahmad bin Ibrahim bin Abi Aljazar wrote in his text book:

- “If the teeth dentition delay take cow butter and brain paste on teeth place or take head of rabbit and use brain in teeth place or some butter, honey and paste the teeth place”.
- Abo Sahl bin Yakob bin Isaak Alssejzi wrote in his letters: “Past sheep butter and brain or cook rabbit head and use beef butter and paste rabbit fat cooked in boiled water with honey and rubbed by Barley on tooth place “.
  - In the textbook of Abo Alkasem khalaf bin Abbas Alzahrawi (AL TASRIF) in the 2nd Article said : “ rubbing the gum by finger continuously softly and use washed oil or sesame oil or fat of chickens or Rabbit brain or dog milk and finally with boiled honey and kina and Arabic gum and pour on the child head water and camomile and shibt and banded , and if the pain increased use bread and butter and mix them or cow butter and bly oil cow bone pulp and paste it.”
  - Alhussain Abdullah bin- Ali bin Sina (Avicena) said in his text book: “ the Method to facilitate teeth dentition rubbing by fat and brain of rabbit after extraction from cooked rabbit head , hanna, butter, lily oil , some said that dog milk helps very much, and if the pain increased paste with , salanom and warm rose oil, and not eat anything and rubb his gum “.

### Discussion

1. Most of physician at 4<sup>th</sup> AH/10<sup>th</sup> AD discover that to facilitate teeth dentition follow:
  - rubbing the gum with honey and oil of rabbit brain or butter
  - rubbing the gum softly and may use oil or honey.
  - washing the baby by warm water.
  - some add to use boiled chamomile and shibt and pour on his head after bandage as recommend oraib, Zahrawi and Aviceina .
2. In the pain case Zahrawi use bread and butter and lily oil to paste this place, but ibn Sina use the extract of Solanom and rose oil.
3. All the remedies that recommended by Arabian Physicians of cooling mild effect releasing the pain.

### Modern Medicine

The researches improve that teeth dentition depend on the press applied on the area surrounding the root especially in the end of the root. and the press source from blood

vessels and cells increasing of pulp and the periodontic and it is clear that this powerful press help to increasing cells of the dentition Area.

So that every reason activate the blood circle and increasing cells acceleatate the teeth dentition and vice versa.

Gum Massage covering teeth before dentition forward to activate blood circle and increases feeding and oxygene and cells.

And if child face difficulties during dentition we did not recommend of surgical for periodontal cover the teeth but we may apply enthusiastic not etching in the dentition area (3-4) times and we give child refrigerated circle of dentin to protect from swallowing finger habit.

Or give him Aspirin tablet with gum massage. (18-27)

### Conclusion

When comparing the treatment of 4<sup>th</sup> AH Arabian physicians with modern dentistry researches we find a big compatibility in the aspect of treatment teeth dentition in old and present time as follow:

- Arab physicians use Massage operation over dentition teth and this what accepted in Modern dentistry. As massage activate blood circle and increasing cells and feeding and oxygen that result Accelezat and facilitate teeth dentition.
- They use massage and botanical medicines to calm pain and enthusiastic like theme honey and lily oil and solanom and kina. beside cooling medicine like oil and the puls of rabbit bone and shibt... all of that improved in Modern Dentistry but on complex medicines enthusiastic and calming that help to releasing the cold from high temperature and pain and other. side effects so we find that modern dentistry is continues what Arab physicians recommend of them period.

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# Persian Contribution to Greco-Arab Medicine: A Review

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## Summary

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The middle ages of European history roughly corresponds to the Golden age of Arab civilization. When Europe was passing through dark ages, the Arabs stole a march over the rest of the civilization. They translated the Greco-Roman medical literature into Arabic and helped to preserve the ancient knowledge and developed their own system of medicine known as Greco-Arab system of medicine. Leaders in the Arabic Medicine were the Persians. Persia encouraged and developed physicians and philosophers by the Iranian. They further developed this medicine into a complete science and it got deep root in the masses.

Persian city of Jundi shapur served as an intellectual magnet for Muslim scholars and provided a uniquely tolerant and peaceful meeting point for the philosophical and medical traditions of the Persian, Greek, Indian, Zoroastrian and Nestorian. The hospital at Jundi shapur seems to have functioned as a medical school. The scholars at Jundi shapur carried out the monumental task of assembling and translating Greek texts including those of Hippocrates and Galen into Syriac, which was then the language of university. Many of the Greek texts were eventually translated into Arabic from these Syrian editions. Eminent physicians of this period are: Ibne Raban Tabri (810-895 AD), Abu baker Zakariya Razi (865-925 AD), Bu Ali Sina (980-1037 AD) etc. They were eminent scholars, great philosophers, physicians and intellectual prodigies of this period. Avicenna gave a final shape to Unani system of medicine and redefined many concepts based on his clinical experiences.

Ibn Sina wrote book in persian later in his life like Risala-e-joodia, Albaironi, the great propounder of arabic language had to turn to persian often, Khayyam, a great mathematician, Firdausi, writer of shahnama, Arzani, Jeelani, Amlu, Mohd Azam Khan and Sharif Khan, all made real contribution to Tibb via Persian.

**Key Words:** Persian, Greco-Arab Medicine

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## Introduction

From the time of immemorial, man has been interested in trying to control disease. The medicine man, the priest, the herbalist, the magician all under took in various ways to cure man's disease and or to bring relief to the sick (1). Persian civilization is one of the oldest living civilizations. It has got a lot of cultural and academic heritage preserved in various manuscripts of Zoroaster and remains of old Pahlavi dynasty. Arab conquest of Iran infused newer dimensions to this age-old civilization. In turn the

Persian civilization had a long-lasting effect on Arabs by way of abstract knowledge, art and culture. Tibb was reshaped and systematization of medical knowledge started by Arabs got a real booster (2-4). As a whole Persian contribution to Greco-Arab system of medicine can be well understood under following sub headings-

1. Contribution of Persian civilization and culture in the development of medicine.
2. Contribution of Persian physician to develop Greco-Arab system of medicine as a science.

3. Contribution of Persian language as a medium to preserve the priceless literature of Greco-Arab medicine.

## Contribution of Persian Civilization and Culture

Persian city of Jundi shapur served as an intellectual magnet for scholars of that period located in the southwestern of Iran and not far from the city of Susa. The ancient city of Jundi shapur provided a uniquely tolerant and peaceful meeting point for the philosophical and medical traditions of the Persian, Greek, Indian, Zoroastrian and Nestorian. The medical school of Jundi shapur was established in the period of Shapur II in 380 AD (2).

A Greek physician THEDURUS was called upon for the treatment of Shapur II and after that he was appointed as the Royal physician and started to practice Unani system of medicine. During this period physicians and intellectuals from school of Edessa came to Jundi shapur for shelter and they settled in. thus, finally school of Jundi shapur came into existence under the patronage of Shapur II. During the period of KHUSRO-NAUSHERWAN

(534-579 AD), the school of Jundishapur was at the zenith of development, as he invited physicians from India and school of Antioch. The scholars at Jundi shapur carried out the monumental task of assembling and translating Greek texts including those of Hippocrates and Galen into Syriac, which was then the language of university. Many of the Greek texts were eventually translated into Arabic from these Syriac editions (2).

One of the most significant achievements of this golden age was the development of Hospital and Hospital-based clinical training of Medical practitioners. Records concerning the first Islamic Hospitals are fragmentary, but there is a general agreement, that such institutions were founded in the early eight century. Some were apparently modeled on the Hospital and school of Jundi shapur, but others were like specialty centers such as caring for the blinds and disabled and isolation of lepers (2).

Records of such institutions provide information concerning administration, finances, budget, salaries of medical persons, and arrangement of wards, dispensaries, and libraries and teaching arrangements. Other charitable enterprises include the organizations of teams of physicians and female medical personnel to visit the sick in prison and mobile dispensaries, which served rural areas (2).

The intellectual prodigies, who served school of Jundi Shapur as a physician and translator maintain a long list. Few of them are – Haris Ibn Kaldah, Al Hakim Damishqui, Maathir Joya al basri, Jurjis bin Bukhteeshu, Yuhanna Bin Masawaih, Hunain bin Ishaq, Yahya Nahwi etc. Maathir Joya al basir is claimed to be the first translator of Unani literature (2).

It will be injustice if Firdausi's Shahnama is ignored. Firdausi's Shahnama completed in AD 999, though fiction contains some valuable tradition of early Persian medicine. It includes many references, for instance, to those who in ancient Persian healed with the knife as well as to healers with herbs or with the holy word. The rules for the care of women in pregnancy and childbirth were elaborated. Miscarriage were treated with cow's urine, both orally and a douche. Abortifacients were known and criminal abortions were severely punished. Sexual intercourse with a woman during menstruation and in late pregnancy was forbidden. Caesarian section for obstructed labour, after "bemusing" the lady with wine is described in Shahnama (5).

In the Safawid period (1500AD - 1736AD), the Persian language and culture came to India. During this period, especially in Mughal Empire, which corresponds to Safawid period, Persian language played an important role in the development and propagation of Tibb (6).

## The Great Persian Sages

Although Medieval physician whether Muslim, Jews or Christian generally assumed that Galenism was a complete and perfect system. But intellectuals like Rhazes, Avicenna and Abulcasis etc were worth studying in their own right not just in terms of their roles in preserving classical medicine.

There is a long list of Persian born physician who played a vital role in propagation and systematization of Tibb. A few of them as documented by Medical Historian are:

**Yuhanna Ibn Masawiah** (Johannes Domascenus): Born at Jundi Shapur (777AD-857AD). He was appointed as senior officer of Baitul Hikmat. Books 44 (total). Few of them are (7-10):

- *Kitab al Mashjar* (It has peculiarity as it is compiled in table form)
- *Kitab fil fasd wa hajamath*
- *Kitab al marrah sauda*
- *Kitab fil balgham*

**Rabban Tabri** ( Abul hasan ibn Sahl Raban Tabri): Born at Maru in Tabristan (Persian) between (AD770-780), Death 850 AD. Books 14.

- *Firdaus ul Hikmat* (paradise of wisdom). First book written in Arabic language.

**Zakriya Raazi** (Abu Bakar Muhammad ibn Zakariya Razi, Rhazes): Birthplace-Ray (Near modern Tehran) 860AD-925AD. He has been revered as the greatest physician of the Islamic world, one of the scientifically minded physicians of the Middle Ages and one of the greatest physicians of all the time. Razi was the first to observe (1, 7-10):

- Pupillary reaction to light
- To use mercurial purgatives
- To publish first book on children diseases.

The indefatigable was the author of at least 200 medical and philosophical treatises including his massive masterpiece. **LIBER CONTINENCE** (comprehensive book of Medicine) - *Kitab al Hawi*, considering the work of Hippocrates, Galen etc, Razi's own opinion on controversial issues in context and Indexing of Book chapter wise thousands of year ago are peculiarities of this book (2). Raazi's Manual of Healing art *Kitab al Mansuri* was very influential in the west into 16<sup>th</sup> century. This book comprises ten chapters including- Kulliyat (principles), Pharmacotherapeutics, Diet, Prevention of Health, Skin diseases, Cosmetology, Treatment of wounds, Antidotes etc. The most famous work *Kitab al Judri wal Hasba* (De

Variolis et morbilis)- A treatise on small pox and Measles distinguishes between these two diseases and gives a clear description of both. Pioneer of clinical methods, so bedside demonstration and case history taking came into practice. One of Razi's case histories appears to be the first written description of 'rose fever' to use the term adapted in 19<sup>th</sup> century (2). According to Rhazi "to diagnose the patient of TB - give the patient meals in three different times and record the temperature, if the temperature rises, it is the confirm diagnosis of TB" (11).

**Ahmad Bin Mohammed Tabri:** Born in Tabristan (Death 985AD). Books are:

- Maolijat e Buqratiyah
- Risala fi Qaroorah
- Ilajul Atfal

**Ali ibn Abbas Majusi** (Haly Abbas) 930AD-994AD: Birth place - Hawaz a city in the south west of Persia. Most famous book is *Kamil al Sana't* (Liber Regius) also known as *Kitab al Malki wa Kitab al Qawaneen*. According to Ibn e Sina- "If I might have gone through this book, then there was no need to write Al Qanoon"

**Abu Sahl Masihi:** Born at Jurjan (Persia), death 1010AD. He gave his best opinion on pregnancy and fetus formation. He also gave the idea of participation of both male and female in Zygote formation. He described the principles of Digestion and Metabolism Dozen of books of which "*Kitab al Miat Fit Tib*" is one of the best books of Unani Medical Science (7-10).

**Abu Raihan Al Bairuni:** Birth place- Khwarzam (973AD-1047). A tourist, Mathematician, Geographer, Historian, Geologist, Physicist, Archeologist and expert in the knowledge of properties of drugs. He stated that speed of light is faster than sound. Though he was staunch supporter of Arabic, he was a Persian by birth and served various disciplines of knowledge very well including Tibb. Total Books 17. Famous books:

- *Kitab us Saidna* on pharmacology and compound formulation
- *Qanoon e Masood*.

**Ibn Sina:** Sheik ur Rais (Abu Ali al Husain Ibn Abdullah Ibn e Sina) called as Prince of Physician (980-1037AD). Birthplace, Afshena near famous city of Bukhara of Persia. He was the first scholar to create a complete philosophical system in Arabic language. Books 200 of which 48 related to Medical Science (7-10, 12).

- Al Qanoon Fit Tibb
- Kitab us Shifa

- Kitab un Niyat
- Kitab al Qaulanj
- Kitab Advia e Qalbiyat etc.

**Ismail Jurjani** : Eminent physician of 12<sup>th</sup> century AD. Born at Jurjan (Persia), Author of 5 books:

- *Zakheera e Khwarzam Shahi* (Persian)
- *Kitab al Kafial Alai* (Persian)
- *Kitab yaadgar e Alai* (Persian)
- *Kitab Aghraz e Tabiyat* (Persian)
- *Kitab Zubdatut Tib* (persian).

**Nafees Ibn Iwad Kirmani:** 15th century AD, Birthplace Kirmani, famous Persian city

He became famous as a Medical Author by writing keys (Sharah) of two famous books.

- *Al Asbab o Alamat* by Najeebuddin Samar Khandi
- *Mojazul Qanoon by Ibn e Nafees* (key is known as *Sharah e Nafeesi*)

Other books-

- *Kitab Sharah al Fusool*
- *Kitab Moalijat e Nafeesi etc.* (8-10).

**Ali Geelani:** 1554AD-1609AD, Born at Geelan, came to India during the period of Akbar, Founder of **Haauz e Ali** at Lahore. Books:

- *Sharah e Qanoon*
- *Biyaz e Geelani* (famous for formulation of Roghan e Devdar)

**Akbar Arzani:** Born at Sheeraz but conflict in Medical Historians regarding the birthplace. So it will be better to discuss as the author of Persian language (8-10).

**Hakeem Alvi Khan** (Mohd. Hashim Ali Khan) 1669AD-1747AD: Born at Sheeraz, came to India in 1700AD during Alamgir Aurangzeb's period. Teacher of Sheikh Jalaluddin Amroohi, Hakeem Akmal Khan and Ajmal Khan I. Books 16:

- Hashiya Sharah Asbab-o- Alamat
- Sharah Mojazul Qanoon
- Jame ul Jawame- Ahmed Shahi etc.

**Mir Momin:** Persian physician came to India in 1582 AD in the period of Qutub Shahi in south India. Books:

- Ikhtiyarat e Qutub Shahi
- Risala e Miqdariya (Persian)

**Ahmed Geelani** (Hakeem Nizamuddin Ahmed Geelani): Born at Geelan in 1586AD and death 1669AD. He was associated with Deccan king Abdullah Qutub Shah (1625-1672AD). Books:

- Majmua Hakilmul Malik
- Shajarae Danish
- Khawasul Advia
- Sifat o Khawas e Momiyayee

**Rustam Jurjani:** He has the credit of translating Unani Literature from Arabic to Persian. He came to India in 1544AD from Jurjan. Books:

- Kitab Asrarun Nisa
- Kitab Hummiyath e Murakkab
- Kitab Zakhira e Nizam e Shahi

**Abul Qasim Farishta:** Born at Astrabad (North persia) 1626AD-1673AD. Book: *Dasturul atibba* also famous as

## Literatures of Unani System of Medicine in Persian Language

Books written in Persian language by **Ibn Sina** (13):

- *Danish Nama Alaiyah (Hikmat-e-Alaiyah)*
- *Risal-e-Merajia (Meraj Nama)*
- *Kunoozul Moazameen*
- *Zafar nama*
- *Hikamatul Maut* (Persian translation of original Arabic text)
- *Risal-e-Nabz* (Persian translation of original Arabic text)
- *Al-Mabd-e-wal mead* (Persian translation of original Arabic text)
- *Risaltul Mead* (Persian translation of original Arabic text)
- *Risal-e-Nabuwat*
- *Risal-Illal tasalsul Maujoodat*
- *Qiraz-e-Tabiyat*
- *Risal-e-Judia*
- *Risal-e-Pasheen wa bareen*
- *Mearul-qul dar ilm-e-Jarsaqeel*
- *Risal-e-Mantiq*
- *Risal-e-Ishq* (Persian translation of original Arabic text)
- *Risal-e-Akseer*

- *Risal-e-Aqdam e Nufoos* (Persian translation of original Arabic text)
- *Fi-Tashreehul Aza*
- *Marifat-e-Sumoom wa dafa-e-Muzirrat*
- *Hal Mushkilat Mueeniya*
- *Sharah-e-Kitabul Nafs* (Persian translation of original Arabic text)

Books in Persian language by **Shahab Abdul Karim Nagauri**

- *Tibbe-Shahabi*
- *Tibbe- Shifa-al Khani*
- *Farhang-e-Shahabi*

Books of **Akbar Arzani** in Persian

- *Talkhees-e-tibbe Nabwi*
  - *Tibbe-e-Akbar* (Persian translation of *Sharah-e-Asbab-o-alamat*)
  - *Mufarrahul Quloob*
  - *Mujarrabat-e-Akbari*
  - *Meezanut-tib*
  - *Qarabadeen-e- Qadri*
- Books of Hkm. **Azam Khan** in Persian
- *Akseer-e-Azam*
  - *Rukne-e-Azam*
  - *Muheet-e-Azam*
  - *Qarabadeen-e-Azam*
  - *Rumooz-e-Azam*
  - *Nayyar-e-Azam*
  - *Lughath-e-tabiya*

*Qarabadeen-Khan Zamani (Ganj Badaward)* a book on pharmacognocny & formulation by Hkm.

## Amanullah Khan

*Yaadgar-e-Razai* (a book on Ilmul advia including details of Indian herbs) by **Hkm. Raza**

## Ali Khan

Persian translation of *Mulkhas Fusool Buqratiya* by **Ghulam H. Kantoori**

*Trajume Kulliyat Qanoon* (Persian translation of al-qanoon I part) **Hkm. Shareef Khan** (8-10, 13).

## Conclusion

Unani system of medicine reached from Greek & Romans to Arab and then to Persia due to dynasty conflict and strong Persians abstract-knowledge required for systematization. Persian became state language. It generated various pioneers of medicine who contributed to Tibb in Persian language like- Ibne Sina, Razi, Majoosi, Rabban Tabri, Masihi, Jurjani, Kirmani etc.

In India it resumed official language till 1947. Mughal rule, which was highly stable for almost 150 year, saw the renowned physician like- Ali Geelani, Akbar Arzani, Alvi Khan, Shareef Khan etc.

They all contributed to Tibb not only academically but also popularized it among people in such a way that it reached to gross root levels.

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# History of Museums

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## Summary

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**Definition:** The Museum is an institution that preserves and displays a good number of objects that covers many fields of life.

**Categories:** Museums are of four main types:

- Historical Museums
- Art Museums
- Science Museums
- Military Museums

Motives for Museum establishment:

- Expansion of public knowledge
- Identification of National Achievements
- Gaining high national prestige
- Collection of highest number of exhibited articles

**History:** The first museum was founded at the third century before Christ in Alexandria, Egypt. The Middle Ages museums in Churches, Monasteries, Temples and Universities in Europe and Asia appeared two thousands years later. New museums in Europe especially in France and Britain appeared during the 17<sup>th</sup> century and a bit later in America. The Middle East museums were founded at the mid-nineteenth century.

**Arabic Museums:** Establishment of Museums in Arabic and Middle East countries took place at mid 19<sup>th</sup> century and then widely spread in all countries during the twentieth century.

**Conclusion:** Now by the end of the twentieth century there are over 18000 museums, all over the world. One third of that number is present in the United States of America.

**Key Words:** Museum, History, art, science.

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The Museum is an institution that acquires, preserves, displays and interprets an encyclopaedia range of objects, that covers the fields of art, aeronautics, religion, sports, biology and music.

The word museum is derived from the ancient Greek word Mouseion that means the sacred home of the goddesses of arts and sciences.

Museums fall into three main categories, history, art and science and have many objectives.

**The Motives:** There are varieties of motives of influency man to establish museums.

The first motive of primary importance is the desire to expand the frontiers of knowledge.

The other motives are the urge to identify with a particular group as for example the achievements of the Greece and Rome.

The main impulse to collecting precious things is the desire to prove success and gain prestige as an evidence of triumph.

Another motive is that of hoarding as some collectors are infatuated with quantity.

Finally there is the appeal of arts objects to the senses and emotions as to make the people feel joy or misery (1, 2).

## History

The history of establishing the museums dates back to the third century before Christ. The first museum was that founded by Ptolemy 1 (Soter) in Alexandria, where it preserved objects as statues of thinkers, native offerings, astronomical and surgical instruments, elephant tusks and rare animal hides. It was a research museum for scholars that continued in an active state for about seven centuries (1, 2).

In the Middle Ages, churches, monasteries and universities in Europe collected manuscripts, ecclesiastical regalia and relics as did Buddhist monasteries in Asia (2).

During the Renaissance, the Princes and Nobles in Europe used to collect precious and curious objects in their palaces as private museums. The main examples are those of Medici in Florence, the Habsburgs in Vienna and Madrid, the Bourbons in Paris, Catherine the Great in Saint Petersburg and the popes palace in Vatican (1,2).

The earliest established public museum in Europe was the Ashmolean museum in Britain, opened in 1683 as a museum of arts and antiquities at Oxford University. Few years later Sir Hans Sloane opened his private museum in 1759, whose collections became the nucleus of the national museum of London (2).

The next museum in Europe was that established in Paris in 1793 containing the royal collections in the Louvre palace. Then the museum of Madrid in Spain opened by the King Joseph Bonaparte in 1809. This was followed by opening the Hermitage museum at Saint Petersburg city (2).

In America, museums appeared a bit later. The first one was that founded in Charleston town in 1773. This was followed by many other Geological, Biological and Science museums in most of the American States (4, 5).

In the Middle East, museums were founded at the mid-nineteenth century. The first one was that

established in Cairo in 1858. Then the Turkish museum in Istanbul in 1891. This was followed by the Greco-Roman museum in Alexandria in 1895 (3, 9).

During the twentieth century museums of different categories were founded in all Arabic and Islamic countries. Their number has exceeded 400 museums (3, 9).

## Museums in Arabic Countries

Awareness of the importance of establishing museums took place in all Arabic countries as a sign of country progress that started by the beginning of the twentieth century and by the end of this century their number has exceeded 213 museums.

The following table shows the number of museums in every Arabic country, according to the information obtained from the international network arranged in a descending scale (3, 5, 9).

قائمة متاحف الدول العربية  
أعدادها حسب عدد المتاحف في كل دولة

Number of Museums	Country	Country	Number of Museums	Country	
4	Libya	ليبيا	69	Egypt	مصر
3	Kuwait	الكويت	36	Iraq	العراق
3	Lebanon	لبنان	27	Syria	سوريا
3	Mauritania	موريتانيا	11	Emirates	الإمارات
3	Morocco	المغرب	11	Algeria	الجزائر
3	Comoros	جزر القمر	9	Palestine	فلسطين
2	Qatar	قطر	8	Oman	عمان
2	Bahrain	البحرين	6	Sudan	السودان
1	Yemen	اليمن	5	Saudia	السعودية
1	Jordan	الأردن	5	Tunisia	تونس
1	Somalia	الصومال			

Now, by the end of the twentieth century there are more than 18000 museums all over the world, one third of them are in the United States of America.<sup>(1)</sup> The greatest concentration of museums in terms of space and population is in Holland as its list of museums has exceeded 42 museums in spite of the limited land area of 13000 square miles and a 16 million population.<sup>(7)(8)</sup>

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# Conceptual amalgamation for pathogenesis of fever: A scientific perspective

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## Summary

Fever is a complex physiological response to disease, in which body temperature is elevated above the normal range, as a result of the action of pyrogenic cytokines; on the hypothalamic thermoregulatory center. Endogenous pyrogens are produced in periphery and reached the thermoregulatory center via the systemic circulation. The thermoregulatory center is located in the hypothalamus especially in the preoptic area of anterior hypothalamus which is containing thermo sensitive neurons. The warm and cold sensitive neurons play pivotal role in maintaining the heat loss and heat production. After systemic administration of exogenous or endogenous pyrogens, firing rates of warm sensitive neurons generally decrease, whereas those of the cold sensitive neurons are increasing in a manner consistent with the decrease heat loss and increase heat production leads to development of fever. According to Greco-Arabian physician, fever (humma) can be defined as a transient production of heat which is started from the heart and spread systematically to the whole body through blood vessels. This heat leads to disturbance of whole body physiological function. This heat production is comparatively more than exercise and anger.<sup>10</sup> It has been proved that cardiac enzymatic changes play significant role for production fever or fever related complications. Some experimental study reveals the hypothetical assumption of ancient concept but overall scientific justification is needed.

**Key words:**-Fever; Exogenous pyrogens; Endogenous pyrogens; Thermo-sensitive neurons.

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## Introduction

- Nowadays, It is believed that fever is a cardinal sign of the body physiological responses against any exogenous or endogenous pyrogenic substance or injury. When body temperature is higher than 102.2°F (39.0°C), it definitely indicates any significant infection. Ancient Greco-Arabian physicians described the pathogenesis of fever on the basis of four humors. They speculated that quantitative and qualitative changes of the blood, phlegm, bile and black bile are responsible for any ailments. Heart is a specialized vital organ which regulates the different physiological functions. During fever, metabolic changes may be associated with increase oxygen and caloric demands and potential damage to neurological tissues. Association between the two conceptions may be build a new hypothesis for pathogenesis of fever.

### Avicenna's concept

- Hot weather activates inflammatory mediators and produce acute fever in the bilious person. During summer, vital forces and faculties are dispersed from the body. Hot weather not only reduces quality and quantity of blood and phlegm but also enhance the production of bile. In autumn, excess production of *sauda* leads to

irregular and quartan fever. When the southerly winter followed by a northerly spring which is succeeded by an extremely hot summer, with excessive rain and the spring had already kept up the morbid humors in body. Autumn produce a high rate of mortality among children and increase the incidence of irregular and tertian type of fever.<sup>1</sup>

### Galen's concept

- Galen (160-200AD), an honorable and influential physician in Rome suggested that malaria was due to disorder of the four humors of the body. He notified that the tertian fever developed due to imbalance of yellow bile and quartan fever caused by disturbance of black bile. He also evaluated that the quotidian fever produced by an excess of phlegm and blood abnormality was the cause of continuous fever.<sup>2</sup>

### Assimilated concepts of Galen and Avicenna

- Disease is a failure, of the adaptive mechanism, of an organism to counteract the invasion of a foreign substance, resulting in a disturbance in the function or structure of some part of the host. They delineated that human body consisting four fundamental humors



which are regulating the body physiological function. These four humors are intermingled and without qualitative or quantitative changes of these, disease can never be developed. They also speculated that heart is hot and moist temperamental vital organ which regulate the vital functions.

### Current experimental concept

- Fever is not simply a consequence of infection but has evolved as an important and carefully orchestrated host defense response. Fever and its mediators have got the capacity to progress and build up resistance against infection. In acute phase response, pyrogenic cytokines usually interact with other intercellular signalling molecules and intracellular events. It is one of the most frequent symptoms that can turn into serious febrile illness in short duration.

### Conceptual amalgamation

- It is currently believed that cytokines production is influenced by many exogenous pyrogens and by IL-1 and TNF  $\alpha$  which are potent stimulators of the gene expression and protein translation. Some cytokines and chemokines are also regulating production of fever such as IL-11, OncostatinM, Ciliary neutrophilic factor and Cardiotrophin-1. <sup>3</sup> It has been assumed that arginine vasopressin,  $\alpha$ -melanocyte-stimulating hormone and somatostatin are playing significant role as natural antipyretics. Arginine vasopressin is present in the fibers and terminals of the ventral septal area and released during fever. It appears to prevent or reduced fever through a receptor-mediated action that has no effect on normal body temperature. Cardio-cerebral enzymatic change has been observed during fever by experimental study.

According to Greco-Arabian physicians, fever (humma) can be defined as a transient production of heat

which is started from the heart and spread systematically to the whole body through blood vessels. This heat leads to disturbance of whole body physiological function. This heat production is comparatively more than exercise and anger.<sup>4</sup>

They described nuzj, as a process in which maddah (pyrogens) get transformed and passed through different systemic channels for elimination. In this process harmful maddah becomes less harmful due to natural antipyrogenic activity or protection by acquired immunity or intermediate metabolites/ Zide nuzj (interaction of natural antipyrogen with pyrogen). Both concepts are intermingled with natural antipyretic activity. <sup>4</sup>

Patho-physiological changes during acute febrile illness, is not known completely. It is a primary step to amalgamate the Greco- Arabian concept with revealed experimental study.

### Conclusion

- No standard concept regarding pathogenesis of fever has been established yet at all. Different concept has been accentuated from ancient to present. Some are hypothetical and some are experimental. In this review, we want to amalgamate the Greco-Arabian concepts with current belief of pathogenesis of fever. It will be given a scientific clue for further study.

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# History Of Legal (Forensic) Medicine

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## Summary

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Legal (Forensic) medicine is a relatively new subspecialty of medicine. Its preliminary principles were innovated very early in history by the ancient physicians and legislators. Subsequently new items were added, that are gained through experience and observations.

The main fields of forensic medicine are the study and practice of legal rules for the human safety, health and environment protection and providing the essential measures to prevent harm or damage to man and his surroundings.

Heavenly religions conveyed by God to man gave a good support to forensic medicine and enriched its applications in different fields of life.

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## Introduction

Early man suffered a lot of body troubles and diseases. Searching for the relief of such troubles, he discovered many therapeutic agents.

Through the subsequent era, great progress was achieved and medicine appeared as a science, practiced by healers for the control of man diseases.

With the great increase of world population, man struggle for his safety. Individual and group clashes took place and various assaults and crimes occurred everywhere. Fighting was brutal and barbarian where there was no mercy for the looser and no rights for the prisoners or captives.

For these reasons the heavenly religions played a great role to control such bad human behaviour and issued legislation rules to stop such conflicts.

The Hebrew Bible (Torah) the Hindu Vedas and Upanisads and the Muslim Quran point to an assembly of law, religion and morals.<sup>(1,2,3)</sup>

With further mankind, progress and the advance of civilization, civil law was issued in ancient societies to deal with such conflicts. The legal science was found to be necessary to have a control on such problems. It proved to be quite necessary to get full inquiry procedures of human assaults and individual recognition of the evildoer.

At the beginning medicine shared in a limited role, but by human progress, its contribution got more important, and the speciality of forensic medicine (legal medicine) appeared and by time it gained a good role in all human activities and assaults.

## History of Legal Medicine

The earliest known body of rules established by the authority for regulation of man activities and dealing with human faults was that presented by Hammurabi, the Babylonian emperor of the 18<sup>th</sup> century before Christ. The law was substantially secular and distinct from religion and morals. It was composed of 282 articles concerned with organization of all man activities and professions and the different penalties applied in cases of misbehaviour or law breaking.<sup>(9)</sup>

In ancient Egypt, the most important law document was the Hearst Medical Papyrus, written in 1550 before Christ that contains some principles of legal medicine. It was adopted by the priests and physicians in ancient Egypt.<sup>(13)</sup> At that time there were also some rules issued to protect personal properties and to guard against crimes. There was evidence that the practice of medicine was organized and subject to legal restrictions. The physicians at that time had the right to practice medicine after good training and the study of the precepts laid down by their predecessors.

Imphote (2686-2613 B.C) was the grand Vizier, chief justice and physician of king Zoser. He was the first man combining sciences of law and medicine and can be considered to be the first medico-legal man in ancient time.<sup>(6)</sup> The holy oath (Thoth Oath) was sworn by the new physicians during their ceremonial graduation. The new physicians, in their special dress, swear by the holy gods to give their patients their utmost care, to treat the poor free of charge, to keep their privacy and not to misuse their medical work.<sup>(12)(13)</sup>

Legal education as teaching of law and its social, economic, political and scientific context appeared later in history.

The ancient Romans had schools of rhetoric that provide training courses for persons planning a career as an advocate.<sup>(10)</sup>

During the third century B.C., Tiberius Coruncianus the first plebeian pontifex maximus in Rome gave public legal instructions.<sup>(10)</sup> Over the ensuing centuries a body of legal literature developed and some jurists set themselves up as regular law teachers.<sup>(10)</sup>

In the history of Ancient Alexandria School, the Greek physician Erasistratus, during the third century before Christ observed that his patients pulse rates increase when they tell him lies. This is supposed to be the first lie detection test.<sup>(8)</sup>

In Rome at 44 B.C, the Roman physician Antistius examined the dead body of Julius Caesar after his assassination and finds that there are 23 stab wounds. The only one wound that was fatal, was on the chest.<sup>(8)</sup>

Legal profession as a vocation based on expertness in the law and its application emerged relatively early in history. In such time legal practice was a combination of law, Religion and morals.<sup>(10)</sup>

The earliest known legal specialist was the judge. The chief, the prince or king of small societies discharged the judicial function as part of the general role of political leader. At a later time legal duties were taken over by royal officials who were generalists.<sup>(10)</sup>

A distinct class of legal specialists other than judges first emerged in the Greco-Roman civilization. The main contribution was from Rome in the period of 200 BC to 600 A.D.

As the law became more complex, men prominent in public life – usually Patricians, found it necessary to acquire legal knowledge and some acquired a reputation as experts.<sup>(10)</sup>

Islam religion appeared at the beginning of the seventh century as a powerful religious movement.

The religious savants often judged or advised the judge. A situation that persisted in Muslim countries up till now.<sup>(10)</sup>

Islamic legislation proved to be an advanced civilized behaviour and the wisdom of Quran exceeded the horizons endeavoured by human ideologists throughout history.

The basics of Islamic legislation rules and system are now adopted by many non Islamic countries. Other civilized countries started similar systems at the end of the 19<sup>th</sup> century.<sup>(11)</sup>

Few centuries later precisely at 1248, the Chinese physician Hsi Duan Yu described in a legal way how to distinguish drowning from strangulation. This can be the first recorded application of medical knowledge to the solution of the crime.<sup>(8)</sup>

Few decades later at 1302 the Italian physician Bartolomeo Varignana in Bologna performed a medico legal autopsy in a case of suspected murder of a nobleman called Azzolino.<sup>(8)</sup>

A bit later, exactly at 1532, the Criminal Jurisdiction Constitution of Emperor Charles five in Rome was issued, for all lands included within his empire. This penal code was based on constituteo Bambergensis criminalis, but far more extensive.<sup>(7) (8)</sup>

This code enabled judges to obtain medical testimony for guidance in cases of murder, wounding, poisoning, hanging, drawing, infanticide, abortion and other personal violence.<sup>(7)</sup>

In 1602 the first great work in legal medicine by the Italian physician Fortunato Fedele, was published and the first lecture on legal medicine by Michaelis was delivered at the University of Leipzig in 1650.<sup>(7)</sup>

In 1788 Antoine Louis published one of his memoirs as the first teacher of systematic legal medicine in France. This was followed by the publication of the book “Treatment of Poisons”, by the French scientist Mathieu Bonaventure Orfila (1787-1853), the professor of medicinal and forensic chemistry at University of Paris. He gave significant contribution to development of tests for the presence of blood in a forensic context. Credited as the first to attempt the use of a microscope in the assessment of blood and semen stains. He can be surely considered the father of modern toxicology.<sup>(8)</sup>

In Britain medicine since the 12<sup>th</sup> century had been involved with the law through the office of the coroner, a chair of legal medicine was established in 1807 at the University of Edinburgh.<sup>(7)</sup>

Egypt during the reign of Mohammad Ali Pasha followed that international progress. When the first modern medical school was established in 1827, legal medicine was included in its curricula, as an essential science.<sup>(5)</sup> At that time, the teaching of legal medicine and its practice in Egypt were done by the same staff members. In 1928, the Medico-legal Departments of the Ministry of Justice was

established and the legal medicine practice was separated from the university.

In America legal medicine as a science appeared a bit later. The first formal department of legal medicine in a medical school was established at Harvard University in 1937. After that time the area of medico-legal practice has expanded rapidly and most significantly.<sup>(7)</sup>

By this rapid expansion in knowledge and practice Forensic medicine is widely progressed to include many new items and fields of study. In this way it comprises the post-mortem examination of dead bodies in all cases of violence, whether it is suicidal or homicidal, exhumation of bodies after burial, examination of the scenes of crimes for scientific evidence, clinical examination of injured or poisoned patients, examination of workmen after healing of their injuries, examination of suspected mentally disordered, beside the investigations for age, sex and personal identification.<sup>(5)</sup>

The medico-legal departments are now supplied by variable laboratories for clinical, histo-pathological and chemical investigations.<sup>(5)</sup>

## Conclusions

Forensic medicine is a relatively new subspecialty of medicine. Its preliminary principles were innovated very early in history by the ancient physicians and legislators. Subsequently new items were added, that are gained through experience and observations.

The main fields of forensic medicine are the study and practice of legal rules for the human safety, health

and environment protection and providing the essential measures to prevent harm or damage to man and his surroundings.

Heavenly religions conveyed by God to man gave a good support to forensic medicine and enriched its applications in different fields of life. The basics of Islamic legislation rules and system added a lot of progress to that science.

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Dr. Abdul Nasser Kaadan the president of ISHIM and the chief editor of this journal has participated in the 6<sup>th</sup> International Traditional / Complementary Medicine Conference and the 3<sup>rd</sup> International Congress on Traditional Medicine and Materia Medica (ICTMMM), which was held in Malaysia-Kuala Lumpur, between 17-20 July, 2007. His paper was entitled: Islamic Medicine Reaching Us.



During his stay in Malaysia, Dr. Kaadan visited the International Institute of Islamic Thought and Civilization (ISTAC) (and was received by its dean Prof. Dr. Ibrahim Zein. During the visit Dr. Kaadan presented a lecture entitled: **“Some of Muslim Physician’s Achievements”**. **Members of the teaching staff of the institute with some postgraduate students have attended. At the end of the visit Dr. Kaadan was honored by providing him the memorial plate of the institute.**



# Board Meeting International Society for the History of Islamic Medicine (ISHIM) in Sheraton Doha on Tuesday the 22<sup>nd</sup> of February 2007 at 6.30 pm

## Attendance

Dr. Hajar A. Hajar Al-Binali	- President
Dr. Abdul Nasser Kaadan	- General Secretary
Dr. Hussein Nagamia	- Vice President
Prof. Faisal AlNasir	- General Secretary
Dr. Mahdi Mohaghegh	- Vice President
Prof. Nil Sari	- Vice President
Dr. Sharif Kaf AlGazal	Member
Prof. Moustafa Shehata	Member
Prof. Erdemir Aysegul Demirhan	

## Agenda

1. Discussion about the ISHIM Journal
2. Proposal of collaboration with Islamic organization for Medical Sciences in Kuwait (IOMS)
3. Inviting Dr. Abdul Rahman Al-Awadhi the president of IOMS to be a board member.
4. Feed back about the ISHIM Doha Conference (2007)
5. Next Conference
6. Reelection of board members

## Minutes

1. The Journal.

Prof. Aysegul indicated the financial difficulty of the journal. Meanwhile she stated that the 9<sup>th</sup> and 10<sup>th</sup> issues are in process of publication. The following suggestions were made:

- Inviting all the speakers in Doha Conference to submit their papers for publication in ISHIM Journal (Action Dr. Kaadan + Prof. Aysegul).

The Iranian Delegations' suggestion of taking over the journal was not accepted by the board. However they will be invited to donate and their contribution will be acknowledged in the journal (Action Dr. Mohaghegh).

- To publish the journal in collaboration with IOMS in Kuwait (Action Dr. Kaadan).

- To find the possibility of collaborating with the Islamic Medical Association in USA (Action Dr. Nagamia)
  - Invite the pharmaceutical companies to insert their advertisement in the journal (Action Dr. Hajar)
2. Collaboration with the Islamic organization for Medical Science – Kuwait.

Dr. Kaadan informed the board that he and Prof. Faisal had a brief discussion with Dr. Al-Awadhi the president of (IOMS) regarding ISHIM. There was an initial acceptance for more collaboration between ISHIM and IOMS. Changing the head quarter of getting ISHIM to Kuwait and financial funds from IOMS was discussed.

After a lengthy discussion the board delegated the responsibilities for further discussion with IOMS to Dr. Hajar and Dr. Kaadan. Also the board suggested writing a letter to the IOMS about the ISHIM views regarding such collaborations.

3. Inviting Dr. Abdul Rahman AlAwadhi to be a board member.

The board welcomed the suggestion of including Dr. AlAwadhi as ISHIM board members. A letter with this regard will be sent to him (Action Dr. Kaadan).

4. Feed back about the ISHIM Doha Conference.

After discussing the success of the conference, the following were the feed back:

- There was no registration desk.
  - There was no Scientific Committee to select the appropriate speakers and appropriate papers, as few presenters were not up-to the expected quality.
  - A feed back form should be constructed and distributed to all the participants.
  - Some topics were not related to the conference theme.
  - The conference had to be announced more openly to all related people and should not be limited to certain invited individuals.
  - Give more time for each speaker.
5. Next Conference.

The Iranian delegation showed their interest in holding

the next conference in Iran. However, some board members expressed their reservations because they are not allowed to travel to Iran. Therefore the next conference was decided to be held and in 2008 may be held in Kuwait.

6. Reelection of board member.

The results of reelection were as follow:

- Dr. Hajar A. Hajar Al-Binali - Honorary president
- Dr. Abdul Nasser Kaadan - President
- Prof. Faisal AlNasir - General Secretary and treasurer

**Prof. Faisal A. AlNasir**

**General Secretary and Treasurer**

**ISHIM**

- Prof. Nil Sari - Vice president
- Dr. Mahdi Muhagak - Vice president
- Dr. Hussain Nagamia - Vice President
- Dr. Abdul Rahman AlAwadhi - Member
- Dr. Sharif Kaf AlGazal - Member
- Prof. Mustafa Shehata - Member

The board expressed its deepest thanks and appreciation to Dr. Hajar Al-Binali and the State of Qatar for facilitating and hosting the conference.

The meeting was adjourned at 7.30pm.

**Dr. Abdul Nasser Kaadan**

**President**

**ISHIM**

# **DOHA CONGRESS REPORT**

## **The Third International Congress of the International Society for History of Islamic Medicine**

The 3<sup>rd</sup> International Congress of the International Society for History of Islamic Medicine was held during February 20-23, 2007 in Doha-Qatar.

35 papers were delivered with 45 participants from 18 countries: Qatar, Kuwait, Bahrain, Saudi Arabia, Syria, Egypt, Iraq, Algeria, Iran, Turkey, Malaysia, Azerbaijan, France, Switzerland, Italy, UK, Ireland and USA.

A meeting of the executive committee of ISHIM was held in the last day of the congress, with reelection of board member.

The results of the reelection were as follow:

- |                                |                                 |
|--------------------------------|---------------------------------|
| - Dr. Hajar A. Hajar Al-Binali | Honorary president              |
| - Dr. Abdul Nasser Kaadan      | President                       |
| - Prof. Dr. Faisal AlNasir     | General Secretary and treasurer |
| - Prof. Dr. Nil Sari           | 1 <sup>st</sup> Vice president  |
| - Dr. Madhi Muhaqak            | 2 <sup>nd</sup> Vice president  |
| - Dr. Hussain Nagamia          | 3 <sup>rd</sup> Vice President  |
| - Dr. Abdul Rahman AlAwadhi    | Member                          |
| - Dr. Sharif Kaf AlGazal       | Member                          |
| - Prof. Dr. Mustafa Shehata    | Member                          |

The board expressed its deepest thanks and appreciation to Dr. Hajar Al-Binali and the State of Qatar for facilitating and hosting the congress.



# SCIENTIFIC EVENTS

## **Pasts and Futures of Water**

It was held in Finland during June 13-17, 2007.

### **Contact**

Tavi Congress Bureau

Sari Kamula

**e-mail:** iwaha2007@tavicon.fi

## **22 th Congress of the British Society for the History of Medicine**

It was held in Dundee in Great Britain during 5-8 September 2007.

### **Contact**

Prof. Dr. Jaw Wildsmith

**e-mail:** j.a.w.wildsmith@dundee.ac.uk

## **38 th International Congress for the History of Pharmacy**

It was held in Sevilla in Spain during 19 -22 September 2007.

## **1. International Congress on Medical Ethics and Medical Law**

It was held in Antalya during October 17-20, 2007.

### **Congress Presidents**

Doç.Dr.Zafer Zeytin

Yrd.Doç.Dr.Murat Türe

Öğ.Gör.Dr.Hafize Öztürk Türkmen

### **Contact Address**

Dr. Hakan Ertin

**e-mail:** hakanertin@gmail.com

Dr.Sezer Ertin

**e-mail:** sezistan@yahoo.com

Ar.gör.Talha Barut

**e-mail:** talha\_barut@mynet.com

talhabarut@hotmail.com

## **Amasya International Congress on Anatolian Turkish Hospitals and Sabuncuoğlu**

It was held in Amasya during 15-18 October 2007

## **Congress on History of Health in the Period of Atatürk**

It was held by Literary Faculty, Ege University, Faculty of Medicine, in İzmir in Turkey in 7-9 Kasım 2007 .

### **Contact**

Kader Dedeoğlu

**e-mail:** kader.dedeoglu@ege.edu.tr

## **3 rd Balkan Congress on the History of Medicine**

It was held in Thessaloniki during 29 November- 1 December 2007.

## **1. International Congress on the Turkish History of Medicine**

## **10. National Congress on the Turkish History of Medicine**

It was held in Konya in Turkey during May 20 – 24, 2008.

### **Congress Presidents:**

Prof. Dr. Ayşegül Demirhan Erdemir

Prof. Dr. Yusuf Küçükdağ

Prof.Dr.Özcan Öncel

Öğr.Gör.Dr.Berrin Okka

### **Contact Address:**

Dr. Sezer Erer

Uludağ University Faculty of Medicine Tıp Fakültesi  
Department of Deontology –Bursa-Turkey

**e-mail:** sezistan@yahoo.com

## **41st International Congress on the History of Medicine**

It was held in Mexico, during September 7-12, 2008.

### **Contact Address:**

Carlos Viesca

Departamento de Historia y Filosofía de la Medicina,  
Brasil 33, Mexico, 06020, D.F., Mexico

**e-mail:** cviesca@frontstage.org

## **9th World Congress of Bioethics**

It was held in Croatia, during September 3-8, 2008.

**Contact Address:**

9th World Congress of Bioethics Secretary General  
Iva Sorta-Bilajac, MD, MSc  
Department of Social Sciences, University of Rijeka -  
School of Medicine, B. Branchetta 22  
51 000 Rijeka-Croatia  
**e-mail:** iva.sorta@medri.hr

**41st International Congress on the History of Medicine**

It was held in Mexico, during September 7-12, 2008.

**Contact Address:**

Carlos Viesca  
Departamento de Historia y Filosofia de la Medicina,  
Brasil 33, Mexico, 06020, D.F., Mexico  
**e-mail:** cviesca@frontstage.org

**4. International Congress for Islamic History of Medicine**

It was in Libya during 21-24 October 2008.

Papers of this congress are as follows:

**Dr. Abdalnasser Kaadan (Syria)**

Some of Muslim Physician's Achievements in Medical Ethics

**Dr. Nil Sari (Turkey):**

Ottoman Health Institutions In Libya During The 19th And Early 20th Centuries

Ottoman Health Services In Libya During The Italian-Ottoman War in 1911-

**Dr. Mahdi Muhaqak (Iran):**

Critical Editions, and Translations in the "Bait al-Hikmah", as understood from Hunain b. Ishaq's Risalah.

**Dr. Hussain Nagamia (USA):**

Is Prophetic Medicine a Holistic Approach to Medicine?

**Dr. Sharif Kaf AlGazal (UK):**

Organ Donation – Why some Muslims still Resist it?

**Dr. Aysegul Demirhan-Erdemir (Turkey):**

Importance of Misvak from The Point View of Turkish History of Medicine and some Documents

**Burhan Akgün (Turkey):**

Ottoman Health Institutions in Libya During The 19th And Early 20th Centuries

**Emrah Kurt (Turkey):**

Ottoman Health Services in Libya During The Italian-Ottoman War In 1911

Ibn Nafis, Distinguished Physician and the Father of Physiology of the Circulation

**3. Symposium on Medical Ethics and Law**

It was held in Bursa in Turkey during November 6-7 2008

**Contact Address**

Dr. Murat Civaner  
Uludağ University Faculty of Medicine , Department of Deontology , Bursa, Turkey  
**e-mail:** mcivaner@gmail.com

**Dr. Elif Atıcı**

Uludağ University Faculty of Medicine , Department of Deontology , Bursa, Turkey  
**e-mail:** elifatici@uludag.edu.tr

**5th Congress on Medical Ethics – From Medical Ethics to Bioethics**

It was held in Ankara in Turkey during 13-15 November 2008

**Congress presidents:**

Prof. Dr. Yaman Örs

**President of Organizing Committee**

Doç. Dr. Yeşim Isıl Ülman

**Contact address:**

Yard. Doç. Dr. Tamay Başağaç Gül  
0312 316 0082 377  
**e-mail:** tamaybasagac@gmail.com



**1. Congress Members in İzmir Congress in Turkey in 2007**



**2. Prof. Dr. Aysegül Demirhan Erdemir in Antalya International Ethics Congress in 2007**



**3. Congress Members in 2007 Amasya Congress**



**4. Congress Members in International Congress of the Turkish History of Medicine in Konya in 2008**



5. Dr. Abdul Nasser Kaadan, President of ISHIM in the 4th International Congress of the International Society for History of Islamic Medicine



6. Members in 2008 Libya Congress

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:

Dr.H.A.Hajar Al Bin Ali

P.O.Box : 5666

Doha – Qatar

Fax: (974) 4443447

الرجاء إرسال الطلب إلى :

د.حجر أحمد حجر البنعلي

ص.ب : 5666

الدوحة قطر

فاكس : (974) 4443447