THE OTTOMAN – TURKISH DENTISTRY

PROF. DR. İTTER UZEL
CÜÇUKOVA UNIVERSITY, FACULTY OF MEDICINE AND DENTISTRY / AYMA - TURKEY

In the Middle Ages, Islamic Medicine which was a continuation of the ancient rational medicine came to maturity, this was aided by the fact that the antique science was born in Anato- lia, where the Ottoman civilization was born and developed. Medicine was integrated with philosophy in Western Anatolia. While the Hippocratic Medicine, which is the base of modern medicine, was developed in south-west Anatolia, then called Kos, its alternative arose in Knidos (Đaşça), on the opposite side of Kos.

On the other side, the most magnificent cities became Adıyaman, such as Efe Asagi (Yumurtalik), Bergama, İzmir, Izmir, Ereğli, which were all built in Anato- lia. Also, Anato- lia, such as physicians, Galata (131-200 b.c.) from Bergama, Asklepion (1st century, a.d.) from Bursa, Rupin (1st century, a.d.) from Efes and Sounia (2nd century, a.d.) from Efes, Anazarbo (4th century, a.d.) from Kayseri, Diocelides (1st century, A.D.) from Anzawara, were the products of the many important doctors from the ancient, who were born, educated and who applied their profession in the Anatolian lands. While the Ottoman Empire, which emerged as a small state in the 13th century, was inheriting the Turkish – Islamic scientific and cultural background, it also inherited the ancient science and culture of mathematics, medicine and philosophy which had grown up in Anato- lia. Here, the development growth of dentistry in the Ottoman Empire between the 13th and 19th centuries is dealt with.

OTTOMAN DENTISTRY IN THE 15TH CENTURY

At this time, there is nothing related to the health of the mouth and teeth which can be found. The re- cords concerning this subject have not been found in the Srce-i Sisleri which have been published up to now. Documents related with dentistry are limited to the written literature of medicine. Besides, there was as yet no idea about the health of the mouth and teeth amongst the Anatolian Ottoman-Turkish people. Anthropological and oto-scientific research have not been carried out on any of the early Ottoman skeletons to date. The molar teeth on the lower right jaw, belonging to one of the concubines Memiha II (1451-1483), which was presented to the writer’s friend at the Faculty of Dentistry at Istanbul University, during the writer’s education, had been pulled out, and the molar tooth on the other side of the lower jaw was rotten. This is the proof of the extension of mouth and tooth complaints among the people of the Ottoman Palace. In this period, there were many surgeons listed by Rı- khı Meral Mesır with dental care. 1 The explanation of the subjects, such as, discolored jaw, incrustation, yellowish, loose teeth, tooth ache, excess salivari- on, the swelling of the tongue, and their treatments, found in the book by Cemal Ibrahim, called Mali-i Cerrahis, shows the importance given to illnesses of the mouth and teeth, and also shows that their treatments were carried out by surgeons. 2

The main knowledge of medical science concerning the mouth and teeth, determined from 15 Türk- ish medical articles published in this period are:

TOOTH COMPLAINTS

Not only toothache, but also some of the illnesses related to the conservative dental treatment, were dealt with, and some medicines were suggested for
treatment. However, the theory of "Humoral Pathology" assembled by Hippocrates continued to dominate European and Islamic medicine in this century. The causes of illnesses (pathogens) were explained and treated with the application of this theory. In this medical literature there are many names of drugs based on Empresa, which have no worth in treatment, only having a placebo effect.

In the book, Hulass, written by Doctor Berkelet (14th c.), toothache is qualified by the terminology of hot or cold humors, that confirms humoral pathology. If the pain occurs with a superiority of hot humor, the blood is taken from the kifal (vena cephalica) or ge- harak (vena labialis), or the patient is bled and drugs of a cold nature are given. For example, a gurge of vi- negar and water is prescribed. For toothache, cauteri- zation can be carried out with a thin probe. If the pa- in occurs with a superiority of cold humor, then the patient is given relief by gargling with hot milk, and the pain of the tooth and its throbbing will pass. For the treatment of such a pain, drugs with a hot nature are used. For example, a gurge is prescribed, with vi- negar as one of the ingredients. This formula was used by Razi (854 - 937 A.D.) for treating the teeth, too.1 Sensitivity to cold and heat, which is seen in the patho- logy of pulp infections, was adopted by humoral pathology in all the old medical literature. As known, in pulpitis hyperemia the tooth is especially sensitive to cold, but in the pulpitis prurienta, it is especially sensitive to heat. However, the same theory can be seen in the works of Ambroise Paré (1510 - 1590 B.C.). Also the same theory and the same advice for treatment can be found in the book of Emir Celebi, called Eumanaâl Tuhfa.6 Doctor Berkelet wrote about tooth- aches due to steam descending from the brain or ascending up from the stomach. Here, the effect of medieval Islamic medicine, which was inspired by the thought of Galenos (131 - 201), that gave precedence to the indigene factor for tooth decay is obvious. As a matter of fact, according to Galenos, decay depended upon the inside effects of acid or corrosive humour. The advise of Doctor Berkelet for these poisons is to tre- at the tooth with a drug which is composed of butter- cup, tar, and pepper. In addition, Doctor Berkelet has written about toothache which arose from the stom- ach and passed off after food was eaten.8 If the blood of the tooth is gone, a toothache will occur with contact with cold water. With these defini- tions, "hyperesthesia dentaria", that is, the exces- sive sensitivity of the tooth, was not explained. For treatment, a cooked egg is bitten into by the patient or hot sesame batter is applied on the tooth.

In the book of Ishak Bin Munaf, Edrâsi-i Mafrûde, a remedy was given which cured the pain of the to- oth.9 Sea water and mallow were used as drugs in medicine and were seen in the drugs of Mezor Çarşıs (The Egyptian Bazaar).

Doctor Haci Pasha (1534-1417) discussed the toothaches which depend on hot, cold, mucus, and the superiority of gall humours in his books, Münâbah-ı Şifa and Türkâl-ı Şifa and he also discussed the appropriate drug treatment. 10 The remedy for toot- hache, in the book Münabah-ı Şifa, is very similar to the list from Edrâsi-i Mafrûde by Ishak Bin Munaf.

Here, it is claimed that worms cause tooth decay and a simple treatment and temporary fillings are ad- vised. For example, resin (kasar), pepper, ariandaiba zehri, and gum arabic are ground and applied to the decayed tooth.11 The theory that tooth decay was cau- sed by worms was born in Anatolia in 3000 B.C.12 But this can also be seen in ancient Egypt, ancient Greece, Assyria, Babylon, and India (Susrutra), even in Madagasar, the Philippines, the Ocean Islands, Gu- aternal, and North America. This idea was adopted by Islamic people in the Middle Ages and from here it passed through to Europe and continued on to Mu- sitana (1635-1714) and Nicolas Andrey (1669 - 1745). The most violent opponents to this theory were J. Molluiller (1498 - 1562) and Pierre Fauchard (1768 - 1761). Toward has shown that this theory of tooth worms was seen in communities which depended upon the cult of the sun. This thought can be seen in some other literature.13

In the work of Haci Pasha, there are not only many toothache remedies, but also the dropping of jasmine butter into the ear can be found.14 The rela- tion between toothache and the ear was understood by the surgeons of antiquity and it was supposed that toothache was treated by a drug applied to the ear. The Chinese knew of this relationship, as well. Lazaro de Rivière (1589 - 1655) applied eucalypt, impregnated with bitter almond butter to the back of the ear chan- nel for the treatment of toothache, and he supposed that the toothache could be stopped by this method, thinking that the nerves which feed the teeth pass through the ear.15

In the book of Haci Pasha, Münabah-ı Şifa, there- are simple formulæ for fillings. The most primi- tive of filling is met in ancient Egypt. For the aim of conservative treatment, the soil of Nubya, copper hid- nate, pieces of stone, and carpturein resin were appli- ed. 16 The Romans, did not know about these types fill- ings. They used metal foils and liver powder liver as a filling. Celsius (25 B.C. - 50 A.D.), in his book called De Re Medicin, discussed the importance of pro- tecting the teeth and he advised a formula that con- tained lead and cloth fibres. Razi used a filling substane- ce containing mastic and gall.17 However, the theory that tooth decay was caused by worms and the limited techniques of cleaning cavities delayed making a scientific approach to the end of the 19th century. Before Fauchard (1678 - 1761), the cavity was cleaned with chemicals and physically, that is, by means of the rasp, and after that, the teeth were filled, curaturing the nerves of tooth. But, this procedure was carried out in very bad conditions, due to the lack of instru- ments.18 In the book, Tawâlîlurr Khoshâr by Ahmed, de- dicated to the son of Yezdimir Bayazid, Emir Süleyman (1403-1410), there are some formulæ for tooth- ache, that fit in with the theories of the age. The for- mulæ for toothache caused by the superiority of hot and cold humours are very similar to the formulæ of Haci Pasha, in his book, Münabah-ı Şifa. The entire work contains 10,100 caulets and 99 caulets of the drugs are related to the illnesses of the mouth and te- eth.19

In the book by İbnı Şerif, Yadigar, written at the beginning of the 15th century, the treatment and clas- sification of toothache are similar to that in Turkish medical literature written before this time. For example, if the toothache is transmitted with cold wa- ter, the blood is taken, cupping is done, or the ill hu- mour is cleared with water from snow, if the toothache is transmitted with hot water, cumin-felkina or ce- haynâhos or deir rose are burnt and boiled in vinegar and followed by a gurgle.

Sivraild Mahmud gave another formulæ taken from the book, Şifa of İbnı Sina (980-1037) which was written in the 15th century, in his book, Kusuliyâ. The author stressed that he had experimented with the formula on himself and saw the benefit: If the bean of wheat are fried with salt in a pan and then applied as a poultice to the head and cheeks, the toothache is eased. In this book, there is a method of fumigation with the worms.20
Faculty of Medicine, History of Medicine. Haard and Grmek have investigated the influences from Far Eastern medicine in Şerefeddin's surgery. It is interesting that the author did not take his personal experiments further in a second copy. The method of acupuncture, used by the Chinese for the treatment of various illnesses for centuries was applied in dentistry. One of the most important points for acupuncture is the first intermetacarpal interval named "lokak." Acupuncture at this point brings headaches, spasm of the pharynx, hiccup, pains in the head and neck. The point of "Ya-T’ung" was also used. This point is at the third intermetacarpal interval and between the third and fourth heads of the metacarp. Pressure given at this point benefits 98% of toothaches. 27

Again, in the Aḥmadīn translation of Sabuncuğlu, a temporary filling with a formula containing a piece of cotton, wine, opium, vinegar, and enameled was advised and a formula of fermentation for treating the tooth worms was given. 39 In the book, Münşehir Namaz named by the same author, the formulas for toothache caused by hot and cold victory are given. Some drugs that Sabuncuğlu used were delphinium staphaphra, aconycus pyrenuem and cirriandium sativum.

The surgeon Ibnismih, in his translation, Alawi-i Carahin, grouped toothache and gum infections together, and advised a drug, with a formula containing pepper, delphinium staphaphra, ginger, common fungus, honey, and tar. Also, if the pain did not ease, then the advice was to put into the tooth. 39

PERIODONTAL

Periodontal lesions can be seen on the jaw bones left from the Neolithic Age. 30 Pierre Fauchard (1658-1761) first investigated gum disease, called by him as "Scourbut" (Scuary) in 1746 and R. Toine (1791-1862) first used the term "Alveolo - Dentaire Pyorrhe", in 1786. Etienne Bouretius insisted on the role of the pocket of gum, as being the source of suppuration. Oskar Weski (1876-1952) in 1921 defined for the first time the term "Periodontium." Periodontology has grown in parallel with the growth of basic medicine and applied medicine.

All Turkish medical literature written in the 14th and 15th centuries contains the science of periodontology in its current meaning.

The surgeon Bereket, in Halasa, classified the abscesses of gum as tooth pain caused by cold, blood, and gall humours. 31 If a superiority of blood occurs, the blood source is the bottom of the teeth. If the gum is drained with cold, bay oil dissolved in resin is applied to the gum. If the gum widens (hypertropia) the blood is taken out, and the drug treatment is applied. For the swelling of the tooth, two dhalams of rundus, bright scarlets, one dhalam of celum is taken, pounded and applied to the teeth. Also, again, for the formula for the swelling of a tooth, the powder from a deer snout, salt, and red rone powder are mixed together and applied to the teeth, while a massage is given to the gums. The Romans used the horn of deer for treating teeth. 32

In ancient medicine, it can be seen that the astragangus (e.g. alum, arborvinæ) were used frequently. In ancient Egypt, astragangus were used for swelling, as well. Also, Dioscorides (A.D. - 1st c.) and Razi (854 - 937) frequently used alum for gum disease. 33

Hacı Pasha, in his books, Münşehir-i Şifa and Hçiğhı'ı - Şifa explained the symptoms of the bleeding and swelling of the gums. After that he adopted from Ibn Musaviyeh (777 - 897) the drug containing the Madonna lily, rose pomegranate, and cyperus rondus and he advised applying this drug to the base of the teeth. 34 Mallow was beneficial for the gum and he made use of the infusion. In Münşehir-i Şifa, there is a list of single drugs which benefit the illnesses of the gum: vinegar and a guggle to harden the teeth that are surrounded by swelling are also recommended.

Ahnecil, in Tarihi'ı - Ervaah gave a formula very similar to the formulas in the Münşehir-i Şifa of Hacı Pasha. These formulas are explained in seven couples. 35

İes Şerif, in Yadiżer, explained the subject of the withdrawal of the gum. He recommended the drug containing plango major, honey, ypsos sativa for this complaint, with which he had experimented greatly, and be gave the drugs for the bleeding of the gum and swelling: "If in the mouth or at the bottom of the teeth flesh is eaten away, it is called in Arabic 'Akke'; in Persian it is called 'Hore', honey is poured on there and thus applied." 36

Şevval Mahmut, in Kemalife, advised a finger massage and a guggle of lukewarm water for the bleeding of the gums. He advised applying a pome containing alum and salt to the gum. Alum was used by the herbologists of the Musar Çarşısı to strengthen the gums, as well. 35

Şerefeddin Sabuncuğlu, in Çoruhbezti'ı - Hanıye, advised cauterisation for gingivitis, and he illustrated this technique in his hand-written manuscripts. In one of these, which is registered in the Paris Bibli. Nat. Suppl. Turc, f.693, there is a picture of an abscess and the cauterisation of the alveolar furula. The abscess of the gum and epulide were first separated by Paul (622-690) and Abdullah (936-1013) who were the main sources for Sabuncuğlu. Sabuncuğlu said that after the cauterisation of the abscess, sulphuric acid or antiseptics should be used, which he attributed to the doctors of Andalusia. 40

Also in the writings of Sabuncuğlu, there is a technique that binds the infected tooth with a wire, which had not been in the studies he had used. Before Şerefeddin, Münım bin Mukhî from Sunap, in his book Zehri-i Mustakhs, written in the 15th century, discussed the binding of the teeth in the area of swelling with a silver wire. 41 However, in this book, there is no technical explanation. Moreover, there are no illustrations. Whereas, in the work of Sabuncuğlu, of which we have three volumes, the binding technique is explained very clearly. Okyay, in one of his works, wrote that Şerefeddin discussed the binding of the front teeth but, his major source, Abdullah discussed the binding of the back teeth. 42 However, the teeth that needed to be bound are the same in both works. The binding technique has been known ever since ancient Egyptians. But like the Egyptian, the Pharoahs bound teeth for the aim of prosthesis, as well, 42 whereas, Abukakum and Sabuncuğlu bound teeth for the aim of consolidation.

Again, in the translation of the same author, named Aḥmadīn, Indian salt, thymus sericus, alum, aristolochia longa are mixed with tar, heated and then ginger and sugar are added, and then applied to the teeth to aid the hardening of the gum. 43

In the book of Hayreddin, Halasa, if the bottom of the tooth is weak, the compound containing asborvat (gallus), thys cordia, rose pomegranate, camartics armarisula, hysycis (Hyssopus officinalis), termesia cilina, coppuris spinos, pine nut, pepper, ginger (singler officinale) should be applied to the teeth. If the bottom of the tooth has recurred, carbons cupricus mixed with honey should be applied to the teeth. 43

In the book of the surgeon Mesud, Halasa, it is advised to lead a heath to the bleeding gum. The leech is often used for its property of absorbing blood and its saliva which contains an anticoagulant. The leech is also used for the treatment of various illnesses in ancient medicine. This drug has not been seen in any other dentistry studies which have been examined. 46

In the book, Alawi-i Carahin by the surgeon Ibrahim, the reason for the decaying of the gum (Gingivitis or Periodontitis), is blamed on the bleeding and the superiority of the cold humour, for treatment, a guggle is made from hus cordia, vinegar, and alum and the drug containing yellow arsenic (codii sulphur) is used. If the gum has swollen because of the vapour of bad food, the blood is taken and uberdarbus, mowar, manzi and ginger are mixed with honey and made into a hot guggle. 46

PEDODONTICS

Turkish doctors and authors from the 14th and 15th century were concerned with dentistry for children, as well. In the book of Doctor Bereket, Halasa, in the book of the surgeon Mesud, Halasa, and in the book of the surgeon Ibrahim, Alawi-i Carahin, hyper-salivation, which is caused by parasites in the intestine, teeth in children was always written about in the sections concerning the illnesses of the mouth and gums. 40 This subject is not found in modern pedodontics subjects.
Doctor Berkelet advised using barley and massaging the alveolae cretinae to ease the difficulty of a sliding tooth in children. In the parts of the books, (Təqəbül İṣfahana and Mənsəbət-i Sifa) by Haci Paşha which concern the illnesses of the mouth and the teeth, the only thing about childhood dentistry is the mixture of a vermicular infusion and cardamum tinctures being advised to use in children against stomatitis. Ibn Seriç, in his book, Yadiğa, advised a composition containing pepper, indigo, and sugar for the dangerous and painful swelling seen on the tongues of children. This composition was also advised by Eşref Bin Muhammed in his book, Hassan-i inni Saadet can be found in the Murar Çarzul. Otherwise, another method to protect against a cut on the tongue is that the mother was to twist her hair round her forefinger and excavate the child's tongue with the hair. This irrational treatment can be seen today used in Anatoelia against aphtha (geumplagi) and it is still advised given from generation to generation. The most important place for podemoscopy was given by Eşref Bin Muhammed in his book, Hava in iin i-i, Saadet, in the writings which are examined. Here, against the difficulty of a sliding tooth, both massage and liqueur nose are recommended as treatments; the child is to chew on the liqueur. Liqueur nose root was often used for stopping a cough in ancient medicine. Here, there is a great possibility that its sweet taste aided it as a medicine. The ancient Egyptians were also interested in the problem of tooth sliding or the breakdown of dentition in children. For this reason, children were treated with a mouse, which was cooked and soaked. In the stomachs of children's mummies from ancient Egypt, there were the remains of mice. This treatment was applied by Dioscorides, the ancient Greeks, and Arabs, and with their mediation, the Europeans used it as well. In Turkey, the oil of mouse was used for the other illnesses. Eşref Bin Muhammed advised candle oil as a massage for rotten flesh when tooth sliding, pruri dentaria, occurred. Nowadays, his suggestion of liqueur root has given way to The Rasa of Dentition, which is used for the same purpose.

Şerefeddin Sabuncuğil, in his book, Çorbaçiyi -i Hanıya, explained the cauterization of halitip (Bre de Liévre). This process was explained by the illustration in the Paris Bibl. Nar. Suppl. Turc.

ORAL DISEASES

The first writings about mouth illnesses can be found among the ancient Egyptians. In the papyrus of Edwin Smith (3700 - 1700 B.C.), 12 peas were dedicated to the subject of mouth illnesses. Hippocrates (460 - 375 B.C.) was a limited dentist, but he was a great stomatologist. For example, in Epidemios, he discussed a mouth gangrene (Nema), and the loss of teeth. These subjects cannot be seen in the works of 1st and 15th century Turkish doctors and authors.

Doctor Berkelet in his book, Halasa, gave the reason for the splitting of the lip fissure as the superiority of the cold humour or too much wind or the effect of cold and he advised as a protective precaution on the inside membrane of the egg to be stock on the lip or, a pomade containing white lead, hen oil, and otherwise to be applied to the lips. In this work, the ala is dependent on the superiority of blood, the mucus humour and according to this, the treatment is complete. For example, if the ala occurred because of a superiority of blood (hot humour), cupping it is done or blood is taken. There are two types of pimple: whiteheads and blackheads, which are different from the redhead pimple that the author describes. These pimples arise from mucus or humidity, but in the blackheaded pimple the prognosis is bad. For the stomatitis, a drug containing yellow arsenic (sodic sulphur), alum, vinegar, carbonus cupricus is applied to the cut.


Haci Paşha, in his book, M̲en̲s̲əb̲e̲t̲-̲i̲ S̲ı̲f̲a, qualified mouth pain as the pains arising from the superiority of gall, blood and mucus humours and he said that the drugs to be used were the same as for babble of the tongue (glossitis). He advised a gargle containing dry rose with wine for mouth pain. This formula was also advised by Dioscorides. Giovanni Platzerio treated the cuts in the mouth with aromatic wine, too. Desiccation of the face and the lids of the eye is "Magreb", a hot astringent and for its treatment blood is taken, and the gall is transferred.

Ibn Serif, in his book, Yadiğa, advised for mouth pain the taking of the blood from the vein of the head (Vena cephalica), cupping in the neck, or taking the blood from the vein of the bottom of the tongue (Vena lingualis), or be said that ill humour could be taken out with pomegranate juice. Stomach, lentil, rose pomegranate, and bay are boiled, filtered and applied where the pain occurs. The root of masticum is boiled and if its water is kept in the mouth for a while, this benefits the pain of the mouth.

Şevvalı Mahmut Kemalıye, in his work on mouth pain, advised a gargle containing sumac, arborvitae and honey.

Eşref Bin Muhammed, in his book, Hana-i inni Saadet, classifies the back of the mouth into three areas, similar to that of Haci Paşha and for treatment, there are four different formulas.

Şerefeddin Sabuncuğil, in his book, Çorbaçiyi -i Hanıya, explained the surgical treatment of lip tumours and in the Paris Bibl. Nar. Suppl. Tunc. P. 693 there is an illustration explaining this technique. The translation of the same author, Aḥrārāt, the drugs which are used for illnesses of the mouth are given, drugs for the teeth and tooth. In his book, M̲e̲n̲s̲ə̲b̲e̲t̲-̲i̲ N̲a̲m̲a̲, the name of drugs for capillary are given, again with drugs for the mouth and teeth.

Hayreddin, in his book, Halasa, explained the cracking of the lip in a similar way to Doctor Berkelet, in Halasa and the treatment is similar, but the back of the mouth was classified into types; the superiority of red, white or love humours. The surgeon Meso said that in Turkish the back of the mouth was called the tahal, and ill women affecting it are the motion of the stomach and foods with salt, and he gave a prescription.

Otherwise, the blood was taken from the veins of the lip, and rotten sugar was applied to the cut. The same suggestions and theories can be seen in the translation of the surgeon Ibrahim, Aḥrārāt-i Ġulâna.

Surgery of the Mouth

It can be seen that in the 14th century surgical works written in Turkish, surgery of the mouth is discussed. However, except for Şerefeddin Sabuncuğil, the others did not make technical explanations, even when giving the name of the surgical treatment, they were satisfied with drug treatment. The surgeon and surgical treatment were always in the background in both the East and West. If surgical interference was necessary, the doctor instructed the surgeon, who carried out the necessary process.

Doctor Berkelet, in Halasa, said that "To take out a tooth, if the bark of a large root, the bark of a small berry root, the bark of yellow spot, yellow arsenic, the root of kolokot or spurge are soaked in vinegar and then applied to the tooth, that will tear out the tooth." Razi (854 - 937) released kolokot in vinegar, then cleaned the teeth and applied this combination to the teeth for three to four days, and then pulled the teeth out. If saltwater was used, the teeth could be pulled out in three days. If saltwater is mixed in strong vinegar and kept on the tooth for one hour, the tooth will suddenly crack, in order to protect the rest of the teeth, the isolation must be done with a candle.

Also, Doctor Berkelet explained the surgical and medical treatment to extract the frog at the bottom of the tongue (tunula). Hacı Paşha, in his book M̲e̲n̲s̲ə̲b̲e̲t̲-̲i̲ S̲ı̲f̲a, gave various formulas to extract teeth without pincers: "Enough pyrethrum is kept in vinegar made from wine for one month, and then if it is put on the tooth, the tooth will come out suddenly. If it is put on to the canine tooth, the tooth breaks into pieces. If the milk of fig and resin are put onto the decayed tooth, the tooth will break into pieces. If the right foot of a female frog is applied to the painful tooth, the tooth will suddenly break into pieces. But, the foot of the female frog must not touch another tooth."

In these centuries, various instruments were used for extracting teeth, but these were very backwards and had a bad reputation. For this reason, Turkish authors, like their contemporaries, preferred to break the tooth into pieces instead of pulling the tooth out.
The illnesses of the jaw can be seen only in the studies on surgery in Turkish medical literature in the 14th and 15th centuries. However, like the subject of tooth extraction, surgery of the jaw can be found in medical writings which are not surgical.

Şerefeddin Sabuncuğlu, in his book, Corubâyıt'ı - Hanıyı, in the 50th part of his second book, explained the technique of pulling out the tooth. Generally, the main source of knowledge was the same as Abūraisā. That is, the tooth could be extracted only when further treatment was not possible. The painful tooth should be carefully identified, as sometimes the patient could indicate the wrong tooth. First of all, the connection between the teeth and gum is cleaned. This progress is very similar to the syndromic process, which is done nowadays. After that, the tooth is pulled out with a pin. These must be made from steel and the inside face of its mouth must be clogged. The root of tooth or the piece of alveol will soften and one day later it is to be taken out with the pliers. Like Abūraisā, Sabuncuğlu is against the tearing out of the tooth. Cracking the tooth was a process that hurt the surgeon and he was also against the drugs which were recommended by Razi (854 - 937). He said: Avoid breaking or cracking the tooth; because, if the small piece is in the gum, it could be the cause of a greater pain. Sabuncuğlu used different tools from the piners described above, like a pincer which looks like the beak of a plasman, a razor, a knife and some excavators used for clearing the tooth. He used these instruments for surgical purposes. The forceps has been used to pull out teeth since ancient times. In the temple of Apollon in Delphi, in ancient Greece there was an example of a forceps which is made from lead and called "Ostomagras." But, the piners used in the Middle Ages were similar to the forceps used by Abūraisā and Sabuncuğlu. The forceps that was used by Ambroise Paré (1510 - 1590) can be taken as an example.

In the book of Surgeon Ibrahim, Alâim-i Corah-i, there were no technical explanations for extracting the tooth. It was only advised to pull the tooth if the painful tooth could not be treated. Salt is put on to the place of extraction to stop the bleeding. Salt was used for the same purpose in folk medicine.

SURGERY OF THE JAW DISEASES

The illnesses of the jaw can be seen only in the studies on surgery in Turkish medical literature in the
Ahmedi, in his book *Tevbi-i Erbâh*, took up the subject of the anatomy of the tongue and he explained the tongue mucous, according to the level of knowledge at that time. He examined the swelling of tongue, tongue illnesses caused by the superiority of the blood, mucus, saliva and love. This information constitutes 46 couplets in his work.99

In the book, *Yadgar* by İhsan Şerif, there are similar drugs formulas with formulas given by Haci Pasha for heaviness of the tongue. He explained the dangerous pain on the tongue in children in the sections on Polidomy. 

Efgi Bin Muhammed, in his book *Hacâ’im-i Saatâd*, gave information about the anatomy of the tongue which is not very clear.100 He mentioned that for the protection of the health of the tongue, the tooth and gum would help us.

In the book *Mümadub* by Abdulvalih, there is a drug for the gum, used for the blood victory and swelling of the tongue: barley is boiled, chicory is mixed with it, liqueurice is beaten and mixed in the boiled water of barley and a gargle is made.101

Şerefettin Sabuncuoğlu, in his book *Cevâhi-i Cevâhi* - *Haneyeye*, explained the surgical treatment of the tumour on the tongue or the frog and the cutting of the frenum of the short tongue. There are pictures about the processes in the works, recorded at Paris Bibli. Nar. Sabih. Tur. L.693. After a surgical operation, attention is given to the incision with hemostatic and antiseptic drugs.

Also the surgeon Mansur, in his book *Hedâya*, explained the treatment of a tumour on the bottom of the tongue (süzâh), but while pulling out that tumour, the surgeon must be very careful. The swelling and pain of the tongue are caused by the illness coming down from the head. The blood must be taken from the vein of the head (vena cephalica) or by cupping. If the ligament at the bottom of the tongue is cut, children who could not speak before will immediately be able to speak. All this information can be seen in the translation *Alâym-i Cevâhi*, by Surgeon İbrahim, too.102

**ORAL AND DENTAL HEALTH**

In Turkish medical literature in the 14th and 15th centuries, another subject was examined of importance to the health of the mouth and teeth. In these writings, in order to protect the health of the mouth and teeth, it is advised to use tooth powders and gargles. Today's preventive dentistry gives an important place to social protection besides personal protection. However, in these writings, there is no such information.

Doctor Beredek, in his book, *Hedâya*, advised a powder which is used for the cleaning of the teeth: powder, "sea foam" (osa sepia), a clean piece of tile, and limber are taken, mixed together and this compound is applied to the teeth in the mornings.103 To remove a sour taste in the mouth, limber, kettymore, or coricande are chewed.

Haci Pasha in his book *Mümadub-i Şifa*, gave a gargle formula to prevent tooth blackness, containing sea foam, liquorice, kakule, kebab, bamboo, seed, ginger and the leaf of a red rose.104 Again Haci Pasha recommended drugs containing astringents, like liquore and slat for cleaning the teeth. But the following drug polishes the teeth: salt and barley flour are mixed with honey inside a bamboo cone, the powder of a horn of a deer, the eggshell of an ostrich egg shell, honey, a clean piece of tile, are mixed in an earthenware pot and if this compound is applied to the teeth, they will shine. The powder of the horn of a deer has been used for making tooth powder in ancient Rome. Serbomun Lugas gave two formulas which were used by Emperor Octavius and Quinan Mussalina. The first one is to roast the horn of the deer, Chlo gum and amarantha. The second one is to mix dried rose, white wine and "Nard Indien". The knowledge about how to protect the teeth had not changed since the time of Asians (854 - 937), for example, the following were their basic rules: very hard things should not be eaten, the area between the teeth should be cleaned after eating, because food bits left led to tooth decay, especially after drinking milk the teeth should be washed. After drinking very cold things, hot things should not be eaten or vis versa.105

One of the best classified and examined subjects in medieval medicine was bad breath (halitosis) and its treatments. This subject and its treatment was seen in all the Turkish medical writings that have been examined. For example, in the book of Haci Pasha *Mümadub-i Şifa*, the reasons for bad breath are as follows, because of the teeth, throat, the superiority of blood, mucus or cold.

If the reason of bad breath is the teeth, then siwak is used to brush the teeth or they are cleaned with a toothpick; apple, quince or the inside of an almond is chewed, after that cleaned with a toothpick.106 Toothpicks have been used for cleaning the teeth in Uş (3500 C. B.C.). Galenos also advised that a toothpick made of mushroom, which is made from the tree of Salvadore Persica and Pistachia Lermicorum.107 There is a toothpick made of ivory and the cleaning set has remained from the Roman period in the Museum of Archeology in Rome. The toothpick was used as a tooth cleaning instrument in medieval times. In the paintings of king and nobles from these times, toothpicks can be seen. Dioscorides has said that good breath arranged bad breath. For this purpose, chewing a carrot or a piece coriander was sufficient. He advised for good breath, apios wine in which barley, dried rose, the leaf of the flower of the red rose are boiled.108 Haci Pasha gave a lot of formulas, as well. Moreover, he gave the formula which he discovered himself containing white radish.109

İhsan Şerif, in the book *Yadgar* gave drugs for bad breath, tooth powder and tooth water. If a fresh bay leaf and a seedless black grape are crushed, mixed together, pills made the size of a walnut and eaten, it prevents bad breath. In his work, there are formulas for tooth powder, which are similar to that of Haci Pasha: sea form (ossa sepia), tile powder, a yellow seed, limber, rose pomagranate, the bark of a great root, and 10 drachmas of sugar and quinine are mixed, sieved and applied with miswak to the bottom of the teeth.110

Also Mahmud from Şirvan in his book *Konuljd*, transferred the formula from the book of İbni Sina (870 - 944) *şifa* bay leaf and red grapes are mixed separately, and then pills are made the size of a chickpea and eaten; two in the morning and two in the evening. Thus, it is understood that the formula given by Haci Pasha before, depends on İbni Sina. Also Mahmud from Şirvan advised coriander for the prevention of bad breath.111

The translation of Ahmedi Dî, Tohib Nokbi includes the suggestions of Mohammed and Islamic elders. The only subject concerning the illnesses of the mouth and teeth is about the health of the teeth and the prevention of bad breath. Also the benefits of miswak and raisins to prevent bad breath is written in this book.112

In the book *Abrahadâ* by Şerefeddin Sabuncuoğlu, five drachams of hemp, seville oranges, cinnamin, white sandwood, mint, three drachams of coconut, boxbean, mast, cardamon, erbabe, two drachams of cumber are taken, poured with mixed apples-juice and if it is kept in mouth, it will prevent bad breath.113

Hayreddin in his book *Hedâya*, for bad breath caused by the stomach advises eating wild apricots. If bad breath is caused by the bottom of the teeth, the teeth must be cleaned with a toothpick and miswak. If a wet bay leaf and red grape are mixed and a piece as big as a walnut is eaten, it benefits the breath. Moreover in this book there are formulas which are very similar to the tooth powder formulas of Haci Pasha.114

**OTHER DENTISTRY KNOWLEDGE**

Other knowledge of the dentistry branches are as follows:

There is anatomical information about the structure of salivary glands in the book *Hacâ’im-i Saatâd* by Efgi bin Muhammed.115

There is an interesting article in the book of Şerefeddin Sabuncuoğlu, *Cevâhi-i Cevâhi* - *Haneyeye*, that the super sulcarnous tooth in the front region must be pulled out. Alhazan recorded the same things in his book *At-Tarîf*. This process, which is done for the purpose of esthiological appearance should be carried out for crooked from teeth, not for the additional (surmune ta) tooth. In this region this tooth is positioned between two incisors or near the side of an incisor. However, of these only the first one causes the esthetic degeneration. Here, the two authors insist on the
intention of the additional tooth, placed near the side of the incisor and then the process can be accepted as an orthodontic process.  

Again, Sabuncuoglu in his surgical book told about a pros thesis made from bull bone. Also Alburatik advised the same thing. But, this process was intro duced by authors from the West as "hemitheroplasty" or a prosthesis. Sabuncuoglu wrote that he had not tried this process, but that the doctors of Andalusia had carried it out.  

It can be seen that there are a lot of diseases of the mouth and teeth, and their treatments are dealt with in these books, which were written since the end of the Fatih Period. It can be understood that between the 13th and 16th centuries the techniques applied in Ottoman dentistry were superior to those of the West and they have been written up in the literature of that time. But, it is clear that the general knowledge at that time was much lower than it is today. Fatih suffered from toothache, we can see it from his childhood notes.  

THE DEVELOPMENT OF DENTISTRY BETWEEN THE 16TH AND 18TH CENTURIES

After the Turkish conquered Istanbul in 1453, the Renaissance started in the West and this period of scientific investigation led to the growth in the macroscopic anatomy of man, his physiology and biochemistry. The evolution in anatomy that started with Andreas Vesalius (1514 - 1564) continued with the investigation of circulation in 1626 by William Harvey (1578 - 1657), and the discovery of microscope in 1639 by Antonie van Leeuwenhoek (1632 - 1723). In addition, in 1530 the first tooth monograph was printed by Artznel Buchlein in Germany. The first anatomy book about the tooth was written by Bartholomaius Eustachii (1520 - 1574), Logiilis de Dentiis.  

In this period, there was no growth parallel with the West in dentistry, equal to that of medicine in the Ottoman Empire. Although one of the first monographs in the history of dentistry was written in the period of Selim I the Magnificent (1521 - 1566), this work qualified the continuity of the Middle Ages Islamic medicine. 

Like Sarusi, who lived in this period and Nidai who lived in the period of Selim II (1566-1579), the doctors and authors repeated the knowledge of medieval Islamic medicine. But this knowledge was not being used in the West. However, the Ottoman dentistry literature could not enter the basic sciences. The studies in tooth anatomy, starting with Leonardo da Vinci in the West continued with Lelisfera de Dentibus, written in 1653, but there was no studying in that time in the Ottoman Empire. However, the isolated remains like the Museum of Athens' surgery set shows us the level of dentistry at the time.  

According to the book Suyukabahane, by Evliya Çelebi, there was no group called "dentin" working in Istanbul. This fact shows us that the pulling of the teeth and dentistry was carried out by the surgeons of the time.  

DEVELOPMENTS FROM THE BEGINNING OF 19TH CENTURY TO 1909

At the end of the growth in medicine and basic sciences, the first scientific book of dentistry was published in 1728. This book, which studied the growth in all the fields of dentistry, was translated into German 5 years after being published and in 1745 it was translated into English. This book was not seen in Ottoman medical literature, there was not even an introductory article about it. The Ottoman-Turkish world did not know about this study, and this shows that dentistry was not thought of as a continuation of medicine; it can be said that this is a basic proof. 

However, in the times of the Ottoman Empire, dentistry was carried out by some surgeons who trained themselves on the master-apprentice relationship from the beginning of the School of Dentistry. For this training, special education was not sought and those who wished to do this work taught themselves. Men who believed that they had obtained sufficient knowledge carried out dentistry, surgeons cut through the abscesses of teeth and anybody who wanted could have pulled out a tooth.  

After this free period, the licence started to be necessary to carry out dentistry and these licences were given to workers who worked in the hospitals with dentists. The licences were granted by other dentists. The persons who gave the dentistry licence confirmed their licences with the Health Offices or the surgery department of the School of Medicine and this situation continued until the opening of the School of Dentistry.  

Cemil Topuzlu (1866 - 1958) explained the establishment of this school in detail in his book named My Experience of 50 Years.  

Professor Dr. Halit Şazi (1868 - 1921) who was a student and assistant of Cemil Topuzlu had an important role in the opening of the School of Dentistry.  

As a result of this, Professor Dr. Halil Şazi had the important mission in the School of Dentistry as being the first educational director. The father of Professor Dr. Halil Şazi was Şazi Bey, who was one of the sons of Gazi Kösemilah from Samsak. His mother was Nafia Hacı, the granddaughter of the Egyptian steward Süleyman Alğa and the daughter of the justice pesman Hazem Efe.  

Halil Şazi was born in 1869 in Istanbul. His educational life started at Beylerbeyi and then the Şımpkkatı primary school in Beyazıt. When he was 10 years old in 1879, he continued his education in Galatakulesi. Since he passed his classes regularly, he was liked by his teachers. On the other hand, he was interested in some arts, such as ironwork, joinery, and carpentry. He made a working machine by himself. His father coped with his love of arts, fearing that he would fail his classes. When he was aware of the impossibility of this, he gave permission to Halil Şazi to establish a workshop, with all the accessories, at home.  

When he was in the final year of Galatakulesi in 1889, he passed the examination for "Tıkboğlu-i Askeriye" (Military Medical School) and he started there. At the medical school, he was interested in the science lessons, such as physics and chemistry. While he was doing an experiment on these subjects in a laboratory, that he had built himself, he had an accident. In the upper classes, he had a passion for neurophysiology, and especially surgery. Then, he made an impression on his teacher's mind, that is Professor Dr. Cemil Topuzlu. Pascha. He instantly (with the best degree) the military medical school and then he started medical science with the rank of captain. At the same time he was an assistant to Professor Dr. Cemil Topuzlu.  

Professor Dr. Halit Şazi was first appointed for confidential duty. While he was doing his duty in Alanya, he became ill, and for this reason, he came back to Istanbul and started working at the school. He became a surgeon in 1898. He was promoted to adjutant major, given the duties of Mustafa Muavunmü and Beşinci Daire-i Şikbsi Meşrûeti were given to him. After a time, he became a teacher of cerrahi-i sager (minor surgery). In 1907 he was a major and in 1908 he retired to concentrate on dentistry.  

Professor Dr. Halit Şazi first became interested in dentistry in 1896, after going to Alanya. First of all, he started by doing teeth fillings with mercury to his relatives in Beştepaşendere. He increased his experience by treating the teeth of his relatives and he tried to increase his theoretical knowledge by reading many books about dentistry.  

He aided the profession to rise with his might and honour, in spite of not gaining any personal fame. He deserves all the appreciation due to his efforts for bringing dentistry into the place it deserves as an important branch of medical science.  

After working at home for two years and making dentistry a new profession for himself, he opened a private office at Balıkçıkapı opposite the bakery. Then, he bought a consulting room inside the Valide Han, in the area of Eminonu. Because of his increasing experience in dentistry, he went to Paris and Vienna and visited the schools and clinics there. He tried to organise dentistry in Turkey. He established the first School of Dentistry with the help of Cemil Pasha in 1909.  

Halit Şazi did not write anything other than a few examinations for his profession. He prepared a bo-
SITUATION OF DENTISTRY FROM 1909 UP TO THE DECLARATION OF THE TURKISH REPUBLIC

"Därülfünûn Top Madrûsis Dûği Melûbih-î Alih" Scholl of Dentistry opened in 1909 and produced its first graduates in 1911. This school, dependent on the faculty of medicine, educated many dentists, in one period even sending them to Bulgaria, Greece and Romania, before 1961. During the years of the Republic, there were approximately 900 dentists who were working in and around Istanbul. In spite of the limited opportunities, it could be said that the education was really at a high level. However, the main improvement in this occupation was realized under the auspices of Ord. Professor Dr. Alfred Kancowitz (1881 - 1961), among teachers invited from Germany by Mustafa Kemal Atatürk in 1934.

First educational staff of the School of Dentistry opened in 1909

1. Prof. Dr. Halit Szâz
   - Emeritus (General Medicine)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
2. Prof. Dr. Halit Szâz
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)

Leon Têriryan

- Amelijat-ı Sınıniye (Operative Dentistry)
- Hüseyin Talat
- Müftûdar-ı Tâbî, Fenti-ı Tedavi-ı - Esan (Ist.- Hip, Pharmacology, Operative Dentistry, Anesthesiology)
- Manâkit Leon
- Anatomî (Tezrih), Physiology and Esnaç (Histology)
- Enisso Yavuznâz
- Prostheses

FIRST EDUCATIONAL STAFF OF THE SCHOOL OF DENTISTRY OPENED IN 1909

1. Prof. Dr. Halit Szâz
   - Emeritus (General Medicine)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)

2. Prof. Dr. Halit Szâz
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)

Leon Têriryan

- Amelijat-ı Sınıniye (Operative Dentistry)
- Hüseyin Talat
- Müftûdar-ı Tâbî, Fenti-ı Tedavi-ı - Esan (Ist.- Hip, Pharmacology, Operative Dentistry, Anesthesiology)
- Manâkit Leon
- Anatomî (Tezrih), Physiology and Esnaç (Histology)
- Enisso Yavuznâz
- Prostheses

SITUATION OF DENTISTRY FROM 1909 UP TO THE DECLARATION OF THE TURKISH REPUBLIC

"Därülfünûn Top Madrûsis Dûği Melûbih-î Alih" Scholl of Dentistry opened in 1909 and produced its first graduates in 1911. This school, dependent on the faculty of medicine, educated many dentists, in one period even sending them to Bulgaria, Greece and Romania, before 1961. During the years of the Republic, there were approximately 900 dentists who were working in and around Istanbul. In spite of the limited opportunities, it could be said that the education was really at a high level. However, the main improvement in this occupation was realized under the auspices of Ord. Professor Dr. Alfred Kancowitz (1881 - 1961), among teachers invited from Germany by Mustafa Kemal Atatürk in 1934.

First educational staff of the School of Dentistry opened in 1909

1. Prof. Dr. Halit Szâz
   - Emeritus (General Medicine)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
2. Prof. Dr. Halit Szâz
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)

Leon Têriryan

- Amelijat-ı Sınıniye (Operative Dentistry)
- Hüseyin Talat
- Müftûdar-ı Tâbî, Fenti-ı Tedavi-ı - Esan (Ist.- Hip, Pharmacology, Operative Dentistry, Anesthesiology)
- Manâkit Leon
- Anatomî (Tezrih), Physiology and Esnaç (Histology)
- Enisso Yavuznâz
- Prostheses

SITUATION OF DENTISTRY FROM 1909 UP TO THE DECLARATION OF THE TURKISH REPUBLIC

"Därülfünûn Top Madrûsis Dûği Melûbih-î Alih" Scholl of Dentistry opened in 1909 and produced its first graduates in 1911. This school, dependent on the faculty of medicine, educated many dentists, in one period even sending them to Bulgaria, Greece and Romania, before 1961. During the years of the Republic, there were approximately 900 dentists who were working in and around Istanbul. In spite of the limited opportunities, it could be said that the education was really at a high level. However, the main improvement in this occupation was realized under the auspices of Ord. Professor Dr. Alfred Kancowitz (1881 - 1961), among teachers invited from Germany by Mustafa Kemal Atatürk in 1934.

First educational staff of the School of Dentistry opened in 1909

1. Prof. Dr. Halit Szâz
   - Emeritus (General Medicine)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
2. Prof. Dr. Halit Szâz
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)
   - Emeritus (Surgery) – Mütresi - Esan (Dentistry)

Leon Têriryan

- Amelijat-ı Sınıniye (Operative Dentistry)
- Hüseyin Talat
- Müftûdar-ı Tâbî, Fenti-ı Tedavi-ı - Esan (Ist.- Hip, Pharmacology, Operative Dentistry, Anesthesiology)
- Manâkit Leon
- Anatomî (Tezrih), Physiology and Esnaç (Histology)
- Enisso Yavuznâz
- Prostheses

SITUATION OF DENTISTRY FROM 1909 UP TO THE DECLARATION OF THE TURKISH REPUBLIC

"Därülfünûn Top Madrûsis Dûği Melûbih-î Alih" Scholl of Dentistry opened in 1909 and produced its first graduates in 1911. This school, dependent on the faculty of medicine, educated many dentists, in one period even sending them to Bulgaria, Greece and Romania, before 1961. During the years of the Republic, there were approximately 900 dentists who were working in and around Istanbul. In spite of the limited opportunities, it could be said that the education was really at a high level. However, the main improvement in this occupation was realized under the auspices of Ord. Professor Dr. Alfred Kancowitz (1881 - 1961), among teachers invited from Germany by Mustafa Kemal Atatürk in 1934.
... one day, he came to my side and he inquired that since he wanted to be a doctor, he would have to give up surgery. In spite of the objections of our own friends because of the lack of Turkish Doctors with a degree in our country, I accepted. I knew he would succeed in this work, too. After a few years, one day, he came to my clinic again, and he said: "I have been made doctor. I have opened a clinic at Istanbul, and now I am working there."

Z. C. İhlas, "Türk Doktoru," (Hicazcik) pr., İstanbul, 1940, p.38.

The practice of medicine in the Ottoman Empire was regulated by the Ministry of Education. The Ottoman medical education system was established in 1839, and it was based on the French model. The first Ottoman Medical School was established in Istanbul in 1854.

The Ottoman Empire was the only empire in the world with a medical education system. The Ottoman medical education system was established in 1839, and it was based on the French model. The first Ottoman Medical School was established in Istanbul in 1854.

The Ottoman Empire was the only empire in the world with a medical education system. The Ottoman medical education system was established in 1839, and it was based on the French model. The first Ottoman Medical School was established in Istanbul in 1854.

The Ottoman Empire was the only empire in the world with a medical education system. The Ottoman medical education system was established in 1839, and it was based on the French model. The first Ottoman Medical School was established in Istanbul in 1854.

The Ottoman Empire was the only empire in the world with a medical education system. The Ottoman medical education system was established in 1839, and it was based on the French model. The first Ottoman Medical School was established in Istanbul in 1854.
The Great
Ottoman-Turkish
Civilisation
The Great
Ottoman-Turkish Civilisation

3

PHILOSOPHY, SCIENCE AND INSTITUTIONS

Editor-in-chief
PROF. KEMAL ÇİÇEK

Co-editors
PROF. ERCÜMENT KURAN
PROF. NEJAT GÖYÜNÇ
PROF. İLBER ORTAYLI

Executive editor
GÜLER EREN

YENİ TÜRKİYE
The incredible fact that the Ottoman frontier beylik became an Empire over such a short period of time has attracted many Western researchers and scholars to delve into the history of the Ottoman State. It could be argued that there are miscellaneous determinants and dimensions that actually created the possibility for such an incredible feat to be accomplished. This volume has been edited with the aim of focussing on the main factors that gave rise to such a great civilisation. In the first place, the institutional character of the Ottoman State is of utmost importance. In order to understand the basis of Ottoman civilisation, the different patterns of its institutions should be studied, as the comprehensive analysis of the institutional structure of the Ottoman Empire might enable us to conceive how a small beylik was able to turn into one of the greatest Empires in the world. In this volume, the administrative, judiciary and military institutions of the Empire are set out as the main subject titles. In addition, there are various subjects which have been analysed, under such subrubes as bureaucracy, religion and law, shedding light on the main characteristics of Ottoman institutions.

In appreciation of the highly developed institutional structure of the Ottoman Empire, the ideational and philosophical sources cannot be underrated. Unless these sources are taken into consideration, it is impossible to grasp the various dynamics of Ottoman institutions. Therefore, this volume is entitled “Philosophy, Science and Institutions”, due to the close correlation and importance of these subjects to one another.

Contrary to conventional Euro-centric and Orientalist assumptions, which hold "science" as the peculiar praxis of the Renaissance and Enlightenment in
the West, in this volume it is generally argued that the Ottomans had a number of successes in scientific activities (ilm ü fen). The Ottoman State not only promoted the development of science within the borders of the Empire, but also facilitated several interactions with scientific activities outside of its territories. During this interaction, it both benefited from and contributed to the scientific improvements made in Europe.

Additionally, this volume dedicates an important place to the development of philosophy and thought in the Ottoman Empire; although in the Ottoman Empire such major philosophical écoles as developed in Europe were not formed, rather the Ottomans focused mainly on Islamic philosophy. Yet this situation does not arise from the fact that the Ottomans lagged behind in speculative matters. On the contrary, they were not interested in philosophical issues that were outside the realm of Islamic tradition. From their point of view, Islam encompassed all ontological and epistemological matters, making any other philosophical concern dysfunctional.

Yeni Türkiye

CONTENTS

volume 3

PHILOSOPHY, SCIENCE AND INSTITUTIONS

PART I: PHILOSOPHY

Ottoman Thought Of World Domination

ottoman thought in the classical age

THE OTTOMAN THOUGHT IN THE CLASSICAL AGE AND THE TEHAFUT AMBITION IN THE OTTOMANS / PROF. DR. S. HAYRİ BİLGİÇ / 5
CIVIL CHARACTER IN THE INSTITUTIONS OF THE OTTOMANS IN THE CLASSICAL AGE AND THEIR EFFECTS ON THE DEVELOPMENT OF THE STATE / ASSOC. PROF. DR. YUSUF _GCÜZDÜLU / 24
NOTES ON THE THINKERS OF THE TIME OF OSMAN GHAZİ / ASSST. PROF. DR. SEZAI SEVİM / 37
MAHDI AND MILLENNIUM: MISSIANIC DIMENSIONS IN THE DEVELOPMENT OF OTTOMAN IMPERIAL IDENTITY / PROF. DR. CORNELL H. FLEISCHER / 42
THE OTTOMAN GAZÂNAMES: STYLISTIC INFLUENCES ON THE WRITING OF CAMPAIGN NARRATIVES / DR. CHRISTINE WOODHEAD / 55
THE OTTOMAN STATE AS A FACTOR IN THE SOCIAL - POLITICAL FORMATION OF EUROPE / DR. TAHŞIN GÖRGÜN / 61

early reforms

AN UNKNOWN ENLIGHTENMENT MOVEMENT IN THE OTTOMAN EMPIRE / ASSOC. PROF. DR. KAZIM SARKAVAK / 77
MÜTEFİKİKAS PRINTING PRESS: SOME OBSERVATIONS / DR. HİDAYET UYUÇLU / 83
SULTAN MAHMUD II AND THE FİZ REVOLUTION / MEHMET LALE / 91

tanzimat: breaking with the tradition

THE TANZIMAT CHARTER AND MEHMED SADIK RİFAT PASHA / ASSOC. PROF. DR. MÜMTAZER TÜRKİYE / 99
ABOUT THE BEGINNING OF FRENCH ORIENTALISM AND THE IMAGE OF THE "OTHER" / DR. RAÚL ZAÍMOVA / 111
MAHMUD İI'S THE STOCKS VERSUS ABDÜLHAMİD İI'S PHILOSOPHY: RELIGION RELATIONS / PROF. DR. BERHAT KÜREL / 117
THE YENİ AND THE ESKI CULTURAL CHANGE AND ENVISONING THE "MODERN" IN LATE OTTOMAN CARTOONS / PROF. DR. PALMIRA BURCUKMET / 134

from absolutist monarchy to meşrutiyet

THE COMMITTEE OF THE NEW OTTOMANS AND THE BEGINNING OF THE DEBATE ON THE PARLIAMENTARY SYSTEM IN TURKEY / ASSOC. PROF. DR. AZMI ÜZAN / 143
"INTERNATIONALS" WITHIN THE FRAMEWORK OF OTTOMAN CONSTITUTIONALISM / PROF. DR. RÜZİNT TANGIR / 155
OTTOMAN MODERNIZATION AND TUNUSLU HAYREDDİN PASHA / DR. MEHMET ARIF KİRİŞÇİ / 162
SOME NOTES ON THE ROOTS OF TURKISH CONSTITUTIONALISM / DR. ZÜHTÜ AKBAN / 166
From “Osmanlı” To National Identity
emergence of pan-islamism, pan-turkism and
turkish nationalism

The Ottomans and the Caliphate / Assoc. Prof. Dr. Azmi Özcan / 181
Cultural and Political Pan-Turkism / Prof. Dr. Jakob Landau / 192
The Emergence of Turkish Nationalism Under the Ottoman Empire / Aste Prof. Dr. Yusuf Sarıhan / 196
Illega Young Turks Publicist Writings (Late 19th – Early 20th Centuries) / Prof. Dr. Yuri A. Petrosyan / 207

Ottoman Legacy and The Turkish Republic

Ottoman Legacy / The Ottoman Roots of the Turkish Republic / Prof. Dr. Bernard Lewis / 221
Modern Turkey and the Ottoman Legacy / Prof. Dr. Emekleddin İhsanoğlu / 229
The Balkans and the Ottoman Inheritance / Prof. Dr. İlber Ortaylı / 241
Ottoman Legacy in Turkey / Prof. Dr.ERCÜMENT KURAN / 246
The Most Important Ottoman Inheritance: Turkish Society / Prof. Dr. Bahadır Yıldızlı / 258
The Anatomy of an Economic Heritage from the Ottoman State to the Republic of Turkey / Prof. Dr. Ahmet-Günay Savar / 253
Islam, the Troublesome Heritage of the Ottoman Empire (A Trial of a Probabilistic Approach) / Prof. Dr. Ahmet Yaşar Ocaç / 259
The Social Character of the Ottomans in the Period of Recession and Collapse / Dr. Yıldız Belgin / 271

Present historiography on the ottoman state
The Place of the Ottomans in World History: Methodological Questions and a Reinterpretation of Ottoman History / Prof. Dr. Ahmet Davutoğlu / 281
Attitudes Toward the Ottomans in Egyptian Historiography during the Ottoman Rule / Prof. Dr. Michael Winter / 289
The Ottoman Heritage and the Complexities of the Balkan Historiographies (Formation of Muslim Balkan Communities) / Assoc. Prof. Dr. Antonina Zheklyazkova / 296

PART II: SCIENCE

An Overview of Ottoman History of Science
An Overview of Ottoman Scientific Activities / Prof. Dr. Emekleddin İhsanoğlu / 303
The Evolution of the Geocultural Space of Ottoman Science (Its Extension, Differentiation, and Colonization) / Dr. Nader Miloudi / 325
The Ottoman Ulema / Prof. Dr. Mehmet İspirli / 339
Matraki Nasuhi: The Famous Knight, Scientist and Artist of the Period of Suleyman the Magnificent / Prof. Dr. Hüseyin Gazi Yıldızlı / 348
Islamic Scholarship Between Imperial Center and Provinces in the 18th Century: The Case of Muradi Ala-Zabidin D.1200/1791 and His Ottoman Contacts / Prof. Dr. Stefan Reichmuth / 357

Historiography and Geography
The Ottoman Historiography / Prof. Dr. Mehmet İspirli / 369
On Ottoman History Textbooks and Reform (1839-1918) / Dr. Betül Başaran-Alpagan / 379
Ottoman State and Ahmet Ceydett Pasha's History / Prof. Dr. Beşer Ayalaş / 389
Geography in the Ottoman Empire / Prof. Dr. Ramazan Şişen / 405

Mathematics, Astronomy, Biology
Mathematics in Ottoman Empire / Prof. Dr. Mehmet Yeğen Özyazıcı / 413
Decimal Trigonometric Tables in the Work of Yaxbaydinin “Ceride il-deder ve Hariber il-ficer” (Preparation and Use) / Assoc. Prof. Dr. Remzi Demir / 419
The Birth and Development of Modern Botany in the Ottoman Empire / Prof. Dr. Ahmet Bıyıktop / 431

Medical Sciences
The Place and the Importance of Mısıh Çarşısı (Spice Bazaar) in Ottoman-Turkish Medicine / Prof. Dr. Arifçü Gök, Erdemir / 447
The Ottoman – Turkish Dentistry / Prof. Dr. Ilter Uzel / 455
The Importance of Pharmacy and the Free Dispensation of Medicines to the Public within the Ottoman Health System / Prof. Dr. Baykul Çubukçu / 451

Technology
Three Sciences, Three Options for the Knowledge Transfer in the Late Ottoman Turkey: Zoology, Chemistry, Geography / Prof. Dr. Klaus Kreiser / 481
The Metric System in Turkey / Prof. Dr. Feza Gürer / 487

PART III: INSTITUTIONS

Ottoman Administrative History

Ottoman Central Administration
From the Divan-i Hümâyûn (Imperial Council) to the Meclis-i Mecuûsan (House of Deputies): Legislation in the Ottoman Empire / Aste Prof. Dr. Meşrutiyet ve İktidarlık İktisadi / 499
The Institution of the Imperial Council (Divan-i Hümâyûn) / Dr. RECEP ÁHİHALI / 506

Ottoman Peripheral Organisation
Provincial Organization of the Ottoman Empire in Pre-Tanzimat Period / Prof. Dr. M. Nezat Gökşen / 519
The Anatolian Province General: The Establishment and the Historical Evolution / Prof. Dr. M. Çetin Varlık / 533
The Development of the Use of “Kırımistan” As a Geographical Description and the Incorporation of This Region into the Ottoman Empire in the 16th Century / Baki Çakıcı / 548
The Consequences of the Weakening of Centralized State Structure: Avânlık System and Great Dynasties / Prof. Dr. Yücel Yıldız Tayyip / 554
The Age of Ayans in the History of the Ottoman State / Prof. Dr. Özcan Kerim / 565
administrative reforms in the tanzimat period

TANZIMAT / PROF. DR. MUSA ÇADIRCI / 573  ■  MUNICIPAL SERVICES IN THE OTTOMAN EMPIRE BEFORE THE PERIOD OF TANZIMAT (REFORMS) / ASSOC. PROF. DR. İLHAN YERLİKAYSİ / 590

the bureaucracy in the ottoman state


Ottoman Legal System

an overview of ottoman legal system


ottoman law and its transformation


Ottoman Military

ottoman military organization, arms, war industry and technology


Ottoman Wakf System