

Acceptance of the implementation of dissections in the Byzantium

Georgios Panteleakos

National and Kapodistrian University of Athens, Athens Medical School, Greece

Article Info

Received: January 22, 2021

Accepted: January 29, 2021

Published: February 08, 2021

***Corresponding author:** Georgios Panteleakos, National and Kapodistrian University of Athens, Athens Medical School, Greece

Citation: Georgios Panteleakos. "Acceptance of the implementation of dissections in the Byzantium". *J Neurosurgery and Neurology Research*, 2(1); DOI: <http://doi.org/03.2021/1.006>.

Copyright: © 2021 Georgios Panteleakos. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

The Byzantine era (330-1453 A.D.) constitutes an integral part of the History of Greek Medicine, and is of particular interest, since it is through the work of Byzantine medical practitioners and writers that the invaluable knowledge of Ancient Greek Medicine was passed on to us.

Key Words: physiology; gregory of nyssa

Introduction

The Byzantine era (330-1453 A.D.) constitutes an integral part of the History of Greek Medicine, and is of particular interest, since it is through the work of Byzantine medical practitioners and writers that the invaluable knowledge of Ancient Greek Medicine was passed on to us.

Byzantine medicine constitutes the natural evolution of Ancient Greek Medicine, which it promoted and further developed, while in the meantime, producing original points of view derived from the interaction of the Christian faith with the Ancient Greek cultural heritage. The development of patient health care and the organization of hospitals in the Byzantium made significant progress due to Christian teachings, the basic principle of which is to take care of the weak and to love your fellow man. [1]

The Byzantine "hostels" represented the first public health care institutions which provided medical care to patients, constituting the standard for the development of hospitals in the Middle Ages (medieval times). The health care system and more generally the operational model adopted by the Byzantine hospitals, were adopted not only by the Medieval West, but also by the Islamic Middle East (Arabian medicine). [2]

However, even today, a number of writers state that the Byzantine era did not constitute an innovative part of the History of Medicine. They state that the main characteristic of the writers of the Byzantine era was the complete imitation of the work of great Ancient Greek physicians, such as for example, the work of Hippocrates and Galen, from whom they were greatly influenced.

A more detailed study however, of the medical texts of Oribasius of Pergamum, Paul of Aegina, Aetius of Amida and other Byzantine writers will reveal evidence of originality, such as for example the referral to capillaries and the description of the systemic and pulmonary circulation provided by Oribasius, as well as the magnificent description of the physiology of the heart by Gregory of Nyssa. [3]

As regards the human anatomy, a number of researchers investigating the history of anatomy have highlighted the undisputed power of Galen, characterizing all writers after Galen as those who merely used excerpts from his work, mimicking Galen.[4]

Nevertheless, during the Byzantine era, significant improvements were made in medicine and in surgical techniques in particular, improvements which were noted even from the pre-Byzantine era (4th – 7th Century A.D.). Physicians during this time were already very familiar with various medical techniques, and they were greatly influenced by the works of Ancient Greek physicians. This influence, in conjunction with their experience in everyday medical practice, led to the development and portrayal of new surgical techniques [5].



Examples of these are the first lithotripsy procedure for bladder stones and the surgical separation of Siamese twins in the 10th century A.D., during the reign of Constantine VII Porphyrogenitus (913-959 A.D.) [6].

Byzantine medicine was the successor of the Ancient Greek medical heritage. Byzantine physicians were very familiar with the works of the leading names of Ancient Greek medicine. This not only applies to names of the early Byzantine era, such as Oribasius of Pergamum (4th century A.D.), Nemesius of Emesa (4th century A.D.) and Alexander of Tralles (6th century A.D.), but also to its latest representatives, such as Nikolaos Myrepsos (13th century A.D.), John Aktouarios (14th century A.D.), John Argyropoulos (15th century A.D.), and others. Byzantine physicians played a definitive role in the development of medicine in the West, as their work, through Arabic translated texts, brought their views of ancient Greek medicine and heritage to the West [7]. Hippocrates and Galen were considered authorities of Byzantine medicine, and thus their works were replicated continuously [8].

A characteristic example is the Paris Codex (handwritten) (Codex Parisinus, gr. 2144) which is kept at the National Library of France. This Codex, which features the works of Hippocrates and was prepared upon the order of the Byzantine statesman, Alexios Apokaukos (end of the 13th century A.D.), features among others, two unique images: that of Hippocrates in Byzantine attire (f. 10v), seated on a throne, as did high-ranking Byzantine statesmen; and that of Alexios Apokaukos in a conversation with him (f. 11r) [9].

The Orthodox Church was ahead of its time as it did not prohibit the implementation of dissections for the study of the functions of the human body, contrary to Western practices, which were under the influence of the Roman Catholic Church. In the Medieval West, the knowledge and theories of the human anatomy of Galen were the sole source of information regarding the anatomical structure of the human body. In medieval times, the theories of the human anatomy of Galen, who was considered a master in his field, were not questioned, and as a result, they remained unaltered until the Renaissance. Anyone who dared to question the theories of Galen, many of which included several errors, as the dissections had been performed solely on animals, would receive the same response of “*He said it himself*” (*ipse dixit*).

In early medieval times in Western Europe, human dissections were carried out solely for forensic purposes; however, dissections for educational purposes were gradually integrated into the educational programs of the first Universities (School of Salerno) [10].

In contrast to the West, in the Byzantine era, even from the 4th century A.D., Oribasius of Pergamum and other bishops/saints of the Eastern Orthodox Church, such as St. Basil the Great and Gregory of Nyssa, highlighted the importance of carrying out dissections for scientific purposes, in order to better understand the structure of the human body, as well as the functions of the human organs.

Presented below are some excerpts of the works of Byzantine writers, which substantiate our views as per the accepted implementation of dissections in the Byzantine era.

Oribasius of Pergamum (4th century A.D.):

The first Byzantine physician to highlight the importance of performing dissections for scientific development was Oribasius of Pergamum (4th century A.D.). A number of researchers of the history of medicine state that he was the leading physician of the early Byzantine era. It was through his work, that the invaluable medical knowledge of Galen and other ancient classical writers was passed on to the medieval physicians. Oribasius was born in the city of Pergamos, which was also the origin of Galen. He studied medicine in Alexandria, and his teacher was the medical philosopher, Zeno of Citium [11].

He continued his studies in Athens, where he met the then young student of philosophy, Flavius Claudius Julianus (332-363 A.D.), nephew of Constantine the Great, who later became Byzantine emperor. They were both paganists and admired ancient Greek civilization [12].

Oribasius believed in the implementation of dissections for the development of science, dissections which he performed himself, as evidenced by his detailed description of capillaries, including many elements from the work of Galen entitled “On the anatomy of veins and arteries” (*Περί φλεβών και αρτηριών ανατομής*) [13].

In addition, of great significance is his very detailed description of inflammation, which can be found in the first chapter entitled “Galenus on inflammation” (*Εκ των Γαληνού περί φλεγμονής*) of his book “Medical Collections”. Here, as suggested by the title of the chapter, he uses elements from the corresponding work of Galen [14].

Indeed, in the 15th chapter entitled “About the Heart” (*Περί καρδιάς*) of the book “Medical Collections”, Oribasius mentions that there were physicians who specialized in performing dissections [15].

St. Basil the Great and Gregory of Nyssa (4th century A.D.):

Even leading ecclesiastical figures of the Byzantine era, such as St. Basil the Great and Gregory of Nyssa, who lived in the 4th century A.D., and were bishops, referred in their works to the anatomical structure and physiology of the human body, also mentioning the implementation of dissections.

St. Basil the Great, bishop of Caesarea (4th century A.D.), in his work “On the fabric of the human body” (*Περί της του Ανθρώπου Κατασκευής*), notes the importance of conducting dissections for scientific purposes in order to acquire knowledge of the anatomy and physiology of the human body [16]. He claimed that the study of physiology was about the study of the balance and harmony in the functioning of the human body [17].

His brother, Gregory of Nyssa (4th century A.D.), in his work entitled “On the making of man” (*Περί Κατασκευής Ανθρώπου*) also noted the importance of the free implementation of anatomical research in order to understand the physiology of the human body. He claimed that it was through dissections that scientists obtained knowledge of the position of each organ in the body, while others investigated the purpose of the human organs



[18].

In this work, Gregory of Nyssa expresses his own personal anthropological views, combining theology, philosophy, physiology and medicine in one impressive and powerful composition. Furthermore, there are many similarities to the work of Nemesius, Bishop of Emesa, entitled “On Human Nature” (*Περί Φύσεως Ανθρώπου*), from which he was obviously influenced. In fact, many subsequent writers authored works with either the same or similar title [19].

St. Eustathius, Archbishop of Antioch (4th century A.D.):

St. Eustathius of Antioch lived during the reign of the Byzantine emperor Constantine the Great and took part in the First Council of Nicaea (325 A.D.), where together with other bishops of the Orthodox Church, they overpowered the heretical beliefs of Arius. St. Eustathius is a saint of the Orthodox Church, and he is commemorated on 21st February [20].

St. Eustathius of Antioch, in his work entitled “Commentary on the Hexameron” (*Σχόλια εις την Εξαήμερον*), which is included in the Greek series of “Patrologia Graeca” of Jacques Paul Migne, refers to the importance of physicians performing dissections in order to understand human nature [21]. He claimed that leading physicians, in order to obtain information and provide useful knowledge to man, aimed to perform dissections on humans sentenced to death. This was a prevailing practice in the Byzantium. Physicians would perform dissections on the bodies of convicts in order to obtain anatomical knowledge, which led to advancements being made in anatomical and physiological research [22].

Theophilus Protospatharius (6th or 7th century A.D.):

Theophilus Protospatharius (6th or 7th century A.D.) also refers to the human anatomy in his work “On the Fabric of the Human Body” or “De Corporis Humani Fabrica” (*Περί της του Ανθρώπου Κατασκευής*), where he follows the example of Nemesius of Emesia, St. Basil the Great and Gregory of Nyssa and writes a book on medical physiology and anatomy, with evident religious influences. Theophilus Protospatharius was heavily influenced by the works of Hippocrates and Galen, which he was very familiar with. Notably, he refers to Hippocrates as “Prometheus of Medicine”, and he continuously refers to the works of Hippocrates, urging readers to look at these for further study of the works of Galen.

Indeed, in the 1st edition of his work “On the Fabric of the Human Body” (*Περί της του Ανθρώπου Κατασκευής*), he notes that the main aim of this work was the understanding of how many and which organs comprise the human body and to determine their function [23].

Furthermore, in the 4th edition of his work “On the Fabric of the Human Body” or “De Corporis Humani Fabrica” (*Περί της του Ανθρώπου Κατασκευής*), Theophilus Protospatharius notes the importance of carrying out dissections for scientific purposes, in order to understand the anatomy and physiology of the human brain. From this statement of his, it is evident that there was no prohibition of the implementation of dissections by the Orthodox Church. If there was any such prohibition, then Theophilus

Protospatharius would not have made any such direct referrals to dissections in his work, as he was deeply religious. In his work, he claimed that by performing dissections, we would then be able to identify the home of the psyche, namely the skull, which includes the brain. Consequently, he carefully begins to perform a dissection of the skull and brain, describing the meninges (the protective layers of the brain) and the ventricles [24].

Meletius the Monk (8th century A.D.):

Another Byzantine scholar, Meletius the Monk or Medical Philosopher (8th century A.D.), in his work entitled “On the Fabric of the Human Body” or “De Corporis Humani Fabrica” (*Περί της του Ανθρώπου Κατασκευής*), also refers to anatomy and physiology.

Literary investigations have proven that Meletius was familiar with the related works of Nemesius of Emesa, Gregory of Nyssa and St. Basil the Great, from which he draws valuable information. However, his own work of anatomy and physiology is characterized by a more anthropological-theological nature rather than a medical one, when compared to the works of other above-mentioned writers [25].

Specifically, Meletius, in the prologue of his work “On the Fabric of the Human Body” (*Περί της του Ανθρώπου Κατασκευής*), which includes the Greek series of “Patrologia Graeca” of J.P.Migne [26], states that many philosophers/physicians of ancient times wrote about the structure of the human body with wisdom and mindfulness, where they confirm the correctness of their views by performing dissections [27].

This referral of Meletius to anatomical research, through which physicians discover the structure of the human body, is evidence of the importance given by the Byzantines to anatomical studies. This was in contrast to practices in the Medieval West, where dissections were mainly performed for forensic purposes. From the works of Meletius the philosopher, we can comprehend the views of the Orthodox Church towards dissections, as not only did it not prohibit them, but it even considered them to be necessary for the promotion of science and for the understanding of the structure and function of the human body.

References:

1. Pollak Kurt. (2005). «*Medicine in Ancient times: Greece-Rome-Byzantium*», pages 413-438, translation by Emiliios D. Mavroudis, Papadima Publishers, Athens. (in Greek)
2. Miller Timothy. (1998). «*The birth of the Hospital in the Byzantine Empire*», translation by N. Kelermenos, page 4, Beta Medical Publishers, Athens. (in Greek)
3. Eftychiadis Aristotelis. (2004). «*Principles of Philosophy and the History of Medicine*», pages. 97-100, Beta Medical Publishers, Athens. (in Greek)
4. Mavrokordatos A. Demetrios. (1836). «*Anatomy of the human body*», page. 18, Athens. (in Greek)
5. Kalantzis Georgios, Tsiamis Costas, Poulakou-Rebelakou Effie. (2006). «*Oribasius and Paul of Aegina: two Byzantine physicians, pioneers in Plastic Surgery*», Greek



- Medicine Archives. 23(5): 536-540. (in Greek)
6. Matsaggas A, Marketos S. (1985). «*Surgical operation performed on Siamese twins in the Byzantium during the 10th century*», *Materia Medica Graeca*. 13(4): 415-422. (in Greek)
 7. Panteleakos Georgios. (2013). «*Physiology during the Byzantine era (330-1453 A.D.)*», PhD thesis, pages 16-25, National and Kapodistrian University of Athens. (in Greek)
 8. Bouras-Vallianatos Petros, «*The art of Healing in Byzantium*», *Neusis*, 24, pp 189-223.
 9. Munitiz J. (1996). «*Dedicating a Volume: Apokaukos and Hippocrates (Paris gr. 2144)*», *Studies in Honour of Robert Browning*, Istituto Ellenico di Studi Byzantini e Postbizantini di Venezia, pp. 267-280.
 10. Tsiamis Costas, Tounta Eleni, Poulakou-Rebelakou Effie. (2007). «*Prohibition of Dissections during Medieval Times: Myth or reality?*», *Hellenic Medicine Archives*. 24(2): 186-196. (in Greek)
 11. Hunger Herbert. (1987). «*Byzantine literature: cosmic literary words of the Byzantines*», page. 114, MIET publishers, Athens. (in Greek)
 12. Pioreschi Plinio, (1996). «*A History of Medicine: Roman Medicine*», Vol. 3, σελ. 513-16, Horatius Press.
 13. Eftychiadis Aristotelis. (1995). «*Nature and Spirit: contribution to medical-physiological views*», pp. 80-85, Parisianou Publishers, Athens. (in Greek)
 14. Bussemaker U, Daremberg Ch. (1858). «*Ouvres d Oribase*», Vol III, στ. 533-534.
 15. Bussemaker U, Daremberg Ch. (1858). «*Ouvres d Oribase*», Vol. III, 24th Edition, Chapter 15' «About the Heart», no. 333.
 16. Migne J.P., *Patrologia Graeca*, (PG 30), St. Basil the Great, Part 1, «*On the Fabric of the Human Body*». (in Greek)
 17. Eftychiadis Aristotelis. (1995). «*Nature kai Spirit*», page. 87, Parisianou Publishers, Athens. (in Greek)
 18. Gregory of Nyssa. (1987). «*On the Making of Man*», Chapter 30, pp. 216-217, translation-commentary by Professor Christou Panagiotis, Paterikes Publishers «Gregory Palamas», Thessaloniki.
 19. Panteleakos G, Poulakou-Rebelakou E, Koutsilieris M. (2013). «*Anatomy and Physiology in the work of Nemesius of Emesa On the Nature of Man*», *AMHA*, 11(2):319-328.
 20. St. Nicodemus the Hagiorite, Vol. 1, pages. 470-471. (in Greek)
 21. Eustathius, Archbishop of Antioch, «*Commentary on the Hexameron*», included in the series *Patrologia Graeca* of J.P. Migne, PG 18, no. 788 D. (in Greek)
 22. Lascaratos Ioannis, «*History of Medicine*», Chapter «*Byzantine Medicine*», pages. 312-316. (in Greek)
 23. Greenhill Guilielmus. (1842). «*Theophili Protospatharii: De corporis humani fabrica*», Libro I, σελ. 2, Oxonii,
 24. Greenhill Guilielmus. (1842). «*Theophili Protospatharii: De corporis humani fabrica*», Libro IV, σελ. 141, Oxonii,.
 25. Hunger Herbert. (1987). «*Βυζαντινή literature: cosmic literary words of the Byzantines*», page 132, MIET Publishers, Athens. (in Greek)
 26. Migne J.P., «*Meletio Monacho De Natura Hominis*», PG 64, no. 1081 A.
 27. Ritschelius F, «*Diem Natalem – Praecedit Meletii De Natura Hominis*», page. 1, Universitatis Litterarum Vratislaviensis.
 28. Carolus De Boor. (1883). «*Theophanis Chronographia*», p. 436, Lipsiae.
 29. *Chronicles of Theophanis, Vol 3'*, translation by Archimandrite Anania Kousteni, Armos Publishers, pages. 1185-1186, Athens 2007.