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- 49. CELSUS 7.1; PAUL 6.50. BLIQUEZ L., JACKSON R., ref. 13, 169-170 (nos. 236-240).
- 50. For the missile forceps and the impellent see MILNE J. St., ref. 38, 139,141.
- 51. Ref. 48, line 1189.
- 52. LONGFIELD-JONES G.M., A Graeco-Roman Speculum in the Wellcome Museum. Medical History 1986; 30: 81-89; KÜNZL, ref. 1, 206-207.
- 53. See MILNE J. St., ref. 38, 149-50 and JACKSON R., ref. 19, 124-126.
- 54. Ref., 48. line 1187.
- 55. CELSUS 7.29, SORANUS 4. 9-11(Ilberg), AETIUS 16. 23 (Zervos), PAUL 6.74.
- 56. See KÜNZL E., ref. 1, 201-203.
- 57. See Bliquez' arguments re the survivals from Pompeii. In: BLIQUEZ L., JACKSON R., ref. 13, 70-81.
- 58. Note the language in which ORIBASIUS (44. 11. 13, derived from Heliodorus) and AETIUS (8. 48) allow either the *spatula* or the *glossokatochon* to be used to depress the tongue in accessing a quinsy. The broad double spatulas in the Naples Museum would make perfect tongue depressors. See BLIQUEZ L., JACKSON R., ref. 13, 144 (nos. 139, 141-142).
- 59. Unique names include συριγγιακός καυτήρ, τραυματικόν φυσώριον, δρεπανοειδες δργανον, πολυποτόμον σπαθίον. Lists likewise are filled with names unattested in earlier sources.
- 60. BLIQUEZ L., ref. 1, 194.
- 61. The sources have been gathered and discussed by BLIQUEZ L. and KAZHDAN A., Four Testimonia to Human Dissection in Byzantine Times. Bulletin of the History of Medicine 1984; 58: 554-557. See also BROWNING R., A Further Testimony to Human Dissection in the Byzantine World. Bulletin of the History of Medicine 1985; 59: 518-520
- 62. See e.g. PAUL 6.60 (lithotomy), 6.21 (cataract).
- 63. Hippocrates, Iusiurandum/Oath, lines 22-24 (Jones, Loeb 1, p. 289).
- 64. Ref. 48: 1186-1189.1334-1336.1348.1363.
- 65. PENTOGALOS G., LASCARATOS J., A Surgical Operation Performed on Siamese Twins during the Tenth Century in Byzantium. Bulletin of the History of Medicine 1984; 58, 99-102.
- 66. One can already see an effort to *downsize* in Paul who in his Preface explains that his goal is to produce a reduced, therefore handier, treatment of medicine than the huge compilation of Oribasius.
- Addendum. In John Zonaras' account of the treatment administered to Alexius I Comnenus (1081-1118) just before his death we hear of a cautery applied to the emperor's stomach. It is said to be bent at its end and is given the name "anker". The instrument sounds similar to the gamma shaped types cited above in treatment of inguinal hernia. Cf. John Zonaras, Historical Epitome [759] 28; ed. T. Buettner-Wobst, Corpus Scriptorum Historiae Byzantinae, Bonn, 1897.

Correspondence should be addressed to: Lawrence J. Bliquez, Dept. of Classics, Box 353110, U. of Washington, Seattle, WA-98195, USA. MEDICINA NEI SECOLI ARTE E SCIENZA, 11/2 (1999) 323-335 Journal of History of Medicine

#### Articoli/Articles

# BYZANTINE PHYSICIANS AND THEIR HOSPITALS

# TIMOTHY S. MILLER Department of History, Salisbury State University, USA

#### **SUMMARY**

Byzantine medicine was organized around hospitals. By the eleventh and twelfth centuries, the best physicians of Constantinople treated their patients either in hospitals or in walk-in dispensaries which formed part of the hospital facilities. Byzantine hospitals were thus medical institutions. This article will review the evidence for this conclusion and introduce two new texts dealing with hospitals in Constantinople. The article will close by suggesting avenues for future research, especially regarding hospitals in provincial cities.

Any discussion of Byzantine medicine and its practitioners should recognize that the physicians of the East Roman Empire provided medical care to the sick and injured in a way far different from that of their ancient predecessors. Rather than visiting the private homes of their patients as Greco-Roman doctors had, the best Byzantine physicians treated the gravely ill in hospital wards and those with minor ailments in walk-in dispensaries attached to those same hospitals. In 1985, I published a monographic study of Byzantine hospitals, The Birth of the Hospital in the Byzantine Empire, a study which traced the origin and subsequent evolution of this sophisticated system of public health care. A careful reading of the primary sources revealed that by the eleventh and twelfth centuries, these philanthropic hospitals (called xenones or nosokomeia in medieval Greek) had become the primary organizational units of the Byzantine medical profession in Constantinople and perhaps in other urban centers, the places where doctors met most of their patients and

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where they studied medical theory and had an opportunity to gain practical experience in the healing arts<sup>1</sup>.

In this article, I will, first, summarize the principal conclusions I reached in *Birth of the Hospital*. Second, I will introduce two new passages regarding *xenones* which colleagues brought to my attention during 1998. Third, I shall indicate some new avenues of research which might reveal more about hospital organization and especially about *xenones* in provincial centers. Almost all evidence regarding medical hospitals analyzed in *Birth of the Hospital* and in other studies of Byzantine philanthropic institutions deals with the facilities in Constantinople. How many *xenones* were treating the sick in Nicaea, Thessalonika, or Monemvasia?

Byzantine Hospitals

The most startling conclusion of *Birth of the Hospital* was that most sick or injured residents of Constantinople during the eleventh and twelfth centuries received the services of a physician in a hospital. I based this conclusion on evidence from literary works and from *typika* (rules) for individual Constantinopolitan monasteries; all of these primary sources came from the twelfth century<sup>2</sup>.

The first source I discussed was a satirical poem attributed to Ptochoprodromos, possibly the same person as the court rhetorician and poet, Theodore Prodromos. In this poem, the author listed excuses which monks devised to leave their cloister and wander through the fascinating streets of Constantinople. One monk stated that he had to obtain some leather; a second claimed that he needed a new belt; a third explained that he wanted to buy some shoes; and a fourth alleged that his brother had just died. A fifth monk, however, pretended that he had hurt his foot and requested permission to leave the monastery to show his injury to the physicians at the *xenon*<sup>3</sup>.

This satire demonstrates that at a typical monastery of Constantinople, the monks did not expect that the superior would summon a physician to treat their sick brothers within the cloister, nor did the monks normally visit physicians in some sort of private office. Rather, the monastic superior allowed the

sick members of his community to visit a nearby hospital for medical treatment.

The *Typikon* of the Mamas Monastery in Constantinople provides additional evidence to show how hospital physicians actually practiced medicine. Chapter Thirty-four of this rule outlined the steps which the Mamas community was to follow in treating sick monks. First, monks stricken by an illness were allowed to rest in their cells. Second, the superior assigned a few brothers to care for these monks. Third, the superior was to notify the physicians in one of two neighboring *xenones* to ensure that one of the hospital doctors would visit the sick monks each day of their confinement.

The hospital doctors, however, charged a high rate for these private visits to the Mamas Monastery, so high in fact that the authors of the *typikon* were not sure that even the well-endowed Mamas Monastery could always afford such private treatment. If the monastery did not have the resources, then the superior was to transfer the sick monks to one of the nearby hospitals for treatment there<sup>4</sup>.

Another twelfth-century *typikon*, the Rule of the Pantokrator Monastery, reveals that hospital physicians worked in monthly shifts: one month a team of doctors served the hospital for very low pay, while the alternate team was free to visit private patients and charge high fees. The following month the two teams simply switched places. The Pantokrator Typikon also reveals that the private patients of *xenon* physicians came from the highest aristocracy and from the personal friends and retainers of the emperor, in other words, from people who could afford to pay high fees<sup>5</sup>.

The private patients of hospital doctors, thus, came from the top echelon of lay society or from wealthy monasteries such as the Mamas. These physicians charged so much for their visits to private residences or rich monasteries that most people, including the brothers of less well-endowed monasteries such as Ptochoprodromos described in his satire, had to go to the *xenones* for medical treatment.

The historian Kinnamos inadvertently confirmed the importance of Constantinopolitan hospitals in providing medical ser-

vices to the general population when he described the medical talents of the emperor Manuel I (1143-80). In a short passage, Kinnamos explained that the emperor had invented new salves and potions unknown to practicing physicians. Kinnamos added: For anyone who wishes, it is possible to pick up these medicines from the public nosokomeia which are usually called xenones. Kinnamos' account clearly indicates that most people visited the hospitals not only when they were seriously ill, but even when they simply needed to obtain remedies for minor ailments<sup>6</sup>.

## New Evidence

The passages, discussed above and in *Birth of the Hospital*, show that most people in Constantinople sought out the ministrations of professional physicians and obtained medicines at one of the several hospitals in the capital. Since these Byzantine *xenones* were truly medical centers, they differed radically from Western medieval hospitals which had no formal link to the medical profession and offered only shelter and sustenance to their patients. Because these Byzantine hospitals have no known parallel in the West before the Tuscan hospitals of the fifteenth century, some historians have rejected these conclusions<sup>7</sup>. The second part of this article, therefore, will present two additional texts which corroborate the findings of *Birth of the Hospital*. I would like to thank Dr. Stamatina McGraff and Professor George Dennis for bringing these two passages to my attention.

The first passage appears in a collection of miracle tales recorded at the tomb of Saint Eugenios in Trebizond. Although John Lazaropoulos, Metropolitan of Trebizond, edited this collection of miracle stories in the fourteenth century, many of these recorded miracles had taken place several centuries earlier. One of these earlier tales recounted the case of a woman from Trebizond who had married Thomas Chardamoukles, the *spatharokandidatos* (the woman's own name is never mentioned). Since the honorary title of *spatharokandidatos* fell out of use before the beginning of the twelfth century, the events described in this tale date from the tenth or possibly the eleventh century.

According to the miracle story, the wife developed a serious tumor in her uterus which became so painful that she had difficulty walking. She spent a great sum of money hiring local physicians of Trebizond to treat her, but none of them succeeded in curing her. She therefore determined to visit Constantinople to find a cure. Once in the capital, she went to the churches of the city and prayed at the tombs of the saints famous for healing, but again she obtained no relief from her malady. After this, she frequented the *xenones* to seek help from the physicians, but they also were powerless to help her. After a year in Constantinople, she desired to see her husband and relatives again and returned to Trebizond. There she was preparing for death by disposing of her wealth when she finally was cured of her tumor through the intercession of Saint Eugenios<sup>9</sup>.

This story contains two significant details regarding the Byzantine medical profession. The first concerns the doctors of Trebizond. In this provincial town, the wife of the *spatharokan-didatos* hired physicians for a large sum to treat her as a private patient. The account does not mention that these doctors also worked in hospitals. The woman obviously possessed a substantial estate since she could afford to hire the physicians, travel to Constantinople, stay in the capital for an entire year, and then return with resources sufficient to provide gifts for the major shrines of Trebizond.

The second detail in the story refers to Constantinople. In this city, the woman had to visit the *xenones* to obtain the services of physicians. Despite her wealth, she decided not to hire a doctor to treat her privately, but to make use of the hospital system in the capital. Was it too expensive for her to hire Constantinopolitan physicians to treat her privately, or did the hospital environment offer the best chance of optimum treatment? We will return to this question shortly.

The second source is a short poem of the tenth century, possibly written by Symeon Metaphrastes. The author wrote this epigram to pour out his hatred against a man named Disinios, some sort of word play on the name Sisinios. As scholars are editing more short Byzantine texts, they are discovering that au-

thors, known for other literary achievements, occasionally composed these obscene attacks on their personal enemies<sup>10</sup>.

In this epigram the author attacked Disinios, a man who had achieved the high rank of *magistros* by serving as a judge. According to the poem, before Disinios had attained his high judicial office, he had lived a base and depraved life in Constantinople.

You used to be nourished by the excrement-eating enema tubes, Running around everywhere in the xenones.

Fortune raised you into the midst of the Senate,
And showed the ill-breeding of your birth<sup>11</sup>.

The exact meaning of these lines is obscure. One scholar has suggested that Disinios worked in the *xenones* in some low capacity, cleaning the clysters (enema tubes), but each hospital had its own maintenance staff so that such an employee would not have visited several *xenones*. Another meaning, consistent with the type of sexual allusions common in Byzantine vituperative texts, is that Disinios had an unnatural desire for enemas and hence often visited the out-patient infirmaries of Constantinople's *xenones*<sup>12</sup>. Whatever the exact sense of the text, the author clearly considered hospitals the normal place to administer and receive enema treatments.

The new evidence thus confirms the central position of hospitals in providing access to medical treatment in Constantinople. Moreover, these two passages date from periods prior to the twelfth century and provide a good indication that the hospital system of the capital was in place long before the 1100's.

In addition to demonstrating the importance of hospitals as centers of medical care, *Birth of the Hospital* identified a major change in the evolution of these hospitals, a change which occurred in the reign of Justinian. Prior to the sixth century, some Byzantine *xenones* provided physicians and drugs for the poor sick, but they were not yet important centers of the medical profession as they became later. In the course of Justinian's long reign, however, the leading practitioners of the medical profession, the *archiatroi* (chief physicians), ceased functioning as medical experts supported by the local *polis* governments with

funds from the imperial administration, and began working, instead, on the staffs of the Christian hospitals<sup>13</sup>. The historian Prokopios clearly referred to this major shift in the organization of the Greek medical profession in his *Anekdota* when he accused Justinian of abolishing the Empire's system of *archiatroi*<sup>14</sup>.

Prokopios was deliberately misrepresenting Justinian's actions because the *archiatroi* were not disbanded in the mid-sixth century. Rather, from the latter part of Justinian's reign until the fourteenth century they ministered to the patients, both the poor and people of property, in the wards of Constantinople's hospitals. Papyrus documents, hagiographical texts, and medical treatises repeatedly refer to *archiatroi* in the centuries after Justinian's death, but always in the context of hospital service<sup>15</sup>. The ninth-century *Kletorologion of Philotheos* provides the clearest evidence of their association with *xenones* in a passage which describes the *archiatroi* attending a Christmas banquet in the imperial palace in the company of their supervisors, the hospital administrators of Constantinople<sup>16</sup>.

Since the second century, these *archiatroi* were considered the best physicians of the Greek medical profession. That later *xenon* physicians descended from these *archiatroi* explains why hospital doctors were able to collect such high fees when they treated private patients. It also explains why occasionally very wealthy people were willing to stay in Byzantine hospitals to obtain the help of these expert doctors<sup>17</sup>. An unpublished poem by the twelfth-century Mangana Poet reveals that the reigning emperor Manuel I's sister-in-law Irene was hospitalized at the Pantokrator Xenon<sup>18</sup>. If a close imperial relative thought that she would receive better medical care in a hospital bed than she could have obtained in her private palace, it is easy to understand why the wealthy wife of the *spatharokandidatos* of Trebizond visited the *xenones* of Constantinople rather than pay for expensive private care.

In return for the many fiscal privileges they received, *archiatroi* of the ancient world were expected not only to remain in a particular municipality and provide medical care for its citizens, but also to train new physicians for the local community. In 333, the emperor Constantine considered *archiatroi* as worthy of the same privileges as teachers of the liberal arts. In one of his letters, the

emperor Julian (361-63) described an *archiatros* of Alexandria as *didaskalos* for those who desired to learn the healing arts<sup>19</sup>. Justinian stated explicitly that chief physicians were expected to teach<sup>20</sup>. Writing in the ninth century at a time when *archiatroi* had clearly become employees of the *xenones*, a legal scholar simply equated the chief physicians with teachers of medicine<sup>21</sup>. It should come as no surprise, then, that the detailed sources of the twelfth century reveal *xenones* as centers of medical education.

The twelfth-century Pantokrator Xenon paid a high-ranking physician to teach apprentices medical theory and maintained a hierarchical system of interns and permanent staff physicians, a graded organization which provided young doctors a chance for practical experience under the supervision of a veteran physician<sup>22</sup>. In his poem describing the *sebastokratorissa* Irene's stay in the Pantokrator hospital, the Mangana Poet offered a glimpse of how this system of practical training worked.

The *xenon* physician on duty made the rounds of the patients to examine them and prescribe medications or other treatments. On his rounds, he took with him younger, less experienced doctors or students who also observed the patients and on occasion suggested possible treatments. According to the Mangana Poet, two younger physicians accompanied the senior doctor who supervised Irene's care. These two men were already far along in their training since the author described them as well-versed in both medical theory and practice. Moreover, they both recommended specific treatments for Irene. Still, they had to work under the supervision of an older physician, a man whom the Mangana Poet clearly disliked<sup>23</sup>.

Hospitals continued to offer instruction in both the theory and practice of medicine until the end of the Empire. The leading physician of the fourteenth century, John Zachariah, the *aktouarios*, studied medicine at a hospital. He later held a high post on the Mangana Xenon staff. In the years prior to the final Turkish conquest of Constantinople (1453), John Argyropoulos taught Aristotle to medical students at the Krales Xenon, one of the best endowed hospitals of the late Byzantine period<sup>24</sup>.

Almost all the evidence regarding hospitals refers to Constantinople. The evidence presented in *Birth of the Hospital* as well

as the two new sources introduced in this article prove that the Byzantine Empire organized health care in the capital around *xenones*, institutions which offered access to the city's most respected physicians and which provided perhaps the only professional training in medicine. Outside of Constantinople, however, hospitals did not dominate the medical profession to the same degree as they did in the capital. We have already seen how the wealthy woman from Trebizond hired physicians to treat her in her own home in Trebizond, but once in Constantinople, she visited the hospitals rather than pay for private care.

Medical hospitals surely existed outside Constantinople. At the beginning of the ninth century, Metropolitan Theophylakt built a two-storey hospital in Nikomedeia and provided it with physicians. In the twelfth century, Thessalonika possessed one large hospital where most people obtained their medicines, probably in a walk-in dispensary attached to the xenon. During the thirteenth century, Bishop Phokas constructed a xenon for the ancient city of Philadelphia in Asia Minor. Around 1290, Theodore Metochites mentioned hospitals as one of the adornments of his native city of Nicaea<sup>25</sup>. Were there more provincial hospitals than the surviving records indicate? In the late tenth century the emperor Nikephoros II issued a novel which implied that in his day at least there were enough hospitals to serve the needs of the population throughout the Empire<sup>26</sup>. Perhaps future research will identify more of these xenones outside Constantinople.

## Future Research

Having summarized some of the key aspects of Byzantine hospital development, I shall briefly address the third topic of this study, future avenues of research for the study of East Roman *xenones*. The first of these avenues requires far more information about Byzantine medical manuscripts. Byzantinists have long known that there exist many unedited medical texts in medieval manuscripts. These codices contain a complex jumble of extracts from Classical medical writers, anonymous pharmacopeia, lists of various weights and measures, and occasionally *xenon* treatment lists. Careful philological study of these texts

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might show how they were compiled and employed, information which would surely tell us more about the role the hospitals played in the medieval Greek medical profession. Perhaps, some of the other articles in this present volume will contribute to our understanding of these medical texts and shed some new light on their relationship to the medical practice of the Byzantine xenones.

The second avenue of research addresses the issue of provincial hospitals. The careful study of hagiographical texts, especially of the *vitae* describing saints who lived outside Constantinople, may well identify hospitals overlooked in *Birth of the Hospital* and in the other principal studies of Byzantine philanthropic institutions<sup>27</sup>. In addition to published *vitae*, hospital historians should consider the many unpublished *vitae* as well as later copies of well-known texts from earlier centuries. These later copies sometimes contain additional material, especially in the form of post-mortem miracle tales appended to the original biography<sup>28</sup>. Byzantine philologists are making great strides in editing new hagiographical texts.

A third avenue of research is archaeology. In the 1990's Charles Williams and Orestes Zervos uncovered the remains of a hospital while excavating medieval Corinth. Although this hospital dates from the period of Frankish occupation (mid thirteenth century), this discovery might offer valuable insights into the history of provincial Byzantine hospitals. Archaeologists should study carefully how Williams and Zervos have identified this structure as a hospital and be alert to these same signs when they are excavating Byzantine sites in Greece and Turkey<sup>29</sup>.

Archaeologists should also consider exploring the site of Constantinople's most famous hospital, the Sampson Xenon. It is still possible to see the above-ground ruins of this institution to the northeast of Hagia Sophia<sup>30</sup>. Such archaeological work, however, requires substantially more financial support than philological and codicological research does.

A fourth avenue of study would be investigating the towns in Southern Italy. After Justinian re-conquered the peninsula in the mid-sixth century, substantial sections of Italy remained either under direct Byzantine control or subject to sustained Byzantine influence until the eleventh century. Since these same years witnessed the restructuring of Constantinople's medical profession around hospitals and the building of some provincial *xenones* to serve the urban settlements in Greece and Asia Minor, historians should examine the possibility that communities in Italy also established hospitals modeled on those in Constantinople. Since Byzantine *xenones* were also teaching institutions, the presence of such hospitals in Salerno might help to explain the early development of a medical school in this Campanian town, a school the nature of which has puzzled scholars to the present day.

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- 9. See PAPADOPOULOS-KERAMEUS A. (ed.), see ref. 8, no. 24 (pp. 114-16).
- 10. See for example the obscene work by CANIVET I., and OIKONOMIDES N. (ed.), ARGYROPOULOS (ARGYROPOULOS J., Le Comédie de Katablattas: Invective byzantine du XV<sup>e</sup> siècle. Diptuca 1982-83; 3:5-97). Argyropoulos later became famous at Florence and Rome as a Greek scholar and a philosopher.
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- 12. See the work by Argyropoulos, note 10 above.
- 13. MILLER T., see ref. 1, pp. xxii-xxv.
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- 21. *Ecloga*, tit. 16.4 VON LINGENTHALZ, (ed) and ZEPOS I., ZEPOS P., *JUS graeco-ro-manum*. 8 volumes, Athens, Phexi, 1931, vol. 5, p. 51, 51 note 63. This passage is actually found in an addition made to manuscript Y.
- 22. MILLER T., see ref. 1, pp. 156-59.
- Αλλ΄ ἐπειδὴ μετὰ μακρὸν Ασκληπιοὶ παρῆσαν. ἀφ΄ ὧν ὁ μὲν ἐμάλαττεν ἀνίκητον τροχίσκον, ὁ δὲ συκῆς ἐπέρραινεν ὁπὸν μὴ πεπεμμένῆς....
   δ΄ ἄλλος ὁ παμμέγιστος, ὁ γέρων, ὁ προγάστωρ, ὁ μετ' ἀκμὴν ἐν παρακμῆ καὶ σφύζων καὶ σφαδάζων.
- 24. MILLER T., see ref. 1, p. 185 (Zachariah) and p. 206 (Argyropoulos).
- 25. See MILLER for references to these provincial hospitals.
- Novel 19 (Nikephoros II), VON LINGENTHALZ (ed.) and ZEPOS I., ZEPOS P., JUS graeco-romanum. 8 volumes, Athens, Phexi, 1931, vol. 1, pp. 249-52.
- 27. For example, in VOLK R. or CONSTANTELOS D., see General Bibliography.

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- 28. See, for example, MILLER T. (ed.), The Legend of Saint Zotikos according to Constantine Akropolites. Analecta Bollandiana 1994; 112: 339-76.
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- 30. MILLER T., *The Sampson Hospital of Constantinople*. Byzantinische Forschungen 1990; 15: 101-35.

Correspondence should be addressed to:

Timothy S. Miller, Department of History, Salisbury State University, Salisbury, Maryland, 21801, USA.