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CASE HISTORIES IN LATE BYZANTIUM: READING THE PATIENT IN JOHN ZACHARIAS AKTOUARIOS' *ON URINES* Petros Bouras-Vallianatos

This paper provides the first analysis of case histories in the Byzantine period as they feature in the *On Urines* of John Zacharias Aktouarios (ca. 1275 – ca. 1330). This group of clinical accounts is of special importance in that they have no counterpart in the Greek-speaking world since Galen. This study aims to illustrate various factors determining patient's response to physician's advice through close examination of John's clinical narratives. The first part deals with the terminology that John uses to indicate the patient's gender, age, social status, and clinical condition. The second part explores the significance of John's acquaintance with the patients, the patient's socio-economic background, and also the patient's experience in connection with the physician's professional expertise.

Byzantine medical literature remains largely unexplored.¹ In particular, the medical literary output of the late Byzantine period (which dates roughly from the recapture of Constantinople from the Latins in 1261 up to its fall to the Turks in 1453) has been hardly studied by modern scholars, not least due to lack of modern critical editions of the texts. And yet, in this late period there is a flourishing of notable medical authors such as Nicholas Myrepsos and John Zacharias Aktouarios, as well as a vast number of usually anonymous collections of recipes (the so-called *iatrosophia*) and a considerable number of Arabic medical texts in Greek translation.²

Out of this rich medical production, I have chosen to focus on John Zacharias Aktouarios, as I consider him an exceptional case for making a conscious effort in his writings to connect theory with practice. In his extensive work *On Urines*, John deems it necessary to substantiate his material with detailed reports of his medical visits, thus providing a vivid image of contemporary daily contact with his patients.³ John plays a

* I would like to thank Georgia Petridou, Chiara Thumiger, and the anonymous reviewer for their comments on this paper. I am also grateful to Dionysios Stathakopoulos and Ludmilla Jordanova for their insightful remarks on an earlier draft of this paper.

¹ I use the term 'Byzantine medical literature' to refer to the medical works produced in the Byzantine Empire from the transfer of the capital from Rome to Byzantium in AD 330 until the Fall of the city to the Ottoman Turks in 1453. We may divide this literary output into two main phases: a) the early Byzantine phase covering the first centuries up to the Arab invasion of Alexandria in 642; and b) the subsequent centuries, including the period where the focus of scholarly activity moved to Constantinople. Cf. Temkin, O. (1962). 'Byzantine medicine: Tradition and empiricism', *Dumbarton Oaks Papers* 16, 97-115.

² For a review of the very few recent publications on late Byzantine medicine, see Congourdeau, M.-H. 'La médecine à Nicée et sous les Paléologues: état de la question', in Cacouros, M. and Congourdeau, M.-H. (2006). *Philosophie et sciences à Byzance de 1204 à 1453. Les textes, les doctrines et leur transmission*, 185-88. See also Stathakopoulos, D. 'The location of medical practice in 13th-century Eastern Mediterranean', in Saint-Guillain, G. and Stathakopoulos, D. (2012). *Liquid & Multiple: Individuals & Identities in the thirteenth-century Aegean*, 135-54, who provides a thoughtful reconstruction of medical practice in the thirteenth-century Greek-speaking world.

³ I am aware that by focusing on the construction of the patient in the case histories, I omit not only the representation of the physician, but also a further level of discussion, which would include various

dual role in presenting his clinical accounts; he is both a practising physician, and thus a central character in the story, and a ‘chronicler’, i.e. he constructs a narrative based on the patient’s history and the physician’s performance. In this chapter, I would like to examine how John represents his patients by considering various factors such as the terminology used and the patients’ response. My purpose is neither to offer a retrospective diagnosis of the illnesses that troubled John’s patients nor to evaluate his prognoses or the efficacy of his therapeutic methods. Rather, I would like to explore the narrative patterns that shape the patient’s portrait and his or her relationship with the physician. Since these particular accounts have never been examined before, the first part of this chapter discusses the identity of the sufferer and the place of the case histories in John’s work, while the second part focuses on examples of patients’ representation.

1. JOHN AND HIS CASE HISTORIES

John was born around 1275 in Constantinople, where he later studied medicine and was active as a practising physician during the reign of Andronikos II Palaiologos (1282-1328).⁴ He composed three works. His long medical handbook, *Medical Epitome*, is dedicated to Alexios Apokaukos, who was a good friend and patron as well as the commander of the Byzantine fleet, and had a lively interest in medicine. It consists of six books dealing with all aspects of medicine (from diagnosis to diet and pharmacology) and although it belongs to the genre of encyclopaedic medical works written throughout the Byzantine period, it is mainly addressed to well-educated contemporaries with a strong medical awareness, *philiatroi*.⁵ John is also the author of a treatise in two books, *On the activities and illnesses of the psychic pneuma and the corresponding mode of diet*, in which he argues that any disturbance in the quality of a *pneuma* caused by lifestyle factors, above all diet, can cause problems in its circulation,

rhetorical devices used by John to attract the readers’ attention and communicate his experiences to them. For these topics and their connection to the particular role of place and time in John’s narrative are discussed, see Bouras-Vallianatos, P. (2015). *Medical Theory and Practice in Late Byzantium: The Case of John Zacharias Aktouarios (ca. 1275 – ca. 1330)*, 113–59.

⁴ The majority of John’s biographical details comes from the letters he exchanged with contemporary scholars, and which constitute part of a collection of epistles under the name of his friends George Lakapenos and Andronikos Zarides; cf. George Lakapenos and Andronikos Zarides, *Epistles*. For an overview of John’s life and works, see Kourousis, S. (1980-02). ‘Ο Ακτουάριος Ἰωάννης Ζαχαρίας παραλήπτης τῆς ἐπιστολῆς τ’ τοῦ Γεωργίου Λακαπηνοῦ’, *Αθηνᾶ* 78, 237-76 (The article was reprinted in Kourousis, S. (1984-88). *Μελέτη Φιλολογική*, 101-40); Hohlweg, A. (1983). ‘Johannes Actuarius. Leben, Bildung und Ausbildung. *De Methodo Medendi*’, *Byzantinische Zeitschrift* 76, 302-21 (A slightly shorter version of the article was republished in English by Armin Hohlweg and it was entitled: *id.* (1984). ‘John Actuarius’ *De Methodo Medendi* – On the New Edition’, *Dumbarton Oaks Papers* 38, 121-33); Schmalzbauer, G. ‘Johannes Zacharias Aktuarius’, in Leven, K.-H. (2005). *Antike Medizin: ein Lexikon*, 470-71; and Bouras-Vallianatos, P. ‘Ioannes Zacharias Aktuarius’, in Grünbart M. and Riehle A. (forthcoming). *Lexikon der byzantinischen Autoren*.

⁵ The work is usually cited in Latin, i.e. *De Methodo Medendi*. The first two books have been published in Ideler, J. (1841-42). *Physici et medici graeci minores*, 2, 353-463. The last four books remain unedited and are only available through a sixteenth-century Latin translation in Mathys, C. H. (1556). *Actuarii Ioannis filii Zachariae Opera*, 2, 153-563.

affect various activities in the human body and lead to a number of illnesses.⁶ Moreover, he composed an extensive treatise on uroscopy, *On Urines*, which will constitute the main focus of this chapter.⁷

On Urines is John's earliest work and shows him keen to establish himself among his contemporaries in treating a topic that had not hitherto received much close attention.⁸ The work is divided into seven books. The first book (Book One) serves as an introduction, where John provides a definition of the various characteristics of urine related to specific parts of a graduated urine vial. The next two books (Books Two and Three) deal with diagnosis of various diseases. Here there are more details on the urine vial in relation to its size, especially the bottom part, which shows John's awareness of the identification of various kinds of sediments in the process of a precise diagnosis. Books Four and Five focus on aetiology. John explains there the various causes of a disease and he correlates the nature of urine to age, gender, time, place, and exercise. The last two books (Books Six and Seven) deal with prognosis by correlating certain categories of urine to particular organs, so that the physician should be able to provide a prognosis with some degree of certainty. It is notable that John provides a clear distinction between each method. *On Urines* includes a total of eleven case histories involving twelve patients altogether.⁹

The last medical author who made use of case histories in Greek before the time of John was Galen in the second century AD.¹⁰ It is no coincidence that the rebirth of this

⁶ Lat. *De actionibus & affectibus spiritus animalis*. Ideler, *Physici*, 1, 312-86. For John's theory on *pneuma*, see Hohlweg, A. 'Seelenlehre und Psychiatrie bei dem Aktouarios Johannes Zacharias', in Pellegrin, P. and Wittern, R. (1996). *Hippokratische Medizin und antike Philosophie*, 513-30.

⁷ Lat. *De Urinis*. Ideler, *Physici*, 2, 3-192. The text circulated in an exceptionally large number of manuscripts. Diels, H. (1905-06). *Die Handschriften der antiken Ärzte*, 2, 109, provides a list of about forty codices. Georgiou, S. (2013). *Edition critique, traduction et commentaire critique du livre 1 'De Urinis' de Jean Zacharias Actouarios*, has recently provided a critical edition of the first book of the *On Urines*. On the role of experience in John's *On Urines*, see Kudlien, F. (1973). 'Empirie und Theorie in der Harnlehre des Johannes Aktuarios,' *Clio Medica* 8, 19-30. See also, Bouras-Vallianatos, P. 'Contextualizing the Art of Healing by Byzantine Physicians', in Pitarakis B. (2015). *'Life is Short Art Long': The Art of Healing in Byzantium*, 111-12, in which I discuss John's introduction of a special urine vial divided into eleven specific sections.

⁸ On uroscopy in Byzantium, see Dimitriadis, K. (1971). *Byzantinische Uroskopie*; Diamandopoulos, A. (1997). 'Uroscopy in Byzantium', *American Journal of Nephrology* 17, 222-27; and Touwaide, A. 'On uroscopy in Byzantium', in Diamandopoulos, A. (2000). *Ιστορία της Ελληνικής Νεφρολογίας*, 218-20.

⁹ John, *On Urines* 2.19 (Ideler 2, 50, 26-52, 1); 3.10 (Ideler 2, 62, 29-63, 13, two female patients); 3.9 (Ideler 2, 92, 9-93, 3); 4.12 (Ideler 2, 95, 34-96, 9); 6.7 (Ideler 2, 154, 31-156, 11); 6.12 (Ideler 2, 162, 17-163, 27); 6.12 (Ideler 2, 163, 27-164, 11); 6.13 (Ideler 2, 165, 9-166, 16); 6.13 (Ideler 2, 166, 24-167, 5); 7.13 (Ideler 2, 181, 11-183, 12); and 7.15 (Ideler 2, 186, 5-187, 4). It is interesting to note that we cannot find any examples of case histories in John's other works.

¹⁰ See Mattern, S. (2008). *Galen and the Rhetoric of Healing*, who provides a fresh study of the entire repertoire of Galenic case histories; and Lloyd, G. E. R. 'Galen's un-Hippocratic case-histories', in Gill, C. et. al. (2009). *Galen and the World of Knowledge*, 115-31. As regards the early Byzantine period, one might mention here Alexander of Tralles, who wrote in the sixth century and included a limited number of references to his patients when he discussed therapy. However, these examples could be seen more as brief references demonstrating the validity of a suggested pharmacological recipe rather than clinical narratives. For example, see Alexander of Tralles, *Therapeutics* 1.15 (Puschmann 1, 551, 17-25). See also my discussion on Alexander of Tralles' self-promotion strategy in his works, Bouras-Vallianatos, P. (2014). 'Clinical experience in late antiquity: Alexander of Tralles and the therapy of epilepsy', *Medical*

‘genre’ in the Greek-speaking world occurred in the early Palaiologan Byzantium. That period was marked by a rich intellectual activity and the production of works written in high style Greek.¹¹ Scholars participated in *theatra*, gatherings of literati hosted by a powerful patron or even by the emperor himself, in which rhetorical set pieces were performed.¹² Gaul has recently coined the term “late Byzantine sophistic”, which describes scholarly activity in that period as a parallel to the intellectual movement of the Second Sophistic.¹³ Consequently, as a distinctive product of a glorious past, which had many parallels with John’s era, the Galenic case histories became the ideal model for John’s case histories.

The majority of cases (seven) are situated in the books on prognosis, while two can be found in the books on diagnosis and two more are embedded in the books on aetiology. Each of them is an integral part of each chapter’s contents, appearing in the middle of it or towards its end. The case histories are not of equal length: some are short, comprising just a few lines, while others are quite long, extending to up to three printed pages. However, all case histories share some common features, which allow us to study them as a distinct category of material: they are all narrated in the past tense and John is an eyewitness present in every single case, even when he describes the involvement of other physicians. Thus, all the case histories constitute examples of his personal experience relating to contemporary patients. John does not follow a strictly chronological approach and there is no systematic attempt to locate his cases in time and space, as in the majority of the Hippocratic clinical accounts. Furthermore, there is no mention of crises and specific critical days and his nosological data is limited.¹⁴ All patients mentioned remain anonymous. The main focus lays on diagnosis and prognosis by means of uroscopy. There are, nonetheless, occasional brief references to therapeutic advice. In all cases, and in particular in agonistic accounts involving the presence of other physicians, John presents himself in true Galenic fashion, as the most capable physician in attendance and his advice as the most beneficial for the patient.¹⁵ When a patient dies, it is either due to the severity of the disease or the erroneous treatment given by other physicians. Finally, as in Galen’s treatises, the case histories do not constitute an independent work, but are part of his medical argument to provide support for a particular theoretical exposition.

John is conscious of the special nature of these accounts as distinct elements of

History 58, 341-42.

¹¹ On Palaiologan intellectuals, see Ševčenko, I. ‘Society and intellectual life in the fourteenth century’, in Berza, M. and Stănescu, E. (1974). *Actes du 14e Congrès International des Études Byzantine*, 1, 69-92. (The article was reproduced in Ševčenko, I. (1981). *Society and intellectual life in late Byzantium*); and Mergiali, S. (1996). *L’enseignement et les lettrés pendant l’époque des Paléologues*.

¹² On late Byzantine *theatra*, see Marciniak, P. ‘Byzantine *Theatron* – A Place of Performance’, in Grünbart, M. (2007). *Theatron. Rhetorische Kultur in Spätantike und Mittelalter*, 277-85.

¹³ Gaul, N. (2011). *Thomas Magistros und die spätbyzantinische Sophistik: Studien zum Humanismus urbaner Eliten der frühen Palaiologenzeit*.

¹⁴ For a general introduction to Hippocratic clinical accounts in the *Epidemics*, see Langholf, V. (1990). *Medical Theories in Hippocrates: Early Texts and the ‘Epidemics’*. On the role of the patient in the *Epidemics*, see the chapters of Chiara Thumiger and John Wee (Chapter Three and Four) in this volume.

¹⁵ On agonistic accounts in Galen’s works, see Mattern, *Galen*, 69-97.

discourse in his work. Although he uses a variety of ways to introduce his case histories,¹⁶ the most common one involves the use of the term ἱστορία (“inquiry” or “written account”).¹⁷ In tracing the occurrence of the term in a medical context,¹⁸ it is quite remarkable that the term does not appear in medical sense in the Hippocratic *Epidemics*. The term must have had some special significance for the physicians of the Empiric sect, who considered experience the primary source of medical knowledge. However, since no work by members of the sect survives intact we only know of their writings from short fragments.¹⁹ Galen’s use of the term is extremely limited; there are only two instances in connection with a case history that might indicate its usefulness to his readers.²⁰ It seems that John’s usage of the term echoes that of Galen. However in his work, it takes a central role and is used in a distinctive way.

TABLE 1. EXAMPLES FROM THE USE OF THE WORD ‘ἱστορία’ IN GALEN’S AND JOHN’S CASE HISTORIES

Galen	John Zacharias Aktouarios
<i>On Anatomical Procedures</i> 7.13 (K. 2, 632, 5 = Garofalo, 459, 16): διὰ γὰρ τὸ χρήσιμον τῆς ἱστορίας [...].	<i>On Urines</i> 6.12 (Ideler 2, 163, 29-30): καὶ τοιαύτην ἱστορίαν ἑτέραν, καὶ ταῦτα προσεπιθήσω τῷ λόγῳ [...].
<i>On the Affected Parts</i> 4.8 (K. 8, 266, 11-12): βέλτιον οὖν ἔδοξε μοι καὶ ταῦθ’ ὑμῖν ἱστορῆσαι.	<i>On Urines</i> 6.13 (Ideler 2, 166, 26-27): καὶ προσθήσω καπὶ τούτων ἱστορίαν ἑτέραν σαφηνείας τινὰ τῶν λεγομένων ἔνεκεν.
	<i>On Urines</i> 7.13 (Ideler 2, 181, 12-13): καὶ ταύτην ἐπιθήσωμεν τὴν ἱστορίαν τῷ λόγῳ λυσιτελοῦσαν [...].
	<i>On Urines</i> 7.15 (Ideler 2, 186, 5-6): ἀλλὰ κἀνταῦθα θεῖς τῷ λόγῳ ἱστορίαν

¹⁶ For example, John makes use of a past form of the verb διηγέομαι (“to set out in details” or “narrate”) in connection with ὁράω (“to see”) in two cases, see John, *On Urines* 2.19 (Ideler 2, 50, 27-28); and 6.7 (Ideler 2, 154, 32).

¹⁷ There are four examples where the use of the word ἱστορία indicates the beginning of the narrative; John, *On Urines* 6.12 (Ideler 2, 163, 29); 6.13 (Ideler 2, 166, 26); 7.13 (Ideler 2, 181, 13); and 7.15 (Ideler 2, 186, 6). In the rest of the cases, the term appears twice at the end of the case history and once in the middle of the story; John, *On Urines* 3.10 (Ideler 2, 63, 11); 7.13 (Ideler 2, 183, 9); and 7.13 (Ideler 2, 182, 33).

¹⁸ The term had been used as early as the fifth century BC by the Greek historian Herodotus to signify learning or knowledge obtained by ‘inquiry’ with regard to the Persian wars; cf. Herodotus, *The Histories* 1. proem (Legrand 1, 1, 1): Ἡροδότου Θουρίου ἱστορίας ἀπόδεξις ἦδε [...].

¹⁹ On Empiricism and history, see Deichgräber, K. (1965). *Die griechische Empirikerschule: Sammlung der Fragmente und Darstellung der Lehre*, 298-301; Staden, H. von. (1975). ‘Experiment and experience in Hellenistic medicine’, *Bulletin of the Institute of Classical Studies* 22, 190; and Guardasole, A. ‘Empiriker’, in Leven, K.-H. (2005). *Antike Medizin: ein Lexikon*, 254-55.

²⁰ Gal., *De anat. admin.* 7.13 (K. 2, 632, 5 = Garofalo, 459, 16); and *De loc. aff.* 4.8 (K. 8, 266, 11-12).

	προσήκουσαν ἐφ' ἕτερα τῷ λόγῳ τρέψομαι.
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As we can see from the examples mentioned above, the term ἱστορία functions as an emphatic pointer for the reader:²¹ John uses it to prepare his audience for a more crucial piece of information that will follow later on. For example:

Theory: [...] and the colour of the urine already seems extremely reddish and almost becomes even more red.

Introduction to case history: But in order to provide my account with some kind of grace, and at the same time to make my speech trustworthy, let us introduce this case history too, which I think will benefit my account.

Case history: Some woman from the soft and rich [...] was in danger of becoming distressed at the idea of having an only child.²²

John freely admits that he is citing a specific case in order to lend support, and corroborate his writings. At the same time, the common use of this word at the beginning of a case history marks its function as a transitional step between the theoretical and the clinical details. John here expands his narration by embedding a text, which deals with everyday practice. The theoretical details give way to the real entities, the characters of a case history.

2. THE PATIENTS

2.1. Terminology

Before exploring how John depicts his patients, I will look briefly at the various terms he uses to describe them. The main characters in a case history are John and his patients, although occasionally other contemporary physicians feature too. At times, a patient's relative is also present. The physician's perspective is mostly given through a powerful first-person narration. John usually represents himself as making an observation or reporting his thoughts and medical actions. For example:

When I (ἐγώ) saw these (signs) and having been persuaded [...].²³

or even more decisively:

As for me when I (ἐγώ) suddenly saw him still in a healthy condition, although his urine was giving the impression that he suffered from a most severe sickness [...].²⁴

²¹ The special role of the case histories in John's texts is also attested in various manuscripts. For example, in a fifteenth-century codex, Parisinus gr. 2304, the scribe indicates the beginning of six out of the eleven case histories by inscribing the word ἱστορία in red ink in the margin, see fol. 32v; 58v; 99v; 100v; 108r; and 110v (autopsy, October 2012). For a physical description and a list of contents of the manuscript, see Omont, H. (1886-98). *Inventaire sommaire des manuscrits grecs de la Bibliothèque Nationale*, 2, 233.

²² All translations from Greek are my own. John, *On Urines* 7.13 (Ideler 2, 181, 9-19).

²³ John, *On Urines* 4.12 (Ideler 2, 96, 7-8).

²⁴ John, *On Urines* 6.7 (Ideler 2, 155, 17-20). Sometimes, John chooses to use the first-person plural,

The narration usually shifts from the first-person to the third-person singular, in order to present the patient's medical condition. The patient might be a woman or man, an adolescent or an old man. John uses a variety of terms that can all be translated as 'patient' in English. He refers to his patients as ἀσθενής, ἄρρωστος, κάμνων/κάμνουσα, νοσοῦσα, and πάσχων, thus, denoting someone who is ill.²⁵ He also frequently uses the term ἄνθρωπος ("person"), which could refer to either a male or female patient.²⁶ It is significant that there is no case history dealing with slaves. A female patient can also be called merely a γυνή ("a woman"). Overall, female patients feature in three case histories.²⁷

Occasionally, there are words with special connotations in the immediate context. For example, the masculine form of the present participle of the verb πυρέσσω ("to be feverish"), that is πυρέσσων, indicates a man suffering from heavy fever.²⁸ The term is only used twice, although cases of fever are reported elsewhere too. It seems that John uses the participle to express a dramatic change in the condition of a patient, that is a deterioration that reaches its climax, when he states that he "was relieving himself of all his physical needs in bed".²⁹ In a similar vein, the term ἀλγοῦσα is only used when John wants to denote the chronic pain of a female patient, thus indicating certain special ongoing characteristics of a patient's condition.³⁰ Furthermore, θεραπευόμενος ("one who receives medical treatment"), the passive participle of the verb θεραπεύω ("to heal"), refers to a case where John's own therapeutic recommendation plays a central role.³¹ This particular account begins by presenting the patient as rejecting a certain medicament. Thus, the use of the term θεραπευόμενος emphasises the treatment as a process, and indicates its particular significance for the rest of the story.

Although John does not state his patients' age explicitly, he occasionally uses terms which gives us a rough idea of how old they were, but only when dealing with male patients. Thus, he uses the noun μεῖραξ ("lad" or "adolescent") twice probably to refer

'we', which is even more common in the theoretical parts of his work; see, John, *On Urines* 6.12 (Ideler 2, 164, 6). On these stylistic aspects, see the relevant chapter by Chiara Thumiger (Chapter Three) in this volume.

²⁵ John uses the term ἀσθενής and ἄρρωστος once each; John, *On Urines* 6.7 (Ideler 2 155, 33); and 6.12 (Ideler 2, 164, 6). He employs the term κάμνων/κάμνουσα six times; John, *On Urines*, 6.12 (Ideler 2, 162, 26); 6.12 (Ideler 2, 163, 25); 6.13 (Ideler 2, 165, 16); 6.13 (Ideler 2, 165, 33); 6.13 (Ideler 2, 166, 6-7); 6.13 (Ideler 2, 166, 14). Finally, the terms νοσοῦσα and πάσχων appear twice and once respectively; John, *On Urines*, 3.10 (Ideler 2, 62, 31); 3.10 (Ideler 2, 63, 3); and 6.7 (Ideler 2, 155, 29). On the use of various terms in Galenic case histories, see Mattern, *Galen*, 98-119, and the introduction to this volume.

²⁶ The term is used nine times for male patients and twice for females: John, *On Urines*, 2.19 (Ideler 2, 51, 3); 2.19 (Ideler 2, 51, 9); 3.9 (Ideler 2, 92, 34-35); 4.12 (Ideler 2, 96, 5); 6.7 (Ideler 2, 155, 35); 6.7 (Ideler 2, 156, 8); 6.12 (Ideler 2, 163, 26-27); 6.12 (Ideler 2, 164, 7); 6.13 (Ideler 2, 167, 2); 6.13 (Ideler 2, 165, 35); and 7.13 (Ideler 2, 183, 7-8).

²⁷ John, *On Urines* 3.10 (Ideler 2, 62, 30); 3.10 (Ideler 2, 63, 8); 6.13 (Ideler 2, 165, 10); 7.13 (Ideler 2, 181, 14); 7.13 (Ideler 2, 181, 30); 7.13 (Ideler 2, 182, 2); and 7.13 (Ideler 2, 182, 22).

²⁸ John, *On Urines* 6.13 (Ideler 2, 166, 28); and 7.15 (Ideler 2 186, 16).

²⁹ John, *On Urines* 6.13 (Ideler 2, 166, 31-32).

³⁰ John, *On Urines* 3.10 (Ideler 2, 62, 31-32). For a list of various terms denoting and characterising various qualities of pain in Galen, see Siegel, R. (1976). *Galen on the affected parts: translation from the Greek text with explanatory notes*, 205.

³¹ John, *On Urines* 2.19 (Ideler 2, 50, 37).

to a boy in his late teens;³² while one patient is called γέρων (“old man”).³³ When John uses the term γνώριμος (“acquaintance”), he emphasises his familiarity with the patients.³⁴ In one particular case, John gives his reader a wealth of information about his patient’s lifestyle, thus laying emphasis on his acquaintance with the patient.³⁵

Furthermore, it is worth mentioning that no indication of the patients’ professional identity is given. Nevertheless, there are cases where we find information regarding their social background. This sort of information is provided either by adverbs indicative of origin, such as ἀγροίκως or ἀγρόθεν (“coming from the countryside”), or adjectives denoting socio-economic status, such as πλούσιος (“wealthy”).³⁶ Such social distinctions among patients, as we will see later, are important for the patients’ own assessment of the physician’s medical advice.

2.2. *The Patient’s Response*

In this section, I look closely at some characteristic examples of patient-physician encounters concentrating on the patient’s angle. Before John proceeds to the results of his examination of a patient, he usually inserts the history of the patient’s illness. In this part of his narrative, John’s interest is devoted totally to the patient and he emphasises the importance of individualised patient care. This specific part of the narrative does not have the clear structure of a scientific report. The details related to the various symptoms, are usually scattered throughout his narration. The focus is clearly on the careful examination of the urine, while other information, including the general clinical picture of the patient and sometimes his or her pulse rate, plays only a supplementary role. For example:

It was wintertime and my acquaintance (γνώριμος) to whom I have referred had been badly treated by someone and spent his time going from one authority to the other until the evening, in an attempt to find a solution to the injustice. He spent most of the day without food, and even when it was necessary to take some food, he preferred mostly the salted or dried meat. [...] It was in his nature to set himself against people that were opposed to him, and to be in anguish for fear of suffering greatly. For this reason, he passed the night sleepless and his body became dry and short of sleep. It was in his nature that in the past too, he had consumed gifts of bad food, as he gave us to understand. [...] All these things gathered the yellow bile, which was removed through his urine. When he saw an unusual colour in his urine, he realised that there was some kind of irregularity and he told me about it and asked me to find out the cause.³⁷

At this stage of the narrative John has not yet become actively involved. We can see that the patient is the most highly developed character in the narrative. The patient appears

³² John, *On Urines* 4.9 (Ideler 2, 92, 10); 6.12 (Ideler 2, 162, 17-18); and 6.12 (Ideler 2, 162, 20-21).

³³ John, *On Urines* 7.15 (Ideler 2, 186, 7); and 7.15 (Ideler 2, 186, 27).

³⁴ John, *On Urines* 6.7 (Ideler 2, 154, 31); 6.7 (Ideler 2, 154, 33); and 7.15 (Ideler 2, 186, 7).

³⁵ John, *On Urines* 6.7 (Ideler 2, 154, 31-156, 11).

³⁶ John, *On Urines* 3.10 (Ideler 2, 63, 9); and 6.12 (Ideler 2, 163, 33). Ideler’s edition reads wrongly ἀγροικῶς instead of the correctly accented version ἀγροίκως. A female patient is characterised as wealthy: John, *On Urines* 7.13 (Ideler 2, 181, 15).

³⁷ John, *On Urines* 6.7 (Ideler 2, 154, 32-155, 17).

as John's acquaintance and as someone who had failed to follow a proper diet all his life. This seems to be the main reason for his sickness. The patient appears to be suffering from a kind of mental disorder, which is perhaps reflected in his expressed views of being unjustly treated. We are not informed of any other symptom, such as pain, which features in some other cases, and the first instance of physician-patient communication is concerned exclusively with the nature of the urine. An observation made by the patient suffices to present himself before the physician. Even someone without any particular medical knowledge can attest the power of urine as a mirror of the internal condition of the body. However, the physician, who has the appropriate experience and training, will be able to provide the reasons behind the disease and attempt a diagnosis:

I asked him to bring the urine vial with his urine the following day [...] when the night came, he lay down having eaten only a small portion of food, and brought to us in the morning a urine vial with blue urine like that of a jaundiced patient. And he thought that he was without fever. Prediction: if he does not take proper care, he will suffer from jaundice. The next day [...] and before night the humour [yellow bile] started moving and was getting warm and there was a big change in the man and [...] he repented and asked for salvation. According to my judgment, I taught him with words that he should not show disbelief to the physicians that command him, and, knowing that the yellow bile was not in much excess, I told him to abstain from heavier food and wine. Following a leaner diet [...] he was freed from the disease.³⁸

We can see clearly John's insistence on the patient's poor diet as the cause of his illness. Although he refers briefly to the patient's general clinical picture, we can clearly attest his reliance on providing a diagnosis through an examination of the urine. A distinct colour in the urine helps the physician to make a diagnosis. The patient appears to have a fever, but does not accept the physician's verdict. The latter, in an attempt to get the patient's attention and communicate the severity of his condition, emphasises the reading of the urine's colour, which leads to his prognosis. The urine becomes the physical symbol that dominates the physician-patient interaction. Despite the warning he receives, the patient continues to eat and drink inappropriately.

³⁸ John, *On Urines* 6.7 (Ideler 2, 155, 17-156, 6).

Figure 1. Bononiensis 3632 (mid-15th c.), fol. 20v, with permission of the Bibliotheca Universitaria di Bologna. The miniature shows John holding a urine vial with an inscribed motto derived from the opening phrase of his work 'On Urines', reflecting the popularity of his uroscopy treatise.

The text above the miniature reads: οκτάριος, which is found in various manuscripts instead of the usual ἄκτουάριος, and seems to be a vernacular version of the same term. The phrase on the right-hand side reads: πάλαι μὲν ἴσως φιλοτιμί(ας) ἔργον τιθέμενος, which coincides with the introductory phrase of John's work *On Urines*; cf. the proem of John, *On Urines* 1 (Ideler 2, 3, 1).

The patient is the constant focus of the narrator's account. He perceives the physician's actions as a symbolic transformation of a visible sign (the urine's colour) into a verbal pronouncement (prognosis) through the examination of the urine.³⁹ The physician

³⁹ On healing 'gestures' as part of ancient rhetoric and, in particular, in Latin medical literature, see the collection of essays by Gaide, F. and Biville, F. (2003). *Manus medica. Actions et gestes de l'officiant dans les textes médicaux latins. Questions de thérapeutique et de lexique*. In particular, on medieval uroscopy, see McVaugh, M. R. (1997). 'Bedside manners in the Middle Ages', *Bull. Hist. Med.* 71, 201-23; Wallis, F. (2000). 'Signs and Senses: Diagnosis and Prognosis in Early Medieval Pulse and Urine Texts', *Social History of Medicine* 13, 265-78; and Moulinier-Brogi, L. (2012). *L'uroscopie au Moyen Âge: lire dans un verre la nature de l'homme*, 77-92. See also Kosak (Chapter Eight) in this volume.

appears before his patient using the interpretive power of uroscopy. The patient consistently refuses to accept the physician's prognosis, which takes the form of advice. The patient's denial can only result in the aggravation of his problem. The reciprocal character of the physician-patient interaction is emphatically attested by the patient being presented as begging for his 'salvation'. This entreaty can be interpreted as an act of repentance, which indicates the patient's reliance on the physician's assistance despite his initial rejection. The physician's prognosis is confirmed in the end through the supremacy of uroscopy and the patient is persuaded to follow a specific diet. The developing intimacy between the patient and the physician, which follows the dramatic climax of the patient's suffering, concludes with the physician's exhortation to the patient not to mistrust doctors again. Consequently, we can see that the physician, in this case John, persists in providing a treatment to the patient (who also happens to be his acquaintance) by employing the interpretative power of the colour of the urine.

In two further cases, the patient's response to the suggested therapy is negative. In the first case, John visits a patient who happens to suffer from a serious urinary disease.⁴⁰ He seems to prepare a lozenge, which is characterised as "bitter". In the unedited fifth book of his *Medical Epitome*, John provides a recipe for the "bitter" lozenge, which seems to derive its name from the bitter almonds, which constituted its basic ingredient, and gave it its bitter taste.⁴¹ Furthermore, it seems that under certain circumstances the lozenge was mixed with ὀξύμελι, a mixture of vinegar and honey, which only made it taste even bitterer, as it can be seen in the following case:

Taking this drug in my hands, I think it was the bitter lozenge, I mixed it with as much *oxymeli* as I considered enough, and added warm water to it, in order to make it more liquid and easy to swallow, and then I gave it to the patient to drink. He took the cup and pressed his lips firmly against it, when he felt that the drug was disgusting, for it was very bitter indeed; but since he was a man, in all other respects proud and profound, and with regard to the provision of drugs disobedient and not tractable and wanted to tease us he tested how easy it was to vomit it [...].⁴²

Swallowing a pill is a hard task for many adults even in modern societies. We can clearly see here that John attempts to provide his patient with an easier to swallow version of the lozenge, thus giving us an insight into his active involvement with his patient's case and his eagerness to persuade him. In the case of the patient who followed the inappropriate diet, I showed how the display of a particular colour in urine could aid a physician's attempt to prognosticate a disease and induce a patient to follow a particular therapy. Similarly, the active involvement of the physician in the preparation of a medicament could enhance the level of trust the patient showed towards the

⁴⁰ John, *On Urines* 2.19 (Ideler 2, 50, 26-52, 1).

⁴¹ Cf. Laurentianus gr. 75.11 (AD 1412/13), fol., 220v, ll., 7-16 (autopsy, February 2012): Τροχίσκος ὁ πικρὸς πρὸς στομαχικοὺς· ἥπατικούς· σπληνικούς· ἰκτερικούς· σελινόσπερμα· ἄσαρ· ἀψίνθιον· ἄνισον· ἀμύγδαλα πικρὰ [...] κοιλιακοὺς δυσεντερικοὺς μετὰ οἴνου αὐστηροῦ· αἰμοποϊκοὺς μετὰ ὀξυκράτου [...]. For a physical description and a list of contents of the manuscript, see Bandini, A. (1764-70). *Catalogus codicum manuscriptorum Bibliothecae Mediceae Laurentianae, varia continens opera Graecorum partum*, 2, 158-59.

⁴² John, *On Urines* 2.19 (Ideler 2, 50, 30-51, 8).

physician. However, by shifting his narration from the first-person to the third-person singular, John ultimately lays emphasis on the patient's reluctance to take the medicine and demonstrates that there was no point in further urging him towards that direction.

Another similar case history involves treating two patients at the same time.⁴³ Two women were suffering from terrible pain for different reasons. John proceeds to examine their urine and observes a small quantity of bran-like sediment in the urine of one patient, whereas most of the fluid is a reddish-yellow. The other patient has less dense sediment and most of the fluid is white. The narration skips the diagnosis part and proceeds directly to the therapy:

For the first female patient [...] we recommended a diet and she was saved from the disease. The other one was not persuaded to drink the drug we gave her in order to treat the disease.⁴⁴ [...] as she did not happen to know the name of the drug, she would not drink it. The woman was in all other respects like a peasant [ἀγροικῶς ἐσταλμένη]. I abandoned her and left and I do not know what happened to her [...].⁴⁵

The first woman follows the recommended diet and recovers, while the second refuses to take a certain drug. Although John does not name or specify the medicine, he reports her refusal to take it emphatically, a fact he puts down to her ignorance. There is no attempt to reason with her in order to convince her to follow the recommended treatment. He simply explains that the woman was from the countryside, thus probably reflecting sociocultural stereotypes of the period, which connected erudition with the urban elite. If we compare the case of the female patient with the aforementioned cases of the male patients, we can see that John does not show the same degree of patience here. Furthermore, it seems that patients without experience of medical assistance, patients who were deemed as ignorant or uneducated as a result of their socio-economic background, were reluctant to seek or follow medical advice, which seemed strange or simply unfamiliar.

In the final section of this part I examine a case of patient-physician interaction in which in addition to John other physicians are also present. These episodes serve as illustrative examples of the complex relationship John develops with his patients. There are three cases of this kind, which make up to roughly a quarter of the total number of case histories.⁴⁶ The patient is usually a wealthy woman asking for medical advice at home. John appears to challenge and argue with his colleagues by focusing on various approaches regarding the patient's diagnosis and therapy.

In the most notable example,⁴⁷ the woman appears to have drunk a purgative, which

⁴³ John, *On Urines* 3.10 (Ideler 2, 62, 29-63, 13).

⁴⁴ The original reads: ἡ δ' ἑτέρα φάρμακον μέντοι ὕφ' ἡμῶν πεπωκέναι πέπειστο λυσιτελήσον τῷ πάθει. However, the addition of οὐ ("not") before πέπειστο is necessitated by the context. The previous sentence refers to a female patient who followed the suggested treatment, whereas the next sentence comes as a contrast to this if one considers the presence of μέντοι and its close association to δέ (which contradicts the previous μέν). The second sentence therefore requires a negation.

⁴⁵ John, *On Urines* 3.10 (Ideler 2, 63, 3-13).

⁴⁶ John, *On Urines* 6.12 (Ideler 2, 162, 18-163, 27); 6.13 (Ideler 2, 165, 9-166, 16); and 7.13 (Ideler 2, 181, 11-183, 12).

⁴⁷ John, *On Urines* 6.13 (Ideler 2, 165, 9-166, 16).

had been prepared by a Syrian physician, which presumably indicates a foreign doctor who happened to practise at Constantinople.⁴⁸ However, the drug offers only a temporary purgation and, because of its strong action, causes severe abdominal pain. The physician tries to alleviate the pain and ultimately the woman believes that she has fully recovered. So far John is not involved in the patient's treatment and appears to be a passive observer making comments on another physician's advice as well as on the patient's response. However, immediately after he actively engages with the patient, he describes her urine and stresses the patient's reactions:

Her urine was warm and thick and became thinner [...] and it would have been better to proceed to a purgation using a clyster, but I could not persuade her because she was scared [...] after a short while, when her condition became worse she called one of the most notable physicians and he arrived and pronounced the disease of the patient was *hypochondrismos*⁴⁹ [...] and I persuaded her to accept the purgative [...] and she drank the drug, which purged her mildly, and was freed from the terrible pains.⁵⁰

The patient does not seem to trust John's advice as a result of her fear. John must be in the early stages of his career and does not manage to gain the patient's trust.⁵¹ Various other symptoms develop and the patient's condition gradually deteriorates. The patient decides to call one of the most notable doctors. The woman while relying on the second physician's diagnosis agrees to drink John's purgative, which, as it seems, did not conflict with the other physician's advice, and, thus, is finally freed from the pain. John succinctly reports that the woman had finally been persuaded to follow his expert medical advice.

It is clear that patients who could afford to consult more than one doctor did not hesitate to do so. The female patient above, for instance, compared the two doctors' views before she made her decision, and complied with John's recommendation only after consulting another, more experienced physician. In this case, although we do not have John performing a healing 'gesture' himself, the presence of the 'most notable physician' functions as an evident symbol of professionalism and trustworthiness for the patient, and, thus, as a central element of the persuasion process.⁵²

⁴⁸ The term used by John is "Σύρος". This might be the young Syrian physician, who was introduced to the Emperor Andronikos II around 1299-1300 by the scholar Maximos Planoudes; see, Maximos Planoudes, *Epistle* 12 (Leone, 27, 18-20).

⁴⁹ A disease related to the ὑποχόνδρια(ον), i.e. the soft parts of the body below the cartilage and above the navel. See Leven, K.-H. 'Hypochonder' in Leven, K.-H. (2005). *Antike Medizin: ein Lexikon*, 448.

⁵⁰ John, *On Urines* 6.13 (Ideler 2, 165, 21-166, 16).

⁵¹ John's youth is also confirmed when he discusses a gynaecological problem related to the uterus and the menstrual cycle in an extract from the last of these three case histories. He appears eager to state his lack of specialist knowledge on the topic. John, *On Urines* 7.13 (Ideler 2, 182, 19-21): ἐπεὶ δὲ περὶ γυναικείων παθῶν μετὰ οὐ πολὺ βίβλους ἀναγνοὺς ἐπαιδευόμεν ὅσον κακὸν ἐπέχεσθαι τὰ ἐπιμήνια πέφυκε [...].

⁵² On the centrality of trust in the attending physician and the efficacy of belief in the effectiveness of the recommended course of action for the success of the therapeutic process, see van Schaik (Chapter Nineteen) in this volume.

3. CONCLUSIONS

John is certainly a very skilful raconteur, who is interested in drawing out certain details in the portrayal of his patients. His narration reconstructs an image of reality, which is informed by John's medical knowledge, his perceptions, and his social relationships. Persuasion is the salient feature in the contact between patient and physician. It stresses the importance of the physician's advice and signals the cases where the expert's recommendation is not accompanied by verbal debate or dispute on behalf of his patients. More importantly, we can identify recurrent elements of symbolic significance, such as the visual encounter of the urine vial and the lively experience of a drug preparation, which help the patients to decipher the physician's actions and show the physician's awareness of the need for individualised patient care. This process of individualisation is articulated through a common 'language' of communication that may be adjusted according to the patient's needs and special characteristics, such as, for instance, the degree of John's familiarity with the individual patient, the patient's social-economic origins, their experience, and professional expertise. John makes a strong case for how an efficient and resourceful healer should 'read' not only the patient's body but also the patient's response.

TEXTS USED

- Alexander of Tralles. Therapeutics.* Ed. T. Puschmann, *Alexander von Tralles: Original-Text und Übersetzung nebst einer einleitenden Abhandlung: ein Beitrag zur Geschichte der Medicin.* Vienna: Wilhelm Braumüller, 1878-79, Vol. 1, 441-Vol. 2, 585.
- Galen. On Anatomical Procedures (De anat. admin.).* Ed. C. G. Kühn, *Opera Omnia.* Leipzig: Car. Cnoblochii, 1821, Vol. 2, 205-731.
- . *On Anatomical Procedures (De anat. admin.).* Ed. I. Garofalo, *Anatomicarum administrationum libri qui supersunt novem, Earundem interpretatio arabica Hunaino Isaaci filio ascripta; tomus alter libros 5-9 continens.* Naples: Instituto Universitario Orientale, 2000.
- . *On Affected Parts (De loc. aff.).* Ed. C. G. Kühn, *Opera Omnia.* Leipzig: Car. Cnoblochii, 1824, Vol. 8, 1-452.
- George Lakapenos and Andronikos Zarides. Epistles.* Ed. S. Lindstam, *Epistulae XXIII cum epimerismis Lacapeni.* Gothenburg: Typis descripsit Elanders Boktryckeri Aktiebolag, 1924.
- Herodotus. The Histories.* Ed. Ph.-E. Legrand, *Histoires.* 9 Vols. Paris: Les Belles Lettres, 1930-60.
- John Zacharias Aktouarios. On the activities and illnesses of the psychic pneuma and the corresponding mode of diet (De actionibus & affectibus spiritus animalis).* Ed. J. Ideler, *Physici et medici graeci minores.* Berlin: G. Reimer, 1841-42, Vol. 1, 312-86.
- . *Medical Epitome (De Methodo Medendi),* Books 1-2. Ed. J. Ideler, *Physici et medici graeci minores.* Berlin: G. Reimer, 1841-42, Vol. 2, 353-463.
- . *Medical Epitome (De Methodo Medendi),* Books 1-6. Tr. in Latin C. H. Mathys, *Actuarii Ioannis filii Zachariae Opera.* Paris: Bernardus Turrisanus, 1556, Vol. 2, 1-563.

- . *On Urines (De Urinis)*. Ed. J. Ideler, *Physici et medici graeci minores*. Berlin: G. Reimer, 1841-42, Vol. 2, 3-192.
- Maximos Planoudes. Epistles*. Ed. P. Leone, *Epistulae*. Amsterdam: M. Hakkert, 1991.

REFERENCES

- Bandini, A. *Catalogus codicum manuscriptorum Bibliothecae Mediceae Laurentianae, varia continens opera Graecorum patrum*. 3 Vols. Florence: Typis Regiis, 1764-70.
- Bouras-Vallianatos, P. 'Clinical Experience in Late Antiquity: Alexander of Tralles and the Therapy of Epilepsy.' *Medical History* 58, (2014): 337-53.
- . *Medical Theory and Practice in Late Byzantium: The Case of John Zacharias Aktouarios (ca. 1275 – ca. 1330)*. PhD diss., King's College London, 2015
- . 'Contextualizing the Art of Healing by Byzantine Physicians.' In *'Life is Short Art Long': The Art of Healing in Byzantium*, ed. B. Pitarakis, 104-22. Istanbul: Pera Museum, 2015.
- . 'Ioannes Zacharias Aktuarios.' in *Lexikon der byzantinischen Autoren*, ed. M. Grünbart and A. Riehle. Vienna: Akademie Verlag, forthcoming.
- Congourdeau, M.-H. 'La médecine à Nicée et sous les Paléologues: état de la question.' in *Philosophie et sciences à Byzance de 1204 à 1453. Les textes, les doctrines et leur transmission*, ed. M. Cacouros and M.-H. Congourdeau, 185-88. Leuven: Peeters, 2006.
- Deichgräber, K. *Die griechische Empirikerschule: Sammlung der Fragmente und Darstellung der Lehre*. Berlin: Weidemannsche Verlagsbuchhandlung, 1965.
- Diamandopoulos, A. 'Uroscopy in Byzantium.' *American Journal of Nephrology* 17, (1997): 222-27.
- Diels, H. *Die Handschriften der antiken Ärzte*. 2 Vols. Berlin: Verlag der Königlichen Akademie der Wissenschaften, 1905-06.
- Dimitriadis, K. *Byzantinische Uroskopie*. PhD diss., Rheinische Friedrich-Wilhelms-Universität Bonn, 1971.
- Gaide, F. and F. Biville (eds.) *Manus medica. Actions et gestes de l'officiant dans les textes médicaux latins. Questions de thérapeutique et de lexicologie*. Paris: Publications de l'Université de Provence, 2003.
- Gaul, N. *Thomas Magistros und die spätbyzantinische Sophistik: Studien zum Humanismus urbaner Eliten der frühen Palaiologenzeit*. Wiesbaden: Harrassowitz, 2011.
- Georgiou, S. *Edition critique, traduction et commentaire critique du livre I 'De Urinis' de Jean Zacharias Actouarios*. PhD diss, École Pratique Des Hautes Études-Paris, 2013.
- Guardasole, A. 'Empiriker.' in *Antike Medizin: ein Lexikon*, ed. K.-H. Leven, 254-55. Munich: Beck, 2005.
- Hohlweg, A. 'Johannes Aktuarios. Leben, Bildung und Ausbildung. De Methodo Medendi.' *Byzantinische Zeitschrift* 76, (1983): 302-21.
- . 'John Actuarius' De Methodo Medendi – On the New Edition.' *Dumbarton Oaks Papers* 38, (1984): 121-33.
- . 'Seelenlehre und Psychiatrie bei dem Aktuarios Johannes Zacharias.' in *Hippokratische Medizin und antike Philosophie*, ed. P. Pellegrin and R. Wittern, 513-

30. Hildesheim: Olms-Weidmann, 1996.
- Kourousis, S. 'Ο Ἀκτουάριος Ἰωάννης Ζαχαρίας παραλήπτης τῆς ἐπιστολῆς ἰ' τοῦ Γεωργίου Λακαπηνοῦ.' *Ἀθηνᾶ* 78 (1980-82): 237-76 (repr. in Kourousis, S. *Μελέτη Φιλολογική*. Athens: Papadakēs, 1984-88, 101-40).
- Kudlien, F. 'Empirie und Theorie in der Harnlehre des Johannes Aktuarios.' *Clio Medica* 8, (1973): 19-30.
- Langholf, V. *Medical Theories in Hippocrates: Early Texts and the 'Epidemics'*. Berlin: De Gruyter, 1990.
- Leven, K.-H. 'Hypochonder.' in *Antike Medizin: ein Lexikon*, ed. K.-H. Leven, 448. Munich: Beck, 2005.
- Lloyd, G. E. R. 'Galen's un-Hippocratic case-histories.' in *Galen and the World of Knowledge*, ed. C. Gill, T. Whitmarsh and J. Wilkins, 115-31. Cambridge: Cambridge University Press, 2009.
- Marciniak, P. 'Byzantine Theatron – A Place of Performance.' in *Theatron. Rhetorische Kultur in Spätantike und Mittelalter*, ed. M. Grünbart, 277-85. Berlin: De Gruyter, 2007.
- Mattern, S. *Galen and the Rhetoric of Healing*. Baltimore: John Hopkins University Press, 2008.
- McVaugh, M. R. 'Bedside Manners in the Middle Ages.' *Bulletin of the History of Medicine* 71, (1997): 201-23.
- Mergiali, S. *L'enseignement et les lettrés pendant l'époque des Paléologues (1261-1453)*. Athens: Hetaireia tōn Philōn tou Laou, 1996.
- Moulinier-Brogi, L. *L' uroscopie au Moyen Âge: Lire dans un verre la nature de l'homme*. Paris: Honoré Champion, 2012.
- Omont, H. *Inventaire sommaire des manuscrits grecs de la Bibliothèque Nationale*. 3 Vols. Paris: A. Picard, 1886-98.
- Schmalzbauer, G. 'Johannes Zacharias Aktuarios.' in *Antike Medizin: ein Lexikon*, ed. K.-H. Leven, 470-71. Munich: Beck, 2005.
- Ševčenko, I. 'Society and Intellectual Life in the Fourteenth Century.' in *Actes du Actes du XIVe Congrès International des Études Byzantine*, ed. M. Berza and E. Stănescu, Vol. 1, 69-92. Bucharest: Editura Academiei Republicii Socialiste România, 1974. (repr. Ševčenko, I. *In Society and intellectual life in late Byzantium*. London: Variorum Reprints, 1981).
- Siegel, R. *Galen on the affected parts: translation from the Greek text with explanatory notes*. Basel: S. Krager, 1976.
- Staden, H. von 'Experiment and experience in Hellenistic medicine.' *Bulletin of the Institute of Classical Studies* 22, (1975): 178-99.
- Stathakopoulos, D. 'The location of medical practice in 13th-century Eastern Mediterranean.' in *Liquid & Multiple: Individuals & Identities in the thirteenth-century Aegean*, ed. G. Saint-Guillain and D. Stathakopoulos, 135-54. Paris: Association des amis du Centre d'histoire et civilisation de Byzance, 2012.
- Temkin, O. 'Byzantine Medicine: Tradition and Empiricism.' *Dumbarton Oaks Papers* 16, (1962): 97-115.
- Touwaide, A. 'On Uroscopy in Byzantium.' in *Ιστορία της Ελληνικής Νεφρολογίας*, ed.

- A. Diamandopoulos, 218-20. Athens: Papazēsēs, 2000.
- Wallis, F. 'Signs and Senses: Diagnosis and Prognosis in Early Medieval Pulse and Urine Texts.' *Social History of Medicine* 13, (2000): 265-78.