

John Zacharias *Aktouarios* (c. 1275-1330) and His Treatise *On Psychic Pneuma*: Critical Edition of the Greek Text with German Translation and Medical-Historical Commentary Progress and Current Results of the Research Project

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This edition project is part of the programme »Edition of Greek and Latin Texts of Late Antiquity and the Middle Ages« at the Bavarian Academy of Sciences and Humanities. The progress of the project so far has resulted in the definite identification of previously unknown textual witnesses. It has revealed a completely new dimension of textual understanding by considering the way the various paratexts accompanying the main text evolved; it has developed new methods of editing the text; and it has discovered significant points regarding the transmission and reception of the text, including the texts that were transmitted together with it (*Überlieferungsgemeinschaften*, that is, in multi-text manuscripts). It has also uncovered the positioning of divergent redactorial levels, which is significant in terms of its cross-cultural reception history.

Keywords: Byzantine medicine, John Zacharias Aktouarios (c. 1275-1330), manuscript tradition, critical edition, medical paratexts, »burnout therapy«

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A Byzantine »Burnout Therapy«?

Nowadays, many people suffer from illnesses characterised as »burnout«, »depressive disorders«, or »emotional exhaustion«. The causes of such illnesses are commonly considered to be the result of a general physical and psychological overload in professional and private life, but they can also be a direct reaction to social phenomena and are usually completely independent of the socio-cultural context and age of those affected.¹ Is the state of being physically and emotionally burnt out exclusively a contemporary phenomenon, or do historical sources report on comparable phenomena and the associated challenges for therapists and patients?

John Zacharias (c. 1275-1330), a high-ranking Byzantine physician and *actuarius* (Greek *aktouarios*)² describes and analyses physical and mental impairments in his two-part treatise *On Psychic Pneuma*.³ These impairments are quite comparable to today's »burnout symptoms«. According to John Zacharias, the psychic pneuma can be understood as a psychic-emotional bodily fluid having its origin in the brain and promoting health and well-being when it flows through the body unhindered. When blockages inhibit its flow, however, depression, sleep disorders, loss of appetite and power, physical and mental exhaustion, and general incapacitation arises – in other words, the classic burnout symptoms.⁴ The treatise by John Zacharias contains specific advice on how such blockages can be avoided, balanced, or completely eliminated through a holistic life-concept being adapted to the individual patient's physical constitution, by means of a balanced diet, sufficient exercise in the fresh air, aroma bathing therapy, and judiciously coordinated phases of activity and rest.

Byzantine Medicine Between Tradition and Innovation – and Its Current Relevance

Medical literature and active healthcare were of great importance in everyday Byzantine life; nevertheless, the manifold structures of medical thought in the Byzantine Middle Ages are, for the most part, still quite inadequately researched. My own study has paralleled that of Petros Bouras-Vallianatos in focusing on the particular turn Byzantine medicine took in relation to ancient and classical medicine. In contrast to these eras (or, at least, their representation in scholarly research), the uniqueness of Byzantine medical history lies in its dynamic tension between tradition and innovation.⁵ This is what accounts for its extensive and many-branched international and cross-cultural reception.⁶

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- 1 See Schaufeli and Buunk, Burnout; L. Heinemann and T. Heinemann, Burnout research; Burisch, *Burnout-Syndrom*.
 - 2 A title signifying a high rank, widely attested in hospital hierarchies and equivalent to a department head in a modern hospital.
 - 3 See Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 25-28 (regarding the title and office of *aktouarios*), 31-32 (for a brief overview of the treatise *On Psychic Pneuma*), and 177-204 (for a thorough analysis of the treatise). *Editio princeps*: Goupyl (1557); further editions: Fischer (1774) and Ideler (1841).
 - 4 Grimm-Stadelmann, Burnout auf Byzantinisch, 52-55; Grimm-Stadelmann, Burnout-Therapie aus byzantinischer Zeit.
 - 5 Bouras-Vallianatos, Galen in Byzantine medical literature, 86-110; Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 2-9; Grimm-Stadelmann, *Untersuchungen zur Iatromagie*, 196-200.
 - 6 Bouras-Vallianatos, Cross-cultural transfer of medical knowledge, 963-1008.

Mental diseases, that is, emotionally induced and psychological illnesses in the broadest sense, were explained in both ancient and Byzantine medical science exclusively in terms of physical causes, or, more precisely, in terms of disturbances of the body's internal balance of humours, as a result of which the brain is affected and damaged.⁷ The five-part treatise *On the Structure of the Human Body* (Περὶ τῆς τοῦ ἀνθρώπου κατασκευῆς)⁸ attributed to a certain Theophilus and dating to the Middle Byzantine period (9th or 10th century) very clearly shows in its fourth book that during Byzantine times manifold forms of mental, neurological, or psychological diseases had been observed and diagnosed:

Dementia, melancholy, madness, epilepsy, vertigo, phrenitis, catalepsy, lethargy, delirium, amnesia, apoplexy and paralysis: all these diseases occur when the brain suffers because its body or the surrounding cerebral membranes are either heated or cooled down, dried out or excessively moist, or when the nerves growing out of it are attacked due to other causes.⁹

John's definition of the psychic pneuma as a »psychic-emotional fluid«, whose harmonious flow can be blocked by humoral disturbances (*dyskrasiai*), mostly caused by digestive problems, is also based on this humoral-pathological model.

John Zacharias Aktouarios

John Zacharias is a historical person whose biography, education, career, and life circumstances are described in detail in a rich contemporary correspondence.¹⁰ He belonged to an illustrious circle of well-known and highly esteemed scholars around Emperor Andronikos II Palaiologos (r. 1282-1328) and was a respected authority not only in the medical field but also of natural philosophy.¹¹ He advocated a holistic view of medicine in which philosophy played an essential role for understanding the nature and causes of diseases. In his view, practical knowledge and experience were not sufficient for being able to practise medicine in a responsible and conscientious way: with this attitude, he follows the tradition of Galen's iatrosophism, stating that the ideal physician has to simultaneously be a philosopher.¹² John's lifelong spiritual mentor, the monk and philosopher Joseph Rhakendytes (c. 1260-1330), also belonged to the same circle of scholars.¹³ Probably somewhat after 1326, both retired together from Constantinople to a monastery and, according to some indications, also died in the same year, 1330.¹⁴

7 For these ancient explanations, see Thumiger, *History of the Mind*, 17-65 and 335-418.

8 Theophilus Protospatharios, *Aufbau des Menschen*, ed. Grimm-Stadelmann.

9 Theophilus Protospatharios, *Aufbau des Menschen*, IV, 31, ed. Grimm-Stadelmann, 182 (own translation).

10 Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 19-25.

11 Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 11-14.

12 Galen, *Quod opt. med.*, ed. Boudon-Millot, 235-314.

13 Gielen, Joseph the Philosopher, 205-215; Gielen, Ad maiorem Dei gloriam, 260-276; Gielen, The *Synopsis* of Joseph Racendytes, 107-111; Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 180-181.

14 Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 29 and n. 183.

Joseph Rhakendytes planned an extensive, but perhaps never finalised, universal scientific collection (*Synopsis*),¹⁵ to which John Zacharias not only made a contribution with his two-part treatise on the psychic pneuma, but at the same time also provided his mentor with a suitable and individual guide to combat his »burnout symptoms«. The treatise can be described as a synthesis and quintessence of John's entire medical oeuvre,¹⁶ which was by no means reserved for a purely professional audience, but was equally accessible to »amateur physicians«, known as *philiatroi*.¹⁷ John's three-part *Medical Epitome* covering the fields of diagnostics, therapeutics, and pharmacology was also dedicated to a famous *philiatros*, the high-ranking and widely influential state official Alexios Apokaukos (c. 1280-1345);¹⁸ and Joseph Rhakendytes, as John emphatically emphasises several times, likewise possessed a high degree of medical knowledge that went far beyond a mere theoretical interest, since Joseph was even capable of expertly performing phlebotomy.¹⁹

The Two-Part Treatise On Psychic Pneuma: A Medieval Wellness Programme

The first part of John Zacharias' treatise *On Psychic Pneuma* concentrates entirely on the theoretical explanation of the psychic pneuma. What is highly innovative is that John expands the traditional pneumatology.²⁰ To the three types of pneumata originating in different organs – the brain, the heart, and the liver – which produce psychic, vital, and vegetative fluids depending on the specific organ's qualities, he adds a fourth and »gastric« pneuma, originating in the stomach.²¹ Against the backdrop of his practical work as a physician, combined with precise observation of his patients, it is this aspect, namely the emphasis on the importance of the stomach as well as the entire digestive system, that is particularly emphasised within the framework of his therapeutical concept. Thus, psychic-emotional problems are not only able to impact the stomach, but also, conversely, digestive problems can gravely affect the psychic-emotional balance. John explains the intensity of the four pneumata's effects on the whole organism in detail and analogously to the humoral-pathological body concept, with their variations depending on the characteristics of the organs in which they originate. A harmonious relationship of all the internal body fluids is the prerequisite for holistic health and well-being; digestive disorders produce bodily fluids of incompatible substance, from which a kind of vapour develops that is responsible for all kinds of blockages inside the body and for the corresponding physical and psychological damages arising from them.

15 Gielen, *Nicephori Blemmydae de virtute*, cxxii; Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 180-181 and n. 6.

16 For a concise overview, individual analyses, and the contextualisation of the whole oeuvre of John Zacharias, see Bouras-Vallianatos, *Innovation in Byzantine Medicine*.

17 Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 106-110.

18 Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 30-31 and 111-112.

19 *On Psychic Pneuma*, I.20,9, ed. Ideler, I, 348,32-349,8; cf. Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 184 and n. 25.

20 Cf. Coughlin *et al.* (eds.), *Concept of Pneuma*, which also includes a chapter on pneumatological theories in the work of John Zacharias (Bouras-Vallianatos, Theories on pneuma).

21 *On Psychic Pneuma*, I.6,11-12, ed. Ideler, I, 323,20-33; cf. Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 193-194.

The psychic-emotional fluid, defined by John Zacharias as psychic pneuma, is particularly susceptible because it reacts extremely sensitively to any negative influences. This is due to its ethereal and subtle substance and is also why it requires special care. The care must firstly concentrate on dietary measures (*regimina*), the subject of the second part of the treatise, which take into account not only the qualities of certain foods, but also their concrete, individual application. Thus, very nutritious types of grains and cereals and the products made from them («wholemeal products») are beneficial for people working physically but not at all advisable for intellectual workers.²² In relation to the symptoms he observed in Joseph Rhakendytes, John Zacharias therefore advises the consumption of light white-flour products, since these can be absorbed most completely by an organism not working physically and one which is also weakened by regular periods of fasting and starvation (as obligatory for Orthodox monastics)²³ without blocking the internal body fluids.²⁴

In the further course of the text, various vegetables and fruits are analysed in detail according to their nutritional and therapeutic value: according to John Zacharias, some of them have no nutritional value at all, but are highly recommended as regulating remedies that purge the body internally.²⁵ In this very context John also differentiates between cultivated and wild growing forms. For example, in the case of radishes, the wild form is extremely valuable therapeutically due to its powerful purging effects but otherwise has no nutritional value.²⁶ In general, John advises against highly flatulent vegetables and fruits or recommends forms of preparation regulating and balancing their flatulating properties: for example, pulses should always be soaked for a long time, drained, and then cooked thoroughly. Asparagus is considered the ideal food with the best qualities, high in nutritional value as well as therapeutically valuable as a diuretic. John therefore recommends consuming it as often as possible in season and even preserving it by pickling in order to have a supply available out of season.²⁷

22 On grains and cereals, see *On Psychic Pneuma*, II.5,1-21, ed. Ideler, I, 358,35-361,25; cf. Kokoszko *et al.*, *Cereals of Antiquity and Early Byzantine Times*. Regarding types of workers, see *On Psychic Pneuma*, II.3,5, ed. Ideler, I, 359,9-15; 18-22. John also draws an interesting parallel in this context between the constitution of intellectuals and that of sick people.

23 Cf. in detail Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 202 and n. 135 (containing all relevant bibliography).

24 *On Psychic Pneuma*, II.5,5, ed. Ideler, I, 359,18-22.

25 *On Psychic Pneuma*, II.6, ed. Ideler, I, 362,25-367,4; cf. Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 200-201 and n. 126-128; for a general overview especially on fruits see Simeonov, *Obst in Byzanz*.

26 *On Psychic Pneuma*, II.6,8, ed. Ideler, I, 363,22-28; cf. Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 201.

27 *On Psychic Pneuma*, II.6,14, ed. Ideler, I, 363,15-25; cf. Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 201 n. 128.

Since the treatise's addressee, Joseph Rhakendytes, is committed to the fasting rules of Orthodox monasticism and therefore abstains completely from eating meat, John apologises several times for including different kinds of meat in the treatise as well, but he emphasises that although the treatise is primarily intended for Joseph, it should also be useful to other people seeking similar advice.²⁸ For the sake of completeness, he does not want to exclude the qualities of various kinds of meat. Here, too, the rule applies that the less the physical work, the lighter the food: for purely intellectual workers, poultry is preferred to other types of meat. In accordance with the Orthodox monastic rules, fish and seafood are allowed at certain times, and John gives clear preference to saltwater fish over the richer and therefore harder-to-digest freshwater fish.²⁹

John's recommendations on dairy products also seem very modern.³⁰ Although lactose intolerance was still completely unexplored and totally unknown in his times, he states purely on the basis of observation and experience that sheep and goat milk is much better tolerated by the organism than cow's milk.³¹ His warning against all oversalted (cured) foods is also quite consistent with today's dietary advice.

It is in this second part of his treatise that John develops a detailed, individually tailored health programme that accords with modern demands in every respect. A central component of this programme is a detailed dietary plan emphasising a balanced distribution of the day's meals; at least two meals a day are required. Furthermore, John Zacharias advises a balanced and individually adapted exercise and gymnastics programme: in the course of his text, he lists different types of physical exercises and sports, but simultaneously emphasises that in some cases just a simple walk might be absolutely sufficient, especially for people not used to any sporting activities at all. Concluding, he also advises bodily hygiene, bathing therapies, and regular intervals of rest and activity.³²

Both parts of his treatise impressively convey that John Zacharias combined the entire diversity of ancient, late antique, and Byzantine medical sources with the philosophical and theological knowledge base of an educated Byzantine. In addition, he draws on rich practical experience as well as manifold inspiration from the cross-cultural professional scientific dialogue common at his time, especially in the environment of Byzantine hospital institutions and as part of a scientific community including Muslim and Jewish representatives of Arabic medical cultures.³³

28 *On Psychic Pneuma*, II.6,28, ed. Ideler, I, 367,1-4; for meat in general, cf. Kokoszko and Rzeźnicka, *Animals as a source of food*.

29 *On Psychic Pneuma*, II.7,4-8, ed. Ideler, I, 367,24-368,7; cf. Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 202.

30 *On Psychic Pneuma*, II.8-10, ed. Ideler, I, 370,13-29; cf. Rzeźnicka and Kokoszko, *Milk and Dairy Products*.

31 *On Psychic Pneuma*, II.10, ed. Ideler, I, 370,25-29.

32 Cf. Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 202-203.

33 Cf. Bennett, *Medicine and Pharmacy*; Bouras-Vallianatos, *Cross-cultural transfer of medical knowledge*, 993-994; cf. also the ongoing research project by Petros Bouras-Vallianatos, »Making and Consuming Drugs in the Italian and Byzantine Worlds, 12th-15th c.« (Wellcome University Award, 2019-2024).

Manuscript Tradition and Recensio

The Greek text of the treatise *On Psychic Pneuma* is preserved in 35 manuscripts kept in around 20 different libraries throughout Europe. Almost all manuscripts date between the 14th and 16th centuries, with the largest number being from the 15th century. Intratextual references, secondary annotations, glosses, and margins reveal that copyists and readers examined the text's contents, professional terminology, grammar, and lexicography intensively. The results obtained from the handwritten witnesses and their respective transmission are, apart from their significance for codicology and reception history, of considerable value for understanding cross-cultural knowledge collaboration in the medieval Mediterranean world.

The methodology of the edition project is aimed at uncovering the text's redaction history more than at establishing an archetypal text. The existence of an autograph cannot be proven, and, in light of this methodology, is not crucial. Conversely, *apographa*, which have only secondary value for stemma and textual constitution, take on particular significance in showing how the text was later redacted. Four manuscripts have proven to be *apographa* with identifiable *Vorlagen*:

1. Munich, Bayerische Staatsbibliothek, Cod. graec. 69, fols. 1-46 (dated 20 April 1551, Diktyon ID: 44513) is an *apographon* of Venice, Biblioteca Nazionale Marciana, gr. Z. 298 (coll. 583), fols. 1-33v (dated 1465, Diktyon ID: 69769).
2. Padova, Biblioteca Civica, CM. 644, fols. 1-40 (15th century, Diktyon ID: 48832) is an *apographon* of Paris, Bibliothèque nationale de France, grec. 2305, fols. 121-158 (dated 1418, Diktyon ID: 51935).
3. Budapest, Hungarian National Library (Országos Széchényi Könyvtár), Kéziratar Fol. Graec. 4, fols. 1-45 (15th century, Diktyon ID: 11727) is an *apographon* of Paris, Bibliothèque nationale de France, grec. 2306, fols. 289-329 (15th century, Diktyon ID: 51936).
4. Glasgow, University Library, Special Collections Department, MS Hunter 271 (U.5.11), fols. 1:1-13:1 (15th century, Diktyon ID: 17310) is an *apographon* of Paris, Bibliothèque nationale de France, grec. 2098, fols. 119-158 (before 1326, Diktyon ID: 51727).

The stemma consists of two subordinate textual redactions, of which the second, younger redaction in particular shows the way mostly 15th-century scholars examined the text intensively. For these two recensions, it is possible to distinguish between two significantly diverging transmission histories and intended uses:

1) The first is an *epistolary* redaction in which the entire text takes the form of a didactical letter, intended for incorporation into Joseph Rhakendytes' scientific collection (*Synopsis*). This redaction is the older one and comprises a total of five manuscripts with a focus in the 14th century.³⁴ These manuscripts show hardly any variation in their readings, and the contents they share as multi-text manuscripts (*Überlieferungsgemeinschaften*) also largely coincide: the individual texts destined for the *Synopsis*.

In this redaction the text is left almost unchanged as a literary document and shows virtually no traces of any significant engagement with it. Paris, Bibliothèque nationale de France, grec. 3031 (Diktyon ID: 52676), which was hitherto unknown in connection with John Zacharias' treatise *On Psychic Pneuma*, has been successfully identified as a completely new textual witness containing the entire two-part treatise in close connection with the *Synopsis* of Joseph Rhakendytes. The previous assumption that the Florentine manuscript Riccardianus 31 (K II 4) contains only the first part of the treatise (fols. 275-290), followed by alleged letters of John Zacharias (fols. 290-305) has been indisputably refuted, since the alleged letters can be identified without question as the entire second part of John's treatise *On Psychic Pneuma*.

2) Independently from the epistolary redaction there exists another redaction, destined for practical use, for which the preponderance of manuscript witnesses come from the 15th century. This redaction is characterised by an explicitly practical orientation and shows that the text's content and terminology was examined intensively. The manuscripts constituting this redaction contain numerous annotations and marginal comments and certainly should be assigned to a professional clinical-therapeutical environment. This form of transmission is emblematic of Byzantine scientific literature, and it documents various stages of working on the text in approximately three sub-levels, focusing and evaluating its contents but also refining its professional terminology and rendering it more precisely. Some passages of the text are questioned, continuously evaluated, and intensively discussed. Its terminology is constantly updated, and individual therapeutical concepts and recommendations are supplemented, revised, and rewritten on the basis of the users' practical experiences, knowledge gained, cross-cultural collaboration, and innovative discoveries. As a special feature of Byzantine medical literature, this phenomenon requires special methodological attention and is significant for the history of science as it conveys a vivid picture of practitioners' detailed intellectual engagement with the relevant texts. It is precisely the emphasis on divergent reception histories that provides us with interesting insights into physicians' contemporary scientific exchanges as well as into their cross-cultural scholarly collaboration and networking structures as they discussed and applied new therapies.

34 Firenze, Biblioteca Riccardiana, Riccard. 31 (K II 4), fols. 275-305 (14th century, Diktyon ID: 17031); Paris, Bibliothèque nationale de France, grec. 3011, fols. 62-95 (14th century, Diktyon ID: 52676); Vatican, Biblioteca Apostolica Vaticana, Vat. gr. 111, fols. 298v-332v (14th century, Diktyon ID: 66742); Venice, Biblioteca Nazionale Marciana, gr. Z. 529 (coll. 847), fols. 405-422 (15th century, Diktyon ID: 70000); and Vatican, Biblioteca Apostolica Vaticana, Vat. gr. 429, fols. 315-341v (16th century, Diktyon ID: 67060), which, however, only preserves the second part of the treatise.

Of particular relevance regarding the evolution of the text is the determination of the significance of the texts that were transmitted together in the manuscripts (*Überlieferungsgemeinschaften*), that is, the manuscript context in which *On Psychic Pneuma* was transmitted. These textual groupings have much to say about the text's reception, such that the context of the commentaries in the text (its »marginalia«, interlinear commentaries, and disciplinary annotations) as well as the arrangement and internal structure of each manuscript's textual groupings provide crucial indications of its users and reception history and the text's place within cross-cultural scholarly networks. By contextualising intratextual annotations and commentaries, we can gain various insights into cross-cultural collaborations located at Byzantine hospital institutions, known as *xenones*.³⁵ One example is a collection of recipes and therapeutical concepts attributed to a Jewish doctor named Benjamin,³⁶ which were tested and evaluated during hospital operations. The fact that both translations and redactions of Arabic medical works can be attributed to John Zacharias means that he himself played a significant role within these cross-cultural scholarly collaborations and networking structures.³⁷

The Paratexts

Evidence of the continuous professional examination and evaluation of Byzantine medical literature is to be spotted as paratextual structures³⁸ accompanying and commenting on or supplementing the main text, mainly written on the margins of the manuscripts, but sometimes also inserted between the lines of the main text. The focus of these changes according to the user, who might, for example, add terminological, philological, and linguistic specifications, or discuss and specify the main text's practical and therapeutical statements, or even occasionally include diagrams³⁹ and drawings. The intensive dialogue between text and paratexts has not yet been studied at all in the context of Byzantine medical literature,⁴⁰ let alone recorded methodically within critical editions. For this reason, an adequate editing method is now being developed for the critical edition of the treatise *On Psychic Pneuma*, in order to do justice to the paratexts' cultural-historical significance as evidence of a vivid dialogue with the main text. In the specific case of the treatise *On Psychic Pneuma*, a total of nine different groups of paratexts have already been identified and transcribed, and these contain fascinating and sometimes detailed discussions of certain passages, with the relevant manuscripts occasionally even displaying divergent readings. Of particular importance are clinical case studies based on observations of individual patients, which provide direct insights into everyday medical practice.

35 Cf. Bennett, *Medicine and Pharmacy*; Horden, *Medieval hospital formularies*, 145-164.

36 Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 145 n. 23; Grimm-Stadelmann, »... und mischt daren das Aug des Wiedehopfs ...«, 129-131.

37 Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 34-37.

38 For the concept of paratexts, see Genette, *Paratexts*; Cooper, *What is medieval paratext?*, 37-50; Fioretti, *Sul paratesto nel libro manoscritto*, 179-199.

39 Bouras-Vallianatos, *Diagrams in Greek medical manuscripts*, 287-329.

40 The results of the recent symposium »The Medical Paratext« (funded by the Wellcome Trust) and organised by Petros Bouras-Vallianatos and Sophia Xenophontos, which took place on 7-8 September 2022 at the University of Glasgow, will be published in 2023 and will open up some closer and more detailed investigation of this topic.

Our German translation of the treatise *On Psychic Pneuma* takes into account not only all the essential results of the composition of the text, but also the paratexts accompanying the text as well as the Latin translation by Julius Alexandrinus de Neustain (1547-1567, in several versions) and a recently published modern Greek translation.⁴¹ In addition to the interdisciplinary use of the text, the translation also serves to expand and explain the treatise's multi-layered structure and special technique of compilation.

Sources and Structure

The first part of the treatise imposes different sources on top of each other in several layers, to some extent in an extremely elliptical-paraphrastic manner. Aristotle's treatise *De Anima* (*On the Soul*) is one of these foundations, but also the various late antique and Byzantine commentaries on Aristotle's works, especially that of John Philoponos. There is a particular focus on the nearly contemporary commentary on Aristotle by Nikephoros Blemmydes (1197-1272).⁴² Another essential source, at least for the first part of the treatise, is the Theophilos redaction of Middle Byzantine Christian anthropology.⁴³ The second part of the treatise, with its practical and therapeutical focus, is based on a selection of dietetic sources, in particular on the relevant writings of Galen and Paul of Aegina, intertwined with excerpts from Theophanes Chrysobalantes and the *Dynameron* of Nikolaos Myrepsos as well as from John Zacharias' three-part *Medical Epitome*.⁴⁴ The technique of compilation used by John Zacharias represents a methodological peculiarity in the context of Byzantine medical epitomising, since, with a few exceptions, the sources are hardly quoted literally but rather hinted at in the form of extensive paraphrases, as a kind of »sources d'inspiration«.⁴⁵

Conclusion and Prospects

John's treatise *On Psychic Pneuma* with its manuscript tradition not only displays special features within Byzantine medical literature, but also proves to be a crucial source for evaluating and discussing cross-cultural scholarly collaboration and scientific networks within medieval medical cultures. John Zacharias reveals by his comprehensive scientific and linguistic knowledge as well as by his reception of Aristotle's works significant crossing

41 Kakavelake, *Iōannou Zacharia Aktouariou Peri energeiōn kai pathōn tou psychikou pneumatos*.

42 Valente, *Nikephoros Blemmydes, Epitome physica*.

43 Theophilos Protospatharios, *Aufbau des Menschen*, ed. Grimm-Stadelmann; Grimm-Stadelmann, *Mittelbyzantinische christliche Anthropologie* (forthcoming).

44 See Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 200 and n. 126 (on Paul of Aegina); Theophanes Chrysobalantes, *Theophanis Nonni Epitome de curatione morborum*, ed. Bernard (for an analysis of the manuscript tradition, see Sonderkamp, *Untersuchungen zur Überlieferung*; Zipser, *Revisions of Theophanes Chrysobalantes*); the first critical edition of Nikolaos Myrepsos' Greek text, Valiakos, *Das Dynameron*; Bouras-Vallianatos, *Innovation in Byzantine Medicine*, 105-176 and 184 (on John Zacharias' *Medical Epitome*).

45 A term from Lazaris, *Le Physiologus grec*, 45

points between Byzantine and Arabic medical cultures and traditions. Moreover, several points of John Zacharias' work contribute significantly to medieval medical history: his redefinition and rewriting of traditional pneumatologies; his emphasis on anthropological aspects;⁴⁶ and his activity in a cross-cultural hospital system, where professional networking was based on mutual collaboration and scientific exchange as well as on continuous evaluations of therapeutic methods and on concepts born from empirical expertise.⁴⁷

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46 Cf. Wakelnig, *Medical knowledge*, 219-249.

47 As explored in the »Séminaire sur la formation du médecin« (equih.sam.hypotheses.org/seminaires/projets-en-cours/formation-du-medecin, accessed on 30 November 2022).

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