Medicalia Online
A Lexical Database of Technical Terms in Medical Papyri

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A Lexical Database of Technical Terms in Medical Papyri*

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ἐπεὶ τοίνυν καὶ ἡμεῖς ἐν τούτῳ νῦν καθεστήκαμεν,
ἀνάγκη μέν που θέσθαι τοῖς πράγμασιν ὀνόματα.
(Gal. De meth. med. 2.1 [X 81,11-12 K.])

1. Introduction

The purpose of this paper is to present the project "Medicalia Online", its issues and goals, its history and interdisciplinary methodology. The project "Medicalia Online" is aimed at creating an electronic lexical database consisting in a series of in-depth studies of selected technical terms attested in the Greek medical papyri.[1] These studies, indeed, scrutinize a selection of *termini technici* found in the Greek (para)literary and documentary papyri dealing with medical topics. Among the *specimina* produced so far, the semantic fields of pathologies, containers for the storage of drugs and remedies, surgical instruments, surgical operations and other medical procedures have been mainly involved. This lexicographical database is connected to the main project "Corpus of the Greek Medical Papyri Online" (CPGM), a textual database providing comprehensive digital editions of the Greek papyri of medical content: it forms a corpus of more than 300 published items, including text, basic critical apparatus, line-by-line commentary, translation in one or more modern languages and metadata (the project is presented and described by Reggiani [2019]).[2] Thus, "Medicalia Online" has been conceived as a supplement to the digitised corpus of the Greek medical papyri. Both of these interrelated projects, "Medicalia" and "CPGM Online", have been supported by a grant of the European Research Council and developed, from 2014 to the end of 2016, at the University of Parma (Italy) by a team led by Prof. Isabella Andorlini ("Online Humanities Scholarship: a digital medical library based on ancient text", project acronym DIGMEDTEXT).[3]

The contribution of the papyri to our knowledge of the Greek language is undoubtedly great. Generally speaking, papyri represent a body of evidence capable of providing concrete linguistic information, as well as fresh insights into the nature of Greek vocabulary.[4]

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[1] On "Medicalia Online" see also Bonati (2018) and (forthcoming a). Cf. Bonati (forthcoming b).
[2] On the digitisation of the CPGM see also Andorlini (forthcoming), Reggiani (2015) 341-352, as well as the dedicated webpage at http://www.papirologia.unipr.it/CPGM/project.html. On the Digital Papyrology see Reggiani (2017) and (2018). For further bibliography on the topic, see the contributions by Francesca Bertonazzi and Nicola Reggiani in this same volume.
[3] See at http://www.papirologia.unipr.it/ERC/index.html. The contributors in the project "Medicalia Online" are Prof. Isabella Andorlini, Prof. Anastasia Maravela, and some members of the Parma Digital Papyrology Team: Isabella Bonati, Francesca Bertonazzi and Nicola Reggiani.
[4] See Evans / Obbink (2010).

Likewise, Greek medical papyri from Egypt, such as recipes, fragments of treatises and catechisms, but also physicians' reports, petitions of private individuals and private correspondence concerning issues of health and diseases, have not only enhanced our knowledge of ancient medical literature and practice, but have offered rich attestation of Greek technical vocabulary and its development over time. Along with the new attestation of technical words already known through the medical corpus transmitted by way of the medieval manuscript transmission, papyri of medical content sometimes reveal elements of the ancient Greek medical terminology unattested or, at least, extremely rare or weakly attested in other (better known and more official) medical sources.

Medical papyri represent a corpus of peculiar texts with a peculiar nature, as papyrus fragments preserve not only works more or less of the same status as the medical literature transmitted in medieval manuscripts, but also texts with a borderline and paraliterary character, that is combining features of papyrus documents with issues proper of their special technical nature. Furthermore, as I have already mentioned, documentary papyri with medical terms bring to light the non-technical but, in a certain sense, still medical vocabulary used in everyday life by lay persons and by practising physicians. In all these cases, the analysis of the terms found in medical papyri on the one hand contributes to enrich and refine our knowledge of ancient medical language, its diachronic trajectory and its registers, on the other hand can promote the contextual and philological interpretation of the texts in which they appear by reaching a more exact definition of both the words expressing the contents and their textual context. This can even result, sometimes, in new readings and corrections. The critical exegesis of ancient medical texts is indeed strictly dependent on a deep understanding of technical terminology. For this reason, an in-depth study of technical vocabulary is an undertaking of unquestionable importance and strongly enhances our philological awareness of medical texts.

2. Inside the Project: methodology and aims

The methodological approach of "Medicalia Online" is profoundly interdisciplinary and 'interdisciplinarity' is one of the keywords of this project. The significance of 'interdisciplinarity' in Papyrology has been stressed several times in recent years. In this regard, it would suffice to remember how often words and expressions like 'broader concept', 'broader view', 'combination' of sources, and, of course, 'interdisciplinarity' occur in The Oxford Handbook of Papyrology edited by Roger Bagnall in 2009. Thus, although the core focus is papyrological, a systematic interdisciplinary approach inspires the lexical *lemmata* in "Medicalia Online". This methodology involves a strong sense of dialogue and cooperation among disciplines, merging and combining components of several subject areas, viz. (beside papyrology) classics and history of textual transmission, linguistics, digital humanities, epigraphy, archaeology and material culture, history of science and of medical practices across the ages. Papyri, literary sources (passages from medical authors and from any other literary genre in which the terms are attested), as well as inscriptions and archaeological artifacts are comparatively and critically examined, in order to provide the broadest and the most complete overview of each *lemma*. Therefore, bridging papyrology and archaeology, in dialogue with the other subject areas in ancient studies, promotes an integrated approach which enables us to throw new light on the complex and multicultural setting of the Graeco-Roman medicine in Egypt, presenting –to quote Nutton (2004) 16– «an inclusive model for understanding the medical word of Antiquity».

Such a vertical approach, which is the strong point of originality of this work topic, contributes to improve our understanding of textual as well as of concrete aspects of the

Ancient World, with its *verba* and its *realia*, making the past more accessible to the present generation of scholars. As a consequence, thanks to this strong interdisciplinary focus, aimed at creating a tight dialogue among different disciplines and kind of sources, "Medicalia Online" can be a reference tool potentially useful to all scholars in the research on Antiquity and ancient technical language: not only papyrologists, but also archaeologists, historians of medicine and of science more generally, historians of language, and so on. The study of the ancient medicine, indeed, draws upon a variety of evidence including ancient literary sources (first and foremost works on medical topics), papyri of medical (and other) content, inscriptions and archaeological discoveries attesting to medical practice. In the research involved in "Medicalia Online" papyri play, of course, a leading role, but their witness is integrated with other types of evidence aiming at a broader and better knowledge of the Ancient World. Accordingly, since the study of medicine/medical practice in the Ancient World presupposes a combination of diverse, often contradicting, pieces of knowledge, a methodological approach based on a close cooperation of several disciplines seems vital.

Other methodological aspects and main purposes of the project are:

a. to explore the linguistic strategies employed to create the terms in exam and their development into a technical vocabulary, often presenting different degrees of technicality depending on the contexts. Some of the selected *specimina* are in fact very useful to illustrate the main strategies to create a technical terminology, such as, in particular, the coinage of new terms through compounding (e.g. ὑδροκέφαλον and φαρμακοθήκη) or suffixation (e.g. ἐγκατατομικός and καθέδριος), and the borrowing of existing terms from other semantic fields, i.e. metaphors (e.g. πτερύγιον and τερηδών);

b. particular attention is devoted to the evolution and survival of the examined words into contemporary scientific discourse starting from the evidence of the papyri. Thus, one of the goals is to shed new light on the diachronic development of both the Greek technical language and the scientific medical discourse from antiquity into modern times;

c. intention to analyse the relationship between the medical vocabulary attested by the papyri of medical content and the –often more sophisticated– medical language known through the medieval manuscript transmission of the writers of ancient medical literature, from the Hippocratic authors to the compendiasts of Late Antiquity. As a consequence, the lexical studies of "Medicalia Online" allow us to explore the contribution of the papyri to our knowledge of the Greek medical language.

Some difficulties can be encountered. In particular:

a. the practical difficulty hidden inside the nature itself of such an approach, which requires much time and effort to look into all the attestations of a term, especially in case of extremely attested words, in order to understand which ones are really useful and to find out how to succeed in managing them;

b. the fact that one must often approach branches of knowledge that are extraneous to his/her education as a classicist or a papyrologist, so that it can be necessary to consult specialists in the various fields. This is the case, for example, when, studying a name of pathology, it can be hard to determine what the ancient disease may have been and to what it may correspond in modern medicine.

A further point of interest is that, being the *lemmata* characterized by methodological rigour and thorough analysis, it is possible to contribute to a better and more accurate definition of the ancient terms. Also for this reason, from a methodological viewpoint, it became clear that a dictionary of short definitions would not have fitted the exegetical requirements of ancient medical discourse. This entailed the necessity to produce a rigorous and detailed reference

collection of relevant *lemmata* critically discussed. Since an extensive and diachronic treatment of ancient Greek medical terms was still missing from the scholarly landscape, we decided to concentrate on a selection of *specimina*, in order to provide not merely brief explanations of many words but a series of in-depth studies on selected terms. In this order of ideas, "Medicalia Online" is not a simple glossary or a dictionary with just a definition, but it includes articles or entries more like the ones of an encyclopedia. Therefore, it is not extensive in quantity of terms, but extensive in the kind of information. As a natural consequence of this, the entries of "Medicalia Online" are even very long and hold a comprehensive and strategically organized bulk of information. This method is aimed at promoting an essentially vertical rather than horizontal dimension in approaching lexical items, so that 'verticality' is another keyword of this project.

The *specimina* included in the database have been selected on the basis of their relevance under several respects. Among the reasons: some of these terms are widely attested and cover a broad semantic area (e.g. πυξίς, ὑδρία, ὑδροκέφαλον, χύτρα), but a study sufficiently inclusive and extensive has not been produced so far. Other words are very rare (e.g. φαρμακοθήκη), highly technical (e.g. καθέδριος), or represent *addenda lexicis* recovered only from medical papyri (e.g. ἐγκατατομικός), and have never been studied at all, despite their linguistic and contextual interest. Some of these words, indeed, are not recorded in any existing dictionary of ancient Greek or their definitions are faulty and inexact and sometimes quite far from the actual meaning that only a careful study of all the sources and of secondary materials can actually reveal.

3. The database platform

The database can be accessed from the dedicated page on the website of the course of Papyrology of the University of Parma:[5] by clicking «some preliminary *specimina*» at the bottom of the page, one will be immediately redirected to the actual database. The site is searchable and browsable in two ways:

a. alphabetically: the list of the terms starting with a certain letter can be obtained by clicking the corresponding letter either at the top or at the left bottom of the page. So it results in an alphabetical list of the items commencing with the selected letter;

b. by thematic categories. There are three macro-categories further divided into subcategories: *lexicalia* (e.g. containers, ingredients, instruments, *termini technici*), medical branches (e.g. gynaecology, ophthalmology, pathology, pharmacology, surgery), text typologies (e.g. *adespota*, catechism, prescription). A single term can also be subordinated to two or more subcategories, so that it can be searchable in each of them.

Furthermore, being the subproject "Medicalia Online" closely connected to the main project "CPGM Online", as aforesaid, another technical aspect concerns the connections between the textual database and the lexical entries of "Medicalia Online" and, vice versa, between the lexical entries and the related medical texts in the CPGM database.

An example is shown by the digital edition of a papyrus that has already been added to the "Digital Corpus of Literary Papyri" (DCLP).[6] The papyrus, GMP I 6 (LDAB 10278, MP3 2340.01),[7] is a fragment of a medical catechism on afflictions of the head dating back to the late second-early third century CE. Some of the words appearing in the front matter

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[5] See at http://www.papirologia.unipr.it/ERC/medicalia.html.
[6] See at http://litpap.info/. A full insight of a CPGM digital edition is given by Bertonazzi (2019).
[7] See at http://litpap.info/dclp/69007/.

(ἐρωταπόκρισις, τερηδών, ὑδροκέφαλον) have been linked to the corresponding entries in "Medicalia Online".[8] Taking as an example the caries of the skull known as τερηδών, by simply clicking on the word one is instantly transported to the entry and, conversely, can access the complete digital edition of the text by clicking the CPGM reference at the end of the entry itself.

4. The layout of the entries

The definitive layout of the entries was the result of several attempts. Tracing a sort of prehistory of the project, the preliminary steps of "Medicalia Online" were carried out in Norway, during a research stay that I spent at the University of Oslo, supported by the Norwegian Research Council as an Yggdrasil scholar during my PhD in Papyrology, from August 2012 to April 2013, under the supervision of Prof. Anastasia Maravela, who contributed greatly to the development and improvement of the current layout. In that first phase I focused on the vocabulary of some representative Greek medical containers,[9] that I used as samples to test advantages and disadvantages, usefulness and usability of the entries. So, after many adjustments, fruitful discussions and presentations at workshops,[10] the final version was reached. The result was an innovative lexicographical structure that reflects the methodological framework and the interdisciplinary approach of the project. Each entry provides a broad overview of the examined words under multiple aspects and is essentially comprehensive. At the same time, this structure has been thought to be user-friendly for a consultation tool and applicable to any lexical category and semantic field.

Each lexical entry has the following layout:

a. Variants including a list of orthographic / spelling variants, Latin transliteration or form(s) of the term, cognates of medical relevance, if any;

b. General definition in which the main elements concerning the *lemma* are summed up;

c. Language between text and context: a linguistic section containing discussions on etymology, morphology, semantics, as well as on variants and cognates of the examined word. The linguistic history of the term up to modern times and developments of its technical meanings are also discussed. This section is divided in:

c.1. Etymology

c.2. General linguistic commentary: two separated sections or a single section depending on the quantity and kind of information available

c.3. Abbreviation(s) in the papyri

d. *Testimonia* –a selection of representative sources: a list of selected passages of medical relevance taken from all kind of written sources (literature, papyri, inscriptions) with English translation

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[8] See MedOn respectively s.vv. ἐρωταπόκρισις (author: Nicola Reggiani), τερηδών and ὑδροκέφαλον (author of both: Isabella Bonati).

[9] On the vocabulary of Greek vases and containers in the papyri, see Bonati (2016).

[10] The first official presentations of the project "Medicalia Online" were: "Trying out layouts for the «Medicalia Online» *lemmata*: the example of *pharmakotheke*", given at the kick-off workshop "Strengthening Research Capacity in the Papyrus Collection of the Oslo University Library" (3-5 December 2012), at the University of Oslo, and "The vocabulary of some representative ancient Greek containers for food, *salsamenta*, *aromata* and medicines", given at a workshop organized by the Department of Archaeology (Institutt for arkeologi, konservering og historie - IAKH) of the same University (9 February 2013).

e. Commentary divided into two chapters:

e.1. (the term) and its medical sources discussing aspects such as what emerges from the ancient sources about the term, if and how its semantic value changes over time from its earliest attestations to Late Antiquity, the comparison between its ancient and modern meaning(s);

e.2. (the term) in practice (word and object / action etc.) dealing with the practical side of the term and outlining the connection between the word and its concrete dimension. This means, for example, the material reconstruction of the related object in case of words denoting e.g. containers or surgical implements, as well as the methods of treatment and surgical procedures to be performed in case of word denoting diseases and disorders, with particular focus on parallels, divergences and innovations along the history of medicine.

f. Bibliography divided in

f.1. Lexicon entries

f.2. Secondary literature

g. CPGM/DDbDP reference(s): some of the examined terms occur only in the CPGM Online (e.g. ἐγκατατομικός, ἐκκοπεύς, καθέδριος, πτερύγιον), while others appear also or only in texts dealing with medical topics, such as letters requesting remedies and medical or surgical instruments, that are contained in the DDbDP (e.g. κάδος, ὑδρία, φαρμακοθήκη, ψυγμός). We have already seen how the entries in "Medicalia Online" can be linked to the texts in the CPGM database. If, on the one hand, it is possible to link the DDbDP reference in "Medicalia Online" to the actual text in the DDbDP, it might be also useful to create similar links between the medical words in the DDbDP and the corresponding *lemmata* in the Medicalia database. This could also be a way to broaden the use of "Medicalia Online" to a larger number of users.

Finally, there is a clickable list of the terms connected to the main term (diminutives, variants, cognates, Latin forms) that are also searchable through the alphabetical list that can be found both at the top and at the bottom of the home page.

To conclude, the interdisciplinary and holistic approach to the medical technical vocabulary of the project "Medicalia Online", that considers the various sources and the material nature of the artifacts in their context, can enhance both the contextual and philological interpretation of the ancient texts, and enable us to give back a voice to the words (and, when possible, a name to the objects and the medical procedures) by tracing their trajectory from the past into the present.

Bibliography

Andorlini, I. (forthcoming), "Il corpus dei papiri medici online: la piattaforma editoriale" in Roselli, A. (ed.) Atti del VII Colloquio Internazionale sull'ecdotica dei testi medici greci (Napoli).

Bertonazzi, R. (2019), "Digital edition of P.Strasb. inv. 1187: between the papyrus and the indirect tradition", Pap. Congr. XVIII (Barcelona) 857-871.

Bonati, I. (2016), Il lessico dei vasi e dei contenitori greci nei papiri. Specimina per un repertorio lessicale degli angionimi greci, APF - Beiheft 37 (Berlin-Boston).

Bonati, I. (2018), "Digital papyrological editions and the experience of a lexicographical database: Medicalia Online" in Reggiani, N. (ed.), New Methods for the Digital Edition of Ancient Papyri and Related Sources (Berlin-Boston) 149-173.

Bonati, I. (forthcoming a), "Medicalia Online: tecnicismi medici tra passato e presente" in Reggiani, N. (ed.), Greek Medical Papyri - Text, Context, Hypertext. Proceedings of the DIGMEDTEXT Final Conference held in Parma on November 2016, 2-4 (in memory of Isabella Andorlini), APF - Beiheft (Berlin-Boston).

Evans, T.V. / Obbink, D. (eds.) (2010), The Language of the Papyri (New York).

MedOn = Medicalia Online, see at the address http://www.papirologia.unipr.it/CPGM/medicalia/ vocab/index.php.

Nutton, V. (2004), Ancient Medicine (London-New York).

Reggiani, N. (2015), "A Corpus of Literary Papyri Online: the Pilot Project of the Medical Texts via SoSOL" in Lafer, R. / Strobel, K. (eds.), Antike Lebenswelten Althistorische und papyrologische Studien (Berlin-New York) 341-352.

Reggiani, N. (2017), Digital Papyrology I: Methods, Tools and Trends (Berlin-Boston).

Reggiani, N. (2018), "The Corpus of the Greek Medical Papyri and a New Concept of Digital Critical Edition" in Reggiani, N. (ed.), Digital Papyrology II: Case Studies on the Digital Edition of Ancient Greek Papyri (Berlin-Boston) 3-61.

Reggiani, N. (2019), "The Corpus of Greek Medical Papyri Online and the digital edition of ancient documents" in Pap. Congr. XVIII (Barcelona) 843-856.