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# Digital Papyrological Editions and the Experience of a Lexicographical Database

The case of *Medicalia Online*

εἰ δέ τις τῶν ἰδιωτέων γνώμης ἀποτεύξεται, καὶ μὴ διαθήσει  
τοὺς ἀκούοντας οὕτως, τοῦ ἔοντος ἀποτεύξεται.  
Ps.-Hp. *Vet. med.* 2,17–8 (CMG I 1, 37,17–8 Heiberg)

## 1 Introduction

Texts are made of words, the meaning of the words creates the text, so that understanding the words means understanding the text. This assertion may sound obvious, but it actually hides a deep truth: reaching a more exact definition of the words can help to reach a more exact meaning of the whole passage in which they occur. Hence, the need for creating tools specifically conceived to study the words and their tight connection with the texts. In the digital and internet-led era we are living in, electronic technologies have been profitably applied to the Humanities and intersect with them in the scholarly field of the Digital Humanities (DH) to such an extent that it is hard to disagree with Jerome McGann's incisive words:

As with the Renaissance sped forward by the printing revolution of the fifteenth century, digital technology is driving a radical shift in humanities scholarship and education. The depth and character of the change can be measured by one simple but profound fact: the entirety of our cultural inheritance will have to be reorganized and re-edited within a digital horizon.<sup>1</sup>

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<sup>1</sup> MCGANN 2010, 1. For a good overview of the issues entailed by Digital Humanities, cf. SCHREIBMAN – SIEMENS – UNSWORTH 2004.

In this context, online dictionaries and reference tools, as results of an e-lexicographic process,<sup>2</sup> may acquire a special relevance and potential, notably if these resources are linked to a corpus of digital editions of texts. This is precisely the case with *Medicalia Online*, a digital lexicographical database of technical terms attested in the Greek medical papyri.<sup>3</sup> *Medicalia Online* is indeed strictly connected to the digital editions hosted in the *Corpus of the Greek Medical Papyri Online* (CPGM),<sup>4</sup> the digital library of ancient medical texts on papyrus recently merged into the *Digital Corpus of Literary Papyrology* (DCLP).<sup>5</sup> Like the CPGM project, *Medicalia Online* has been developed at the University of Parma (Italy), from 2014 to the end of 2016, in the framework of the ERC project DIGMEDTEXT funded by the European Research Council (Grant Agreement no. 339828) and directed by Professor Isabella Andorlini.<sup>6</sup> Thus, given the close interconnection with the core database, *Medicalia Online* can be considered as both a supplement to and an expansion of the digitized corpus of the Greek medical papyri, as I will illustrate below.

## 1.1 A matter of definition

Medical papyri represent a corpus of peculiar texts with a peculiar nature, that ranges from literary texts, notably treatises by known authors and *adespota*, since papyrus fragments not rarely preserve works more or less of the same status as the medical literature transmitted in medieval manuscripts, to technical texts conceived to convey technical knowledge, for instance technical handbooks, collections of recipes,

<sup>2</sup> To explore the state of the art in the field of (e-)lexicography, see TARP 2008, FUERTES-OLIVERA – BERGENHOLTZ 2011; FUERTES-OLIVERA 2013; FUERTES-OLIVERA – TARP 2014.

<sup>3</sup> Cf. <http://www.papirologia.unipr.it/CPGM/medicalia/vocab/index.php>. See also the following contributions: BONATI 2018a and 2018b, as well as REGGIANI 2017, 129–30 and 275.

<sup>4</sup> On the CPGM Online, see the contribution by N. Reggiani in this same volume. Cf. also REGGIANI 2015 and 2018a. For a full insight of a typical CPGM digital edition, see BERTONAZZI 2018. For other references on digital papyrology and online resources and project, see in particular: ANDORLINI 1997a, 1997b, as well as RAMSAY 2004; DEL CORSO 2007; MAGNANI 2008; ANDORLINI – REGGIANI 2012; DELATTRE – HEILPORN 2014; DEPAUW – GHELDOLF 2014; REGGIANI 2012, 2017 2018b; SVENSSON – GOLDBERG 2015.

<sup>5</sup> Cf. <http://www.litpap.info>. Cf. REGGIANI 2017, 251–3.

<sup>6</sup> Main reference website: <http://www.papirologia.unipr.it/ERC>. Cf. REGGIANI 2017, 256 and 273–5. The very first steps in the creation of the *Medicalia Online* database date back earlier, when I spent a research stay at the University of Oslo (from August 2012 to April 2013), supported by an Yggdrasil Grant from the Norwegian Research Council. There, I had the pleasure to work in close collaboration with Prof. Anastasia Maravela, who gave fundamental suggestions and a great contribution to the development of the current layout of the entries. During that first phase, I focused on the vocabulary of some representative Greek medical containers (on the topic see BONATI 2016a), which I used as samples to test advantages and disadvantages, usefulness and usability of the lemmas in *Medicalia Online*. Beside me and Prof. Maravela, other contributors in the project have been Prof. Isabella Andorlini, Dr. Nicola Reggiani and Dr. Francesca Bertonazzi.

school manuals and catechisms, to proper documentary texts, such as public physicians' reports, petitions of private individuals and private correspondence concerning matters of health and diseases. So, besides the strictly literary texts, such a corpus mostly includes texts with a 'borderline' character, viz. combining features of papyrus documents with issues proper of the technical nature of medical writings, that are categorized – as in a sort of 'twilight zone' – as 'paraliterary' or – in a vaguely pejorative way – 'subliterary'.<sup>7</sup> Due to this complex and stimulating textual situation, it became clear since the beginning that a dictionary of short definitions of terms would not have fitted the exegetical requirements of ancient medical discourse. This entailed the necessity to broaden the goal of *Medicalia Online* to produce a rigorous and detailed reference collection of relevant lemmas critically discussed. An extensive and diachronic treatment of ancient Greek medical terms was indeed still missing from the scholarly landscape. It was decided to focus the attention on a selection of *specimina* with the aim of providing not merely brief explanations of many words, like in an ordinary 'dictionary', but a series of in-depth studies on selected terms. As a consequence, it is preferable to define *Medicalia Online* not as a simple 'glossary' or 'dictionary', but rather as a 'lexicographical tool'<sup>8</sup> containing entries or articles with an encyclopaedic flavour, or, even more specifically, as a 'specialized lexicographical tool', being it devoted to the specific set of linguistic and factual elements of the specialist subject field of ancient medicine.

Considering the vastness of the lexical material at disposal, since the papyri are a treasure-trove of linguistic information, the lexicographical process is still ongoing and potentially never-ending. Due to this aspect, *Medicalia Online* may fall into the category of the lexicographical tools "under construction" or better "dynamic",<sup>9</sup> according to the terms "Ausbauwörterbuch" ("dictionary under construction") vs. "Abschlusswörterbuch" ("completed dictionary") introduced by SCHRÖDER 1997, 60, and "dynamisches Wörterbuch" ("dynamic dictionary") vs. "statisches Wörterbuch" ("static dictionary") preferred by LEMBERG 2001, 81. This means that *Medicalia Online* is not "a fixed object", but a flexible entity, "an organic changing database"<sup>10</sup> that can

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7 Cf. REGGIANI 2017, 78.

8 For a definition of 'lexicographical tool', used instead of 'reference work' to express "a superior concept for both printed and electronic dictionaries", see TARP 2008, 123: "a lexicographical tool is a tool that can be used via consultation or passive searching by users with a specific type of communicative or cognitive need to gain access to lexicographical data, from which they can extract the type of information required to cover their specific needs".

9 On computer-lexicographical process for online dictionaries under construction, cf. KLOSA 2013, 519–22.

10 PRINSLOO 2001, 141.

be continually enlarged, as well as that its lexicographical process is an “open system”.<sup>11</sup> Such a flexibility and the possibility of a constant improvement and updating represent the undeniable advantage of an online publication. Nevertheless, most of the entries already published online in the *Medicalia Online* database are going to be published also in print, in form of a collection of lexical studies, as part of a volume.<sup>12</sup>

## 1.2 Methodology and aims

There are some keywords characterizing the methodology of *Medicalia Online*. The first and most important one is ‘interdisciplinarity’. The significance of interdisciplinarity in the new trends of Papyrology has been stressed several times in recent years. Suffice it to remember how often expressions like “broader concept” and “broader view”, as well as words like “combination” of sources, and, of course, “interdisciplinarity” occur in *The Oxford Handbook of Papyrology* edited by Roger Bagnall in 2009. So, whilst the core focus of *Medicalia Online* is papyrological and the evidence of medical papyri plays a leading role, a systematically interdisciplinary approach inspires the inner nature of its lexical studies. This contributes to broaden the horizon of the database to a wide range of perspectives, since it provides at the same time a papyrological, linguistic, archaeological and historical-scientific overview of the studied items. Such a methodology, indeed, involves a strong sense of dialogue and cooperation among disciplines, merging and combining components of several subject areas beside papyrology: classics and history of textual transmission, digital humanities, linguistics, epigraphy, archaeology and material culture, history of science and of medical practices across the ages. It entails a critical analysis and a comparative examination of all the typologies of sources on which the study of the ancient medicine draws upon, from the written ones, i.e. papyri, literary passages (first and foremost works on medical topic, but also any other author in which the terms appear), inscriptions and *tituli picti*, to the available archaeological discoveries attesting to medical practice. Ultimately, this integrated approach, which bridges together the main subject areas in ancient studies, enables us to throw new light on the complex and multicultural setting of the Greco-Roman medicine in Egypt, and presents – to

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<sup>11</sup> Cf. KLOSA 2013, 519: “producing an online dictionary may begin before the phase of writing is finished: online dictionaries can be published step-by-step. Thus, all phases of the computer-lexicographical process (planning – writing – producing) merge, giving yet unknown flexibility to the lexicographer. [...] While other lexicographic processes lead to an end (i.e. the publication of the dictionary), theoretically, working on an online dictionary under construction could go on forever. An online dictionary under construction is an open system”.

<sup>12</sup> Cf. BONATI – MARAVELA 2018.

borrow Vivian Nutton's words – “an inclusive model for understanding the medical word of Antiquity”.<sup>13</sup>

The second keyword of *Medicalia Online* is ‘verticality’. Such a comparative and thorough, i.e. ‘vertical’, approach to the sources contributes to improve our understanding of the Ancient World with its textual and concrete aspects, with its *verba* and its *realia*, and promotes an essentially ‘vertical’ rather than ‘horizontal’ dimension in investigating lexical items. Thus, this sort of ‘archaeology of the words’ also translates into the effort to ‘revitalize’ the past, making it more accessible to the present time.

Furthermore, starting from the evidence of the papyri, particular attention is devoted to the evolution and survival of the examined words into the modern languages and contemporary scientific discourse. Thus, one of the goals of *Medicalia Online* is to focus on the diachronic, often problematic developments of the Greek technical vocabulary tracing its trajectory from antiquity to modern times.

A further aspect concerns the analysis of the relationship, viz. the points of divergence and contact, between the terminology attested by the papyri of medical content and the – often more sophisticated – technical language known through the medieval manuscript transmission of the ancient medical writers, from the Hippocratic authors to the compendiasts of Late Antiquity. In this view, the lexical studies of *Medicalia Online* allow us to explore the contribution of the papyri to our knowledge of the Greek medical language.

### 1.3 The database and the entries

The database is built on the open source vocabulary server *TemaTres* and is browsable in different ways. The home page displays a threefold subdivision by macro-categories, each of which is further divided into subcategories providing a taxonomical classification of the terms: “Lexicalia”, i.e. word typologies (e.g. containers, ingredients, instruments, *termini technici*), “Medical branches” (e.g. gynecology, ophthalmology, pathology, pharmacology, surgery), “Text typologies” (e.g. *adespota*, catechism, documentary texts, prescription). A single term can also be subordinated to two or more subcategories, so that it can be searchable in each of them. Another way is to browse the terms and the categories alphabetically by clicking a certain Latin or Greek letter either at the top or at the left bottom of the home page. Finally, on the very top, it is also possible to use a full-text search, as well as an “Advanced search”. In the latter case, a drop-down menu provides a submenu of navigation items to select the research scope: “Term” restricts the search to the headwords, “Meta-term” to the

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<sup>13</sup> NUTTON 2004, 16.

categories, “Non-preferred term” to secondary headwords such as variants and diminutives, and “Note” to the thematic boxes.

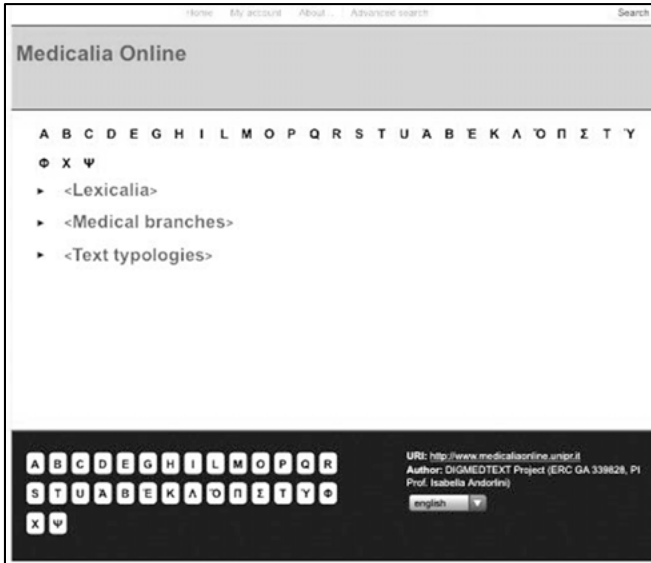


Fig. 1: The database home page.

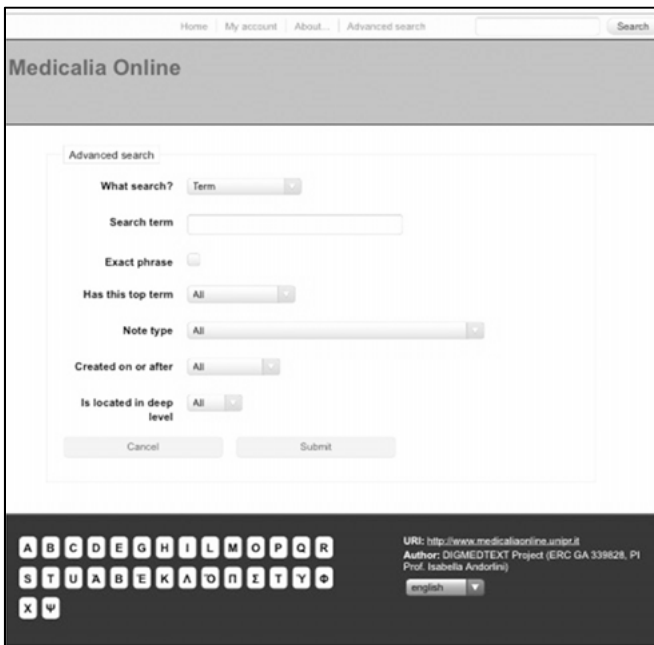


Fig. 2: The advanced search interface.

The lexicographical structure of the lemmas is innovative and reflects the interdisciplinary, integrated approach that inspires *Medicalia Online*. The layout of the entries is conceived to offer a broad overview of the examined words and is essentially comprehensive, but, at the same time, it is user-friendly and applicable to any lexical category and semantic field. User-friendliness is indeed an important prerequisite when a lexicographical tool is complex and involves a conspicuous bulk of information. Each lexical entry consists of a fixed set of thematic boxes (“notes”), as follows:

- “Variants” includes a list of variants, both grammatical (e.g. diminutives) and phonetic/spelling variants as found in the papyri, the Latin transliteration or form(s) of the term, and the cognates of medical relevance, if any;
- “General definition” gives a dictionary-like definition useful to provide the reader with the main information concerning the searched term and its ‘immediate’ meaning before (or in case) (s)he goes on reading through the full lemma;
- “Language between text and context” is a linguistic section containing discussions on etymology, morphology, semantics, variants and cognates of the examined term, but it also discusses its linguistic history up to modern times and the diachronic developments of its technical meaning(s);
- “*Testimonia* – a selection of representative sources” lists some Greek and Latin passages from all kind of written sources (literature, papyri, inscriptions) in which the term is attested, selected according to their medical relevance. Each passage is accompanied by an English translation;
- “Commentary” is the most substantial section of the entry and is aimed at contextualizing the term in its textual and historical-scientific background. In order to do this, the section is divided into two chapters. The first one (“[the term] and its medical sources”) traces a detailed overview of what the ancient sources attest about the term, also scrutinizing the possible changes of its semantic value over time from its earliest attestations to Late Antiquity, and the comparison between its ancient and modern meaning(s). The second chapter (“[the term] in practice”) is specifically focused on the ‘practical’ side of the examined item and outlines the connection between the word and its concrete dimension. To make just some examples, this means the material reconstruction of the related object in case of words denoting *res medicae*, such as containers employed to prepare or store remedies or surgical implements, and the methods of treatment and surgical procedures to be performed when dealing with names of pathologies and disorders, with particular attention to parallels, divergences and innovations along the history of medicine;
- “Bibliography” includes “Lexicon entries”, i.e. dictionaries, glossaries etc., and “Secondary literature”, i.e. more extensive studies on that particular topic or word.
- “CPGM/DDbDP reference(s)” lists the papyrological evidence containing the word. Since some of the examined terms occur only in the CPGM Online, while others appear also or only in documentary texts dealing with medical topics, such

as private letters requesting remedies or surgical instruments, which are contained in the DDbDP, “the documentary evidence (‘DDbDP references’) will be linked to the appropriate texts on *Papyri.info*, the literary or paraliterary one (‘CPGM references’) to the forthcoming texts on DCLP, from which, in turn, it will be possible to insert links back to *Medicalia Online*”.<sup>14</sup>

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

## 2 The lexicographical database and the digital editions of texts

### 2.1 The interconnection between *Medicalia Online* and the textual database

The contribution of Greek and Latin papyri to our knowledge of classical languages is an indisputable fact that has been scholarly recognized since their discovery in the dry sands of Egypt in the late 19<sup>th</sup> century. It is worth quoting EVANS – OBBINK 2010, v:

Every scrap of papyrus and every ostrakon or tablet unearthed has the potential to change some aspects of the way we think about these languages. Such texts have the capacity to modify our understanding of the classical forms of both languages and for their post-classical development provide evidence of the most direct kind we shall ever acquire. The richness of the resource can hardly be overstated.

Exactly like the other categories of papyri, papyri of medical content have a massive linguistic potential. The corpus of the Greek medical papyri has indeed not only enhanced our knowledge of medical literature and everyday medical practice, revealing valuable information on the diseases that affected people in the Egyptian *chora*, as well as their pharmacological and surgical treatment. It has also offered rich attestation of Greek technical vocabulary, its diachronic trajectory over time, its registers and levels of technicality, from the actual medical Greek written or spoken by medical professionals when communicating with their colleagues, to the not properly technical but still medical language used in everyday life by lay persons and practising physicians.<sup>15</sup>

<sup>14</sup> REGGIANI 2017, 130.

<sup>15</sup> On the contribution of medical papyri to the study of medical Greek, cf. MARAVELA 2017.



In addition to the new attestation of technical terms already well known by means of the ‘official’ medical writings transmitted through the medieval manuscript transmission, medical texts on papyrus often refine our knowledge of weakly attested or extremely rare words and bring back to light elements of Greek medical vocabulary previously lost and completely unattested in other medical sources.

An in-depth study of medical micro-language and technical terminology is thus essential to deeply understand the texts. For this fundamental reason, to join the digital editions of the medical texts on papyrus with the lemmas in *Medicalia Online* can be of the utmost importance to promote an integrated and mutual enrichment.

An even more in-depth investigation might be realized by adding to the lexical studies the analysis of the morpho-syntactic structure of the texts by means of the application of different levels of linguistic annotation. Annotation is indeed a cardinal part of the linguistic analysis of a corpus of texts, the method of describing, recording and analysing linguistic phenomena through computer-based text corpora that is better known as Corpus Linguistics.<sup>16</sup> As stressed by REGGIANI 2016, 2:

A linguistic corpus is usually intended as a selection of sample texts representative enough of a language, and though the medical papyri at our disposal come from a random and incomplete selection, they can be considered as the entire reference population rather than as a sample of a larger group, so that linguistic annotation seems to me absolutely feasible. The basic annotation layer, related to the analysis of the parts of speech (the one also known as treebanking because it is usually represented with a tree graph) would allow to conduct an extensive lexical, phraseological-formulaic and syntactic analysis on the corpus, aimed also (but not only) at discovering styles and writing strategies specific of the medical texts, both literary and documentary: think only of the possibility to find out influences or interpolations between authors, or the presence of literary echoes in technical or documentary texts. To analyse in depth and comprehend the syntactic structure of texts would allow also to solve problems of interpretation, or even only to understand the exact meaning of a text.

Thus treebanking, as it is used in linguistics, is a possibility to model how sentences are built by creating morpho-syntactic trees. In the field of Classics this kind of linguistic annotation is now at a very advanced level.<sup>17</sup> Just to mention two relevant projects, *The Ancient Greek and Latin Dependency Treebank* (AGDT 2.0) is a corpus of ancient Greek and Latin literary works, annotated on the morpho-syntactic and semantic layers, which has been developed since 2006 at the Leipzig and Tufts Universities by Giuseppe G.A. Celano, Greg Crane, Bridget Almas and others,<sup>18</sup> while, on the more strictly papyrological side, the project *Sematia*, conducted by Marja Vierros and Erik Henriksson at the University of Helsinki, is a platform aimed at facilitating

<sup>16</sup> On this issue, see for example BIBER – CONRAD – REPPEN 1998, FACCHINETTI 2007 and KUEBLER – ZINMEISTER 2014, as well as the chapters by N. Reggiani and M. Vierros in this volume.

<sup>17</sup> Cf. REGGIANI 2017, 180–6 with bibliography in n. 13.

<sup>18</sup> See at [https://perseusdl.github.io/treebank\\_data](https://perseusdl.github.io/treebank_data). See also G. Celano’s chapter in this volume.

the linguistic tagging of digitized documentary papyri through the creation of linguistic layers from TEI/EpiDoc XML documents.<sup>19</sup>

It is worth mentioning another innovative text analysis tool, which might be potentially useful also in the case of the corpus of Greek medical papyri. I am referring to CATMA 5 (*Computer Aided Text Markup and Analysis*),<sup>20</sup> a tool developed at the University of Hamburg that offers an interesting combination of three main features, since it allows collaborative annotation and analysis of a text or a text corpus, it supports explorative, ‘non-deterministic’ practices of text annotation, viz. a discursive and debate-oriented approach to text annotation based on the research practices of hermeneutic disciplines, and integrates text annotation and text analysis in a single web-based working environment.

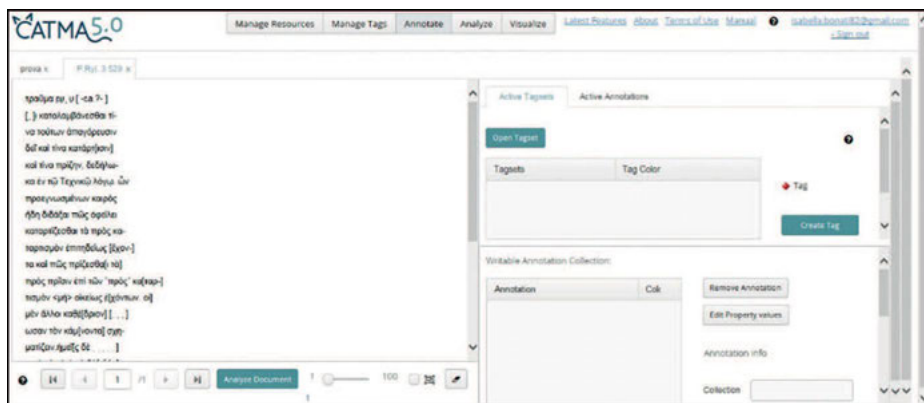


Fig. 3: CATMA screenshot

One of the main outcomes provided by the digital tools is the possibility to support several kinds of linguistic analysis – lexical, semantic, morphological, syntactic – in direct interconnection with the texts, namely directly *on* the digitized textual editions. This allows an – even simultaneous – work of in-depth investigation, abstraction and conceptualization *on* and *through* the text itself, thus enhancing its deep comprehension and interpretation in an immediate, dynamic and interactive way. Immediacy, dynamism and interactivity are indeed among the most stimulating features and perspectives of a digital publication. In the case of *Medicalia Online*, its interconnection

<sup>19</sup> See at <https://sematia.hum.helsinki.fi>. See also M. Vierros' chapter in this volume

<sup>20</sup> See at <http://catma.de>. Thanks to the funding made available by the North-West University of Potchefstroom, I had the opportunity to be introduced to CATMA during the workshop “Digital Annotation and Analysis of Literary Texts. A hands-on introduction to CATMA”, organized by the South African Centre for Digital Language Resources (SADiLaR) and held by Prof. Christoph Meister at the University of Pretoria (August 21, 2017).

with the core textual database may exactly be defined with these adjectives: immediate, dynamic and interactive. The expected systematic connection of the examined words occurring in the digital editions of the medical papyri to the related lexical entries in *Medicalia Online*<sup>21</sup> may help not only to refine the definition of a term in a particular papyrus text, but also to contextualize the term in all the other sources at testing it. *Medicalia Online* is, thus, so conceived as to integrate the textual database, in order to serve as an expansion and a supplement to the digital editions of the Greek medical papyri.

The issue of the integration and interconnection with the main database puts the stress once again on the contribution of a close lexicographical examination to an enhanced textual understanding. In particular, a thorough lexicographical approach can strengthen a double awareness of the examined lexical item within the framework of the text, as it will be illustrated by means of some selected case-studies: ‘concrete’ on the one hand, ‘textual-philological’ on the other hand.

## 2.2 Lexical studies and ‘concrete’ awareness

As already said, the interdisciplinary and critically comparative methodology of *Medicalia Online* enables us to explore also the practical and material dimension concerning the term and its context. This aspect makes it possible to almost physically ‘visualize’ the concrete reality under and beyond the words, especially thanks to the second section of the “Commentary” (C 2), which is explicitly focused on the concrete side of the lexical items (see § 1.3). Thus, this sort of ‘archaeology of the words’, aimed at ‘revitalizing’ the past, makes the ancient texts themselves more ‘living’ and their words almost ‘tangible’.

An example of an object virtually ‘reconstructed’ starting from the evidence of a papyrus is provided by the word ὕδρῖα, commonly denoting a particular type of container used as a jar to carry and pour water.<sup>22</sup> This primary function, made clear by the etymology from ὕδωρ, “water”, is well established in the ancient sources. In the documentary papyri, this container is also filled with other contents, such as food-stuffs.<sup>23</sup> Only two passages of medical authors refer to the ὕδρῖα (and to the diminutive

<sup>21</sup> For the time being it is only possible to create links between the lemma (see section E, “DDbDP/CPGM references” mentioned above, § 1.3) and the words highlighted in the front matter of the digital editions in DCLP, as well as, conversely, between the latter and the corresponding lemmas in *Medicalia Online*, but it is expected that in the near future it will be also possible to insert links directly into the Greek texts both in DCLP and in *Papyri.info*, in case of medical terms found in documentary papyri of medical content.

<sup>22</sup> Cf. *MedOn* s.v. and BONATI 2016a, 157–75.

<sup>23</sup> Cf., e.g., PSI IV 428,89–90 and 92 (pomegranates), BGU XIII 2359,10 (beans), P.Oxy. I 155,4 (bread).

ὕδριση) as a container of pharmaceutical use.<sup>24</sup> In both cases, the vessels have the function of small containers for ointments employed for the storage of the therapeutic products prior to their use. This function is attested in just one documentary papyrus of medical content dating back to the late IV century CE, P.Oxy. LIX 4001. The papyrus is a letter written by a certain Eudaemon to his mother, grandmothers and a woman called Cyra. Eudaemon, who is a doctor, sends the letter to his surgery presumably in Oxyrhynchus, as the address on the back shows (ἀπόδος εἰς τὸ ἰατρείον). He is working away from home for professional reasons, and he now asks for the means to make some medical implements on his own. He also notifies his family that he received a “*hydria* of eye-salves” instead of a “*hydria* of animal grease”.<sup>25</sup> The passages of medical content do not provide any information about the physical appearance of the vessel, but the word ὕδρια corresponds to a well-recognized type of container in the (conventional) archaeological vocabulary, and it is one of the most common shapes depicted in Attic vase-painting, such as in the famous François vase (ca. 570 BC). According to all types of ancient evidence, the most typical features of this vessel are the presence of some handles (usually three: two horizontal side-handles for easy lifting and a vertical handle for pouring the water or carrying when empty) and a fairly narrow neck set off from the body. It is significant to stress that the comparative study of all the sources – written as well as archaeological – allows us to conjecture about the material shape of the ὕδρια in the Oxyrhynchus papyrus, as well as, more broadly, in the other two medical passages, even though it does not appear any explicit information about its morphology. First of all, although in these texts of medical content ὕδρια / ὕδριση does not represent an actual *terminus technicus* in the vocabulary for medical containers, it is likely that the word has been used in connection with remedies having an ointment-like consistency because of the shape and the considerable versatility and manageability of this small vessel. Assuming that the ὕδρια / ὕδριση of the medical sources has a narrow neck and a vertical handle like some glass *hydriskai* for cosmetics and oils found in archaeological contexts,<sup>26</sup> its morphology seems

<sup>24</sup> Cf. Gal. *Comp.med.loc.* I 2 (XII 437,2–5 K.) and Paul.Aeg. III 2,2,4–6 (CMG IX 1,132,19–21 Heiberg).

<sup>25</sup> Cf. Il. 22–30 ἔσχαμε(ν) | δὲ καὶ τὰ ἄλλα πάντα χωρὶς μόνης | τῆς ὕδρειας (l. ὕδριας) τοῦ οἰυγγείου (l. ὀξυγγίου). ἔθεν | σπουδασάτω ὁ ἀδελφὸς ἡμῶν | Θεόδωρος ζητήσαι ἠπο . . . . . τὸν | να . . . . . καὶ γυνῶναι περ[ὶ] αὐτοῦ | [ . . . ] . . . . . ὕδρειαν (l. ὕδριαν), παρέσχεν ἀν[τὶ] τοῦ οἰυγγείου (l. ὀξυγγίου) κολλουρίων ὕδρε[ι]|| [ . . . ] ἄν (l. ὕδριαν): “we had all the other things too except only the jar of grease. So let our brother Theodorus be eager to search for it ... [make sure to look ... ] and to know about it ... jar, he provided instead of the grease a jar of ointment”.

<sup>26</sup> For these core-formed glass miniatures (*hydriskai*), imitating the shape of the three-handled and narrow-necked pottery *hydria* and very probably containing scented oils or cosmetics, see BONATI 2016a, 172 and STERN 1999, 29–39.

to be particularly suitable for closing and sealing.<sup>27</sup>C:\Users\Isabella\Dropbox\Medialia Parma\HYDRRIA-final version.docx Thus, it is highly probable that these features represent the main reason why in the papyrus letter from Oxyrhynchus a little vessel named ὕδρῖα has been chosen to contain the therapeutic products mentioned: the κολλούρια actually received by Eudaemon and the ὄξυγγιον previously requested by him but never dispatched. In all likelihood, these special details of the ὕδρῖα attended to by Eudaemon's family will have assured proper preservation of the remedies during their transport from the ἰατρεῖον in Oxyrhynchus to the village where Eudaemon was apparently working as a physician.

A further example of this attempt to 'revitalize' and 'reconstruct' an object from the past may be represented by another name of container, φαρμακοθήκη.<sup>28</sup> The term is a semantically transparent compound employed to denote a portable chest or case for the storage of remedies and medical implements. The earliest witness of the noun is P.Oslo II 54,6 (second half of the II – first half of the III century AD), a private letter on papyrus from Egypt (likely coming from the area of Oxyrhynchus), addressed by a certain Horeion to his father Apollonios. The term occurs otherwise exclusively in astronomical and Christian works from the V century AD onwards.<sup>29</sup> The lack of this term from the medical texts is significant and might suggest that, even if the compound φαρμακοθήκη indicates an exclusively medical container, viz. a technical accessory, it never developed into an actual *terminus technicus*. It is likely that it served as a lay synonym for the physician's tool-case in common language, for instance in practitioners' everyday conversations with their patients, instead of more 'official' and technical terms for similar objects used among professionals, such as νάρθηξ,<sup>30</sup> a noun which is well known in literary sources, and explicitly defined νάρθηξ ἰατρικός in a literary papyrus containing alchemical recipes (PSI inv. 22011,48 = TM 65816), but

<sup>27</sup> This aspect finds a confirmation in the fact that some ὕδρῖα ἐσφραγισμένα used for transporting and sending products are mentioned in two documentary papyri, SB X 10559,1 (V AD, ?) and CPR XXV 25,4 (VI–VII AD, Arsinoites or Herakleopolites).

<sup>28</sup> Cf. *MedOn s.v.*, BONATI 2016b, 663–7 and 2016a, 185–95.

<sup>29</sup> Cf. e.g. Cat.Cod.Astr. I 104,26–30 Olivieri and Procl. *Or. XVIII in laudem apostoli Pauli* (PG LXV 817D–820A Migne).

<sup>30</sup> It refers to a narrow cylindrical type of case, named after the *Ferula communis* (νάρθηξ in Greek), with the wood of which it was originally made. This name continued to indicate such cases even when made of other materials, and came to designate boxes with different shapes and functions. For a discussion on the term and for references to ancient sources and to the bibliography, see especially MARGANNE 2004a, 122–4.

also – though less attested – δελτάριον,<sup>31</sup> ἔγχειριδιον,<sup>32</sup> and πήρα.<sup>33</sup> As a matter of fact, according to SCHIRONI 2010, 338:

Technical terms often have lay synonyms in common language; this is particular evident in medicine where technical and lay terminology coexist [...] and often physicians use the latter in order to be understood by the patients.

Thus, it seems that the compound φαρμακοθήκη might be placed at an intersection point between the language of everyday life often documented in the papyri and the technical vocabulary for medical containers. Furthermore, even though the extant written sources do not provide illuminating information about the shape and the physical appearance of φαρμακοθήκη, archaeological evidence may represent a fertile ground to start formulating hypotheses. Indeed, a certain number of cases for storage and transport of drugs and remedies and/or surgical implements have been unearthed in excavations. Among these, a characteristic typology is rectangular (on average 12 × 6–7 × 2–3 cm), equipped with a sliding outer lid and internally divided into compartments, each having its own hinged cover in order to store together different medical substances with no risk of contamination. Assuming a terminological and typological overlapping between the φαρμακοθήκαι mentioned in the written sources and any of the archaeological *boîtes médicales*, it is tempting to surmise that this compartmentalized rectangular type with sliding lid was the most suitable shape for the domestic pharmacy chest mentioned in the Oslo papyrus. This hypothesis relies on the association between the almost intuitive formation of the compound – literally a case for medicines (φάρμακον + θήκη) – and the most common type of container with that function in both professional and non-professional contexts. Archaeological discoveries have offered several *specimina* dating back to the Roman period, therefore contemporary with the papyrus from the Oslo collection. Often very well preserved, and sometimes still holding residues of their pharmaceutical contents, some of these θήκαι surely derive from a professional field, but a similarity in shape of their household counterpart may be likely presumed.<sup>34</sup>

<sup>31</sup> δελτάριον occurs with this meaning only in P.Oxy. LIX 4001,30–1. For a discussion on the term and for references to ancient sources, cf. ANDORLINI 1996, 7–8 (especially n. 5); FISCHER 1997; MARGANNE 2004a, 124–5 and 2004b, 23–4 with bibliography, as well as pp. 31–3 (with n. 30) and pp. 38–40.

<sup>32</sup> ἔγχειριδιον is a case – as the etymology suggests – suitable to be carried “in the hand”, likely similar in form to a δελτάριον, cf. MARGANNE 2004a, 125–6.

<sup>33</sup> πήρα is listed in GMP II 10,6–7 (= P.Strasb. Copte inv. 563,6–7) τὴν πήραν | τοῦ ἱατροῦ with other medical instruments and glossed with the word ἔγχειριδιον by Ammon. *Diff.* 390,2 (101,5 Nickau), cf. MARGANNE 2004a, 126 and FISCHER BOVET 2009, 163–4.

<sup>34</sup> For some significant examples of this type of rectangular boxes for medical purpose, see in particular BLIQUEZ 1994, 69 and 191 no. 296 (ills. 189–90); DENEFFÉ 1893, 37–8 with Pl. 2 (ills. 1 and 6); MILNE 1907, 172–3 with Pl. LIV; KÜNZL 1996, Abb. XXXIV.

Finally, in both of these illustrative cases, an operation of ‘archaeology of the words’, consisting in integrating written and material evidence, contributes to shed new light on the (hypothetical but plausible) physical reality hidden behind the ancient words.

## 2.3 Lexical studies and ‘textual-philological’ awareness

A thorough analysis of a term in all its written attestations can bear huge potential by improving our awareness of the ancient texts and their – sometimes highly problematic – philological issues. In-depth lexical studies like those offered by *Medicalia Online* can indeed give a considerable contribution to promote the contextual and philological interpretation of medical texts, sometimes even resulting in new readings and corrections to the established editions. The critical exegesis of these texts is strictly dependent on the understanding of their technical terminology, to an extent that reaching a more exact definition of the words expressing the contents can enhance the philological awareness of the textual context in which they occur.

Furthermore, *Medicalia Online* allows both a ‘holistic’ and an ‘atomic’ approach to the object of study. The analysis is carried out in a ‘holistic’ way in the sense that the term is studied in all its occurrences in order to get the broadest possible overview of its meaning(s). At the same time, it is also performed in an ‘atomic’ way, so that the word is grasped in its verticality and all its details are accurately examined and understood. This operation encourages a ‘double movement’: from the text(s) to the word – the ‘holistic’ study of the term in all the written sources attesting it leads to a deeper comprehension of the term itself –, and from the word to the text(s) and the textual tradition. This thorough knowledge of the word entails a better understanding chiefly of the medical text on papyrus that is the starting point of the lexical analysis, but also, very often, of the passages – or at least of some of them – by medical authors that use this word. This implies a more refined philological awareness that can also enable us to amend errors in the manuscript transmission.

To illustrate the contribution of an in-depth analysis of the technical terms to the exegesis of the medical texts – whether medical papyri or passages by medical writers – it may be useful to take as a *specimen* the observations raised by the study of the word καθέδριος.<sup>35</sup> καθέδριος is an adjective literally meaning “of or for sitting” (LSJ<sup>9</sup> 851 s.v.). It is derived from the name of the object that concretely receives the action

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<sup>35</sup> Cf. *MedOn* s.v. These observations were presented as a guest lecture during a seminar of papyrology held at the University of Oslo (February 10, 2017) in the frame of the research project “Strengthening Research Capacity in the Papyrus Collection of the University of Oslo Library” with the title “Place the patient in the sitting position...” *The word καθέδριος in medical authors and medical papyri*. I am grateful to the participants for their constructive criticism and suggestions. In this connection, I want especially to thank Anastasia Maravela, Ágnes Tóthné Mihálykó and Jens Mangerud.

of sitting, καθέδρα (“seat”). As to the word formation, καθέδριος is a denominative adjective in -ιος, suffix of Indo-European origin usually employed to form adjectives from noun-stems and productive during the entire history of ancient Greek, from the Homeric language to the *Koine*.<sup>36</sup> Like all the other derivatives of the noun καθέδρα,<sup>37</sup> καθέδριος seems to be quite late, since it does not appear before the II century AD. Its earliest extant attestations are two medical texts on papyrus, and this is the reason why the evidence of the papyri is particularly relevant in this case: P.Aberd. 11,10, an ophthalmological catechism of the II century AD (<http://litpap.info/dclp/63332>), and P.Ryl. III 529r,57 (and maybe ll. 70–1), a fragment from a papyrus codex of the late III century AD containing a surgical treatise concerned with the treatment of shoulder dislocation (<http://litpap.info/dclp/59970>).

Starting from these early attestations, καθέδριος is an adjective appearing only in medical sources to denote the sitting position of the patient, so that it seems to be a genuine *terminus technicus* of the medical micro-language. Its technical value is strongly confirmed by the medical authors, from Oribasius to Paul of Aegina, where the adjective is mostly used in the description of different kinds of surgical operations, but also in other medical contexts. The common formula is καθέδριος + ὁ κάμνων / πάσχων + σχηματίζω vel sim., with καθέδριος, as a rule, in predicative position,<sup>38</sup> but the adjective is also associated with the noun σχῆμα.<sup>39</sup>

In order to contextualize the topic, it might be relevant to stress that placing the patient in the proper position has been an important prerequisite for surgery since ancient times. Like nowadays, different physical positions were required for different procedures. Therefore, it was essential to identify the correct position for any given operation. The importance of surgical positioning emerges, for instance, from a passage of the Hippocratic treatise *De officina medici* (*Off.* 2 = III 275–6 L.):

τὰ δ' ἐς χειρουργίην κατ' ἰητρεῖον· ὁ ἀσθενέων· ὁ δρῶν· οἱ ὑπηρεταί· τὰ ὄργανα· τὸ φῶς· ὄκου· ὄκως· ὄσα· ὄκως· ὄκου τὸ σῶμα, τὰ ἄρμενα· ὁ χρόνος· ὁ τρόπος· ὁ τόπος,

**36** Cf. CHANTRAINE 1933, 33–8.

**37** The noun καθέδρα, a compound of ἔδρα «seat, chair» (< κατά + ἔδρα), is in itself a derivative in -ρᾱ of ἔζομαι “seat oneself, sit” (LSJ<sup>9</sup> 478 s.v.), from the IE root \*sed “sit down”. All the derivatives of καθέδρα seems to be of quite late formation, such as the neuter diminutive καθεδράριον “little seat”, appearing in a private letter on papyrus, P.Oxy. VI 963 (II–III AD), and the compound κλινοκαθέδριον “easy chair” (LSJ<sup>9</sup> 961 s.v.), gloss of κλιντήρ “couch” (LSJ<sup>9</sup> 961 s.v., cf. e.g. *Et.M.* 520,26–7 Kallierges).

**38** Cf. e.g. Orib. *Coll.* XLVI 11, 2,1–3,3 (CMG VI 2,1, 219,30–5 Raeder); Paul.Aeg. VI 8, 1,10–1 and 90, 4,10–1, as well as 99, 2,1–6 and 101, 1,3–6 (CMG IX 2, 51,11–2 and 139,10–1, as well as 152,14–9 and 156,19–22 Heiberg).

**39** Cf. e.g. Aët. XV 5,50–2 (19,15–7 Kostomiris) ἐν μὲν οὖν τῷ ἐνεργεῖν, σχηματίζεσθω ὁ πάσχων κατακεκλιμένος, τὸ γὰρ καθέδριον σχῆμα εἰς λιποθυμίαν τάχιστα προτρέπει τὸν πάσχοντα: “during the surgical operation the patient must be placed lying on the back, for the sitting position causes quickly the patient to faint”.



in which the adverbs ὅκου and ὅκως express respectively “where and how” and refer to what precedes in the list, that is “the patient, the operator, the assistants, the instruments, the light”.<sup>40</sup> This aspect is also evident in a medical papyrus from Oxyrhynchus, P.Oxy. LXXIV 4972, dating back to the II–III cent. AD, which belongs to the catechistic genre and contains a systematic exposition of the divisions of surgery (<http://litpap.info/dclp/119317>). In ll. 3–7, the most correct positions for certain operations are discussed and, in particular, it is mentioned when the patient is lying back on a sloped couch with either the head (ἀνάρροπον) or the feet (κατάρροπον) raised higher:

τὸ δὲ] σχηματικόν ἐστὶν τὸ τῶ[ν | ἐπιτη]δίων σχημάτων ὡσπερ | ὅταν] λέγωμεν ἀνάροπον  
(l. ἀνάρροπον) ἢ | κατάρ]ροπον (l. κατάρροπον) σχηματίζιν (l. σχηματίζειν) τόν | κάμ]νοντα

The position-based is that concerned with appropriate positions, as when we speak of positioning the patient tilted up or tilted down.

(transl. LEITH 2009, 63)

The synchronous ‘holistic’ and ‘atomic’ study of the adjective καθέδριος in all its occurrences led to suspect some textual uncertainties in two passages from late antique compendia. The first one, transmitted by Oribasius, is part of an excerpt taken from the work entitled *Περὶ ποιουμένων βοηθημάτων* by Antyllus, a surgeon and physician of the II century AD. The passage concerns the most proper couch for the patient. It is reported that a tilted couch, i.e. a couch with the head higher than the feet, puts the patient under strain because (s)he is like seated on a chair, even if this position is suitable for those who suffer from head pain. The text printed by the Teubner editor of Oribasius, J. Raeder, runs as follows (*Coll.* IX 14,6,1–3 = *CMG* VI 1,2, 15,21–3 R.):

ἢ (sc. κλίνη) δ’ ἀνάρροπος σφόδρα κόπου ποιητική, εἰκοῦα καθεδρίου σχήματι, τοῖς δὲ περὶ κεφαλὴν οὐκ ἀνάρμοστος.

The manuscript tradition is unanimous in recording καθεδρίου σχήματι,<sup>41</sup> but U.C. Bussemaker and Ch. Daremberg in their previous edition of the *Collectiones Medicae* (Paris 1854, p. 310,4) make the emendation καθεδρίῳ σχήματι. In the former case, the term in genitive is a noun, i.e. the neuter καθέδριον, and is referred to the material object, a small chair.<sup>42</sup> But this juxtaposition is unparalleled, whereas the adjective

<sup>40</sup> As to the patient, ὅκου means where and ὅκως how the patient is placed, that is his position, cf. comm. *ad l.* by Littré (Paris 1841) 276. Cf. also Gal. *In Hp. Off.* I 6 (XVIIIb 668,9–670,5 K.).

<sup>41</sup> Cf. ThGL V 770D s.v. καθέδριον.

<sup>42</sup> The only certain medical attestation of the neuter noun καθέδριον is Sor. *Gyn.* II 37,5,1–4 (*CMG* IV, 80,21–4 Ilberg) μικρὸν δ’ ἐν ταῖς ἀγκάλαις αὐτὸ προδιακατέχουσα μετὰ τὸ συμμετρου μετασχεῖν γάλακτος κοιμίζετω καθ’ οἷας ὑπεδείξαμεν κοίτης, προκύπτων δὲ καὶ ἐγκλίνων καθεδρίῳ, where καθέδριον represents the stool on which the woman who breastfeeds the newborn is seated and bends

καθέδριος + σχῆμα is certainly attested, as aforementioned, and appears in dative also in another excerpt from the same work by Antyllus (cf. *Coll.* VI 23,9,4–10,1 = CMG VI 1,1, 181,23–4 Raeder: τῶν δ' ἀπυρέτων (τούς ..... ) καθεδρίῳ σχήματι αἰωρητέον). Thus, despite the consensus of the manuscripts, the study of all the attestations of the term leads to approve, on a grounded basis, the correction made by Bussemaker and Daremberg.

Also in a passage from Paul of Aegina, in a chapter on the insertion of the catheter in a male bladder, the occurrence of the term seems to conceal an element of philological uncertainty. The text edited by J.L. Heiberg (VI 59,1,9 = CMG IX 2,98,10 H.) is τὸν δὲ κάμνοντα σχηματίσαντες εἰς καθέδριον, literally “having placed the patient on a seat”. According to Heiberg’s apparatus, the only divergence in the manuscript tradition should be the presence of καί following καθέδριον in two codices of the XIV century from Paris (**D**, cod. Paris. Gr. 2208, and **F**, cod. Paris. Gr. 2292). However, it might be relevant that the second hand of a codex of the X century, **V** (cod. Paris. Gr. suppl. 446), deleted εἰς. This deletion might reflect the common expression with καθέδριος as an adjective (τὸν δὲ κάμνοντα σχηματίσαντες καθέδριον), whereas in the text transmitted by the manuscript tradition and printed by Heiberg καθέδριον is a noun and is unparalleled in this formula. Therefore, in case the deletion made by **V**<sup>2</sup> is correct – as it seems to be given the occurrence of the term in similar expressions –, the adjective καθέδριος would acquire its common predicative value, even if it is usually placed before ὁ κάμνων / πάσχων, and not after, as it would be in this passage.

Even more significant from the textual viewpoint are the aforementioned medical papyri attesting the word. In the earliest papyrus, P.Aberd. 11,<sup>43</sup> the term appears in the discussion on pterygium surgery immediately before the lacuna at l. 10 (cf. ll. 9–13):

χειρ[ουργεία τοῦ περυγίου.] | μετὰ τὸν καθέδριον[ν ὄντα τὸν πάσχοντα, ἐκ] | τοῦ ὀφθαλμοῦ  
διφ[υῆ βλέφαρα διαστείλαντες] | τὸ περυγίον δι[εκφανοῦμεν ἀγκι]στρείοι, βελόνην [δὲ λίνον  
καὶ τρίχα ἰππειάν]

forwards. In such a case, the term bears no technical value, being a simple (and generic) stool. Moreover, the neuter καθέδριον occurs only twice in late non-medical texts. In Zonar. δ 524,27 Tittmann s.v. διέδριον the term καθέδριον is used as the *interpretamentum* of διέδριον, a compound of ἔδρα meaning a “seat for two persons” (LSJ<sup>9</sup> 423 s.v., cf. also *Suda* δ 896,1–3 Adler s.v.). It is probable that here the gloss καθέδριον simply represents a generic (though not recurring) word for a “seat”, without a more specific correlation with διέδριον. In *schol.* A. *Th.* 454h (209,7 Smith) τῶν παρθενικῶν καθεδρίων· ἐδώλιον δὲ κυρίως ὁ ζυγὸς τῆς νηός, the juxtaposition παρθενικῶν καθεδρίων appears to be the explanation of *Th.* 454–5 πωλικῶν / θ' ἐδώλιων. Thus, the plural of καθέδριον – as well as of καθέδρα – seems to acquire the extended semantic value of “bower, abode”, that is one of the meanings of the plural ἐδώλια (cf. LSJ<sup>9</sup> 478 s.v.), even though the second part of the *scholium* refers to the meaning of ἐδώλιον as “rowers’ benches”.

**43** *Ed.pr.* TURNER 1939, 13. The text was republished (*ed.alt.*) in MARGANNE 1994, 104–11.

Surgery of pterygium. After the patient is seated, having separated the two eyelids of the eye, we will isolate the pterygium from the eye with a hook, and a needle having a thread and a horsehair...

The restoration ὄντα τὸν πάσχοντα, with the participle dependent on μετά, “after” in temporal sense, is a likely supplement, but also κάμνοντα may be considered.<sup>44</sup> On the one hand, the verb εἶμί is unparalleled in this expression, on the other hand the space is not enough for the usual σχηματίζοντα, and this makes the presence of ὄντα plausible. Moreover, the article before the adjective seems to suggest an attributive value, whereas in the medical authors, as already seen, καθέδριος is always in predicative position. Different is the restoration proposed by TURNER 1939, 13: μετὰ τὸν καθέδρειο[ν βίον ?]. It was very probably influenced by a passage by Soranus (*Gyn.* I 27,3,4 = CMG IV 18,2 Ilberg: καθέδριον διάγειν βίον), the only author who uses the adjective καθέδριος with the meaning of “sedentary” (LSJ<sup>9</sup> 851 s.v. καθέδριος 2), but it absolutely makes no sense in this context. This last case strongly illustrates how a good lexical awareness of the semantic values of a word in all its occurrences and kinds of sources can contribute to a better philological understanding of the text itself.

Philologically challenging and stimulating are the ll. 66–76 of P.Ryl. III 529r (col. ii):

οἱ | μὲν ἄλλοι καθέδριον . . . ]ωσαν τὸν κάμ[νοντα] σχη[[ματίζειν. ἡμεῖς δὲ . . . ] | κεκλιμένο[ . ]  
 ` ν ´ τὸ Ἄλ[εξάν]δριον σχῆμα ἐστὶν δυσ[σαλ]γέστατον, τὸ δὲ κεκλιμέ[νον] ἀσφαλέστερον.  
 ἀ[σφα]λέστερον δὲ ὅτε μέ[ν] ὑπτι]ον σχηματίζειν τὸν [πάσ]χοντα, ὅτε δὲ πρηνη.

The other physicians put the patient in the sitting position, whereas we lay him/her down: the “Alexandrian position” is extremely painful, while the lying down position is safer. It is safer to place the patient sometimes on his/her back, sometimes on his/her stomach.

The Rylands papyrus was first published by ROBERTS 1938, 158–62 (*ed.pr.*), then republished by MARGANNE 1998 110–47 (*ed.alt.*) with some textual differences, as in the case of l. 67. Here the adjective καθέδριος was very plausibly restored by MARGANNE 1998, 112 and 117, whereas the *editor princeps* (ROBERTS 1938, 160) simply printed κατε[ ]. The term is mentioned in the earliest extant discussion on the best and less painful position in which to place the patient before performing the reduction of his/her dislocated shoulder. Indeed, in Greek medical sources the sitting position, the καθέδριον σχῆμα, is sometimes explicitly rejected or preferred to other positions, especially the supine one.

A first observation on this passage: given the end ωσαν in l. 68 and the context, one could expect the first aorist active indicative of a verb of thinking/saying (e.g. “think”, “claim”, “advise”) in the lacuna of l. 67, followed by the infinitive σχηματίζειν in ll. 68–9. Considering the previous presence of καθέδριον and what seems to be the space left at the end of the lacuna, which is measured with three dots in Marganne’s

<sup>44</sup> Cf. MARGANNE 1994, 106.

edition, a plausible supplement might be perhaps ἤξι||ωσαν from ἀξιώω, with the meaning “to think”, i.e. ἄλλοι καθέ||δριον ἤξι||ωσαν τὸν κάμ||νοντα| σχη||ματίζειν. Interestingly, ROBERTS 1938, 16, though without any supplement to the text, translates: “other authorities (advise) that the patient be disposed in a ... position”.

Moreover, at the end of l. 69 before the break, possible supplements might be: ἡμεῖ|ς δὲ μάλλον| | κεκλιμένο||. ]' v ' or ἡμεῖ|ς δὲ κατα||κεκλιμένο||. ]' v ', cf. Aët. XV 5,50–1 (19,15–6 Kostomiris) σχηματίζεσθω ὁ πάσχων κατακεκλιμένος.

A more puzzling textual issue concerns ll. 70–1. The context (ll. 66–81) is the description of a method of reduction opposed to the procedures of other physicians or schools and it is specified that others place the patient seated; on the contrary, the author recommends lying him down. According to the restoration made in ll. 70–1 by both Roberts and Marganne, i.e. Ἀλ|εξάν||δριον, the so called Ἀλεξάνδριον σχῆμα is defined as δυσσαλγέστατον, whereas the lying-down position is regarded as less painful and safer. Marganne (p. 129) considers the Ἀλεξάνδριον σχῆμα as the same as the sitting position mentioned in l. 67, and not as a different posture. In such a case, the second statement (τὸ Ἀλ|εξάν||δριον σχῆμά ἐστιν δυ|σαλ|γέστατον, τὸ δὲ κεκλι|ι-μέ||νον ἀσφαλέστερον) would seem to explain the reason for the author’s preference for the lying-down position, as expressed in the previous lines (οἱ| | μὲν ἄλλοι καθέ-|δριον . . .|ωσαν τὸν κάμ||νοντα| σχη||ματίζειν. ἡμεῖ|ς δὲ . . . .| | κεκλιμένο||. ]' v ').

The point is that there is no attestation of the Ἀλεξάνδριον σχῆμα in medical literature, and Withington’s suggestion<sup>45</sup> that the Ἀλεξάνδριον σχῆμα may correspond to the position on the Thessalian straightbacked chair, the μέγα ἔδος Θεσσαλικόν, used for dislocations and mentioned by Hippocrates (*Art.* 7,36–43 = IV 92,10–94,1 L., cf. also Gal. *In Hp. Art.* I 22 = XVIIIa 344,1–345,8 K.), seems unmotivated.<sup>46</sup>

The reading Ἀλ|εξάν||δριον, accepted by MARGANNE 1998, 112, was first restored by ROBERTS 1938, 160, who did not understand the presence of καθέ||δριον in l. 67, as aforesaid. But a collation with the digital image of the papyrus<sup>47</sup> has raised difficulties with the supplement Ἀλ|εξάν||δριον, inasmuch the traces are incompatible with the usual shape of α and λ. At the break, indeed, part of a small horizontal trace survives, consistent with the lower trait of an α. It is preceded by what seems to belong to a

<sup>45</sup> Cf. ROBERTS 1938, 162.

<sup>46</sup> Cf. MARGANNE 1998, 129 n. 29: “Le remarque de Withington [...] est superflue. Il est vrai que ni lui, ni Roberts n’avaient restitué, à la l. 67, καθέ||δριον”.

<sup>47</sup> The only available image of this papyrus is black and white and is stored in the photographic archive of CEDOPAL (University of Liège). Under my request Prof. Marganne, to whom I express all my gratitude, provided me with the available image. Then, in order to have the best image possible to check the text, I purchased high-quality images of the recto and the verso of the Rylands papyrus (format: large TIFF 600 dpi) from the Centre for Heritage Imaging and Collection Care (CHICC) of the University of Manchester Library. I would like to take the opportunity to thank John Hodgson, Manuscript and Archives Manager, and Tony Richards, Heritage Photographer, for the excellent digital images that now I own.

vertical trait slightly sloping to right. The shape of these traces can be convincingly compared with the sequence γα recurring several times in the papyrus.<sup>48</sup> Accordingly, also taking into account the ending δριον in l. 71, a likely supplement that seems paleographically compatible and fits well the space is τὸ γὰρ καθεῖδριον. Additionally, on the syntactic side, the presence of γὰρ would acquire an explanatory function perfectly appropriate to the content, thus introducing why the author – that in the previous sentence affirms his preference for the lying-down position – rejects the καθεδριον σχῆμα, being it δυσαλγέστατον, “more painful”. This sense of opposition is then marked and strengthened by the adversative δέ (l. 72), where it is stated that the lying down position is safer.

To conclude on this aspect, the example of καθεδριος is useful to highlight the potential philological contribution of the vertically in-depth and both ‘atomic’ and ‘holistic’ lexical studies carried out for *Medicalia Online*. Thus, given the high degree of textual awareness offered by this kind of lexical studies, the present *specimen* illustrates how the medical text can be improved in terms of new and more reliable (or at least plausible) readings and emendations, as well as it can be deeper and better understood:

οἱ | μὲν ἄλλοι καθεῖδριον ἤξι||ωσαν τὸν κάμ||νοντα σχη||ματίζειν. ἡμεῖς δὲ μᾶλλον | κεκλιμένο|| . ||  
 `ν´· τὸ γὰρ καθεῖδριον σχῆμά ἐστιν δυσ||αλ||γέστατον, τὸ δὲ κεκλι||μέ||νον ἀσφαλέστερον.

The other physicians think that it is better to put the patient in the sitting position, but we rather that it is better to lay him/her down: the sitting position is indeed extremely painful, whereas the lying down position is safer.

### 3 Conclusions

The experience of a specialized lexicographical tool like *Medicalia Online* demonstrates the different kinds and levels of usefulness and the potential of a digital lexicographical database characterized by a wide-ranging approach in the era of Digital Humanities. Among these, the usefulness of a tool specifically conceived to carry out in-depth, ‘vertical’ lexical studies aimed at providing the broadest possible overview of the examined items under multiple perspectives, namely linguistic, archaeological, historical-scientific. The usefulness concealed in the inner nature of a digital instrument, that is its dynamism, its flexibility, its capability of allowing the author of the entry to constantly update the contents. The usefulness of the interdisciplinary,

<sup>48</sup> Cf. *recto* col. I l. 5 γάρ, l. 15 ἀνάλογα, ll. 33 and 50 γάρ; *verso* col. I ll. 106 and 109 γάρ, as well as l. 110 ὀργανικοῖς, and finally col. II l. 124 τοιγαροῦν and l. 127 ἔργα.

comprehensive approach to the Ancient World, which makes *Medicalia Online* a helpful resource for contributing to improve and reconsider the studies in medical papyrology as well as in the other subject areas involved, and broadens the circle of users to any scholar or enthusiast of those research fields. Furthermore, the user-friendliness of the entries in spite of the wide range of information and, most importantly, the mutual enrichment resulted from the interconnection between the *MedOn* lemmas and the digital editions of the medical texts on papyrus in the core database. This strongly encourages an enhanced textual understanding stimulating a double awareness – a concrete one and a textual-philological one –, as the selected *specimina* have illustrated. The outcomes are, on the one hand, the attempt to reconstruct the physical reality hidden under the words and, on the other hand, a better and deeper exegesis of the ancient medical texts through a better and deeper knowledge of the words themselves.

Such a ‘vertical’ lexicographical approach also helps elucidating the degree of technicality of the medical terms, as well as of the texts containing them. Two of the presented case studies can be taken as illuminating examples of this aspect. καθέδριος (§ 2.3) has a marked technical value, since it occurs, with its specialized medical meaning, only in strictly medical sources; conversely, the compound φαρμακοθήκη (§ 2.2), characterized by a pronounced morphological transparency, did not develop into a genuine technical term and was probably employed as a colloquial noun for an object of medical use, the physician’s tool-case or its household counterpart, so that it was not a medical *terminus technicus* but just a word with a medical meaning. And indeed it does not appear in a *stricto sensu* medical papyrus, but in a private letter carrying medical information, P.Oslo II 54. Horeion, the author of the letter, who lives away from home for personal or professional reasons, asks his father Apollonios to send him the portable medicine-chest (ll. 5–6 πέμψον | μοι τὴν φαρμακοθήκην), as well as two remedies with different properties, that is a biting *pharmakon* and a much milder one (ll. 7–9 αἰτήσας π[αρ]ὰ τοῦ ἱατροῦ | φάρμακον δακνηρόν | καὶ ἕτερον ἡδύτερον). The terms employed by Horeion point to different degrees of technicality and particularly significant is the juxtaposition between the φάρμακον δακνηρόν and the ἡδύτερον one, likely representing two *kollyria* of contrasting virtues, perhaps belonging to the typology of the *acharista*.<sup>49</sup> These terms, indeed, especially the former, are technical adjectives applied to eyesalves and ophthalmic preparations. Thus, whilst the vocabulary employed by the writer reflects different levels of technicality, the choice of accurate and rare words reveals his proficiency in the medical field and a certain medical literacy.<sup>50</sup> This might mean that Horeion was either a literate layman interested in medicine, or even a person with healing skills, such as a would-be physician or a *pharmakopoles*. The case of P.Oslo II 54 is useful to demonstrate how a

<sup>49</sup> Cf. BONATI 2016b, 667–9.

<sup>50</sup> On the topic, cf. HANSON 2010.

thorough lexical study of medical papyri from Greco-Roman Egypt contributes to shed new light on the socio-linguistic context in which these papyri were inserted, and may provide invaluable glimpses of the individuals ‘behind their words’.

Finally, all these factors restate again the usefulness of *Medicalia Online* and its methodology to plumb the depths of the past, allowing for the revaluation of the entire material come to the present and promoting a more integrated knowledge of the Ancient World, to which a voice – if not ‘living’ at least not ‘dead’, or irremediably lost – can be returned: the echo of its written and material soul.

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