IMPRESSION.

Beyond ideological conflict: religion and freethought in the Belgian medical press, 1840-1914

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IMPRESS

Beyond ideological conflict: religion and freethought in the Belgian medical press, 1840-1914

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IMPRESSION is a digitization and digital history research project on the role of religion and ideology in the 19th-century medical sciences. The project involved a partnership between KU Leuven (Kaat Wils, Michèle Goyens, Joris Vandendriessche and Jolien Gijbels), the Free University of Brussels (Cécile Vanderpelen, Joffrey Liénard and Valérie Leclercq) and the Royal Library of Belgium (Frédéric Lemmers), and was coordinated by KU Leuven.

The project led to the digitization of 186,000 pages or 286 volumes of scientific journals from the collections of the Royal Library of Belgium. The team selected three journals for digitization because of their special value as scientific heritage and their potential for historical research: the Bulletin of the Royal Academy of Medicine, whose membership included both Catholic and freethinking physicians, the Journal de médecine, de chirurgie et de pharmacology, whose editors embraced liberal ideas, and the Journal des sciences médicales de Louvain, which was published by the Faculty of Medicine of the Catholic University of Leuven. The digitized volumes were made accessible to the wider public through the newly launched platform BelgicaPeriodicals of the Royal Library. IMPRESS further acted as a catalyst in the development of an open data policy.

The selected journals – to which additional sources were added – were subjected to intense historical scrutiny to answer the central research question on the role of religion and ideology in the 19th-century medical field. The team focused on scientific debates on gynecology and obstetrics, mental illness, and vaccination, combining digital and classical hermeneutical text analysis and interpretation. For its digital analysis, the team explored a range of tools (LancsBox, AntConc, Mallet etc.). This resulted, first, in an article on digital methodology for journal analysis, presented to the journal Digital Studies. Second, the team opted for AntConc as the tool with which to continue the project’s digital historical research (the PhD research by Jolien Gijbels and the postdoctoral research by Valérie Leclercq).

Partly thanks to the use of digital tools IMPRESS showed the undeniable presence and impact of religion and ideology in 19th-century debates within the medical sciences. The project revealed the intertwinement of ideology with the production of knowledge in medico-ethical discussions over difficult births, post-mortem caesareans, (mandatory) vaccination, and mental illness. Scrutinizing these debates, the team uncovered a process of secularization through the reformulation of ideological beliefs in scientific terms. At the same time, the influence of religion and ideology was never clear-cut or well-defined. The team’s historical analysis revealed that, precisely because ideology was so strongly connected to the questions that drew physicians’ attention, it could never be left out of scientific discussions (in spite of physicians’ attempts).

IMPRESSION also shed new light on the chronology of ideological conflict in the 19th-century medical sciences. On the one hand, its results confirmed the hypothesis that the shifting intensity of political struggles between Catholics and liberals, including peaks such as the School War (1879-1884), was noticeable within the scientific field, in particular in a series of debates on cerebral pathologies. On the other hand, the team found that the scientific debates also followed an internal logic (e.g. driven by technological innovation), which resulted in intense debates on gynecological interventions in the politically relatively ‘stable’ 1850s and 1890s. The team also found that the most explicit expressions of religion and/or ideological beliefs occurred in the margins of scientific journals, i.e. in the review section, the obituaries and the news section. This proved an editorial strategy that allowed the journal...
to profile itself ideologically, but at the same time allowed editors to shield off core parts, in particular their sections with original articles, keeping these ‘purely’ scientific.

The output of IMPRESS comprised a PhD thesis (by Jolien Gijbels), different academic articles (including for *Bulletin of the History of Medicine*, *Annales de démographie historique*), and chapters in edited volumes. The team shared results with a wider public through blog posts, articles for heritage magazines (*Faro, Tijd-Schrift*), radio-interviews, podcasts and public lectures. Team members organized workshops in Leuven and Brussels, and international colloquia and panels (Haarlem 2020, ESSHC 2021). The online international conference ‘Faith, Medicine and Religion’ (7 to 10 September 2021) constituted the final event of IMPRESS.

**Keywords:** digital humanities, history of medicine, religion, medical journals, 19th century Belgium.
1. INTRODUCTION

The Belgian medical journals preserved in the Royal Library of Belgium constitute an outstanding but largely neglected source of knowledge of the Belgian scientific field during the 19th and 20th centuries. As the most important medical fora for scientific exchange at that time, they offer insights into medico-ethical questions and professional and ideologically-based identity constructions of physicians. To highlight the scientific potential of these sources, the Royal Library, which is specialized in archival and library science and has hands-on experience in the field of digitization (BELGICA Press, etc.) has closely cooperated with academic research groups from both the French and the Flemish community, which are specialized in medical, religious and intellectual history, linguistics and digital humanities.

IMPRESS has presented a methodological model of digitization within the Royal Library. Due to the limited budgets that are available for the digitization programs, the Royal Library had until recently prioritized the digitization of the most fragile and damaged printed sources, which cannot be given to the public for consultation. Although significant efforts had been made to safeguard by digitization about five million pages of Belgian periodicals and journals, its collection of periodicals is so rich that many thousands of titles from the 19th and 20th centuries are remaining inaccessible for digital research projects. This was the case for its comprehensive collection of Belgian medical journals, constituting a body of scientific heritage which is also from an international point of view of an exceptional richness. This project ensures the long-term preservation of the journals and enhances new scientific research by leveraging metadata for identifying the selected medical journals and by providing text search via optical character recognition (OCR) techniques.

The project has not only served as a test case and methodological model for digital research on 19th-century scientific heritage, it equally puts forward the need of groundbreaking interdisciplinary research based on linguistic digital methods to provide insights into and rethink the actual significance of 19th-century ideological conflicts between Catholics and liberals around medical issues. Until now this ideological divide remains one of the three fault lines governing Belgian society, despite its pacification since the late 1950’s. With the advent of a multicultural and multireligious society, religious-philosophical divides have gained a new prominence in everyday life and public debate in Belgium. Bioethical questions concerning euthanasia, abortion or the boundaries of medical research are among the topics which arouse controversy. In these debates, memories of the 19th-century ‘culture war’ continue to play a role and are often invoked to strengthen one’s own position. It is therefore of utmost importance to study this ideological divide in terms which are both historically accurate and accessible to today’s citizens who want to orient themselves historically.

The selection of three scientific journals that have been digitized and which constituted the major primary source of the research, has been decided upon by taking into account two criteria: the inherent scientific and patrimonial importance of the collection within the periodicals’ collection of the Royal Library, and the suitability of the journals to answer the research questions: 1) the scientific and ideologically mixed journal Bulletin de l’Académie Royale de Médecine de Belgique of the most renowned national medical society, the Belgian Academy of Medicine; 2) the Journal de Médecine, de Chirurgie et de Pharmacologie, edited by the medical academics of the free-thinking Brussels University; 3) the Journal des sciences médicales de Louvain and its successors, directed by medical professors connected to the Catholic University of Louvain.
2. STATE OF THE ART AND OBJECTIVES

**Historiography about medicine and ideology** has recently changed its tack. Instead of focusing on instances of conflict, in particular between physicians’ scientific insights and their religious beliefs, historians are increasingly looking for moments of ‘productive interaction’. This has led to a thorough reassessment of the place of religion in the medical field (Ferngren 2014; Donato 2011; Guillemain 2006). Religious practices could in fact inspire new medical approaches, as studies of the so-called ‘moral therapy’ in nineteenth-century psychiatry have revealed (Heidegger 2016; Goldberg 2001). Such new histories of collaboration, however, have not yet treated ideology in a more comprehensive way. Little attention has been paid so far to the scientific interactions between Catholic and liberal physicians. In trying to move beyond cases of conflict, historians have also left unanswered questions on how ideological difference was dealt with in the medical field, assuming perhaps that the conflict between Catholics and liberals on the political level was necessarily reproduced among physicians (Velle 1991 and 1995; Havelange 1990; Schepers 1989). The well-studied case of France, where sentiments of anti-Catholicism and radical liberalism were amply present in the medical and the general press (Verhoeven 2015 and 2010; Lalouette 1997; Goldstein 1982), might have nourished such an assumption. Moreover, since France has often been considered representative for trends in continental Europe, our current view of the nineteenth-century medical profession is that of an almost entirely liberal and anticlerical body – it is an image this project sets out to challenge by scrutinizing the role of ideology within the scientific medical field and by paying attention to the particularity of the Belgian medicine (Vandendriessche 2015; Peeters and Wils 2014; Nys, et al. 2002).

To reconsider the specificities of both Catholic and liberal approaches to medicine, the project takes advantage of the **possibilities of digitization** in terms of methodology by applying a set of digital linguistic tools on digitized scientific medical journals. Recently, international studies within and beyond medical historiography have shown the benefits of digitization. In the field of the study of ideological conflict, digital research has enriched the analysis of Belgian parliamentary sources (Beelen 2014). IMPRESS will digitally analyze three major journals which belong to the rich but underused collection of Belgian medical journals of the Royal Library of Belgium.

The project has a **double objective**. In the first place, the project has digitized a selection of journals and will continue to function as a **methodological model** (in Belgium and beyond) for future digitization projects and digital research on 19th-century scientific heritage. For these reasons, the digitization and digital preservation of the corpus and its online publication are an essential part of this project. The aim is to stimulate both accessibility and further (inter)national research. Secondly, the project aims to answer two sets of research questions on the role of ideological conflict and religious-philosophical identity within the Belgian medical world. It has done so by using an interdisciplinary approach combining insights and methodologies from the fields of linguistics, medical history and the history of religious and political ideas. First, it has studied the clashing ideological views of Catholic and liberal physicians, and their willingness to bypass ideological disagreements within scientific exchange. Attention has been paid to the ways in which physicians dealt with ideological difference and how this related to the broader historical evolution of the religious-philosophical debate within Belgian society at large. For reasons of feasibility this research has been limited to three medical subfields where ideological difference was clearly at play: mental health, gynecology and public health (*santé publique*). The second set of research questions concerns
professional identity formation and fits in well with recent scholarly attention for scientific personae and academic identity (e.g. the upcoming special issue of Low Countries Historical Review ‘Repertoires and performances of academic identity’). The project adds to this research strand by studying how and when physicians developed both common and ideologically specific professional and/or scholarly identities. The proposed project aims in this way to offer a well-informed historical perspective to actual debates in the fields of public health and bioethics in which religiously and/or philosophically inspired divides are at stake.
3. METHODOLOGY

In order to meet both aims of the project, the work has been developed in four phases. Each phase corresponds to a specific set of methodologies: 1) digitization of the journals; 2) preparation of the digital data and automatic information retrieval, leading to the delineation of subsets of the data; 3) specific retrieval of information on the basis of search for words and word combinations; in-depth hermeneutical analysis of the extracted passages; communication on these research strategies and results on the project website; 4) further investigation on other published source material in order to contextualize, refine and strengthen the interpretation of the research output. The four steps have been executed in a chronological order, although there was some overlap to guarantee that the four years were used as efficiently as possible (esp. between 1 and 2) and to guarantee cross-fertilization between the analysis of the three selected journals and the broader contextual searches (phase 3 and 4).

The first phase consisted of the digitization of the three selected journals. The process of digitization was executed in four technical steps: 1) digitization of the bound volumes (preparation of the documents, metadata check, copyright clarification, image capture, OCR, quality control, production of XML METS, production of permalinks (UURL's); 2) production of special deliverables for the needs of the PhD students (PDF, TXT Files, ...); 3) data clearance of all project deliverables for ingestion in the KBR long term preservation infrastructure; 4) online publication of the original bibliographic units on a new thematic dissemination channel dedicated to periodicals (BELGICA Periodicals) where both full text and calendar searches will be offered to the general public.

In a second phase, the data provided were prepared for the research. Once the digitized version was delivered to the project researchers, it became clear that the quality of the journals published in the second half of the 19th and in the beginning of the 20th century causes specific difficulties with OCR, a problem that is well known by researchers working with digitized historical texts (Thompson, McNaught, and Ananiadou 2015). Some fonts, the use of capitals, hyphenation, but also tables and schemes give bad results, when for instance the text is suddenly interrupted by words coming from a table. In order to deal with those problems, a series of scripts were developed, with the objective to eliminate as much noise as possible. For example, in order to solve the problem of hyphenated words, generating 2 words after OCR, we developed a simple R script (i.e. a script written in the programming language R) to automatically substitute e.g. “intéres” and “sante” with “intéressante” in our final digital corpus. Some other steps were taken in order to clean up the corpus. More specifically, there was a need for normalization for the purpose of collation, due to the existence of different conventions across OCR tools with respect to the recognition of specific characters: e.g. the preposition à (“to”) may be recognized as the entity “&grave;” or as a single character “à”, or as character “a” plus accent “’”; another example is the existence of “protected characters” in ALTO’s XML context, such as “&apos;”. Again, we used an R script to perform this normalization.

In a third phase, specific retrieval of information on the basis of further text mining operations was combined with conventional in-depth hermeneutical analysis of selected passages in an iterative interaction, as is usual within the field of digital historiography (LCHJ 2013; Dougherty and Nawrotzki 2013). A first, quite obvious, operation is the detection of relevant passages with respect to our research questions regarding ideological conflict in Belgian medicine, by distant reading via concordance tools. We also wanted the tools to reveal language strategies, by analyzing word
frequencies, word combinations and collocates, i.e. words in the vicinity of a search term, in the context to its left and/or its right. Pre-existing ideas about historical developments can be challenged by comparing concordances and keywords for different time periods and journals. Finally, specific informed searches can test research results related to one particular medical debate in a larger corpus. We experimented with several text mining tools.

First, we worked with “Tropes” (version 8.4), software developed by Pierre Molette and Agnès Landré, based on Rodolphe Ghiglione’s work, for the analysis of French literary texts. Nevertheless, we could not use it, mainly because of the size of our texts, and the specific nature of their contents. Indeed, once a file is too large, the program has difficulties; the comparison of periods or journals is not possible either. Next, the tool “AntConc”, developed by Laurence Anthony, was tried out (Anthony 2005; 2013). It is very user-friendly and gives good results, as it allows large text corpora to be uploaded and analyzed. So we continued to work with this software to select meaningful passages, using the concordance function, and to investigate co-occurring words with the collocate function. For instance, the concordance function searches for words in the context of a search item (e.g. we used whole words, or truncated words like religi* or “catholi*”, in order to find different words such as religion(s), religieux, etc., and catholique(s), catholicisme, etc.). The Clusters Tool within AntConc allows to search for combinations formed by your search term with other words surrounding it, to see for instance what the most frequent word combinations are. In our sample case of catholi* in the Leuven journals, it shows that université(s) catholique(s) is by far the most frequent combination with catholi* (resp. 108 cases, out of 185 cluster tokens), while we find just a few instances of accoucheur catholique (“catholic birth attendant”) and savant catholique (“catholic scholar”). The Collocate Tool within AntConc, on the other hand, looks for non-sequential patterns in the journals. After having specified the span of words the program has to search for, it gives you the words that appear in the vicinity of the search term, here catholi*, according to the specifications that were selected (sort by frequency, by word, etc.). This tool reveals for instance that in the vicinity of catholi* the word université appears with a significant frequency (which also confirms the results of the Clusters Tool), whereas the presence of words like accouchement, clinique, etc. is far less frequent. By means of the Concordance plot tool within “AntConc”, it becomes possible to compare the frequency and the distribution of specific search terms for the three journals, as well as for different time slots (e.g. 1840-1850 and 1880-1890). It is an application that quickly visualizes the frequencies of a word in a number of files, where each occurrence is represented as a black vertical line.

Alongside “AntConc”, another tool was experimented with: “LancsBox”©, developed by V. Brezina, T. McEnery and M. Timperley with a view to the detection of interesting passages or topics (Brezina, McEnery, and Wattam 2015; Brezina, Timperley, and McEnery 2018). The software provides, among others, keyword analysis, absolute and relative word frequencies and collocation networks. It shows, for instance, that the journal volume of 1877 contains the most absolute frequencies of catholique, while the relative frequencies are higher in the volume of 1880, implying that the latter volume will be more interesting to analyze. The program is also good in comparing concordances. By selecting two corpora and searching for the same words in them, the tool visualizes the results for each corpus above each other. “LancsBox” also offers a visualization of collocation networks, where not only the collocates for one word, but also the collocates of the collocates of that word, up to the 7th level, can be shown.
There was also an experiment with the topic modelling tool Mallet, that allows to extract topics from texts (Graham, Weingart and Milligan 2012). However, our attempts did not generate meaningful research results, because discourses related to ideology and religion were rather scarce in the medical journals, certainly in comparison to medical terminology, so these topics did not emerge.

As indicated, the use of these digital tools was paralleled by more conventional textual analyses of (a selection of) the journals, to eliminate ‘noise’ which was generated by the digital searches and to start with the interpretation of the results. As regards the keyword *catholi* for instance, word combinations where *catholique* was determining an institution (e.g. *université catholique*) or a journal name, and not people or attitudes, were quickly eliminated. In a similar vein, word combinations referring to non-medical foreign groups and developments in past and present were also excluded from the selection. The last category includes for instance references to excisions among Coptic Catholics in Egypt. With respect to the knowledge of the number of relevant occurrences of specific terms, this is important, but it is insufficient when we aim to answer our research questions. Indeed, in order to understand the role and meaning of references to religion and ideology, we had to go further. With a view to this, we distinguished, within the contexts in which the investigated terms appear, three types of connotations, “positive”, “negative” and “neutral”, based on our interpretation of the sentence in which the words occurred. This revealed, amongst others, that the term *catholique* appeared more frequently in negative contexts in the Leuven journals than in the others. As it was often necessary to read a full paragraph in order to understand the connotation of an individual word, it became clear however that, in order to tackle discursive strategies, a merely quantitative, word-based approach had to be supplemented by an in-depth hermeneutical approach.

The fourth phase was mainly concerned with the broader contextualization of the research findings through additional primary research. Alongside secondary literature, a limited amount of additional research on primary sources was executed to support the process of interpretation of the research findings. This research has taken on two forms, which correspond to the specificity of each of the two sets of research questions. In answering the first set of questions, where the content of debates is at stake, it was necessary to include in the analysis some of the texts to which authors referred (especially those published by the authors themselves), and other texts which commented upon and influenced the debate in the journals (debates in the Academy for instance lasted several months and the monthly issues of the journal were reported upon both in the general daily press and in the medical press). Basic biographical research on the main authors involved in the selected scientific debates has also been executed. To answer the second set of research questions, on religiously or philosophically based identity formation, a limited amount of additional research was done on medical education at the universities of Louvain and Brussels, two important production sites of professional identity. The medical curriculum of the Catholic University of Louvain and the (explicitly free-thinking) Free University of Brussels was studied, alongside a selected corpus of textbooks related to the thematic subfields and to issues of medical deontology (textbooks by for instance the Louvain professor Eugène Hubert, *Accouchements: gynécologie et déontologie*, 1892; *Idem, Le devoir du médecin*, 1897). This allowed to gain further insight into the evolving ways in which a specifically ‘Catholic’ or ‘free-thinking’ medical identity was transmitted, and the degree in which this process of identity formation built upon and presupposed beliefs on the existence of a clear ideological conflict consisting of two homogeneous groups.
4. SCIENTIFIC RESULTS AND RECOMMENDATIONS

Digitization:

The digitization process, led by the KBR, has been successfully accomplished. The whole corpus that had to be digitized for the needs of this research project is available online via www.belgicaperiodicals.be and accessible to the general public. In parallel, project researchers have been provided with all related datasets.

The corpus to take into consideration within this research project concerns three series of medical periodicals with changing titles:

- *Bulletin de l’Académie royale de médecine de Belgique* (87 volumes; 85,073 pages)
- *Journal de médecine, chirurgie et pharmacologie* (94 volumes; 62,656 pages); *Journal médical de Bruxelles* (23 volumes; 19,028 pages)
- *Journal des Sciences médicales de Louvain* (6 volumes; 3,760 pages); *Revue médicale de Louvain* (29 volumes; 15,387 pages)

Based on those figures, the corpus to digitize within the project corresponds to 239 bounded volumes, which corresponds to about 185,904 pages.

From the beginning of the project, KBR communicated to the PhD candidates the digital material they needed for their research. Portable hard disks have been regularly filled-in with new datasets in function of the researchers’ requests. The PhD researchers evaluate the quality of the OCR very positively.

Text mining of the digitized corpus:

In what follows, we reflect briefly on the results, the added value and the limitations of the use of the text mining tools. First of all, we were not able to profit from the most advanced tools that are used in the mining of modern texts, because of the quality of the digitized material: it would be necessary to clean up this material in order to have smooth results with those tools, so that we could trust them more blindly, knowing that there is as little noise as possible. However, as was shown by other researchers who have worked with 19th century texts that were digitized (e.g. Thompson, McNaught and Ananiadou 2015), this is a very time consuming process, so we had to turn to other strategies.

This is why we chose “AntConc”, the text mining program which was most suitable for our research. “AntConc” has, in the first place, been a tremendous help in mastering a corpus of so many pages. It has allowed us to detect general tendencies that we would never have detected with such certainty using traditional research methods. Through mere quantitative searches, we discovered that language referring to religion and ideology was much less present in the medical journals than we might have expected on the basis of existing secondary literature. We also found, however, that there was a clear rise in religious and strong ideological vocabulary in the time period of the so-called school war, an...
era of polarized public debate on the position of religion in education. This finding confirmed one of the hypotheses we had drawn when starting the research.

Secondly, we were also quite early on confronted with the limits of this approach. When we tried to qualify these general quantitative tendencies, we encountered a number of difficulties. Closer analysis revealed that a lot of results obtained by the digital tools turned out to be not so meaningful in relation to our specific questions. The word *catholique* is for instance often mentioned as part of the institutional name of the Leuven university (*Université Catholique de Louvain*). Such examples show that historical explanations about the importance or weight of debates cannot be derived from the mere statistical occurrence of particular words. Our attempts to detect the normative charge of specific words such as “Catholic” or “materialist” made us moreover realize that hermeneutical text analysis is also needed. Words never speak for themselves, but have to be interpreted within the discursive context in which they have been used, and to do so, “traditional” reading skills are necessary. In a similar fashion, we were confronted with the many invisible interpretative choices we had to make when trying to categorize different text fragments according to the journal sections of which they were part. In short, we came to realize that working with a text mining tool in no way releases you from the task of close reading.

Thirdly, while acknowledging the many interpretative interventions in preparing searches with “AntConc”, we managed to reach more sophisticated research results which, again, would not have been obtained without the text mining tools. By taking into account the variety of text genres, namely the different types of sections, within the journals, and linking the occurrence of specific words to these different genres, we were able to show how religion and ideological conflict were quite absent within the scientific sections of the journals, but could nevertheless play a role in the margins of the journals. This allowed physicians to live up to an ethos of scientific purity without therefore having to be completely cut off of larger social and political identifications and tensions.

A more extensive reflection on our use of text mining tools, and AntConc in particular, can be found in ‘Mining 19th-century Medical Journals in Belgium: reflexions and challenges’, that has been reviewed by the journal *Digital Studies / Le champ numérique* and is currently being reworked by the authors M. Goyens, J. Gijbels, F. Lemmers, D. Speelman, C. Vanderpelen, J. Vandendriessche and K. Wils.

Thanks to the digitization of this corpus, it will be possible in the future to use other tools that allow the extraction of terms as well as multiword units which are in relationship to a specific domain. Also the detection of semantic changes, the polysemy of words, or the disappearance of terms over time, is a possibility offered by specific linguistic models. Just to give one example, the analysis of the *polysemy of a word* by using the Word Space model, is an interesting application. The polysemy can be visualized in a graph by “token clouds”, each cloud representing attestations of a word with a specific meaning (see for instance the study by Heylen, Wielfaert, Speelmand and Geeraerts, 2015 on a large corpus of Dutch newspapers from 1999 to 2005). The detection of the word’s meanings is done by the programme, and gives quick and interesting results. Such a tool, and others, could also be applied to the digitized corpus developed by Impress, in order to study the evolution of certain words or concepts from the mid-19th century until 1914.
Research on the medical subfield of gynecology:

Jolien Gijbels has focused in her research on scientific debates about labour complications between Catholic and liberal doctors on the one hand and on individual cases of difficult births on the other. She has studied the role of ideology and medical ethics in these debates and practices in Belgium from 1830 until 1914. In so doing, she applied both digital and conventional hermeneutical research methods. She used the tool AntConc to find meaningful passages (concordance function) and to investigate co-occurring words (collocate function) in the three digitized medical journals. Besides this, she did conventional textual research in a selection of gynecological and obstetric treatises, theological, legal and gynecological journals. In function of these sources, she read secondary literature to put her findings in perspective. She read about moral theology, medical journals and doctor-patient relationships.

Jolien’s research has shown that concerns over medical ethics and the religious practice of intrauterine baptism featured prominently in medical debates about difficult births from the 1830s until the early 1860s. In particular, the setting of medical society meetings provided a context for physicians to voice concerns related to religion. Considerations of baptism and Christian morality were central to medical discussions about post-mortem caesarean sections for reasons of baptism and obstetric interventions that resulted in foetal death such as medical abortion. In several peer-reviewed articles, published in the Bulletin of The History of Medicine, Annales de Démographie Historique and Handelingen der Koninklijke Zuid-Nederlandse Maatschappij voor Taal- en Letterkunde en Geschiedenis, Jolien has analysed the role of religion in these debates. The most important discussions took place in 1845 and 1852 in the Royal Belgian Academy of Medicine.

In most journal publications, however, doctors adopted medical innovations and talked about reproduction without being hindered by religious statements. Whether religious concerns and moral reflections were addressed in medical journals largely depended on the genre of the journal sections. The highly technical genre of the case history (these are short medical articles in which physicians narrate individual cases of difficult births), for instance, offers historians only limited insights into religious practices and convictions. In the nineteenth century, medical observations tended to focus on the physical appearance of parturient women, the diagnosis of labour complications and a detailed description of treatments and post-operative aftercare from the perspective of doctors. In contrast, considerations related to religious morality and medical ethics were largely absent in case histories. While debates in medical societies and medical memoirs about medical abortion and other interventions that ended the life of foetuses were filled with concerns over medical ethics, such aspects were lacking in medical observations.

Overall, the studied medical debates and practices in the period 1830-1914 show that ideological clashes in scientific settings were never initiated by political statements or developments. In fact, this study has revealed that the two periods with most ideological confrontations in obstetric debate took place much earlier (ca. 1840-1860) and much later (1892) than the school war of 1878-1884. In both cases, obstetric developments led Catholic physicians to raise objections against particular interventions. The first long-lasting phase of ideologically charged debate was caused by medical innovations of and experiments with premature labour induction, medical abortion and embryotomy. The occasion for the debate of 1892 was formed by the first experiments with the improved caesarean section, which raised questions about the propriety of other existing interventions such as the
premature induction of labour and embryotomy. In other words, ideological conflicts in medical debates were always caused by ‘internal’ medical developments.

**Research on the medical subfield of public health:**

Our research on vaccination in 19th century Belgium, which was first carried out by Joffrey Liénart, then taken over by Cécile Vanderpelen and Valérie Leclercq in 2019, questioned the social and political ideologies underlying the arguments in favor of smallpox vaccination, and the discourses advocating both for and against a compulsory vaccination law. It also examined the position of the Catholic Church in this debate. The text-mining tool Antconc was used to sieve through the rich content of the *Bulletin de l’Académie Royale de Médecine*, the *Journal Médical de Louvain* and the *Journal de médecine et de pharmacologie*. Additional source material was exploited, such as the political press, popular literature, archives from the CPAS-OCMW, medical monographs, internal school regulations, etc.

Cécile and Valérie’s efforts shed light on a bipartisan collaboration between liberals and Catholics on the topic of vaccination. There seemed, indeed, to have been a sweeping consensus among 19th century government bodies, the medical profession and the Catholic Church in favour of the vaccine as a necessary prophylactic against smallpox. By comparison, the Belgian anti-vaccination movement that emerged in the 1870s under the aegis of physician Hubert Boëns was sparse, unstructured and with little influence. Both a religious man and liberal free-thinker, Boëns embodies by himself the ideological dynamic of an issue that was not defined by the classic liberal-catholic divide.

However, other kinds of ideological tensions informed the vaccination debate in Belgium, particularly when it flirted with the idea of compulsory vaccination legislations. In our three digitized periodicals and other source material, discourses about the protective mission of the new benevolent State or a citizen’s duty towards country and community were met with antagonistic arguments about the authority and bodily autonomy of the pater familias. But although they diverged in their political views of the State and the individual, most of these discourses were anchored in a similar socio-medical ideology: one that associated epidemic diseases with the poor and saw the imposition of invasive medical and monitoring procedures as only acceptable for the same ‘unhygienic’ poor. This tacit element of the debate contributed to obscure the fact that compulsory vaccination and a strict monitoring system was already in place – at least since the mid-19th century –, targeting the underprivileged sections of the population through public schools, welfare programs and police intervention.

In their article “Tendre le bras à la nation: contribution à une histoire du geste vaccinal (Belgique, 1830-1900)”, submitted to the *Canadian Bulletin of Medical History*, Cécile and Valérie highlighted the above-mentioned findings, while also focusing on the varied strategies used by the collaborating Catholic and liberal, political and medical, elites to expand the country’s vaccination coverage in the absence of a compulsory law and encourage popular support for vaccination. Such strategies included: propaganda campaigns in the press, or through billboards and town criers; indirect obligation for schoolchildren and civil servants; home vaccination for the poor; relying on the vaccination efforts of midwives in the countryside; and a straightforward vaccine obligation for soldiers, prisoners and welfare recipients. The Belgian population’s reaction to these multi-level strategies seems to have been one of unenthusiastic adhesion, informed less by individual ideological beliefs than by very concrete mundane incentives and obstacles.
**Research on the medical subfield of mental health:**

Valérie Leclercq’s research into this domain centers on the tensions between religion and the emerging sciences of the mind (psychiatry, neurology, brain anatomy, psychology) in the second half of the 19th century. More specifically, it seeks to examine scientific discourses about the effects of religion on mental health. The use of the text-mining software AntConc allowed Valérie to locate and contextualize relevant content in the three journals of our digitized corpus (her main source material).

To flesh out the specific context of her study, she also explored an array of additional sources: specialized medical journals (such as the *Bulletin de la Société de Médecine Mentale de Belgique* or the French *Annales Médico-Psychologiques*), monographs published by Belgian physicians, ‘pre-neurological’ textbooks, or medical and theological publications about religious phenomena such as mysticism, stigmata, religious hallucinations, etc. To enrich her analysis, she relied on a selection of academic works on the history of the sciences of the mind, psychiatry and religion, secularization, the Catholic Church in the 19th century, Christian mysticism and hysteria.

The field of mental medicine is a strong observation point to examine ideological tensions within the medical world of the 19th century and question the way physicians conceived the impact of religion on the brain. At the Belgian Academy of Medicine, religious notions surfaced in two specific mental health-related areas of discussion: in debates about the pathological effects of modern civilization and in discussions about cases of religious ecstasy and stigmata. In these debates (that took place between 1873 and 1875), physicians from the Catholic University of Leuven formed a somewhat identifiable minority group, opposed by an ill-defined majority of ideologically diverse physicians. The former group positioned Catholicism – and the ‘simple’ immutable worldview it offered – as a psychological haven, sheltering a believer’s brain from the morbid effects of passions, unnatural desires of social mobility and the new proliferating ideas of the modern world. In the eyes of the latter group, religion encouraged obsessive ideation and caused pathological alterations of body and brain. Valerie’s research, however, has found many nuances in this opposition of views. All physicians involved in these debates shared a belief in God and all of them spoke the language of science in the Academy, their ideological divergences being only expressed in the varying degrees to which their medical theories agreed with religious dogma. Catholic and liberal physicians also seemed both wary of the more fanatic strand of Catholicism that birthed extreme psycho-religious phenomena; and most shared an enemy in socialism – soon to become the third official political force of the country – which they also believed was the cause or consequence of mental pathology.

Valérie’s research also directly questioned the process of secularization within medical sciences. She used the two disputes raging at the Academy between 1873 and 1875, and the complex ideological entanglements that they brought up to the surface, as a vehicle to examine the presence of religion in neurological discourses and question the processes through which physicians absorbed or attempted to eliminate that presence in the name of scientific objectivity. By looking at which ‘religious elements’ expressed during the debates were rejected as unscientific by Academy members and, conversely, which were accepted as uncontroversial, Valérie attempted to make visible some of the mechanisms through which science perpetuates ideology and scientific neutrality is constructed.

One of such mechanisms consisted, for example, in the production of medical claims supporting religious beliefs or political ideology. She also argues that what was perceived as ‘neutral science’ by members of the Royal Academy was a science that reflected the lowest common ideological denominator in the respective beliefs of the discussants, and a priori of the majority of the academic
assembly. In our case, a belief in God and in the soul, in the necessary anchorage of mental health in religious sentiment, as well as a belief in the dangerous nature of socialism and Protestantism, bound together Liberals and Catholics. Being shared among the Academy physicians, these ideological biases were invisible to the assembly itself, and thus perpetuated through its science.

The present reflections and conclusions were the object of a presentation at the EAHMH conference (Sept. 2021) entitled “Religion and the Brain: Ideological Consensus and Negotiations in the Nineteenth-Century Belgian Sciences of the Mind”; and are at the center of Valérie’s article “On the Secularization of Sciences in Catholic Countries: A Case Study of 19th Century Belgian Neurology”, soon to be submitted to the Bulletin of the History of Medicine.

**General conclusions:**

One of the main research hypotheses of the project proposal is confirmed by the research. During the period of growing ideological divide culminating in Belgium’s first ‘school war’ (1878-1884), ideological tensions became increasingly tangible within the medical world as well. It was also fueled by the rise of scientific movements such as positivism, Darwinism, the Salpêtrière school, etc., and the hardening of the ‘anti-progressive’ stance of the Catholic Church. In the Belgian Academy of Medicine, several ideologically charged debates about religion and medicine took place between 1873 and 1875. In the Leuven journal, most polemical articles appeared during the school war. In the liberal Brussels journal, ideologically fueled language was the least visible.

The second research hypothesis has been countered by the research. Unlike what we had expected, the three decades of Catholic hegemony in politics (1884-1914), which was also a time of medical professionalization and specialization, did not bring about a weakening of distinctive ideological self-presentation. To the contrary, from the 1870s onwards Catholic doctors started to organize themselves in Catholic scientific associations (Société Scientifique de Bruxelles, 1875) and around Catholic scientific journals (Journal des Sciences Médicales de Louvain, 1876). Later, especially in the 1900s, they started to develop their identity as Catholic doctors by calling attention to medical topics with moral and philosophical aspects such as the old obstetric question of medical abortion, and new questions such as contraception. In this later period, Catholic doctors continued to use polemic language, opposing ‘materialist’ liberal doctors and ‘spiritualist’ Catholic doctors. Similarly, liberal doctors contributed to the climate of ideological polarization. In the period leading up to the school war, some anticlerical doctors started to make statements about a so-called conflict between ‘true’ science and religion. They argued that free inquiry was difficult to reconcile with an affiliation to a Catholic institution like the Leuven university. After the school war, the idea that there exists a conflict between science and religion continued to shape thoughts of liberals.

Key-word-based exploration of the digitized journals, however, shows constant – although not always successful – efforts within the three publications to not bring ideologically-loaded, scientifically compromising, language onto the pages of the periodical medical press. As a result, ideology was only exposed in a small number of medical articles and meetings of medical societies. A comparison between all journal sections made clear that religious words and concepts most often appear in meeting reports, a genre that reflects the performative nature of scientific meetings, and in the margins of the scientific maintext (in necrologies, articles on medical history, reprinted discourses of important individuals, book reviews, etc.). However, a non-negligible part of the ideological discourse
of Belgian physicians also exists as subtext hidden behind scientific claims and arguments. Instances of explicit political conflicts unearthed by text-mining software and additional contextual research helped us better identify the covert ideological currents present in the main – seemingly neutral – scientific text.

In retrospect, the project IMPRESS acted as a catalyst in directing attention to the rich collection of 19th century medical and scientific journals of the Royal Library of Belgium. Its selection of three journals, and the experience of digitizing nearly 190,000 pages and doing digital historical research on the basis of these materials, paved the way for the digitization of many more titles of this type of scientific heritage and for future historical research. Simultaneously, and partly in parallel with the project IMPRESS, the digitization process at the Royal Library has been advancing rapidly and will be making use of ‘robotized’ and automated digitization in the future. The researchers of IMPRESS will continue to advise the Royal Library on which titles (e.g. the Bulletin de la société de médecine mentale) to prioritize for digitization and how to shape its open data policy (i.e. providing the data sets requires for researchers to use digital methods to the fullest of their potential).
5. DISSEMINATION AND VALORISATION

Project website:

A project website has been developed at https://impressmedicaljournals.be/. The site offers information on the project’s main research goals, the team members and the journals that are being digitized. The webpage also announces the activities of the project and the publications that result from it.

Organization of workshops and conferences:

2018

- On 8 June 2018, the first methodological workshop has been organized in the context of the 5th Digital Humanities Benelux Conference, which took place in Amsterdam from 6 to 8 June and where we presented the current state of the project, a subsequent workshop with the members of the follow-up committee with expertise in digital historical source analysis was organized.

2019


- Joffrey Liénart, Cécile Vanderpelen and Frédéric Lemmers: organization of a methodological workshop, including all partners and all members of the follow-up committee with expertise in digital historical methods, Brussels (Royal library of Belgium), 16 May 2019.

- On 16 May 2019, all partners and experts met for the workshop in the KBR. Jolien and Joffrey presented their experiences, intermediary results and questions related to their digital methods to the digital experts Andreas Fickers, Joris Van Eynatten and Kaspar Beelen.

- Organization of the first meeting of the International Research Network ‘Medicine and Catholicism since the late 19th Century’. Several IMPRESS members, notably Jolien Gijbels, Joris Vandendriessche, Cécile Vanderpelen and Kaat Wils, participated in one or more of the three workshops: ‘Historiography’, ‘Reproductive Medicine’ and ‘Medical Ethics’. The meeting was organized in Leuven on 13 September 2019.
2020

- On January 18 2020, the IMPRESS project was co-organizer of the Winter Meeting of Gewina (the Dutch-Belgian Society for the history of universities and the sciences) at Teylers Museum in Haarlem, entitled Het Tijdperk van het Tijdschrift. All participants focused in their presentations on the history of scientific publishing. Joris Vandendriessche delivered a lecture entitled “Meesters van de medische pers: artsen-redacteurs en piraterij in de Lage Landen, 1800-1850.”

- On September 3-4, 2020, an (online) thematic workshop was hosted by KU Leuven, which also constitutes the second meeting of the international FWO-research network ‘Medicine and Catholicism since the late 19th century’, which has been launched by the partners of the IMPRESS project. The network brings together historians from various countries who work on the relation between medicine and religion, and more specifically on two themes: medical ethics and reproductive medicine. Jolien Gijbels, Joris Vandendriessche and Cécile Vanderpelen participated in the working group of medical ethics. They each prepare a co-authored article with other members of the network. Kaat Wils participated in the working group ‘Historiography’, which prepares a co-authored review article on the historiography on 19th and 20th century Western Catholicism and Medicine. A first draft of these texts was discussed at the workshop.

2021

- The IMPRESS has presented a Panel for the European Social Science History Conference (Leiden, 18-21 March 2020, reported to March 2021 due to Covid), on ‘Nineteenth-century medical periodicals as spaces of knowledge circulation’, consisting of the following papers:
  
  o Valérie Leclercq, Religious Ideas and their Policing in Belgian Medical Journals (1850-1880)
  
  o Jolien Gijbels, Public meetings: the Bulletin of the Belgian Royal Academy of Medicine and the Belgian medical press (c. 1840-1850)
  
  o Joris Vandendriessche, Experimenting with periodical publishing. Spreading French medicine through the Belgian medical press (1830-1860)
  
  o Kaat Wils, Hypnotism and the transnational circulation of knowledge. French and Belgian medical journals around 1900

- From 7 to 10 September 2021, the Leuven group of the IMPRESS team organized the (online) Biennial Conference of the European Association for the History of Medicine and Health, devoted to the IMPRESS-theme ‘Faith, Medicine and Religion’. See https://kuleuvencongres.be/eahmh2021

This conference constituted the closure of the project, where the results of the IMPRESS project have been presented to an international audience of historians of medicine and of religion.

The conference consisted of four keynote lectures, ca. 180 papers and several roundtables. The IMPRESS-team organized a roundtable entitled ‘Digital methods in medical history. Reflections from a research project on religion and ideology in 19th-century medicine’ and the session ‘Catholic Doctors and Medical Ethics’ in which Jolien Gijbels and Joris Vandendriessche participated among others. They were also actively involved in the conference as a whole, both as participants and session chairs – and Joris Vandendriessche and Kaat Wils as convenors.
Presentations:

2017
- Kaat Wils presented the project at the conference ‘Digital approaches towards serial publications (18th-20th centuries)’ at the Royal Academy in Brussels, 12 September 2017.

- Jolien Gijbels presented a case study on the cesarean section, entitled “Leve de foetus: medische debatten over de keizersnede in België (1850-1914)” at a meeting of the Koninklijke Zuid-Nederlandse Maatschappij voor Taal-en Letterkunde en Geschiedenis in Ghent, 21 October 2017.

2018
- Joffrey Liénard presented the role of digitization infrastructure in the context of the IMPRESS project with a presentation entitled “Digitizing medical journals: the connecting role of research infrastructure in IMPRESS” at the European Consortium for Humanities Institutes and Centres Conference at KU Leuven, 6 April 2018.

- At the European Social Science History Conference in Belfast (8 April 2018), Jolien Gijbels gave a paper entitled “Life before Death: Fetuses in Belgium (1850-1914)”, in which she explained the medical and religious perspectives regarding unborn and stillborn fetuses.

- Kaat Wils, Joris Vandendriessche, Jolien Gybels and Joffrey Liéneart presented the IMPRESS research in a session on the debating culture in medical journals during the Journée de l’Histoire Contemporaine / Dag van de Nieuwste Geschiedenis, on 25 May 2018 at KU Leuven.

- In collaboration with Dirk Speelman, all project members presented a paper entitled “Digitization and digital analysis of 19th-century medical journals: methodological challenges” at the 5th Digital Humanities Benelux Conference in Amsterdam, 8 June 2018.


2019


- Jolien Gijbels “Catholic standards of behavior: knowledge production in the field of medical ethics (Belgium, 1880-1914)” at the 8th Gewina conference for Historians of Science, Zeist, 21 June 2019.


- Jolien Gijbels, “Overcoming medical uncertainty: the first gynecological courses in Belgium, 1890-1914” at the workshop Changing attitudes towards medical uncertainty at the research university from the 1880s, Helsinki, 8 November 2019.

- Kaat Wils “Beyond medical uncertainty: teaching hypnosis to medical students in Belgium, 1890-1914” at the workshop Changing attitudes towards medical uncertainty at the research university from the 1880s, Helsinki, 8 November 2019.

2020

- Doctoral seminar in which Jolien Gijbels discussed her ongoing research with and external referee (prof. dr. Hilary Marland, univ. of Warwick) and the researchers of the History Department of KU Leuven, Leuven, 16 January 2020.


2021


**Other activities:**


- Michèle Goyens is supervisor of the FWO postdoctoral project (Marie Sklodowska-Curie Seal of Excellence Fellowship- FWO MSCA SoE 12ZZU22N, 01/10/2021-30/09/2023) of Alessandra Foscati, SIDELINE - Shifting Disease’s Names in the Middle Ages: Latin and Vernacular in Different Text Genres.

- Kaat Wils, member of the doctoral committee of Coline Loison, ‘Tuez le cancer! Avant qu’il ne vous tue…’. La politique de lutte contre le cancer dans l’Ouest de la France (1920-1960), Le Mans Université, 8 octobre 2018.

- Joris Vandendriessche, member of the doctoral committee of Vanessa Van Puyvelde, National identity formation and cultural transfer in Southern Dutch periodicals before 1830, KU Leuven (2020-2024)

- Building on the expertise which has been developing within the IMPRESS project, the IMPRESS team took the initiative to apply with FWO for an international Research Network on ‘Catholicism and medicine since the late 19th century’. The application was successful and the network was launched in January 2019. The network will allow to bring together a group of international researchers that work around the central theme of the IMPRESS project, providing opportunities to draw international comparisons and to better understand the specificities of the Belgian case.

- Jolien Gijbels received a grant from FWO-Vlaanderen for a three months stay at the University of Roehampton under supervision of dr. Michael Brown. Dr. Brown is a specialist of the history of professional and scientific medical journals and their role in the construction of professional medical identities in the 19th century. Professor Brown’s current large-scale interdisciplinary research project on the history of surgery and the role of emotions provided a very welcome research context for the
case study on gynecological surgery. Unfortunately, due to Covid 19, Jolien had to interrupt her stay in London and had to return to Belgium after one month.

- Kaat Wils was co-supervisor (together with Herman Paul, University of Leiden) of the dissertation by Christiaan Engberts which is thematically connected to the IMPRESS project, *Conflicting Virtues of Scholarship. Moral Economies in Late Nineteenth-Century German Academia*, defended in December 2019.

- Cécile Vanderpelen-Diagre and Valérie Leclercq organised research work for history students on the basis of journals digitised by IMPRESS (2019-2020 and 2021-2022). A total of 60 students worked on the *Bulletin de l’Académie royale de médecine*. The topics were: "Vaccination in the 19th century" and "Being sick or healthy in the 19th century. What does it mean?" The digitisation of IMPRESS medical sources allowed students to do source work despite the pandemic.

- At KU Leuven, several students in the Master program in history used the digitized IMPRESS-corpus for their Master’s thesis research in medical history.
6. PUBLICATIONS

Doctoral Dissertations:


Edited Books:


Peer-Reviewed Journal Articles:


- Michèle Goyens, Jolien Gijbels, Frédéric Lemmers, Dirk Speelman, Cécile Vanderpelen, Joris Vandendriessche, Kaat Wils, “Mining 19th-century Medical Journals in Belgium: reflections and challenges”, Digital Studies / Le champ numérique (conditionally accepted, currently under revision).


**Other Journal Articles:**


**Peer-Reviewed Book chapters:**


- Joris Vandendriessche and Benoit Majerus, “Introduction”. In: J. Vandendriessche, B. Majerus (Eds.), Medical Histories of Belgium. New narratives on Health, Care and Citizenship in the Nineteenth and


**Other Book Chapters:**


**Reviews:**


**Science outreach:**


- Paul Vaute. “*Baptiser le fœtus quand la mère meurt ? Un débat entre foi et médecine*”, blog post to disseminate the research results of the article by Jolien Gijbels about postmortem caesarean sections in the *Bulletin of the History of Medicine* (2019).


- Gijbels, Jolien, Wat je altijd al hebt willen weten over de doopspuit [blog post]. *cultuurgeschiedenis.be* (2019).


Blog post in an online series on tool criticism of the University of Luxembourg, by Eva Andersen and Jolien Gijbels, “AntConc, historians and their diverging research methods”, *dhh.uni.lu* (2020).


- Outreach article on the website of L’Observatoire des Religions et de la Laïcité, by Valérie Leclercq and Cécile Vanderpelen, *La vaccination, divine ou maléfique?*, o-re-la.org (2020).


- Cécile Vanderpelen, Olivier Klein, Manuel Abramovicz, “Antivax, extrême droite et mouvement religieux. Faut-il craindre une grande alliance complotiste de ceux qui refusent le vaccin?”, BX1+, 19/05/21.
7. ACKNOWLEDGEMENTS

Members of the follow-up committees:

1) Methodology:
- prof. dr. Andreas Fickers (Professor at the History Department, University of Luxembourg)
- dr. Kaspar Beelen (Post-doctoral researcher Computer Sciences, University of Amsterdam)
- prof. dr. Joris Van Eijnatten (Professor at the Department of History and Art History, University of Utrecht)

2) Medical heritage institutions and their audiences:
- prof. dr. Thierry Appelboom (Professor at the Faculty of Medicine, Université libre de Bruxelles; curator of the Musée de la médecine, Université Libre de Belgique)
- Patrick Allegaert (Artistic leader at Museum Dr. Guislain in Ghent; president of Hospitium, Association for the History of Hospitals and Health Care)
- David Guilardian (Archivist at the Archives of the Centre Public d’Action Sociale de Bruxelles; member of Hospitium, Association for the History of Hospitals and Health Care)

3) Contemporary societal stakeholders:
- dr. Sarah Bracke (coordinator of Sophia: Belgian Network for Gender Studies) – succeeded in this function by Lisa Wouters and Annalisa Casini
- prof. dr. Herman Nys (Professor of Medical Law, Faculties of Law and Medicine and Interfaculty Centre for Biomedical Ethics and Law KU Leuven Belgian Bioethics Advisory Committee;)
- prof. dr. Marie-Geneviève Pinsart (Professor at the Faculty of Philosophy and Social Sciences, Université libre de Bruxelles; member of the Belgian Bioethics Advisory Committee)