

Ways of knowing medicine

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An ideal physician should meet many different requirements. The person in question should have a vigorous mind, he or she should possess a large degree of common sense, be capable to act judiciously and decisively, have a well-balanced personality of high moral standing, combined with social consciousness and a practical knowledge of psychology, he or she should have a pleasant manner, a sympathetic appearance, a broad general culture, profound expert knowledge, and besides some non-negligible practical skills, if possible, it should be someone who can rely on the experience of a family tradition, and without doubt the person should also enjoy good health.¹

Jean-Jacques Bouckaert, the dean of the medical faculty of Ghent University, gave this speech at the Royal Academy of Medicine in 1958, during a debate on the preparation of a reform of the medical curriculum. His words illustrate the high expectations that were put on physicians. Of course, the dean was aware that it is almost impossible to combine all these qualities in one and the same person. Nevertheless, his list aptly illustrates his view on what a medical education ideally should provide, at a time when he was urging for a thorough reform of the educational system at the end of the 1950s.

Bouckaert's characterisation of the ideal physician points to a continuous tension in medical education from the end of the eighteenth century onwards. Indeed, within the medieval and the early modern university, even the practically oriented field of medicine adopted a largely philosophical approach in line with the other disciplines – namely, not dealing directly with practical occupational skills and a study method consisting of the study of texts and empirical observation.² Medical degrees in the southern Netherlands – the region that

became Belgium in 1830 – were primarily obtained at the University of Leuven, yet other types of medical education existed as well in a society built around corporations. This was especially the case for the professions of barber surgeons or midwives. Likewise, practical teaching in and close to hospitals remained a widespread practice.³

However, due to the obsession by the French revolutionaries with ‘usefulness’ (*utilité*), the focus in medical education briefly, yet radically, shifted towards vocational training. The Restoration of 1815 resulted in a partial return to practices of the *Ancien Régime*, but obviously the clock could not be turned back completely. Therefore, according to the ‘Regulations on the Organisation of Higher Education in the Southern Provinces of the United Kingdom of the Netherlands’, issued in 1816, the aim of the new medical faculties was to provide future physicians both with a broad general education and a profound practical training.⁴

During the second half of the nineteenth century, a third dimension was added: scientific schooling. Comprehensive medico-philosophical systems such as Brunonianism and Broussaisism, which explained the vital functions of their patients by indisputable physio-chemical processes in the humours and firm parts of the body, gradually gave way to treatment methods that were based on extensive medical research.⁵ The treatment of symptoms and diseases by withdrawing excesses or bad humours from the body (through bloodletting and the use of laxatives and emetics) was increasingly replaced by the systematic detection of pathogens.⁶ Moreover, students had to become familiar with this new approach through the introduction of practical courses in, for instance, microscopic pathological anatomy and in anatomy of the bronchial tubes. However, this modernisation process was clearly not welcomed by everyone. The scientification of medical education was not a straight-line development, but rather an evolutionary process with ups and downs. The increasingly dominant form of ‘scientific’ medical knowledge was sometimes highly contested as its opponents wished to return (at least partly) to the idea(l) of medicine as an art.

This chapter will focus on the shifts in the balance between general education, vocational training and scientific schooling at the medical schools and later the faculties of medicine in the southern Netherlands/Belgium from the end of the eighteenth century up until today. Bouckaert’s opening quotation nicely illustrates how

medical scientists also in his time were searching for a balance between these different dimensions. In their search for the perfect medical education, Belgian policymakers often took inspiration from German, French and English regulation, since their colleagues abroad were all struggling with the same issues. How, for instance, could the practical training at the bedside in increasingly specialised clinics be combined with the theoretical-scientific training offered in the laboratories? What kind of attitude did future physicians have to adopt in the discussion between, on the one hand, a specialised focus on the disease and its causes, and, on the other hand, the holistic approach of medicine, which paid attention to the individual patient with his or her entire medical and psychological background? And to what extent was there still room for ‘medical uncertainty’ within the ‘objective’ science of medicine? Generally speaking, the developments in medical education in Belgium largely resembled those in other European countries. And yet, specific choices and peculiar circumstances, both at the national and the local level, sometimes led to a unique outcome, as will become clear in this chapter.

Obviously, professors and university administrators played a major role in the discussions on medical education, but consistently they had to consider the preferences and interests of other parties concerned, such as the government, medical societies, professional associations and expert bodies like the Royal Academy of Medicine, which distinguished itself as a very active player from its foundation in 1841.⁷ The opening quote is a good illustration of this situation. With regards to the nineteenth century, a literal transcription of most of these debates was included in the *Bulletin*, though during the twentieth century the continuous serial publications by the Academy also formed crucial primary sources for writing the history of medical education in Belgium, precisely because of the academy’s highly influential role in educational matters. When it came to tackling the question of the training of specialists, for instance, it appears that the universities’ manoeuvring strategy was rather limited due to the strong position of the academy in this case.

The rise of specialist education in medicine has received some specific historiographical attention,⁸ but articles that focus on the transition from the nineteenth to the twentieth century are rather the exception to the rule with regard to the historiography on medical

education in Belgium. First, apart from a few books that present a general overview of the issue and some typical jubilee publications, research that covers the entire last two hundred years is scarce. Second, the extensive list of studies discussing developments during the (long) nineteenth century is in great contrast to the extremely limited interest for the twentieth century. Among the most recent publications in the former category are undoubtedly our own doctoral dissertations, respectively on the history of the medical faculty of the Université libre de Bruxelles and on the debates around university education in Belgium (with a focus on the faculties of arts and medicine).⁹ In 2019, Tinne Claes made an important contribution to the history of anatomical education with her extensive study on the history of anatomy in nineteenth-century Belgium.¹⁰ Finally, two researchers wrote about the history of the medical faculty of the University of Leuven. Liesbet Nys's book retraces the history of the faculty since 1960, while Joris Vandendriessche's book focuses on the twentieth-century history of the academic hospital of the University of Leuven. The latter work gives a good insight in the organisation of practical education inside the hospitals.¹¹

Learning to heal during the French occupation¹²

The transitional period around 1800 has been studied in detail.¹³ On 1 October 1795, the French administration approved the annexation of the Belgian provinces and thereby extended all legal provisions and 'fundamental freedoms' to its territory. At that time, the University of Leuven was the only institution in the area that trained physicians. Its defiance of the republican command and its refusal of new political ideas led to its closure in October 1797. The training of surgeons offered during the *Ancien Régime* within the *collegia medica* subsequently disappeared a few years after the annexation due to the introduction of several new laws. The result was a period of wide-ranging freedom for the medical profession, although this came to an end in 1818 when the country was under the Dutch regime.¹⁴

Following the closure of the University of Leuven, the stage was set for several schools to open under private initiative in order to meet the demand for medical training in Brussels, Antwerp, Ghent,

Leuven and Bruges. These institutions were often modest, run from the physician's home and offering a rudimentary knowledge of medicine, surgery and obstetrics. Between 1804 and 1812, some (in Antwerp, Ghent, Brussels and Liège) were individually granted recognition by the French government. In these schools the body (sick or dead) became the centre of medical training, and it was essential to see, touch and transform it.¹⁵

These new concepts had started to circulate after the foundation by decree of *écoles de santé* ('health schools') in Paris, Strasbourg and Montpellier on 4 December 1794. The new way of learning embodied in these specialised schools was based on the acquisition of medical practice, and no longer mainly of philosophical-speculative medical knowledge.¹⁶ The reorganisation was headed by Antoine Fourcroy, director of public instruction during the era of the French Consulate. His reform was based on a simple precept: 'read little, see and do much'.¹⁷ This maxim illustrates the necessity to offer a vocational training that was useful to society. It stood in opposition to the purely theory-based teaching of the past, even though in practice the old ways often still dominated.

The officially recognised private medical schools in the provinces of the southern Netherlands were not granted permission to train physicians or surgeons but only 'medical officers', a military rank transferred to civil society by law in 1803. One could attend a practical medical school for three years or become an officer by assisting a private physician for six years, or for five years as a student in a civil or military hospital.¹⁸ Even though they were considered second-class practitioners for a long time, these medical officers played an important role in bridging the gap between medicine and surgery because, for the first time, they were legally authorised to combine internal and external medicine. Medical officers formed the majority of the medical body up until the establishment of new universities in 1817 under the Dutch regime. Many physicians, surgeons and future professors practised medicine and surgery well before officially obtaining a university degree. Joseph Seutin, a powerful figure in the Belgian medical world during the first half of the nineteenth century, is a prime example of this practice.¹⁹

The fundamental change during the French occupation consisted of the institutionalisation of hospital-based schools, in line with the dominant practical orientation of (medical) education. Naturally,

in-hospital training had existed before, but the full integration of schools into the hospital environment changed the way in which medical knowledge was taught. The first hospital-based schools were created in 1806 in Antwerp, Brussels and Ghent, developed from the previously existing private schools. In some cases, especially for those towns or cities without easy access to an *école de santé*, the hospital was the prime institution for the training of medical practitioners. The transformation of the hospital structure and the integration of teaching cemented the link between education and hospitals.

The hospital became the place where modern clinical observation techniques and the approaches used in anatomical pathology came together. The introduction of the new form of practical bedside teaching in the clinic as the base for medical training had an influence on the understanding and the treatment of healthy and diseased bodies, resulting in the very subtle and gradual transition from a focus on the diseased patient as a whole to a focus on the disease itself (see Chapter 7, p. 254). These conceptual changes took shape in the post-revolution years and quickly arrived in the provinces of modern-day Belgium. From the perspective of knowledge acquisition, however, the introduction of internships and externships (on-the-job training in the hospital) in 1808 was the biggest 'invention' in terms of medical education in the first half of the nineteenth century.²⁰

Offering vocational training within a broad general education, 1815–76

Even though the Dutch administration copied the French system of internal and external students connected to the hospitals and increased the number of clinics, at the same time a much less practical approach once more returned to the medical faculties of the newly established state universities from 1817, in Ghent, Leuven and Liège. First, students in the clinics were no longer allowed to treat the patients themselves, but only to passively observe. Second, in most hospitals the number of patients was too small to offer enough variation of diseases (this was especially the case in the small city of Leuven, where it was a huge problem). And, third,

in counter-reaction to the French practical orientation, the university system in general was characterised by a more scholarly-philosophical approach, inspired by some leading Prussian universities and realised through the appointment of many young professors from mainly smaller German-speaking institutions.

Yet, with regard to medical issues, most criticism was directed towards the reintroduction of the distinction between internal and external medicine in the law of 1818. The existing *écoles de médecine* remained open, but they acquired a new role. They now trained the future countryside *chirurgeons* by focusing on external medicine and the acquisition of practical knowledge. Only in cases of exceptional urgency were these *chirurgeons* authorised to treat internal diseases, but in principle internal medicine became an exclusive prerogative of the doctors of medicine educated at the universities. After obtaining a general degree in medicine, students could specialise in surgery, obstetrics or pharmacy, but they were never permitted to practise these different branches of medicine cumulatively. Also, when it came to the theoretical conception of medicine, the French approach was no longer continued, at least not everywhere. Whereas the medical school in Brussels and the faculty of medicine in Leuven still adored the ideas of the French physician François Broussais, it was quite the opposite in Ghent, where Jean-Charles van Rotterdam became one of his strongest opponents.

After Belgian independence and the complete reorganisation of the university system in 1835, the discussion concerning the division or unification of internal and external medicine continued. According to the law of 1835, students at the medical faculties still had to acquire a degree in medicine previous to their possible specialisation in surgery or obstetrics (pharmacy was thus no longer considered a university subject until its return at university level in the latter part of the 1840s). The hierarchisation underscored the predominance of (internal) medicine, but also hinted at a first step towards a future unification of degrees. Belgium was actually the first European state to create a common national university curriculum in 1849, culminating in the award of a single degree, the 'Doctorate of Medicine, Surgery and Obstetrics'. It was followed by Prussia in 1852, the Netherlands in 1865, and the United Kingdom in 1886. The formal unification of these programmes can be explained by the impact of the reforms introduced under the French

and Dutch regimes, the innovative work of clinical study and the new role in medical training played by the hospitals.²¹

The doctoral degree in medicine consisted of a one-year preparatory degree in sciences, a one-year undergraduate degree in medicine and two years of study at the doctoral level, extended to three years from 1849. In addition to the preparatory degree in sciences, students had to pass a possible entrance examination and an additional literary test consisting of Greek, Latin, history of philosophy, logic, anthropology and moral philosophy, which was clearly a continuation of the broad general-philosophical education introduced by the Dutch government in 1816. However, in consequence of the continuous changes concerning the general entrance conditions, the preparatory education was gradually reduced to basic courses in chemistry, physics, botany, zoology and mineralogy (i.e. the curriculum of the preparatory degree in sciences, which barely changed between 1835 and 1876).

Similarly, the programme for the actual two-level medical degree also remained largely the same during this period. It consisted of classes in anatomy (and its various divisions), physiology, internal and external pathology, and also such related subjects as the theory of childbirth, hygiene and forensic medicine. In terms of the teaching of practical knowledge, the law of 1835 took a step backwards in comparison with the situation at the end of the Dutch period. The only obligatory attendance now was for anatomical demonstrations and for clinics in internal and external medicine and obstetrics. To sit the exams, one simply needed to present a certificate from the head of clinics which stipulated that the student had attended the clinics and acted diligently and successfully. However, this does not mean that clinical study was neglected by the universities, but the format of the given training changed into a more passive learning experience, despite the programme's general intention to offer a proper vocational training.

This curriculum was adopted by the state universities of Ghent and Liège, and largely copied by the free universities that had come into existence during the chaotic years between the independence of Belgium in 1830 and the introduction of a new law on higher education five years later. The establishment of the liberal Free University of Brussels and the Catholic University of Leuven (which replaced

the state university in that city) presented the new Belgian government with a unique problem, which demanded a unique solution. How could universities under a different authority (the state, a group of freethinking liberals, or the church) and with a different curriculum grant the same degrees, especially when they had social implications, as was the case for degrees in law or medicine? The government did not have the right to inspect the free universities, but on the other hand, it did want to supervise professions, at least to some extent. After long-lasting debates, independent boards were created that would examine the students and grant the diplomas. Whereas the introduction of these boards enjoyed wide support, the composition of them and the question of who would appoint their members were heavily discussed in parliament between Catholics and liberals (see Chapter 2). The jury system was more than once overhauled and reconstituted, and became a constant stumbling block.

Nonetheless, by reserving the right to issue degrees and consequently control access to the profession, the state forced the otherwise free universities of Brussels and Leuven to conform to its logic and curricula. There were, however, some differences in the programmes and subjects on offer from one university to the other, due to the constitutional freedom of education. State recommendations were not always adhered to with regard to the subjects that were required. For example, the teaching of ophthalmology was speedily adopted by the state universities, while the free universities dragged their feet over whether to add it to the curriculum. In contrast, in 1855, professors in Leuven offered classes in mental illnesses, while at the same time, their colleagues in Brussels introduced a course on the ‘illnesses of the elderly’. While the state controlled the granting of academic honours, the manoeuvring space for the free universities was limited.

The creation of an educational framework laid out by the state played a fundamental role in the definition of an orthodoxy of knowledge. This was determined through a debate among the different authorities concerned, namely the universities, the Royal Academy of Medicine, the provincial medical commissions, scientific societies and official medical journals issued by the state. Recent research by Vandendriessche has also emphasised the fundamental role played by the scientific societies as the most important space for sociability and for the regulation of science

and scholarship.²² The force of this orthodoxy became visible in controversies surrounding the teaching of disciplines that were considered minor (such as ophthalmology) or heterodox (such as homeopathy or animal magnetism). As a result, the alignment of doctrines became the cement between the medical profession and its social order. (The level and kind of) education thus undoubtedly occupied pride of place in the definition of a theoretical-professional order for the social group.²³

From 1830 to 1870, medical orthodoxy was largely made up of general anatomy classes based on gross anatomy. Anatomical learning was both materialist and mechanical in nature, and was studied on a large scale, with scalpel, rather than with the aid of a microscope. Anatomy was heavily linked to physiology and pathology in this period and made the human body the focal point around which other branches revolved. The exam for the primary degree in medicine was heavily focused on anatomical branches such as general, descriptive and comparative anatomy and anatomical demonstrations and dissections.²⁴ Dissections became fundamental in the acquisition of anatomical knowledge. It contributed to the complete recognition of surgery, where teaching started to go beyond the skeleton, amputations and bleedings. Future surgeons were required to learn all the techniques and knowledge of what was known as ‘modern’ anatomy. In this context, anatomical specimens and cadavers were of educational importance for universities. The emphasis given to the collection of medical specimens was both the product of ‘scientific prestige’ and a competition between, and indeed within, universities. Each university sourced these ‘raw materials’ from their partner hospitals and the most interesting specimens were used as visual support in their theory classes (Figure 5.1). In this way, in the anatomical museum, theoretical and practical learning came together. Considered within the context of a history of medical learning, the first half of the nineteenth century is the era of anatomical museums and of the dissection amphitheatre, the latter becoming the place where a doctor in training could learn the basic gestures from his master or a fellow colleague.²⁵ The anatomical approach to medicine thus gradually transformed from being the core of ‘scientific medicine’ at the beginning of the nineteenth century, to being a typical characteristic of a rather practical orientation.



Figure 5.1 Anatomy lesson at St-Pierre Hospital, 1892.

Belgian universities, while having no problem with the teaching of practical anatomical knowledge, did struggle to combine it with scientific instruction. This was true across Belgian universities, where the majority of professors were also practitioners. Consequently, the university authorities were forced to recruit teachers from abroad, and especially from German-speaking areas, for courses in physiology and pathological anatomy in particular. German recruits included Karl Windischmann in Leuven, Vincent Fohmann and Antoine Frédéric Spring in Liège, Theodor Schwann who moved from Leuven to Liège and Gottlieb Gluge in Brussels. The influence of these German physicians, professors and researchers on the popularisation of pathological anatomy, as well as on new research in physiology, was immediately recognised by contemporaries. In his *Essay on the History of Contemporary Belgian Medicine* (1886), Léon Marcq, for instance, underscored their role from an educational point of view and their impact on the circulation of new knowledge in Belgium: ‘The works of Fohmann on the lymphatic system, Schwann on cellular evolution, Spring on cardiac functions, ... Gluge on physiology, histology and particularly on

pathological anatomy have spread and created an entire world of new understanding' (see Chapter 9, p. 321).²⁶

Professors like Gluge and Schwann had attended the classes of Johannes Müller, the most notable figure in terms of experimental medicine in Germany in the first half of the nineteenth century.²⁷ The training that they received focused heavily on experimental laboratory research; thus realising the interconnection and interdependence of teaching and research.²⁸ In Belgium, on the other hand, at that time teaching was considered merely as the acquisition of practices and an entitlement to enter the profession. As a result, a course such as the 'Encyclopaedia and History of Medicine', which was introduced following the German example, never really took off, despite the support of a number of scientists such as Pierre van Meerbeeck. The course was intended to sensitise the students to the acquisition of a scientific and critical mindset. However, because many of them increasingly dropped out, it was subsequently abolished from the curriculum, first in Ghent, later in Liège and Leuven, and finally also in Brussels. The students, as was the recurring complaint, simply wished to obtain their diploma as soon as possible and did not have time for such 'useless' subjects. Repeatedly the debate on the utility of teaching history of medicine was taken up in the Belgian medical faculties. It was generally considered a way to combat a vision of medicine that was too positivist.²⁹

So, up until the last quarter of the nineteenth century, most of the attempts of these German professors to introduce some kind of scientific schooling to the medical training remained largely in vain. The general ambition was rather to offer a vocational training within a broad general education. In order to realise the former part of this target, increasing emphasis was put on the clinics and on practical education in general. Clinical study became of critical importance in the relationship between the hospital and the university, and thus a permanent link was created between the towns (as the administrators of the hospitals) and their universities. The Free University of Brussels, enjoying a large number of patients in the hospitals of the capital, clearly was at the forefront in this regard, closely followed by Ghent University. Liège and particularly Leuven lagged behind due to the ongoing lack of patients. Nevertheless, in the early 1870s, in addition to the mandatory clinics, most of

the universities had introduced clinics for mental illnesses, ophthalmology, syphilitic and cutaneous diseases and for the treatment of children and elderly people.

Practical, clinical education revolved around three complementary approaches. The first is intimately linked to the reorganisation of the hospital structure in the mid-nineteenth century and the launch of free consultations. This made a plethora of interesting cases available, giving the most advanced students the opportunity to make their first diagnoses. It should be noted though that the consultations were mostly done by 'privileged' students who had managed to obtain an intern- or externship in the hospital, rather than by 'normal' students. The second approach, which is part of collective memory, is that of crowds of twenty to thirty students charging through the wards together with the professor, making the diagnosis and discussing the treatment of six to eight patients within an hour. The third approach was located in the amphitheatre, away from the open clinical wards. In a private setting, particular cases were studied through physical examination, and a review of their medical history and applied treatments, by combining inputs from different medical disciplines. Ideally the three approaches were joined together to ensure an optimal result. The intensity and urgency of consultations called for rapid decision making, whereas the study of patients in bed allowed for wider considerations.³⁰ The role of the poor within this system should be highlighted. They were used as subjects for clinical teaching or, after their death, as cadavers for dissection.³¹ Often, discussions arose between the hospital administration and the professors about the allocation of patients for clinical education, to such an extent that in 1874 the minister of public education intervened by deciding that all non-paying patients were allocated automatically to the university services.³² However, as before, real practical experience could only be acquired by a selective group of internal and external students. Therefore, some professional medical associations made a plea for the introduction of obligatory apprenticeships for all medical students because 'medicine was based on observation and experience and was much more an art than a science', yet they could not stop the prevalent transition towards a more scientific (i.e. laboratory) approach of medical education.³³

Searching for a new compromise between general education, vocational training and scientific schooling, 1876–1918

By the dawn of the 1860s, a physician's education was still widely seen as the acquisition of some practical knowledge and a professional right. And yet, a few professors from the universities of Ghent and Brussels began to develop another vision. Similar to their colleagues in Italy, the United Kingdom, Russia and the Netherlands, they turned their attention to German, particularly Prussian, universities. It was there that they found the spaces, the knowledge and the know-how that transformed their comprehension of sickness and medical practice. Concretely, the German influence was visible, for instance, in the introduction of the doctoral dissertation in medicine at the end of the 1850s, an evolution that signals a will to encourage medical students to participate in the production of knowledge. Very quickly, the debate focused on the issue of whether a more scientific approach had to be introduced through separate practical classes (in the laboratory) or rather within the existing theoretical lecture courses. For many professors in Liège, the transition was happening too fast and they therefore opted mainly for the second choice, largely because they feared an overload in the curriculum once new courses were added.

The first impulses for change clearly came from below, on the initiative of a handful of individuals, among whom were many of the German professors and a number of Belgian colleagues who had made a research trip to Germany. After completing their doctoral dissertation, they visited German and other European scientific institutes and attempted to introduce new technologies to their home universities, as well as the experience and knowledge that they had acquired during their trips. Gluge, for instance, became known for the introduction of the microscope at the University of Brussels because, as he put it himself, 'the microscope has become to the physician and the naturalist what the telescope is to the astronomer; one must learn to use it'.³⁴

The 'German model'³⁵ of the scientific laboratory remained the ideal example for many of the professors at Belgian universities until the outbreak of the First World War. Gradually the laboratory developed into the perfect means to offer scientific schooling.

In order to realise this transition, a visit to German universities and/or research institutes became almost mandatory. It clearly demonstrates the link between centre and periphery in medical teaching. On the one hand, German universities embodied the archetypical scientific values pursued by Belgian institutions, but on the other hand, the system could only be implemented to a limited extent as it was subject to financial and national constraints; particularly the fact that the government only had an indirect impact on the curriculum at the free universities and that, concerning the state universities, huge differences of opinion between Catholics and liberals had to be overcome within parliament. The result was a typical Belgian compromise in 1876 consisting of a new law, which only introduced some elements of a scholarly training in science and medicine, such as an obligatory course in microscopic pathological anatomy.³⁶

The importance of this change in the curriculum cannot be denied. However, just as its introduction had been the result of tough discussions and was certainly not welcomed by everyone, the implementation of the law of 1876 was not straightforward during the following decades. Its principal driving force was the development of laboratory science, but, first, academic expansion was not limited to the construction of laboratories and, second, the availability of laboratories was largely dependent on financial resources, which differed hugely from one university to the other. Jean Joseph Crocq, a professor at the medical faculty in Brussels, was one of the main proponents of a purely practical form of medical education. In his view, the German universities were anything but the model to copy because there, future physicians were offered a far too theoretical, specialised and unworldly scholarly training, as he explained during a debate at the Royal Academy of Medicine in the middle of the 1870s. Belgian students were already overwhelmed with theoretical courses, while the time spent in clinics with the patients was too limited to ensure a solid practical training.

In addition to cordial concerns about the necessity of an excellent vocational training for future physicians, Crocq's plea was at least partly inspired by the consideration that the university in Brussels was not able to carry the burden of the financial implications of organising proper scientific schooling. In consequence, he revealed

himself as one of the major proponents of a division of education and research into two separate institutions. The choice to assign the vocational training to the university and the scientific schooling to a separate Institut central des hautes études was thus based on profound arguments as regards content, as well as on purely materialistic motivations. Because the funds to establish specialised laboratories and institutes were largely lacking, Crocq and some of his colleagues preferred to focus on the traditional strength of medical education in Brussels, namely the large number of hospitals and patients available for practical teaching. Instead of organising practical scientific exercises, they tried as much as possible to give a scholarly interpretation to the clinics.

Among differing reasons, the need also for a stronger philosophical embedding of the studies was once again increasing, resulting in more attention being paid to the general education of students. At the beginning of the 1870s, some professors repeated the plea for the introduction of a course on the history of medicine. In Germany, its importance to stimulate a scholarly attitude among the students had already been recognised for a long time, as was the case in Paris where a chair within this discipline had recently been founded. However, for most of the students the connection between history of medicine and the scientific study of this discipline was still too indirect. Nevertheless, Richard Boddaert, professor of surgery in Ghent, who was clearly one of the forerunners in a more scientific interpretation of medical education, defended the (re) introduction of some philosophical courses in the curriculum of natural sciences and medicine. His views were mainly determined by scientific concerns, and not so much by attempts to secure the general education of the students. According to Boddaert, just as in the famous medical school of Salerno in southern Italy, a course in logic and philosophy should be provided in order to enable the students to gain some insights into the human soul and to treat nervous and mental illnesses from a more theoretical background. The German *philosophische Fakultät*, in which human and natural sciences were combined, also functioned as one of his examples in this regard.

The rector in Leuven, Alexandre Namèche, supported the ideas of Boddaert, but primarily on moral grounds: 'If the study of natural sciences does not rest on the cultivation of human sciences, it easily

leads to absolutism and materialism', he explained.³⁷ A colleague of Namèche, in his turn, justified the attention to human sciences in the education of physicians by appealing to 'an "exterior" reason: the conservation of their social rank'.³⁸ Anyhow the result was the same. The law of 1876 introduced obligatory courses in logic, moral philosophy and psychology in the preparatory degree in sciences. On its own initiative, the University of Leuven added obligatory courses in religion and general philosophy for those students who aimed for a legal degree; and anthropology, history of philosophy, Greek and Latin for the very small number of students who strived for a so-called scientific diploma.

The same law introduced obligatory practical scientific exercises, yet even though Namèche acknowledged the usefulness of these exercises, at the same time he warned against exaggerating their importance in the educational programme as a whole. It was his clear opinion that scientific interests should not exceed professional interests. A prerequisite for the well-being of the country and of society was, according to Namèche, that medical studies should not focus on the training of scholastics, but of smart practitioners who were educated in all aspects of the conscientious and complicated art of medicine. In a later speech of 1880, Namèche deliberately referred to the rectorial address of the by then deceased Antoine Frédéric Spring, who had been known for his tendency towards reform. Approximately a decade before, this famous pathologist of Liège had also argued in favour of paying more attention to the literary and moral education of future physicians. However, despite all of these attempts, by around 1880 vocational training was still at the forefront within the medical faculties, to the detriment of scientific schooling and, more particularly, of a general education.

In order to realise a more scientific interpretation of medical training, a significant extension of the curriculum was absolutely necessary. A large number of professors, along with a remarkable group of recently graduated doctors, offered optional subjects on their own initiative, often dealing with a very specific field of research. Furthermore, students should be offered the opportunity to specialise in subdisciplines such as ophthalmology or legal medicine.³⁹ Such a kind of specialisation, however, could only happen after having obtained the general doctoral medical degree.

Indeed, the struggle for the introduction of a common degree in medicine, surgery and obstetrics, which had taken place over many years, should not be in vain. It was the general opinion that because of the close connections between the different branches of medicine, all future physicians should receive a profound basic training in all three disciplines. Only afterwards could they then choose to focus on the treatment of a particular disease or a number of (more complicated) diseases. (On the access of women to medical education in Belgium, see Chapter 1, p. 37.)

And even then, the professional associations of physicians, which increasingly intervened in debates during the last quarter of the nineteenth century, pointed frequently to the danger of students losing their way in the case of a too early or a too extensive specialisation. In their opinion, specialisation was perhaps desirable from a scientific point of view, but certainly not from a professional angle. Along the same line of thought, they also warned of the danger of attaching too much importance to the scientific, practical exercises. These should not jeopardise the excellent vocational training as it existed up to that day. Possibly, obligatory internships should be included in the curriculum in order to secure practical training. The main concern of the associations of physicians in this period, however, was the assumed oversaturation of the market. The medical unions even accused the government of raising the number of physicians intentionally in order to weaken their competitive power and thus to undermine their material and social position.⁴⁰

The realisation of all of these proposals, be it the introduction of philosophical courses to ensure the general education of the students, of practical scientific exercises or specialised subjects with a view on their scientific schooling, or of a more practical orientation to guarantee their vocational training, required more staff, more classrooms and more money, according to the physicians and professors Guillaume Rommelaere, Louis Deroubaix and Paul Heger in Brussels. Even though there were some important differences between the four universities with regard to the introduction of practical exercises, and even though each university emphasised different branches of specialisation, the diverging development of the medical faculties happened primarily in consequence of the huge differences concerning the availability of staff,

classrooms, buildings and, crucially, money. The free universities suffered directly from the financial impact of the freedom of education and the lack of subsidies, this being the price to pay for the absence of government supervision. Nonetheless, according to the Brussels professors, it was of the utmost importance that they adopt the German model to some extent and avoid lagging behind in the scientification of medical education.

What could be seen, however, was the implementation of a system of common values between two entities. The peripheral position of Belgium in medical teaching in general can be observed from Abraham Flexner's 1925 report titled *Medical Education: A Comparative Study*.⁴¹ At the European level, Belgian universities were slow to set up scientific institutions. In the early 1890s there were two sides from a university perspective. On the one hand, the state universities enjoyed a comfortable position in this regard. Between 1879 and 1893, the state earmarked almost ten million Belgian francs for the foundation of laboratories and institutes in Liège and Ghent. This funding enabled the creation of institutes of biology in Liège and Ghent and, more notably, an institute of physiology in Liège, headed by Léon Frédéricq.⁴² On the other hand, there were privately founded institutes such as the Montefiore Institute in Liège (1883) and the Errera Institute (1892) and Solvay Institute (1895) in Brussels. The University of Leuven also jumped on the partnership with the industrial sector bandwagon, establishing its own medical and applied science laboratories. In 1890, for instance, the Jean-Baptiste Carnoy Institute was founded in this vein. The result was a shift away from theory-based training with little practice, towards a system based around practical classes, in-ward teaching and laboratory work. The educational paradigm shift also resulted in more autonomy given to the students, who were encouraged to reflect on case studies. So gradually a new generation came to the fore, being skilled in the use of the microscope and trained in laboratory studies. It also led to a wider appreciation of an independent 'scientific spirit'.⁴³ Obviously, the laboratory system did not limit itself to medicine, but was introduced elsewhere too.⁴⁴ The laboratory became an instrument of state building that went beyond questions of health and education and thus developed into a new political instrument (Figure 5.2).⁴⁵



Figure 5.2 The Anatomical Institute of Brussels University, 1895.

Pure science during the interwar period

This trend, which typified the interwar period, began at the end of the nineteenth century when universities gained access to new ways to legally open their own laboratories. This was made possible in 1911, when they were granted the status of legal personality, enabling them to enter into contracts, own property, etc.⁴⁶ The First World War did not put an end to the importance of research in education. Wars in general lead to a rise in medical practices and research, and the First World War was no exception to this rule. During the war, research was done in several fields such as surgery and blood transfusion as well as in the design of prosthetics (on the post-war treatment of injured soldiers, see Chapter 8, p. 298). In Belgium, research essentially took place at the *Ambulance de l'Océan* in La Panne, which was founded by Antoine Depage. The institution's primary goal was to treat wounded soldiers close to the battlefield, but it additionally became a place for the procurement and circulation of knowledge during wartime and was conceived as a place of learning for students who were finishing up their education.



Figure 5.3 Pin of G[odelieve] Perneel, one of the nurses who graduated from the Catholic St Elizabeth School in Bruges, 1924.

The new hospital fitted Depage's idea of a modern hospital. The building, which contained several clinics, research laboratories and teaching and conference rooms, was managed by physicians and trained nurses.⁴⁷ The gradual replacement of nuns in hospitals by professionally trained nurses at the beginning of the twentieth century was an important factor in the competition between the secular and Catholic milieus (Figure 5.3; see also Chapter 2, p. 69). This change led to a revolution in the hospital sector: gradually the hospital itself was seen as a learning place both for physicians and nurses.⁴⁸ In the same way, the interwar period also marks a transition from hygienist policies to a global approach based on the education of public health in order to improve national health. Following a eugenic vision, the state, physicians, scientific societies and non-profit organisations worked together to promote medical educational policies and spread their knowledge on sickness and health to Belgian children and the working classes. The Red Cross, for instance, played a major role in this educational effort by publishing papers, leaflets and posters, organising conferences and even offering training courses for paramedics.⁴⁹

At the end of the First World War, the Royal Academy of Medicine again took up its preponderant role in the debates around medical training. As mentioned previously, in its early decades the academy actively intervened, for instance, in the discussion

on medical specialties that were considered ‘unorthodox’, such as homeopathy.⁵⁰ Its activities after the First World War can be viewed within the context of the reconstruction of Belgium and the funding allocated to the country by the Commission for Relief in Belgium specifically for higher education. Consequently, the medical academy distinguished itself again as a fundamental player in the reorganisation of teaching by the state. For the universities, this offered the unique opportunity to continue their efforts to introduce the scientific approach in medical education. With the influence of Germany now gone, the door was open for American, British and Dutch universities to be heard.⁵¹ Over a period of two years, debates at the academy were led by Jules Bordet, recipient of the Nobel Prize for Medicine in 1919 and chief director of the Brussels Pasteur Institute. The central question was to determine the place given to pure science in medical teaching.⁵² Yet one should not assume that clinical and laboratory medicine were in competition. The success of the former paved the way for the introduction of the latter, as a supplementary asset, while a student’s deepening of practical understanding in turn improved the circulation of concrete knowledge.⁵³

For Bordet and a number of fellow physicians, the future of medical education was in the hands of ‘full-time’ academics who were focusing on teaching and research instead of aiming for practical knowledge. This view was not immediately embraced by the majority. Some strong personalities were required to impose this idea on the medical landscape, among them Bordet himself, along with Joseph Denys, Pierre Nolf, Albert Brachet and Ernest Malvoz.⁵⁴ Thanks to their laboratories, Belgium was able to position itself among the elite of the European scientific nations, even though it still remained a secondary centre. Nevertheless, Bordet’s Pasteur Institute became particularly attractive to foreign students despite the material poverty of Belgian laboratories in general, as described by some American students in their study reports.⁵⁵ This new vision on medical training remained marginal when compared to the dominant opinion that focused on the completion of mandatory theoretical learning by clinics, along with a number of optional courses for specialisation.

Around the same time, however, the various medical specialisations took on a more dominant position in the medical field and inevitably influenced medical training as well.⁵⁶ These specialisations

questioned a unitary view of medicine. They prevailed in hospitals as well as at the universities, and at the same time specialist physicians created their own federations to hasten their official recognition inside the medical community. Both specialist societies and journals were created, their role being the legitimisation of the specific specialist discipline. Located at the crossroads between marketing and scientific strategy, these societies were the cornerstone for the defence and development of medical specialties.⁵⁷ Nevertheless, it was not yet possible to create separate, specialist study programmes, as the unitary perception of medicine and the weight of the general practitioners still prevailed in the debates. This led to years of long, yet ultimately unfruitful discussions, caused in part by friction with the *Fédération Médicale Belge*. The legal recognition and regulation of medical specialisations was eventually ordered by royal decree on 12 September 1957. Before this date, anyone could call himself a specialist.⁵⁸

A cautious countermovement, hampered by neo-liberal developments

An increasing number of different specialist courses was continuously added to the programme, but without abandoning the unitary degree. Even though students were generally encouraged to specialise, this could only happen after having obtained the degree of doctor in medicine, surgery and obstetrics. This, according to a growing group of dissenting voices from the middle of the 1950s, resulted in an overloaded curriculum and an excessively long period of study. The training of surgeons, for instance, lasted for thirteen years: seven years for the general medical degree, followed by six years of specialisation. Might it not be possible to shorten the general programme specifically for those students who wanted to specialise afterwards, which was the case for almost 50 per cent among them? Moreover, the ever-progressing specialisation had also led to a focus on memorisation and the loss of an integrative or holistic approach, a challenge with which colleagues abroad were struggling as well. On the occasion of an international symposium on medical education at the Royal Academy of Medicine, William Hobson (education and training officer at the World Health Organization)

complained that ‘there is general dissatisfaction in many quarters with the present medical curriculum. It is felt that too much factual detail is being taught, particularly in such fields as anatomy and biochemistry, and that the training does not fit the future doctor for his role in society ... There is a strong need for more integration of the teaching of different subjects.’⁵⁹

In this regard, the first attempts at change in Belgium already dated from shortly after the Second World War. In 1948, an internist at the University of Leuven, Jozuë Vandembroucke, published a study about medical education (awarded by the Royal Academy), in which he argued for the shortening and simplification of basic medical education. In his view, two years of undergraduate study, followed by three years for graduation and a one-year internship had to be enough.⁶⁰ However, for more concrete proposals one had to wait for at least another decade. Many of these proposals were suggested on the common initiative of the French-speaking and Dutch-speaking sections of the Royal Academy. The academy had already split in 1938, and at the end of the 1960s the universities of Brussels and Leuven were also divided in two separate institutions. Despite this division along linguistic lines, the national curriculum in medicine was largely preserved, but more detailed research about possible local differences in the medical programme is missing.

During the long-lasting debate at the academy, the dean of the medical faculty in Ghent expressed the opinion of many of his colleagues: that medical knowledge had become so diverse and so extensive during previous decades that the educational programme could and should no longer strive for exhaustivity. It was also during this discussion that Bouckaert presented his views on the ideal physician, referred to at the beginning of this chapter. Most important was to sharpen the critical mind of the student, for instance by adding an obligatory course in philosophy. According to the final report of the mixed commission: ‘Without neglecting the aspect of information that is necessary for the practitioner, the training should focus mainly on fundamental ideas of educational value.’ Furthermore, ‘future practitioners should no longer learn only “how” to act, but also understand the “why” of their actions. They can no longer limit themselves to applying standard procedures, “recipes” so to say, when coming into contact with different situations.’ Or, as the German physician Hans

Schulten explained: students had to be taught to make a distinction between what they know and what they believe.⁶¹ Through integrative lessons in which different specialists presented their own view on the same subject, a more holistic approach of medicine was promoted once again.

A large part of the reform proposals aimed for a reevaluation of the profession of general practitioner, which had lost a degree of popularity due to the ongoing pressure to specialise. As faculty dean, Vandenbroucke not only scheduled the year of internship one year earlier (so that the last year of training could function as a kind of pre-specialisation), but he also allowed students to take their internship at a local family doctor's surgery instead of exclusively at the hospital, in order to experience a normal doctor's practice. Concerning the hospitals, an increasing number of regional hospital centres were integrated into the educational system.⁶² Associate professors in family medicine were finally appointed, which happened exceptionally early in an international perspective. When Leuven took the lead in 1968, only Edinburgh and Utrecht had preceded it. Antwerp followed in 1972, Ghent in 1980 and Brussels in 1987, as the last Dutch-speaking university in this regard.⁶³

In several European countries, a similar cautious counter-movement against the dominant scientific and specialist approach in medicine could be seen. The new medical faculty in Maastricht, for instance, experimented in the middle of the 1970s with a model of so-called problem-oriented education with 'self-activity', 'permanent evaluation' and 'attitude-development' as its key words. The transfer of knowledge stood no longer at the centre, but actively acquiring it.⁶⁴ In Finland, the orientation to society was strengthened in the same period by introducing more social and preventive medicine and work with patients outside of hospitals. Practical, clinical studies were given a higher priority, whereas theoretical parts of the curriculum were reduced. Medical students strongly promoted these developments all along the way.⁶⁵

In Belgium also, the majority of students supported the changes, but at the same time many of them were quite disappointed that often the reform proposals remained dead letters. Student societies had, for a long time, called for a shift in attention within

the medical curriculum to the social role of the physician and the psycho-social dimension of medicine, but somatic medicine nevertheless clearly remained at the centre. Despite the pioneering work of the University of Leuven in comparison to the other Belgian universities in reducing the heavy theoretical elements of the programme, the ever-growing number of students largely prevented a more personal approach. Also, the ongoing discussion within the European Economic Community about the mutual recognition of diplomas at the end of the 1980s delayed some of the actual changes.⁶⁶ It clearly shows how the local, national and international level were closely connected to each other.

Another reason why many suggestions to shift the focus away from the theoretical, scientific part of the programme were never realised, was the succession of major breakthroughs in medical science during this period; breakthroughs that the students needed to be aware of, according to their professors. On the one hand, the still ongoing specialisation was 'solved' to some extent by moving specific disciplines to separate medical faculties of, for instance, pharmaceutical sciences or movement and rehabilitation sciences. Yet, on the other hand, in order to become good practitioners, students had to be at the same time excellent researchers, not only familiar with recent findings in virology (e.g. human immunodeficiency virus (HIV)), genetics (e.g. the human genome project) or oncology, but also be able to critically access the increasingly complicated kind of research practices in these fields.

This last skill is essential within the concept of evidence-based learning, which became popular from the 1980s. However, it proved to be almost impossible in the Belgian context to replace the tradition of so-called authority-based learning. Professors themselves complained about the lack of a proper research attitude among the students, but did not manage sufficiently to encourage them to assess or develop new knowledge critically.⁶⁷ The ambition of a psycho-social and more holistic approach was replaced by continuing specialisation and discipline formation, processes that could not be countered by existing attempts of interdisciplinarity, which moreover too often only had a rhetorical character. In order to be able to develop critical thinking (being included in the idea that future physicians should not only be trained, but also be educated), a certain degree of

interdisciplinarity was needed, particularly the ability to escape from prevailing theories in one's own discipline. To what extent were future physicians still made aware of the uncertainty of medicine, which itself raises doubts about the infallibility of evidence-based medicine?⁶⁸ Medical students sometimes had the impression that they were taught to consider their textbooks the 'medical bible'.⁶⁹

The neo-liberal policies from the last quarter of the twentieth century changed the way knowledge is produced, exchanged and taught. The new market economy, new ways to fund research, the development of new technologies, sciences and organisational politics have profoundly modified the way we produce and acquire knowledge. A good example of this trend is the recently gained strategic importance of research and development departments within the health industries. These departments are in direct competition with the university laboratories for both fundamental and applied research. However, the pharmaceutical industries and the Belgian universities quickly developed durable links that are visible in the production and financing of research at the universities. A significant part of fundamental research is thus 'subcontracted' to university laboratories for directed research.

Besides doing fundamental research, university hospitals are present at other levels in the production of new products and knowledge. A good example of this practice is the collaboration between hospitals, laboratories and physicians in the field of clinical research. Here, the doctors and universities play a primordial role in approving products or practices that come forth out of a knowledge-based economy. This shift in research conditions was accompanied by a rise in the number of people who produce knowledge and invent new practices. Chemists, biologists, statisticians and computer scientists have joined the doctors in the field of research, as 'experts' of all kinds have gained a central role in the process. Applied research thus takes more and more space in the production of medical knowledge, both inside and outside the universities.⁷⁰ As the academic and industrial fields have grown closer since the Second World War and the era of neo-liberalism, so too has the production of knowledge taken on a more 'businesslike' approach. Researchers not only publish and protect their results and discoveries, but they also develop distribution and commercial

strategies in close relation with the health industries, an approach that is characteristic of the first decades of the twenty-first century.⁷¹

The specificity of medical education in Belgium

However, one should be careful when making broad statements about medical education in Belgium during this period as research assessing these recent developments is largely missing. In fact, this applies almost to the twentieth century as a whole. Indeed, publications focusing on a particular institution during a specific (often short) period of time do exist, but they enable us to have a view on changes in medical education only to a limited extent. Particularly, possible variations between different universities or between Dutch- and French-speaking Belgium remain somewhat underexposed. In consequence, we can only hint at the tension between the local, regional, national and European level, yet unfortunately we are not able to develop this interesting and promising approach extensively. Nevertheless, it has become clear how the attitude towards medicine as an art or a science in medical education has been continuously reciprocating, in relationship with changing political, social and cultural circumstances.

On the one hand, medical education in general followed a similar line of development in Belgium as in most other European countries, yet on the other hand, many specific circumstances also created a unique situation. Most important in this regard was, first, the early introduction and the exceptionally long preservation of the unified degree of doctor in medicine, surgery and obstetrics. Second, the competition between state and private universities often resulted in small differences in the curriculum, yet sometimes the policy of the latter was decided not so much by choice, but rather out of necessity due to their long-lasting difficult financial position. Finally, the traditional conflict between Catholics and liberals led to specific conditions, such as the somewhat more holistic approach at the Catholic University of Leuven (also shown by its pioneering role in the countermovement of the 1960s and 1970s). Classroom history and other methods and concepts from the discipline of the history of education could be helpful in expanding this kind of more detailed research further.⁷²

Notes

- 1 J.-J. Bouckaert, 'Geneeskundige opleiding', *Verhandelingen van de Koninklijke Academie voor Geneeskunde van België*, 20 (1958), 11–12.
- 2 R. Walter, 'Themes', in *A History of the University in Europe. Volume I: Universities in the Middle Ages*, ed. H. de Ridder-Symoens (Cambridge, UK: University Press, 1992), 25–30.
- 3 C. Bruneel and P. Servais (eds), *La formation du médecin: des lumières au laboratoire. Actes du colloque du 9 décembre 1988* (Louvain-la-Neuve: UCL, 1989), 5–43.
- 4 P. Dhondt, *Un double compromis. Enjeux et débats relatifs à l'enseignement universitaire en Belgique au XIXe siècle* (Ghent: Academia Press, 2011), 65–8.
- 5 E. Lacroix, 'Negentiende eeuw: van speculatieve naar wetenschappelijke geneeskunde', in *Wetenschappelijke ontwikkeling van de geneeskunde in de negentiende eeuw. Bijdrage van enkele Belgische artsen* (Brussels: Académie royale de Médecine de Belgique, 2002), 9–33.
- 6 K. Velle, *De nieuwe biechtvaders. De sociale geschiedenis van de arts in België* (Leuven: Kritak, 1991), 87. A selection of literature is available on the transformation towards a fundamentally different view on disease in which the symptoms are no longer the centre of attention, but rather the causes. Some examples include: C. Huerkamp, *Der Aufstieg der Ärzte im 19. Jahrhundert. Vom gelehrten Stand zum professionellen Experten: Das Beispiel Preussens* (Göttingen: Vandenhoeck & Ruprecht, 1985); W. F. Bynum, *Science and the Practice of Medicine in the Nineteenth Century* (Cambridge: Cambridge University Press, 1994); and C. Bonah, *Instruire, guérir, servir. Formation et pratique médicales en France et en Allemagne pendant la deuxième moitié du XIXe siècle* (Strasbourg: Presses universitaires, 2000).
- 7 G. Willems, 'De maatschappelijke rol van de Academie Royal de Médecine de Belgique (1841–1914)' (unpublished master's diss., KU Leuven, 2003).
- 8 R. Schepers, 'Om de eenheid van het medisch beroep. Het debat over de specialisatie in België (1900–1940)', *Gewina*, 16:3 (1993), 155–70; and I. Meul and R. Schepers, 'De opkomst en consolidering van medische specialisten in België (1857–1957)', *Belgisch Tijdschrift Voor Nieuwste Geschiedenis*, 43:2 (2013), 10–45.
- 9 R. Bardez, 'La Faculté de Médecine de l'Université Libre de Bruxelles: Entre Création, Circulation et Enseignement ses Savoirs (1795–1914)' (PhD diss., Université libre de Bruxelles, 2015); and Dhondt, *Un double compromis*. See their bibliographies for key works on the topics of research in this field.

- 10 T. Claes, *Corpses in Belgian Anatomy, 1860–1914: Nobody’s Dead* (New York: Palgrave Macmillan, 2019).
- 11 L. Nys, *Van mensen en muizen. Vijftig jaar Nederlandstalige faculteit geneeskunde aan de Leuvense universiteit* (Leuven: Leuven University Press, 2016); and J. Vandendriessche, *Zorg en wetenschap. Een geschiedenis van de Leuvense academische ziekenhuizen in de twintigste eeuw* (Leuven: Leuven University Press, 2019).
- 12 This and the following two sections of this chapter are largely based on Bardez, ‘La Faculté de Médecine de l’Université Libre de Bruxelles’ and Dhondt, *Un double compromis* – specific references to original sources and additional literature can be found there.
- 13 See, for instance, P. Dhondt, ‘La situation précaire de l’enseignement supérieur dans les départements belges entre 1797 et 1815’, *Revue belge de philologie et d’histoire*, 82:4 (2004), 935–67, and the large number of references included in the article.
- 14 J. Vandendriessche, *Medical Societies and Scientific Culture in Nineteenth-Century Belgium* (Manchester: Manchester University Press, 2018), 15–28; R. Schepers, *Artsen in Gebreke. Zelfregulering door het medisch beroep* (Leuven: Lannoo Campus, 2008), 121–6.
- 15 E. T. Hurren, *Dying for Victorian Medicine: English Anatomy and Its Trade in the Dead Poor, 1834–1929* (New York: Palgrave Macmillan, 2012), 303–11.
- 16 R. Schepers, ‘Towards unity and autonomy: the Belgian medical profession in the nineteenth century’, *Medical History*, 38 (1994), 237–54; J. Vandendriessche, ‘Wetenschapsbeoefening en belangenbehartiging: naar een nieuwe geschiedschrijving van negentiende-eeuwse medische genootschappen in de Lage Landen’, *Studium. Revue d’Histoire des Sciences et des Universités*, 7:1 (2014), 36–49.
- 17 L. Brockliss and R. Rogers, ‘L’enseignement médical et la Révolution. Essai de réévaluation’, *Histoire de l’éducation*, 42 (1989), 84.
- 18 C. Dickstein-Bernard, ‘Panorama de l’enseignement supérieur en Belgique au XIXe siècle (1795–1876)’, in Bruneel and Servais, *La formation du médecin*, 63.
- 19 M. Crosland, ‘The *officiers de santé* of the French Revolution: a case study in the changing language of medicine’, *Medical History*, 48 (2004), 229–32; R. Heller, ‘*Officiers de santé*: the second-class doctors of nineteenth-century France’, *Medical History*, 22 (1978), 27–9; E. Ackerknecht, *Medicine at the Paris Hospital, 1794–1848* (Baltimore, MD: Johns Hopkins Press, 1967), 56.
- 20 T. N. Bonner, *Becoming a Physician: Medical Education in Britain, France, Germany, and the United States, 1750–1945* (New York: Oxford

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 - 22 Vandendriessche, *Medical Societies and Scientific Culture*; J. Vandendriessche, 'Anatomy and sociability in nineteenth-century Belgium', in *Bodies Beyond Borders: Moving Anatomies, 1750–1950*, ed. K. Wils, A. Sokhieng and R. De Bont (Leuven: University Press, 2017), 51–72.
 - 23 P. Bourdieu, *Homo Academicus* (Paris: Les éditions de Minuit, 1984), 87; N. Gevitz, 'Unorthodox medical theories', in Bynum and Porter, *Companion Encyclopedia of the History of Medicine*, 603; W. F. Bynum, *Medical Fringe and Medical Orthodoxy, 1750–1850* (London: Croom Helm, 1987).
 - 24 W. F. Bynum (ed.), *The Western Medical Tradition: 1800 to 2000* (New York: Cambridge University Press, 2006), 155; A. Dalcq, 'L'enseignement et les recherches des anatomistes belges de 1830 à 1930', *Le Scalpel* (June 1931), 7.
 - 25 M. Sappol, *A Traffic of Dead Bodies: Anatomy and Embodied Social Identity in Nineteenth Century America* (Princeton, NJ: University Press, 2002), 51; J. Reinartz, 'The age of museum medicine: the rise and fall of the medical museum at Birmingham's School of Medicine', *Social History of Medicine*, 18 (2005), 437; Claes, *Corpses in Belgian Anatomy*, 161–84.
 - 26 L. Marcq, *Essai sur l'histoire de la médecine belge contemporaine* (Brussels: Académie royale de médecine de Belgique, 1866), 134.
 - 27 D. Knight, *The Making of Modern Science: Science, Technology, Medicine and Modernity: 1789–1914* (Cambridge, UK: Cambridge University Press, 2009), 123–4.
 - 28 R. Anderson, *European Universities from the Enlightenment to 1914* (London: Oxford University Press, 2004), 51–6.
 - 29 Vandendriessche, *Medical Societies and Scientific Culture*, 217–23.
 - 30 L. Deroubaix, 'Clinique chirurgicale de l'Hôpital Saint-Jean. Observations et leçons cliniques recueillies par M. Lebrun, aide de clinique, depuis le 1er octobre 1877 jusqu'au 1er juillet 1879', *Annales de l'Université de Bruxelles. Faculté de médecine*, 1 (1880), 1–3; A. Uytterhoeven, *Notice sur l'Hôpital Saint-Jean de Bruxelles, ou étude sur la meilleure manière de construire et d'organiser un hôpital de malades* (Brussels: Tircher, 1852), 74–5.

- 31 A. Cunningham, O. P. Grell and R. Jütte (eds), *Health Care and Poor Relief in 18th- and 19th-Century Northern Europe* (London: Ashgate, 2012); R. Fuchs, *Gender and Poverty in Nineteenth-Century Europe* (Cambridge, UK: Cambridge University Press, 2005).
- 32 L. Elaut, *Een epos. Het Gentse akademisch ziekenhuis* (Kapellen: De Nederlandsche Boekhandel, 1977), 23–7.
- 33 *Rapport sur quelques questions relatives à l'enseignement supérieur adopté par le cercle médical liégeois en Assemblée générale du 29 novembre 1872* (Liège: Denoel, 1872), 4, 7–8.
- 34 G. Gluge, 'Séance solennelle de réouverture des cours de l'Université de Bruxelles. Discours de M. Gluge, pro-recteur pour l'année 1870–1871', *La Presse médicale belge*, 22:45 (1870), 360.
- 35 G. Vanpaemel, 'The German model of laboratory science and the European periphery (1860–1914)', in *Sciences in the Universities of Europe, Nineteenth and Twentieth Centuries, Academic Landscapes*, ed. A. Simoes, M. P. Diogo and K. Gavroglu (Dordrecht: Springer, 2015), 216–17.
- 36 Vanpaemel, 'The German model of laboratory science', 211–15.
- 37 A. Namèche, 'Discours prononcé le 6 octobre 1875, jour de l'ouverture des cours académiques', *Annuaire de l'Université catholique de Louvain*, 40 (1876), 411.
- 38 G. Verriest, 'Sixième congrès international de médecine à Amsterdam, 1879. Conférence de M. le prof. Virchow sur l'éducation médicale', *Journal des sciences médicales de Louvain*, 4 (1879), 535.
- 39 The best introduction to the increasing specialisation in medical education is G. Weisz, *Divide and Conquer: A Comparative History of Medical Specialization* (Oxford: Oxford University Press, 2006).
- 40 J. de Maeyer, L. Dhaene, G. Hertecant and K. Velle (eds), *Er is leven voor de dood. Tweehonderd jaar gezondheidszorg in Vlaanderen* (Kapellen: Pelckmans 1998), 173–4. Especially the supposedly too easy recognition of diplomas obtained abroad, was heavily criticised.
- 41 A. Flexner, *Medical Education: A Comparative Study* (New York: Macmillan, 1925).
- 42 G. Vanpaemel, M. Derez, and J. Tollebeek (eds), *Album van een wetenschappelijke wereld. De Leuense universiteit omstreeks 1900* (Leuven: Lipsius Leuven, 2012), 35; P. Héger, *Réponse à Mr. Léon Frédéricq* (Brussels: Hayez, 1891), 2–3; L. Frédéricq, *Paul Héger et les Instituts Universitaires de Gand et Liège* (Liège: Vaillant-Carmanne, 1891); A. Firket, 'Les nouveaux éléments de l'éducation médicale en Allemagne', *Bulletin de l'Académie royale de médecine* (1907), 283–35.
- 43 Bonner, *Becoming a Physician*, 221.

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