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Cultures of Death and Politics of Corpse Supply:

Anatomy in Vienna, 1848-1914

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Summary

Nineteenth-century Vienna is well known to medical historians as a leading centre of medical research and education, offering easy access to patients and corpses to students from all over the world. This article seeks to explain how this enviable supply with cadavers was achieved, why it provoked so little opposition at a time when Britain and the United States saw widespread protests against dissection, and how it was threatened from mid-century. To understand permissive Viennese attitudes we need to place them in a *longue durée* history of death and dissection, and to pay close attention to the city's political geography as it was transformed into a major imperial capital. The tolerant stance of the Roman Catholic Church, strong links to Southern Europe and the weak position of individuals in the absolutist state all contributed to an idiosyncratic anatomical culture. But as the fame of the Vienna medical school peaked in the later 1800s, the increased demand created by rising student numbers combined with intensified interdisciplinary competition to produce a shortfall that professors found increasingly difficult to meet. Around 1900, new religious groups and mass political parties challenged the long-standing anatomical practice by refusing to supply cadavers and making dissection into an instrument of political struggle. This study of the material preconditions for anatomy at one of Europe's most influential medical schools provides a contrast to the dominant Anglo-American histories of death and dissection.

Keywords

Anatomy; dissection; medical education; Vienna; Austro-Hungarian Empire; death; funerary traditions

The politics of the transition from the bodies of executed criminals, the main source of anatomical material in medieval and early modern Europe, to pauper cadavers around 1800 took diverse paths in different countries.¹ In Britain, a period of indiscriminate grave robbing ended with the 1832 Anatomy Act, which gave anatomists almost unrestricted access to the workhouse poor, in exchange for not touching the middle- and upper-class dead.² In the United States, where the anatomical divide cut along lines not just of class but also of race, violent protests in the turbulent decades around the American Civil War delayed anatomical acts until the end of the nineteenth century.³ Yet British and American medical students travelled to continental European centres where the transition from the criminal to the pauper body occurred earlier and seemingly more smoothly. In *ancien régime*

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Paris, the cadavers of paupers who died in hospitals were used extensively in research and education.⁴ In 1798 the new republican government named the Hôtel-Dieu and the Charité official providers to the medical school and ordered other hospitals to give its needs priority.⁵ In the German lands, the economics of free burial provision and the prevailing moral code overcame considerable popular resistance to facilitate a gradual expansion of the pool from which anatomical cadavers were recruited to include unwed mothers, illegitimate children, suicide victims, prisoners, beggars, almshouse inmates and others dependent on municipal funds.⁶

As the leading European centre of clinical education, Paris was from the 1850s succeeded by the capital of the Habsburg Monarchy, Vienna.⁷ The General Hospital (Allgemeines Krankenhaus) housed thousands of patients in specialist wards and served as the base for university teaching as well as short courses for foreign visitors, which offered clinical instruction on live and dissection on dead bodies.⁸ Around 1850, the main Viennese medical journal Wiener Medizinische Wochenschrift boasted that the General Hospital alone supplied the medical faculty with 2,000 corpses per year for dissection 'for educational purposes', allegedly more than the other German medical schools received altogether.⁹ Vienna was an essential stop on the educational tours of foreign, largely American and German, students because it offered easy access to clinical and anatomical 'material'.¹⁰ Cadavers were also used as raw material for the production of objects that spread the fame of Viennese anatomy worldwide. Josef Hyrtl's exquisite specimens occupy pride of place in many anatomical and natural history collections.¹¹ Eduard Pernkopf's anatomical atlas, celebrated for its art but notorious for using the cadavers of victims of the fascist regime in the 1930s and '40s, was the last in a tradition that went back to the nineteenth century.¹²

This article aims to explain why access to bodies in Vienna was easier and the attitude towards dissection more permissive than in Britain, the U.S. or even other German states. The most prominent recent literature on corpse supply to nineteenth-century anatomy has rightly emphasized strong popular opposition towards dissection.¹³ This resistance is usually seen as based in deep-seated beliefs about the cadaver that persisted well into the nineteenth century and were widely prevalent in popular culture. Yet anthropologists have shown that, instead of assuming that death cultures were homogenous Europe-wide, we should take national and regional differences seriously.¹⁴ So the first section identifies various long-term sources of Viennese attitudes towards death and dissection. An idiosyncratic culture formed under the influence of the Roman Catholic Church and utilitarian absolutist monarchs. The Church and the state continued to play key roles into the second half of the nineteenth century, as I will show for the examples of access to city cadavers and debates about friendly societies and cremation. Within this culture and in contact with Italian centres, from the Middle Ages, and then Paris, in the nineteenth century, medicine was strongly centred on the cadaver as the central teaching and research resource.

The second section, set in the 1850s, shows how the specific disciplinary organization of the Vienna School of Medicine moved the main competition for dissectible cadavers into the faculty, rather than between anatomists and authorities, or the state and the poor. While I focus on normal anatomy, the discipline most closely associated with the practice of dissection, I show that pathological anatomists controlled the distribution of bodies.¹⁵ Clinical and anatomical chairs competed for cadavers for research and to attract students from abroad. The idiosyncratic, highly fragmented disciplinary world of the Vienna School of Medicine may be explained by the school's status as the central educational institution of the Habsburg Monarchy and part of the largest German-speaking university. The third section describes how, in the 1880s, anatomists recruited government ministers to gain access to cadavers in other cities. The success of this project crucially depended on Vienna's central position in the imperial railway, cultural and economic networks.

To understand how the context of an expanding capital of a multiethnic empire informed anatomical practices, I draw on recent work on science and the city.¹⁶ In history of medicine, studies on the making of public health have explored how scientific expertise both reformed the body and changed the urban environment.¹⁷ Closely related are histories of diseases with a strong cultural impact—such as major epidemics—which historians have used as ‘sampling probes’ to assess social changes.¹⁸ Recently, several studies have shown how specific urban environments shaped particular disciplines.¹⁹ Here I focus on the single highly important practice of body supply to anatomy in order to reveal the relevant changes as Vienna was transformed into a major cultural and intellectual metropolis.²⁰ In addition to the religious culture and communication networks, change encompassed the urban space, population size and composition, and—the subject of the fourth and final section—the rise of anti-Semitism.

This is, then, a study of cultures of death, medical disciplines and a city, but primarily a contribution to histories of nineteenth-century medical education in anatomy. Studying Vienna, an educational and cultural centre that crucially shaped modern medicine, should help redress the privileging of Anglo-American narratives. While we lack records of corpse supply (*Leichenbücher*), other documents—ministry and faculty reports, newspaper articles and textbooks—provide sufficient information to reconstruct trends in the numbers and provenance of cadavers.²¹ The resulting account of how anatomy professors secured the material basis for their world-renowned courses, atlases and specimens should complement stories of largely American and German students and doctors in pursuit of knowledge and status. Above all, it suggests that we should not assume that the transition from the criminal to the pauper body was universally contested; given the number of students who received some training in Vienna, it may not even have been dominant.

Dissection and cultures of death

In medieval Europe, the first medico-legal and anatomical dissections were performed in North Italian cities around 1300.²² Bodies were cut open to determine the cause of death, to prepare for embalming, to inspect for stigmata in canonization procedures and to teach students of medicine and surgery.²³ Across Europe, the timing and the extent of dissection depended on local attitudes towards death and the corpse. In this section I situate the history of anatomical dissection in Vienna within the medical and death culture strongly shaped by Roman Catholicism, cultural connections with Italian centres, and the vision of society advanced by absolutist monarchs.

The historian of dissection in the Italian Renaissance, Katharine Park, proposed the existence of a North-South divide in attitudes towards death and the corpse.²⁴ For Italians (South), death was a quick and radical separation of the soul from the body, while in England, Germany and France (North) it was perceived as a slow and gradual process. Consequently, in the South the body became inert almost immediately after death, as opposed to the North where it passed through a liminal period during which it remained semi-animate and in possession of magical powers. These differences, Park argued, strongly influenced the history of anatomical dissection across Europe.²⁵

Vienna straddles the imaginary North-South divide. In the late thirteenth century the German house of Habsburg had seized the throne of the Holy Roman Empire and brought Northern burial rituals.²⁶ After a brief flirtation of the nobility with Protestantism, by the seventeenth century the dynasty and the country settled for Roman Catholicism, strengthened by religious orders imported from Italy. Their legacy was a visually elaborate Baroque culture, with churches adorned with images of death: paintings, wax tableaux, skeletons and mummified bodies.²⁷ Some were relics that reputedly exhibited miraculous

powers, but their main role was to remind the people of the transitoriness of life and importance of a good death. Like the pope in Rome, the Habsburgs were embalmed and then buried in three different places: hearts in the Church of Augustinian Friars (Augustinerkirche), intestines in the catacombs of St. Stephan's cathedral (Stephansdom), and the rest in the Imperial Vault of the Church of Capuchin Friars (Kapuzinerkirche).²⁸ Every 2 November, All Souls Day, the Vault was opened for the Viennese to view the embalmed royals.²⁹

Medical practice and education in Vienna closely followed the example set by the Italian centres where many of the Viennese practitioners were educated. There is evidence that from the mid-sixteenth century the poor in the Citizens' Hospital (Bürgerspital) were autopsied to establish the cause of death.³⁰ Vienna was the site of the earliest recorded anatomical dissection outside the Mediterranean, preceding cities in today's Germany and Switzerland by almost a century.³¹ In Vienna, anatomies were performed first every several years and from 1537 annually, by a faculty member in the Citizens' Hospital and in the presence of medical students, doctors, apothecaries, surgeons and learned men from the faculty of arts.³²

It has been suggested that dissection was part of the punishment imposed on those who transgressed social rules.³³ This argument does not hold here, because, if there was more than one candidate, anatomists, not the legal authorities, selected the cadaver.³⁴ In contrast to the English law, Continental legal theoreticians could draw on the Roman law postulating that 'the crime ends with death' (crimen morte finitur).³⁵ In Vienna, dissection was a solemn event in which the key role was played by a lay brotherhood specialized in the funerals of the executed (Gottleichnambruderschaft). Its members consoled the condemned on the way to the execution and, after dissection, buried the remains in consecrated ground.³⁶ The event ended with Mass attended by the faculty and students. Park, describing the tradition south of the 'anatomical divide', argued that the purpose of the Mass, the Christian burial, and the consolation of the confraternity was to reconcile the criminal with the community.³⁷ To compare, in Tübingen—a Southern German university town that would become Protestant and so may be seen as a borderline case—in 1497 the medical faculty prescribed burial and Mass for the soul of the dissected in the presence of students, physicians and surgeons. Yet by 1763 the ceremony no longer took place, and, when the new cemetery opened in 1829, anatomical cadavers were buried outside its walls.³⁸ The sometimes founded fear that the body would not be buried after dissection was an important reason for opposition to dissection in many German cities.³⁹ By contrast, it seems that in Vienna dissected bodies were always buried, at hospital and then at community cemeteries.⁴⁰

In the seventeenth century, the Padua- and Leiden-educated medical faculty sought to replace demonstrations with practical, 'hands-on', instruction, so in 1672 Johann Greissl, professor anatomicus, gained permission to dissect the bodies of the deceased in hospitals, because the number of those executed was too small.⁴¹ This unusually early precedent was transformed into a law under the Empress Maria Theresa, at the same time as other German-speaking cities began to recruit pauper patients as anatomical corpses.⁴² In 1749 she decreed that bodies of women who died in St. Marx, a lying-in hospital, be delivered to the surgeon who trained midwives and their assistants.⁴³ In the same year a new order followed, specifying that because in the previous year only three people were executed, professors of anatomy were authorized to use the bodies of those dying in local hospitals.⁴⁴

Provisions for dissection complied with the utilitarian view of practically and surgically-oriented medical education promoted by Maria Theresa's son and heir, Joseph II.⁴⁵ In 1784, he founded the General Hospital, hailed as the largest medical institution in Europe.⁴⁶ The

hospital accommodated thousands of sick poor, whose bodies lay open to inspection, palpation, percussion, auscultation, and, after death, dissection by the medical faculty of the University of Vienna. Joseph saw the use of patients' bodies in medical education as a fair repayment for the free medical care they had received in the hospital. In addition to the smaller and more remote Hospital of Merciful Brothers, the General Hospital would remain the main supplier of cadavers to the school into the second half of the nineteenth century. This centralization worked to the advantage of Vienna's medics, compared to the Parisian institutions that were much larger, well-supplied but geographically scattered and overcrowded.⁴⁷

Historians mention no protests against dissection. This stands in striking contrast to the public response to Joseph's attempt to reduce funeral costs by replacing the customary wooden coffins with cheap linen sacks (Figure 1).⁴⁸ Public outrage forced the emperor to revoke the orders enacted in August and September 1784 within five months. Joseph had more success with the second part of the reform, in which, for sanitary reasons, medieval graveyards in the walled Inner City were closed and burials moved to rural settlements just outside greater Vienna. The religious ceremony that remained in the city churches was thus physically separated from the act of burial, now bereft of any pomp. The reform created favourable conditions for gravediggers to trade in bodies and body parts.⁴⁹ Skulls acquired at Viennese suburban cemeteries in the post-reform period became the basis of Franz Joseph Gall's famous collection.⁵⁰

Further reforms were cut short by Joseph's premature death, followed by the French revolution, Napoleonic wars, thirty years of political and social stagnation post-1815, the failed revolution of 1848-9 and the reactionary neoabsolutism of the 1850s. Reforms of burial practices continued in the period of economic growth, after the establishment of a constitutional monarchy and the liberal accession to power in 1860. In 1867, the first professional funeral company in Vienna replaced the traditional services of church sextons.⁵¹ Its French name, *Entreprise des pompes funèbres*, promised elegant funerals that appealed to the aesthetic taste and hygienic standards of the new middle classes.⁵²

Immigration and the incorporation of suburban settlements increased the urban population. Yet many inhabitants could hardly afford even modest burials. Recent immigrants without family graves or community strongholds in the city faced a particularly grave situation when, in the wake of 1873 cholera epidemic, the Ministry of Internal Affairs prohibited long-distance travel of cadavers from the place of death to the burial site.⁵³ For the Viennese poor, the solution frequently lay in friendly societies. These continued the medieval confraternal tradition of *Leichenbrüderschaften*, community-based citizen associations that covered the hospital and burial costs of their fee-paying members and, as an act of charity, provided for the destitute as well.⁵⁴ But in the 1850s the society of St. Joseph of Arimathaea, named after the Biblical character who buried the body of Christ after crucifixion, instituted a new form of assistance. Not confined to a city district or parish, it buried persons without family in Vienna.⁵⁵ A decent funeral was provided in exchange for the modest monthly membership fee of 10 *Kreutzer*,⁵⁶ while the more distinguished members, clergymen and wealthy noblewomen, paid higher fees and used the society as a vehicle for charitable activity. Importantly, St Joseph of Arimathaea organized and paid for the burial of dissected cadavers from the anatomical institute. Aiming to bring the funerals of dissected remains up to the socially accepted standard, they replaced linen bags, in which the remains had traditionally been buried, with wooden coffins.⁵⁷ Between 1857 and its dissolution in 1917, the Arimathaea became such an integral part of anatomy that anatomical cadavers became known as *Arimathaealeichen* ('Arimathaea corpses'), in addition to the older names of *Gratisleichen* ('free of charge corpses') or *durchgefallene Leichen* ('failed corpses') and the official term *Studienleichen* ('study corpses').⁵⁸ This integration of a

friendly society into anatomy stands in sharp contrast with German cities where such associations provided burials precisely to save the poor from dissection.⁵⁹

Around 1870, the eighteenth-century cemeteries in the districts beyond the Linie, now integrated into the city, were closed to be replaced with a large, centralized site in the south-eastern plains.⁶⁰ The new cemetery was still under discussion when, in the summer of 1873 and in the middle of the World Exhibition in Vienna, a cholera epidemic ignited a debate on how to dispose of cadavers hygienically. At the exhibition, the German innovator Werner Siemens displayed his cremation apparatus, a novelty that rapidly gained supporters throughout Europe who urged its sanitary and utilitarian advantages⁶¹ (Figure 2). The argument that appealed to the Viennese municipal authorities was that cremation saved scarce burial ground.⁶² For liberal newspapers, cremation symbolized progress: chemically equal to putrefaction, it was also much quicker and cleaner, and so more befitting a civilised person. They argued that cremation posed no obstacles to the traditional Christian funeral ritual, yet the Church disagreed and the new cemetery opened in the autumn of 1874 without cremation facilities.⁶³ The first European crematorium was erected in Milan in 1876, the first in a German-speaking country in Gotha in 1878, and Britain passed a Cremation Act in 1902. But in Austria, the Church and conservative political parties firmly opposed cremation.⁶⁴ It was legalised only in 1923, after a prolonged struggle and under Social Democrat rule in the city.⁶⁵

No evidence of how the poor thought about dissection has hitherto been found. So this section attempted to reconstruct the history of dissecting at the medical faculty in the context of the local culture of death created by a combination of actors and influences: German princes, Padua-educated doctors and the Roman Catholic Church, supported post-Reformation by Italian religious orders. The already favourable atmosphere received a strong boost under the eighteenth-century absolutist monarchs, for whom the surgical approach suited their vision of medicine, and the use of pauper bodies in medical education their idea of a society founded on utilitarian principles. The Roman Catholic Church and conservative circles did not object to dissection but to failure to bury the body in accordance with the prescribed ritual: with Mass, in consecrated ground, ideally in a wooden coffin. This conclusion is supported first by the unusually strong reaction to ‘Josephinian coffins’ and, second, by the contrast between the strong resistance to cremation and the simultaneous support, through the St. Joseph of Arimathea society, of anatomical dissection. How far can we generalize the permissive attitude of the Roman Catholic Church? In Würzburg, a predominantly Roman Catholic city in Bavaria, in 1837 the Evangelical Church protested to the Ministry of Internal Affairs against the use of pauper cadavers in anatomy, while the Catholic authorities had no complaints. At the same time, the whole city rose against gravediggers transporting corpses to the anatomical institute covered with nothing but a piece of white cloth, and the careless attitude of medics towards dissected remains, allegedly discarded in the streets after use.⁶⁶ Yet in the eighteenth-century Göttingen protestant pastors supported dissection to save their parishes from paying for the pauper burials, while the Catholic Munich in 1848 saw protests against dissection.⁶⁷ More comparative research of longue durée anatomical traditions across Europe—especially hitherto less studied Roman Catholic parts—is needed to demonstrate with certainty a confessional (or geographical) divide in the attitudes towards dissection.

<A>Professors Compete for Bodies

From the 1830s, the intellectual leadership of the Vienna School of Medicine was assumed by a group of young clinicians around the pathological anatomist Karl Rokitansky. They would become famous as the ‘Second Vienna School’⁶⁸ and attract a considerable international following.⁶⁹ Simultaneously, economic growth, urbanization and the political

liberalization of the 1860 and 1870s raised the number of students from the Habsburg Monarchy. Normal and pathological anatomists, general surgeons, ophthalmologists and gynaecologists all requested their share of corpses for research and instruction, so the General Hospital and the smaller and more remote Hospital of Merciful Brothers could no longer fulfil their demands. Such professorial competition over cadavers emerged elsewhere too, as surgery and obstetrics gained independence from anatomy and forensic medicine started to use dissection on a regular basis, but in Vienna more participants were involved and the position of pathological anatomy was exceptionally strong.⁷⁰

In 1840, William Wilde, a young Irish physician and the future father of playwright Oscar, wrote from Vienna: 'There are many opportunities to gain knowledge in this area [anatomy] as the supply with dissectible bodies is plentiful'.⁷¹ Yet in 1852, the professor of anatomy Joseph Hyrtl complained to the medical faculty of corpses that he received from the General Hospital that

in three months from 1 October to the second half of December, only six of the most wretched women in childbed, suitable neither for the surgery course, nor for skeleton preparation, nor for other purposes, so that sooner or later anatomical practical exercises will have to be conducted on animal carcasses.⁷²

Indeed, the professor, hailed as the best anatomist in the empire and renowned for his inspiring lectures, was in an awkward position. He was pleased to see his lecture and dissection halls overfilled with both matriculated students and foreign doctors on their educational tours. At the same time, the institute, which between 1849 and 1886 had no building of its own but was accommodated in makeshift premises, could not cope with the continually growing student population. By the early 1860s the number of students taking the anatomical course exceeded 300 a year.⁷³ Students normally dissected one cadaver per group of four and a variable number of body parts (extremities, heads and trunks). The institute had no cold cellar to store the bodies so they were left in the dissection hall over night. Since chemical preservation of cadavers came into general use only at the end of the nineteenth century, with the introduction of formaldehyde into anatomical practice, the turnover had to be quick and dissection limited to the winter semester, October to April.⁷⁴ Corpses were also used for the preparation of anatomical specimens, which were then displayed in the institute museum as teaching aids, used in research and exhibited at public exhibitions. Those considered to be of poorer quality were skeletonized by institute attendants and sold to students and doctors for study or for display in their offices.

To increase the number of cadavers, Hyrtl turned to the Ministry of Religion and Education (Ministerium für Cultus und Unterricht). He asked for access to the provincial prison (Provinzial Strafhaus), prison hospital (Inquisitenspital im Criminalgebäude), as well as the hospital in the district of Wieden (Wiedner Spital), but his petition achieved little success.⁷⁵ A prolonged correspondence between the Ministry of Religion and Education, the Ministry of Justice and the Ministry of Internal Affairs resulted in full access only to the Wiedner Spital, which in the academic year 1852/3 yielded not more than three 'unclaimed' bodies.⁷⁶ The Ministries of Justice and of Internal Affairs were reluctant to agree to the use of prisoners' bodies.⁷⁷ The unsatisfactory yield at relatively distant suburban hospitals made daily transport economically unviable, so bodies reached anatomy half-decayed. The ideal source was still the General Hospital, around the corner from the anatomical institute. Between 1851 and 1854, it admitted 78,353 patients, of whom 11,458 or 13.4% died during their stay.⁷⁸

But the master of dead bodies in the General Hospital was the immensely influential professor of pathological anatomy and chief hospital pathologist, Karl Rokitansky (1804-78).⁷⁹ In comparison to other German-speaking universities, pathological anatomy

was institutionalized in Vienna unusually early: it rose from an unsalaried prosectorship at the General Hospital (1796) to an extraordinary professorship (1821).⁸⁰ From 1818, the prosector performed not just all post-mortems in the hospital, but also, unusually, all forensic autopsies in the city.⁸¹ This disciplinary setting helped Rokitansky, full professor from 1844, make pathological anatomy the axis of clinical research in Vienna and secure its independence not only from the clinic but also from new approaches, such as experimental pathological physiology, cell and tissue research.⁸² This independent pathological anatomy constructed the sequence of reasoning at autopsy and the understanding of pathological changes inside the body differently from the French school.⁸³ Paris clinicians described and classified diseases as collections of signs and external manifestations of processes in the body, hidden during life but observable on the autopsy table. By contrast, Rokitansky would also start from the corpse but then thought in terms of physiological and physical processes in the living body, rather than patients' symptoms and signs. His method was enthusiastically accepted by the circle of young physicians around him, the 'Second Vienna School': most famously, Josef Skoda experimented on cadavers and patients to construct a classification of chest sounds more robust and ultimately more successful than that proposed by Laënnec.⁸⁴ Post-1848, Rokitansky's power spread from the General Hospital: he became the dean of the medical faculty (1849-50, 1856-7, 1859-60), the first freely elected university rector (1852-3), president of the Society of Physicians (1850-78), president of the Academy of Sciences (1869-78), and expert advisor to the Schmerling government of 1863.⁸⁵ His influence may be compared only to that of his younger Berlin colleague, Rudolf Virchow.

Rokitansky oversaw all General Hospital as well as all forensic post-mortems in Vienna.⁸⁶ But his authority over Viennese cadavers stretched even further than 'unclaimed' cadavers in the hospital and victims of accidents, suicides and homicides. A letter kept in the University Archives in Vienna, to my knowledge hitherto unnoticed, shows that Rokitansky enjoyed a secret privilege to claim any body buried in Vienna. That letter was written by Rokitansky to the Ministry of Religion and Education on 15 February 1867, in response to a request from the Government of Saxony, which planned to reform its anatomical legislation and inquired after Austrian experiences. Rokitansky, the government-selected respondent, explained that for him to obtain a part or all of any body buried in Vienna, it sufficed to inform the chief municipal public health official (*Stadtphysikus*), who would then instruct the gravedigger to bury the body shallowly and thus easily accessible for exhumation. In the evening, the institute attendant would collect the desired body or body part from the graveyard. There was no danger of protests from the families of the deceased because the gravediggers were bound by an oath of silence.⁸⁷

This secretive use of cemetery cadavers went back to the eighteenth-century separation of the ceremony and the physical burial. Here it is evident that this was condoned by the city and the state although no trace of a written permission survives.⁸⁸ Rokitansky's successors, however, did not enjoy this privilege: when in the early twentieth century the neurologist Moritz Benedikt mentioned it at a faculty meeting, professors were surprised and outraged. The only person to remember the privilege was the anatomist Emil Zuckerkandl who briefly worked under Rokitansky in the early 1870s.⁸⁹ In the 1850s, however, part of the influence and power that Karl Rokitansky wielded within the medical faculty was due to his command over dissectible bodies. Pathological anatomy enjoyed an enviable position as the first port of call for cadavers. Pathologists dissected the majority of those who died in the General Hospital, but their autopsies were usually limited to diseased parts and often left limbs untouched. These partially dissected bodies, as well as the 'whole' bodies that were of no interest to pathologists, were distributed further—not just to anatomy, but also to clinical departments. Strongly influenced by the pathological-anatomical approach, clinical chairs—

in particular general surgery, gynaecology with obstetrics, and ophthalmology—also required human corpses for teaching and research.

How many cadavers should each of the interested parties receive? Provoked by the, in their view, privileged position of anatomy, in the late 1850s a committee of professors headed by two surgeons, Franz Schuh and Johann von Dumreicher, opened an enquiry into the supply of corpses, demanding a fairer distribution. They claimed that anatomy was receiving a disproportionately large number, in some years more than half, of the dissectible corpses (Figure 3).⁹⁰ The reproach was potentially dangerous to anatomy, because, according to surgeons, higher-year students profited more from surgical exercises (*Operationsübungen*) than extensive anatomical dissections. And while general surgery was a major competitor, other smaller and more specialised chairs, such as ophthalmology and obstetrics, requested their share of bodies and body parts (eyes, heads and pelvises) too.⁹¹

The enquiry ended with a formal decision to distribute bodies equally between anatomy and the two surgical chairs, a third of the available corpses to each; to exercise strict bookkeeping; and to present records of the comings and goings of bodies to the medical faculty at the end of each month. The actual impact of this investigation on the supply of bodies was minimal, but it still threatened anatomy. Without bodies, anatomy could not claim the right to organize courses in dissection, and surgeons who had closer connections to hospitals were also in a better position to access the ‘teaching material’.

Particularly dangerous for anatomy were short, usually six-week courses organized for wealthy American and German visitors: highly profitable to clinical lecturers, they encroached upon resources for matriculated Austrian students.⁹² In 1865, anatomists complained to the faculty about a surgical resident and former anatomical demonstrator who organised dissection courses at the General Hospital surgical department and diverted available cadavers from the anatomical institute. From the extant sources it appears that the faculty took no action and that the courses continued to run undisturbed.⁹³

The foundation of a second anatomical department in 1870 introduced changes in the cadaver supply.⁹⁴ The senior professor, Hyrtl, refused to share his sources—the General Hospital, Hospital of Merciful Brothers, and Wieden Hospital—with the newly appointed head of the second department, Carl Langer. Langer’s quest for his own suppliers took him into outlying, still largely rural Viennese districts and hospitals founded after 1848 in response to the population growth caused by industrialization and subsequent immigration. Unfortunately for anatomy, they were small and yielded few corpses. In his first report, Langer wrote about the pitiful number and condition of the bodies. For the class of almost 100 students, in the period from 1 October to 18 November, he obtained ‘one whole and four corpses that had previously undergone autopsy’ from the Rudolf Hospital (*Rudolfspital*) and ‘three corpses of old women, of which two disfigured through ulcers on their backs, thus only one fully usable’, from the poorhouse.⁹⁵ He tried his luck with a hospital in the suburb of Sechshauss, southwest of the *Linie*, founded in 1857 and enlarged in 1867 and 1872 to reach, at the time of Langer’s application, 320 beds.⁹⁶ This rural community, unused to dealings with anatomists, did not easily come to terms with surrendering their dead for dissection.⁹⁷ They assigned great importance to discreet transport of corpses, which was conducted after nightfall in a vehicle that did not look like a hearse (see the illustration on the cover).⁹⁸

In the second half of the 1870s, the issue of cadaver supply temporarily faded into the background. After Hyrtl’s retirement in 1874, Langer inherited his sources, while Hyrtl’s successor to the first chair, Christian August Voigt, was given access to the Military Hospital bodies.⁹⁹ Voigt retired in 1878 and the first anatomical chair was not immediately

filled, leaving all of the bodies for Langer. While supplying anatomy for the moment did not seem to be a problem, the university 'body market' was transforming. Although with the introduction of antiseptics surgeons, the anatomists' chief competitors in the 1850s, were gradually abandoning encounters with dead bodies, short surgical courses on cadavers remained a lucrative field for both surgeons and anatomists.¹⁰⁰ Furthermore, forensic medicine, a field that had been bound with hygiene into 'state medicine' (*Staatsmedizin*), gained independence in 1875.¹⁰¹ Previously dominated by pathological anatomy, under the new professor Eduard Hoffmann it became a discipline relying equally on autopsy and on physical and chemical methods of inquiry. Consequently, it claimed corpses for its instruction.

Although it is often assumed that anatomists were the chief or the only 'consumers' of dissectible bodies at medical schools, this section has shown that cadavers constituted research and educational tools for a variety of practices other than anatomical dissection and were in great demand from other departments. The unusually segmented world of Viennese medicine, characteristically dominated by pathological anatomy, offers a particularly persuasive case. Foreign visitors were not a passive and temporary element in the institutional history, but an important factor influencing the internal market in teaching resources. The share that a discipline received can tell us much about its standing within the school's internal hierarchy. The right of anatomists to bodies was not denied, yet their power was nowhere near Rokitsky's. For that reason, 'normal' anatomists had to leave Vienna to find bodies.

<A>Irreplaceable Educational Tools, Disease Carriers or Articles of Trade: Networks of Corpse Supply Outside Vienna

In 1884, plans to build a new anatomical institute were confirmed and Carl Toldt was appointed to the Second Anatomical Chair, which had been vacant for six years. The institute opened in 1886 (Figure 4). Toldt and Langer concurred that Vienna could not supply enough corpses to meet the needs of two departments. A solution had to be found elsewhere.¹⁰² Other universities were already using the railway to widen 'the catchment area' so, as this section will show, the Viennese anatomists started to negotiate with state and local bodies to extend their supply network along the tracks deep into the Empire.¹⁰³

The first stop in the anatomical quest was the General Hospital in the Moravian capital Brünn (Brno). This growing industrial centre without a medical school of its own seemed a perfect choice. The impact of a long journey on decaying flesh, a major argument against the import of bodies in the earlier period, was now, with the establishment of railway lines between Vienna and Brünn, significantly reduced.

Yet new problems appeared. First, the supply of cadavers was uneven through the year. In Vienna, the relative lack of cadavers was particularly critical in the winter semester (October-December), not only because of the increased demand during the main dissection season, but also because of the lower mortality in the period when summer epidemics abated and temperatures were still mild. Unfortunately for anatomists, Brünn shared the same seasonal mortality pattern. Of 111 persons who died in Brünn General Hospital during the dissection season of 1885/86 (1 October 1885-31 March 1886), only 38 died from the beginning of October to the end of December.¹⁰⁴

Second, Moravian bodies were expensive. While in Vienna the cost of a 'free' corpse was around one florin and 50 *Kreutzer*—the only substantial expense being the 600-florin annual lump sum to the funerary company *Concordia* for the transport of cadavers—in Brünn the calculation was much more complicated.¹⁰⁵ The railway charged eight *Kreutzer* per corpse

per kilometre or, for 38 corpses and 144 kilometres, 11 florins 52 Kreutzer. After adding the transport costs in Brünn and Vienna, the total rose to 18 florins and two Kreutzer per corpse. In addition, the Brünn hospital prosector had to be rewarded for selecting and preserving corpses with 200-300 florins per year and the attendant received 50 florins for handling and chemical preservatives. The total cost of 24 florins per body was exorbitant for the Viennese anatomists used to cheap and abundant corpses. To put this in context, the annual budget of each of the two departments was 2,000 florins, from which all of the research and teaching expenses had to be paid.¹⁰⁶

Third, decaying corpses were a potential public health hazard so they had to be transported in double coffins, enclosed in wooden chests to prevent the escape of toxic gases. Rapidly decomposing cadavers, as well as bodies of those who had died of an infectious disease, were supposed to be excluded from the transport.

Finally, the authorities could not agree if the 'imported' bodies should be buried with the 'local' dissected corpses, at the anatomy lot within the Viennese Central Cemetery, or if a new lot should be purchased for non-Viennese cadavers. They furthermore debated who should pay for it and whether or not the bodies should be transported back to Brünn.

The issue of Moravian corpses brought together several administrative bodies, each viewing the anatomical traffic from a different perspective. The Ministry of Religion and Education mediated between universities and the state administrative bodies such as other ministries and the offices of provincial governors: it saw bodies as expensive but vital teaching and learning aids. For the Ministry of Internal Affairs, this was a matter of public safety, as bodies were potential disease carriers travelling between two densely populated cities. Finally, the Ministry of Trade, which at the same time represented the Imperial and Royal Ferdinand Northern Railway (k. k. Ferdinand Nordbahn), saw bodies as importable goods, potentially profitable for the railway but, at the same time, as difficult to fit into existing classifications.¹⁰⁷

The negotiations over cadavers dragged on for several years. Although the Ministry of Internal Affairs agreed to subsidize sanitary police examinations of corpses in the Brünn General Hospital and the railway acceded to a freight reduction, calculating the price per wagon rather than per body, by 1889 the Moravian plan was still at a standstill.¹⁰⁸ The number of cadavers reaching the Anatomical Institute from Vienna hospitals continued to drop: in 1886 the two anatomical chairs together received 845 cadavers; in 1887, 765; and in 1888, 771.¹⁰⁹ At the same time, student numbers and demand continued to increase.

Anatomists attempted to fill the perceived gap in other ways: by obtaining more whole bodies from Wieden Hospital, the Hospital of the Merciful Brothers, and from district physicians in large suburbs during the months of October and November when 'the popularity [of the course] is greatest and the majority of practical examinations in surgery and anatomy take place'.¹¹⁰ The results were disappointing.¹¹¹ Storing bodies collected during summer was not an option because the institute had no facilities for their long-term preservation. New refrigeration technologies were available, but the prohibitive cost of around 20,000 florins persuaded anatomists, architects and the authorities to settle for the cheaper immersion of body parts in carbolic acid solution. Two marble immersion basins cost 2,000 florins, which approximately equalled the cost of one year's cadaver supply from Brünn.¹¹² But as these basins could hold only parts of bodies or children's corpses, the question of body supply remained open into the 1890s.¹¹³

Simultaneously, the quest for cadavers outside Vienna continued. After the Brünn fiasco, it focused on the province of Lower Austria, in which Vienna is situated. There half of the communities declined to deliver their 'unclaimed' bodies to anatomy but the remaining nine

(St Pölten, Mistelbach, Korneuburg, Baden, Oberhollabrun, Waidhofen an der Thaya, Klosterneuburg, Mödling and Melk) promised more than 130 a year.¹¹⁴ But two years later, the number of cadavers was still absolutely and relatively decreasing. In 1914, a report composed by Ferdinand Hochstetter, the second chair after Carl Toldt's retirement, and Julius Tandler, who now held the First Anatomical Chair, described a situation in which no student in Vienna had the opportunity to dissect the 'usual' regions of the body at least once (Figure 5).¹¹⁵ The consequences, argued the anatomists, were already evident at exams where students were not capable of fulfilling the requirements. It was not the job of anatomists, they wrote, but of the state to secure enough bodies. Ironically, as a positive example they mentioned the Saxon anatomical law, once modelled after the Viennese experiences.

Unsure if Vienna would supply enough cadavers for the expanding medical school, in their search for new suppliers anatomists, then, ventured far from the city: from the small towns of Lower Austria, to urban centres with sizeable indigenous populations and no medical schools of their own, such as the Moravian industrial hub Brünn and the North Adriatic port, Trieste. Relying on Vienna's central position in the imperial transport and intellectual networks, the plan seemed to have a good chance of success. Yet in the end it fell victim to the entangled system of state administration, where the import of bodies was situated at the intersection of several ministries' domains, each supporting different interests and none wanting the responsibility. While previously the state guaranteed the success of the anatomical project, now, with its enlarged, slow, bureaucratized apparatus, it risked causing its failure.

Anatomy and Anti-Semitic Politics

Around 1890, anatomists proposed another way of obtaining more hospital corpses, by replacing the eighteenth-century anatomical decrees with a modern law. While Maria Theresa's provisions had assumed that hospital patients came almost exclusively from the lowest social strata, new regulations were supposed to suit the situation in which the hospital was the central site of medical treatment for all. To make sure no 'candidate' slipped through the cracks of inadequate legislation, the wording had to be precise and collaboration perfect among the various institutions and actors in the supply chain, from junior doctors to gravediggers. But that, it soon turned out, was not easily achieved. The economic and social insecurity in the 1880s and '90s gave rise to ethnic conflicts, most prominently to anti-Semitism, which emerged in the aftermath of the stock market crash of 1873. It was amidst these tensions, exploited by new mass political parties vying for supporters, that the cadaver was used as an instrument of political manipulation.

The new regulations, or 'Provisional instructions', were first published in 1892 and then revised in 1898 and 1902.¹¹⁶ They specified that corpses of those who had died in one of the Viennese state-funded hospitals, for whom no one had paid the church tax (*Stolgebühren*), or for the coffin, the grave and transport to the cemetery, must be used for dissection, as *Studienleichen*.¹¹⁷ The provisions excluded those who died of certain contagious diseases. They further stipulated that the body should stay in the hospital mortuary for 48 hours, to give the family the opportunity to pay the fees and collect it.

Implementation, however, encountered difficulties, as manifest from the case of the unemployed coachman Franz Hubeny, who complained to the director of the Franz Josef Hospital in Vienna:

My son, Georg Hubeny, was in the care of the Royal and Imperial Emperor Franz Josef Hospital in Vienna and died on 25 March 1908. I was informed about his death. The body was autopsied, consecrated, and should have been buried at the

Central Cemetery. I could not pay for the burial or the church tax since I have been ill and unemployed for months. Instead of the funeral taking place on 27 March 1908, the body allegedly arrived at the cemetery for burial only on 31 March 1908. As I found out, against my will the body had been transferred to the anatomical institute to be used for study purposes. I am complaining because the child was used for study purposes against my will and without asking me.¹¹⁸

The municipal authorities forwarded the complaint to the Governor of Lower Austria and to the Ministry of Religion and Education. The city administration supported Hubeny and accused the two administrative bodies of forcing the staffs of Viennese hospitals and the municipal cemetery to lie to patients' families on anatomists' behalf.¹¹⁹ 'This procedure is wholly unworthy of a modern administration,' complained the city officials 'and conflicts with all principles of humanity'.¹²⁰ No one seemed to recall the clandestine arrangements for exhumation of 'interesting' corpses that several decades before involved a cross-section of municipal officials, from gravediggers to the Stadtphysicus

The key factor to cause the radical change in the morality of the municipal officials was the 1897 accession to power of the first Austrian mass political party, the Christian Socials, under the leadership of the charismatic Karl Lueger.¹²¹ Their rhetoric was populist and anti-Semitic and their values conservative. Once in power, their programme focused on improving the living conditions of the lower classes, by building affordable housing and improving municipal infrastructure, but their oppositional radicalism survived in the fervent attacks on Jews and intellectuals, now in parliament.

Dissection might have well remained beyond the Christian Social notice if all denominational groups had contributed equal proportions of cadavers to the medical school. But they did not. The politically and socio-economically tumultuous 1860s and 1870s radically changed the ethnic and religious makeup of the city.¹²² Among the numerous immigrants flocking to the capital from all corners of the empire in search of work and education, one of the largest and arguably the most prominent group were Jews, whose share in the Viennese population increased from 6.6% in 1869 to 12% in 1890 (or around 9% in 1890 if new districts, 11th to 20th, are included in the calculation).¹²³ While the new immigrants engaged in trade or business, the second generation chose the route to integration that went through the university, with medicine one of the most popular choices. By the early 1880s, around 55% of medical students were Jewish.¹²⁴

From the isolation of the Eastern European ghettos, Jews brought to Vienna centuries-old traditions around important moments in individual life, including death. Burial normally took place on the day of death and ideally before sunset. ¹²⁵ This rule was based on the belief that the immortal soul continued to linger longer if the body was not covered by earth. Even after burial, the soul remained partly attached to the body for twelve months after death. During this liminal period, the dead still possessed a certain type of consciousness and could even feel the pain of bodily decay. Any interference with the body, such as exhumation, embalming, autopsy or dissection, would further increase the pain, extend this transitional stage, and was thus strictly prohibited.

But with the expansion of civil rights granted to Jews in the Enlightenment and their gradual integration into Central European urban communities, their traditions came into contact and then conflict with the dominant culture and burial regulations.¹²⁶ The fear of being buried alive that spread through Europe in the eighteenth and early nineteenth century extended the interval from death to burial to a minimum of two to three days.¹²⁷ In 1756, Maria Theresa decreed that burial must wait at least 48 hours after death, except in the case of epidemics. ¹²⁸ This obviously collided with the Jewish custom. Moreover, it was precisely in that period that autopsy and anatomical dissection became part of medical practice, research and

education. They conflicted with the traditional tenet of not allowing profit to be derived from the dead body, even if this profit could not be expressed in monetary terms. The eighteenth- and nineteenth-century rabbinic *responsa*, written to provide guidance to Jews increasingly inhabiting predominantly Christian communities, permitted autopsy only if it benefited an existing patient, and not if it just contributed to medical knowledge.¹²⁹

In Vienna, Jews were largely spared autopsy and dissection for most of the nineteenth century because they were treated in the privately-funded and governed Jewish Hospital.¹³⁰ But towards 1900, as their number exceeded 100,000, they were increasingly hospitalized in the state medical institutions and thus subject to the same regulations as others. Yet, with the tacit approval of the state authorities, Jewish patients managed to evade these regulations that conflicted with their burial traditions, from the length of the interval between death and burial to dissection.

When the Christian Socials came to power in Vienna, they not only refused to extend special treatment to Jews, but also used the apparent anatomical inequality in their campaign against the supposed Jewish domination of Viennese medicine.¹³¹ The attack culminated on 20 October 1903, at the Lower Austrian Diet discussion of the budget of medical institutions.¹³² The meeting lasted for days and escalated into accusations against the medical profession, from negligence via malpractice to sacrilege. The Christian Social politician and Lueger's close friend Leopold Steiner first identified vivisection as an element of the medical curriculum that turned students into inhumane doctors; a practice not only innately immoral but also capable of making doctors insensitive to patients' suffering.¹³³ From vivisection, attention quickly moved to human cadavers. The preparation of anatomical and pathological specimens was termed 'defilement of the corpse' (*Leichenschändung*).

The attacks that connected vivisection, dissection and the supposed immorality of the Jews were not entirely new: they built upon the medieval myths of Jewish ritual murders for magical practices.¹³⁴ Yet this time they accompanied the new form of anti-Jewish stance, racial anti-Semitism, which emerged in the last decades of the nineteenth century.¹³⁵ The Viennese medical public was appalled by the level of the discussion, although perhaps more by the ignorance and arrogant anti-intellectualism displayed by Christian Socials than by their anti-Semitism.¹³⁶ Soon, however, it became evident that the goal of the attack, orchestrated simultaneously from the parliamentary benches and the right-wing press, was not to ban vivisection and dissection, but to exploit them for political purposes: the accusers focused on the use of Jewish bodies for anatomy, spared, in their view, by (implicitly Jewish) hospital managers to the detriment of impoverished Christians. Karl Lueger said:

When at last Jewish corpses are dissected, perhaps the doctors will then learn still more than they can from dissecting ours ... the medical school in Vienna won world fame at a time when only Christian professors ... a Skoda, Oppolzer, or however they were called, laid the foundation for the medical school's fame of the University of Vienna. But as soon as the Jews got in, the fame of this school in Vienna sank low (cry: So it is!) and when the accusation is made that we're opponents of science, then I say no, we're not opponents of science, but we do oppose science being misused merely for the advantage of isolated brutish, dissolute and brutalized individuals. The medical school will only thrive again and the hospitals once more become places of refuge, whether for rich or poor, when the principle—out with the Jews from the university and the hospitals—is enforced, so that we Christians can be humanely treated (hearty applause).¹³⁷

The liberal intelligentsia understood that the main point of the sweeping attack on Viennese medicine was to attack Jews, as captured in the writing of the Viennese publicist and assimilated Jew, Karl Kraus:

But the excess of amateurish lack of judgement, which passes itself off as humaneness, had to go further; after the living the 'beautiful corpse' had to find the protection of the Christian Socials, and autopsy, which in the well-known terminology may perhaps be described as 'vivisectionist dealings with corpses', was subjected to harsh criticism. It remained incomprehensible why only the poor-house corpses, of which, according to Mr Steiner's assurance, only 'the forefeet were left', should in future remain untouched. It remained unclear whether the horror of medical 'defilement of the corpse' must lead—if autopsy by the prosecutors of the Institute of Pathological Anatomy will be allowed in important cases—at least to the prohibition of the use of so-to-speak 'healthy' corpses in normal anatomy. One was already prepared to hear the opinion that the anatomical course in Vienna should in future be conducted without corpses, and it was almost a relief, when in the end the whole fuss amounted to two Christian Social agenda items: Jews should in anatomy be equal to Christians, that is, they should be dissected just like Christians; but for this equality, which is granted to them as objects of medical studies, they should lose equality as subjects of medical study and be driven from the university and hospitals.¹³⁸

Yet even after the 1903 parliamentary discussion, Jewish bodies remained out of anatomical reach. The persisting 'anatomical inequality' was discussed in a report by the chief pathologist of the new and prestigious Rudolf Hospital, Richard Paltauf. ¹³⁹ He stated that in the period 1901-6, 1,735 out of 7,757 deceased in his hospital, or 22%, were delivered to anatomy. At the same time, none of the 179 Protestant, 1 Greek and 218 Jewish who died was among this contingent. When families did not provide for the funeral, religious communities buried their members—but, in the case of Roman Catholics and their charitable burial society of St Joseph von Arimathaea, only after anatomical dissection. Paltauf protested against the supposedly preferential treatment: whilst he did admit the existence of cultural differences, he questioned the right of patients to be treated at the expense of the sickness insurance fund (*Krankenfond*) if unwilling to give their bodies for dissection in the case of death

To convince the Jewish community to give up its bodies, the medical faculty recruited Jewish anatomists as negotiators. Both Zuckerkandl and his assistant Tandler belonged to the assimilated, secularized Jewry that had exchanged Jewish traditions for the dominant Christian culture.¹⁴⁰ But around 1900, Judaism, so easily cast off just one generation before, was revived by the Viennese journalist Theodor Herzl, whose Zionist movement emerged in response to the rampant anti-Semitism.¹⁴¹ As Tandler explained at the meeting that brought together parties involved in provision and use of cadavers, the Viennese Jewish community was divided into two main currents: the old, largely assimilated Liberals and the young Radicals or Zionists.¹⁴² The former would have complied with the requests of the state authorities, but feared that they would anger the latter. One could, proposed Tandler, inform the Jewish community about the death of a Jew only after a certain interval; that way anatomists would reach the body first. He expected little protest because the majority of those buried at the community expense were newcomers with no family to complain, and furthermore stated that burial customs would pose no obstacle. Yet Tandler failed to convince. The share of Jewish bodies in the total supply remained low into the 1920s.¹⁴³

In the volatile, tense atmosphere around 1900, dissection became a weapon in political struggle. Although Jewish communities and their traditions had started to integrate into the predominantly Christian society from the late eighteenth century, Jewish cadavers remained untouched. The Habsburg dynasty and imperial administration relied on conservative groups and religious communities to support the old order and the geographical integrity of the country against disruptive nationalists. Moreover, rapid assimilation entailed replacement of

Jewish traditions, including burials, with those practised by the Christian majority. But for the Christian Socials, funerary customs that placed Christians in an allegedly inferior position were the perfect weapon in the anti-Semitic propaganda. As Kraus accurately noticed, they never intended to ban dissection, but to instrumentalize it for their political goals. Yet it is important to stress that their attack would not have been possible, indeed would not have found some acceptance even within the Jewish medical community, had it not been for two socio-cultural characteristics. One was the long-standing position of dissection as a keystone of medical training and research. The other was the wide currency of the Enlightenment utilitarian idea that state-provided medical treatment should be paid for with one's own (otherwise useless) dead body.

Conclusion

This article has been about the material basis for Vienna's wide appeal as a medical educational centre in the mid- to late nineteenth century. I have argued that to understand why the supply of cadavers in the heyday of the Vienna School of Medicine was plentiful enough to attract students from all over the world, we need to place it in a *longue durée* history of death and dissection from the late Middle Ages. Among German-speaking cities Vienna consistently had the most permissive attitude towards dissection, with the earliest recorded anatomical dissection, annual dissections from the early sixteenth century, transition to cadavers of hospital patients several decades before other centres and lack of recorded public dissent until the end of the nineteenth century. The comparison with protests against 'Josephinian coffins' in 1784 and opposition to cremation, between 1873 and 1923, shows that burial in a coffin and in consecrated ground was more important to the wider public than whether or not the body had been dissected. That the Roman Catholic authorities supported this stance can be seen from the firm integration of the St Joseph of Arimathaea burial society into the day-to-day operation of the anatomical institute.

How to explain this culture? It has been argued that Southern Europe, which in the mid-sixteenth-century religious and cultural schism sided with Rome, had a more tolerant attitude to dissection. The case of Vienna seems to confirm this hypothesis, yet more comparative research into the social history of anatomy Europe-wide is needed before any definitive statement could be made. The absence of recorded protests against dissection may be attributed to the permissive attitudes but also to the lack of voice of the lower social classes in an absolutist state. Joseph's utilitarian management of the General Hospital's patients and Rokitsky's access to the corpses buried in city cemeteries show how cavalierly the state could deal with citizens' bodies. We can thus also understand why, in the changed political environment of the late nineteenth century limited dissent emerged. New religious groups and mass political parties, which gained numbers and influence in the city after the constitutional innovations of the 1860s, challenged the old order and anatomical dissection with it. The increasing weakness of the highly bureaucratized state is also evident in its failure to complete the project of cadaver transport by railway.

The supply of cadavers, while abundant, hardly met the ever increasing demands created by the school's popularity with domestic and international students. While I started from the claim that Vienna was famous because it was well supplied with cadavers, I finish by suggesting that the school was well supplied because it was famous: professors could count on high student numbers to support their repeated applications to ministries controlling the access to hospitals. Many disciplines wanted their share in these both necessary and lucrative teaching tools. Historical studies often blur the distinction between 'anatomy' as a discipline and dissection as a practice. This is partly because today cadavers are used primarily to teach normal anatomy, and partly because disciplinary development in the U.S., Britain, and even France and Germany followed a different route. Early independence and

centrality of pathological anatomy as well as the relatively easy rise of new fields to the status of teaching disciplines and finally university chairs place Vienna at the other end of the spectrum from Britain and the U.S. In these countries, neither autonomous pathological anatomy nor disciplinary fragmentation may be found in the nineteenth century. The disciplinary competitions I described throw into relief the centrality of the cadaver as a teaching and research object through the nineteenth century. As twenty-first-century medical education increasingly moves away from dead bodies as teaching tools, we need to remind ourselves of the various ways they were used and the prominent place they occupied in operating theatres and in lecture halls.

This account complements those provided by historians of medical education who have followed itinerant students. In their memoirs, Vienna, a mandatory stop on medical grand tours, is rarely depicted as more than the picturesque home to the General Hospital, dissection halls, lively cafés and theatres. In this article I have shown that the city was much more than a colourful background. The urban culture and society gave its medicine the distinctive features that would make it renowned and influential worldwide, and their transformation strongly informed the disciplinary development.

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15. In the text, 'anatomy' designates the discipline of normal human anatomy, and 'pathological anatomy' the discipline of morbid or pathological anatomy.
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17. See, for instance, Hardy, Anne. The epidemic streets: infectious disease and the rise of preventive medicine, 1856-1900. Clarendon; Oxford: 1993. For a sociologist's view of the city as an expression of culturally contingent bodily perception, see Sennett, Richard. Flesh and stone: the body and the city in Western civilization. Penguin; London: 2002. c. 1994
18. Rosenberg, Charles. The cholera years: the United States in 1832, 1849, and 1866. Chicago University Press; Chicago: 1962. Evans, Richard J. Death in Hamburg: society and politics in the

cholera years, 1830-1910. Clarendon; Oxford: 1987. Wailoo, Keith. Dying in the city of blues: sickle cell anaemia and the politics of race and health. University of North Carolina Press; Chapel Hill: 2001.

19. See Prüll, Cay-Rüdiger. Medizin am Toten oder am Lebenden? Pathologie in Berlin und in London, 1900-1945. Schwabe; Basel: 2003. and Sven Dierig on physiology in Berlin: Engines for Experiment: Laboratory Revolution and Industrial Labor in the Nineteenth-Century City. Osiris (Science and the City). 2003; 18:116-34.
20. The large literature has started with Carl Schorske's pioneering work in the 1960s and '70s, later published as a collection of essays: Schorske, Carl E. Fin-de-siècle Vienna: politics and culture. Vintage Books; New York: 1981. c. 1980 attributing the development of an idiosyncratic 'ahistoric' Viennese culture to a reaction against nationalist politics of the 1880s and 1890s. See also Johnston, William M. The Austrian mind: an intellectual and social history, 1848-1938. University of California Press; Berkeley: 1972. Janik, Allan; Toulmin, Stephen E. Wittgenstein's Vienna. Weidenfeld and Nicolson; London: 1973. McGrath, William J. Dionysian art and populist politics in Austria. Yale University Press; New Haven: 1974. le Rider, Jacques. Modernité viennoise et crises de l'identité'. Presses universitaires de France; Paris: 1990. and Csáky, Moritz. Ideologie der Operette und Wiener Moderne: ein kulturhistorischer Essay zur österreichischen Identität. Böhlau; Wien: 1996. For an overview of critiques of Schorske's approach, see Beller, Steven, editor. Rethinking Vienna 1900. Berghahn Books; New York: 2001.
21. Some of the documentation disappeared during the Allied bombing in 1945, which heavily damaged the anatomical institute.
22. Siraisi, Nancy. Medieval and early Renaissance medicine: an introduction to knowledge and practice. University of Chicago Press; Chicago: 1990. p. 86. Carlino, Andrea. Books of the body: anatomical ritual and renaissance learning. University of Chicago Press; Chicago: 1999. p. 178-9.
23. Park, Katharine. The criminal and the saintly body: autopsy and dissection in Renaissance Italy. Renaissance Quarterly. 1994; 47:1-33. [PubMed: 11639270]
24. Ibid; Park, Katharine. The life of the corpse: division and dissection in late medieval Europe. Journal of the History of Medicine and the Allied Sciences. 1995; 50:111-32.
25. Park. The Life of the Corpse. p. 115(n. 24)
26. Horn, Sonia. Vom Leichenöffnen. Beobachtungen zum Umgang mit pathologischen und anatomischen Sektionen in Wien vor 1800. Wiener Klinische Wochenschrift. 2004; 116:792-803. [PubMed: 15683061]
27. Feuchtmüller, Rupert; Kovács, Elisabeth, editors. Welt des Barock. Herder; Wien: 1986.
28. Hawlik-van de Water, Magdalena. Die Kapuzinergruft: Begräbnisstätte der Habsburger in Wien. 2nd ed.. Herder; Wien: 1993. p. 33
29. Anonymous. Acht Tage in Wien: Ein treuer Führer zu den Merkwürdigkeiten der Kaiserstadt und ein freundlicher Wegweiser in die reizendsten Umgebungen derselben. Wilhelm Braumüller; Wien: 1849. p. 118-26.
30. Horn. Vom Leichenöffnen. p. 798(n. 26)
31. After Cremona and Bologna around 1300, anatomical dissections were first performed in Padua (1341) and Montpellier (1376); Vienna was closely followed by Siena (1427) and Prague (1448). See Stukenbrock. Der zerstückte Körper. p. 13(n. 1), note 22 In German-speaking regions, in Tübingen, the first anatomical dissection probably took place sometime between 1497 and 1536: Mörike. Geschichte der Tübinger Anatomie. p. 15-17.(n. 1) in Marburg after 1536: Jaensch. Universität Marburg. p. 776(n. 1) in Rostock around 1567: Schumacher; Wischhusen. Anatomia Rostochiensis. p. 178(n. 1) in Helmstedt sometime before 1576: Stukenbrock. Der zerstückte Körper. p. 26(n. 1) in Königsberg in the early seventeenth century: Bargmann. Zur Geschichte der Anatomie in Königsberg. p. 163(n. 1) in Kiel by 1666: Stukenbrock. Der zerstückte Körper. p. 26(n. 1) in Zürich after 1677: Koller. Das anatomische Institut der Universität Zürich. p. 7-8.(n. 1) The pace differed from one city to the next and periods of years and decades without a dissection were not rare.
32. Horn, Sonia. '... ein wohl aufgerichtetes theatrum anatomicum.' Anatomischer Unterricht für nichtakademische Heilkundige an der Wiener Medizinischen Fakultät im 18. Jahrhundert. In: Helm, Jürgen; Stukenbrock, Karin, editors. Anatomie: Sektionen einer medizinischer Wissenschaft im 18. Jahrhundert. Franz Steiner; Stuttgart: 2004. p. 189-212.p. 198-201.see esp.

33. Richardson. Death, dissection and the destitute. p. 32-4.(n. 1)
34. Horn. ... ein wohl auffgerichtetes theatrum anatomicum. p. 199(n. 32)
35. See Pauser, Josef. Sektion als Strafe?. In: Stefenelli, Norbert, editor. Körper ohne Leben. Begegnung und Umgang mit Toten. Böhlau; Wien: 1998. p. 527-35.p. 529esp.
36. Horn, Sonia. Sektion und Obduktion in Ländern ohne erforderliche Zustimmung Hinterbliebener— Unterschiede des Umgangen mit Toten. Versuch einer historischen Annäherung am Beispiel Wien. In: Stefenelli, Norbert, editor. Körper ohne Leben. Begegnung und Umgang mit Toten. Böhlau; Wien: 1998. p. 596-603.p. 598esp.
37. Park. The criminal and the saintly body. p. 23(n. 23)
38. Mörike. Geschichte der Tübinger Anatomie. p. 16p. 39p. 47(n. 1)
39. Stukenbrock. Der zerstückte Körper. p. 154-62.(n. 1)Wagener. Die Göttinger Anatomie. p. 76-7.(n. 1)
40. The history of anatomical burial in Vienna remains to be written. Recent archival and archaeological research indicates that the bodies were buried first at hospital cemeteries (Holy Ghost hospital and Citizens' Hospital, followed by St Marx cemetery and General Hospital cemeteries), from where they moved to community cemeteries in Währingerstrasse, in the nineteenth century, and the Central Cemetery, from 1874 (personal communication, Sonia Horn). On anatomical burial at the Währinger cemetery, see also Universitätsarchiv (UA), Dekanatsakten der Medizinischen Fakultät. Z. (Zahl) 582 (1871/2).
41. Horn. ... ein wohl auffgerichtetes theatrum anatomicum. p. 201(n. 32)
42. So for instance, supply of anatomy with hospital cadavers (in addition to executed criminals) was first allowed in Königsberg in 1737, with the decree renewed in 1777: Bargmann. Zur Geschichte der Anatomie in Königsberg. p. 177(n. 1) in Göttingen in 1737 and 1738: Wagener. Die Göttinger Anatomie. p. 64(n. 1) and in Würzburg in 1749: Elze, Mirjam. Die Geschichte des anatomischen Institutes in Würzburg von 1582 bis 1849. MD diss., Julius Maximilian University of Würzburg; 1990. p. 143
43. Pöck, Thomas, editor. Codex Austriacus, vol. 4 (1740-1758). Trattner; Wien: 1777. Todter Körperabgebung zur Anatomie, 1749; p. 468
44. Todter Körperabgebung zur Anatomie, 1749. p. 475in ibid
45. Blanning, TCW. Joseph II and enlightened despotism. Longman; London: 1970. p. 68 On the military medical academy Josephinum as an embodiment of Joseph's ideas of medical education, see Lesky, Erna. Österreichisches Gesundheitswesen im Zeitalter des aufgeklärten Absolutismus. Archiv für österreichische Geschichte. 1959; 122:1–228. and, with an emphasis on the uses of Josephinum's collection of anatomical models, Märker, Anna. Model experts: the production and uses of anatomical models at La Specola, Florence, and the Josephinum, Vienna, 1775-1814. PhD diss., Cornell University; 2005. Chapter 5
46. Wyklicky, Helmut. 200 Jahre Allgemeines Krankenhaus. 2nd ed.. Facultas; Wien: 1993.
47. On the advantages of a geographically centralized medical education from the perspective of American and French students in Vienna see Bonner. p. 31(n. 10) and Lesky. Die Wiener medizinische Schule. p. 295(n. 8)
48. Knispel, Franz. Bestattungsmuseum Wien: Führer durch die Sammlung. Wiener Stadtwerke-Bestattung Wien; Wien: 1997. p. 97Schmölzer, Hilde. A schöne Leich: der Wiener und sein Tod. Kremayr & Scheriau; Wien: 1980. p. 58-61.
49. Wimmer, Johannes. Gesundheit, Krankheit und Tod im Zeitalter der Aufklärung: Fallstudien aus den habsburgischen Erbländern. Böhlau; Wien: 1991. p. 176-202.
50. Hagner, Michael. Geniale Gehirne: Zur Geschichte der Elitegehirnforschung. Wallstein; Göttingen: 2004. p. 62
51. Knispel. Bestattungsmuseum Wien. p. 8-9.(n. 48)
52. The sextons quickly regrouped and founded a second funeral company, Pietät, soon followed by a number of competitors, headed by Concordia (1870). The latter took over the transport of corpses to and from the anatomical institute that until then had had its own hearse: ÖStA (Österreichisches Staatsarchiv), AVA (Allgemeines Verwaltungsarchiv), Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. (Faszikel) 808, Z. 15064 (1882). In 1907, the Viennese municipal council purchased the Enterprise des pompes funèbres and

- Concordia to merge them into a new Gemeinde Wien-Städtische Bestattungsanstalt. See Knispel. Bestattungsmuseum Wien. p. 9(n. 48)
53. ÖStA, AVA, Ministerium des Innern, Allgemeine Reihe, 36/8 Leichentransport gen. 1870-1899, Karton 1153, Z. 1325 (1872).
 54. In 1856, there were as many as 112 societies for support of the sick with 15,400 members; 19 burial societies with 186,500 members; and 34 that combined these two services, with 23,900 members. See Wittelshöfer, Leopold. Wiens Heil- und Humanitäts-Anstalten, ihre Geschichte, Organisation und Statistik. L.W. Seidel; Wien: 1856. p. 392-4. In the late nineteenth century, many societies of this kind were concentrated in and around the proletarian districts in southwest Vienna: ÖStA, AVA, Ministerium des Innern: Allgemeine Reihe (1848-1914), I/7 Gesamt-Inventar, V. Teil Inventar, Vereinsakten 1870-1899.
 55. St. Josef von Arimathaea Verein. Dreiäiöster Jahres-Bericht des Vereines vom Heiligen Josef von Arimathaea in Wien, für das Jahr vom 1. Jänner bis Ende December 1886. St. Josef von Arimathaea Verein; Wien: 1887.
 56. Until 1892, the currency in the Habsburg Empire was the florin, which was equal in value to guldens (or guilders). 1 florin contained 60 Kreutzer. The currency reform of 1892 substituted 1 florin for 2 Kronen, where 1 Krone contained 100 Heller.
 57. UA, Dekanatsakten der Medizinischen Fakultät, Z. 290 (1866/7); ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 809, Z. 18565 (1908).
 58. ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 809, Z. 13034 (1899).
 59. See, for instance, the case of early nineteenth-century Halle, where citizens were warned against such collective schemes of saving for burial expenses as a form of begging that should not be supported. Piechocki. Zur Leichenversorgung. p. 76(n. 1)
 60. Schmölzer. A schöne Leich. p. 58-9.(n. 48)Pleyel, Peter. Friedhöfe in Wien: vom Mittelalter bis heute. Pichler Edition; Wien: 1999.
 61. Knispel. Bestattungsmuseum Wien. p. 105-6.p. 110-11.(n. 48)
 62. Witlail A. Ueber Leichenverbrenung II. Wiener Medizinische Wochenschrift. 1874; 24:479–80.
 63. Ibid, Ueber Leichenverbrenung I. Wiener Medizinische Wochenschrift. 1874; 24:455–6.
 64. Jalland, Pat. Death in the Victorian family. Oxford University Press; Oxford: 1996. p. 203-9.Knispel. Bestattungsmuseum Wien. p. 13-14.(n. 48)
 65. Ebner, Paulus. Der Streit um die Feuerbestattung zwischen katolische Kirche und Sozialdemokratie. Eine Studie zum Kulturkampf in der ersten Republik. Diploma diss., University of Vienna; 1989.
 66. Elze. Die Geschichte des anatomischen Institutes in Würzburg. p. 144-9.(n. 42)
 67. Wagener. Die Göttinger Anatomie. (n. 1)Hopwood, Nick. Artists versus anatomist, models against dissection: Paul Zeiller of Munich and the revolution of 1848. Medical History. 2007; 51:279–308. [PubMed: 17603655]
 68. Carl August Wunderlich (1815-77) was in 1841 the first to use the term ‘young Vienna school’. See Wunderlich, CA. Aus C. A. Wunderlichs Schrift ‘Wien und Paris’. In: Neuburger, Max, editor. Die Wiener Medizinische Schule in Vormärz. Rikola; Wien: 1921. p. 223-45. The term remained in use until the medical historian Theodor Puschmann replaced it with ‘the newer Vienna Medical School’ in 1884. Finally, Erna Lesky introduced the term ‘the Second Vienna Medical School’ in 1965, to distinguish the school from van Swieten’s ‘First Vienna Medical School’ of the second half of the eighteenth century. See Sedivy, Roland. Rokitansky und die Wiener Medizinische Schule: Von der Naturphilosophie zur Naturwissenschaft. Wiener Medizinische Wochenschrift. 2004; 154:443–53. [PubMed: 15560466]
 69. See Warner. Against the Spirit of System. (n. 7)Bonner. American doctors and German universities. (n. 10)His, Wilhelm. Lebenserinnerungen von Wilhelm His senior, als Manuskript gedrückt. Leipzig: 1903. p. 40-7.Haeckel, Ernst. Die Wiener medizinische Fakultät um 1857. Ein Brief Ernst Haeckels an seine Eltern. Münchener medizinische Wochenschrift. 1928; 75:2019–20.
 70. On the development of the competition and the proposed solutions at late eighteenth-century German universities, see Stukenbrock. Der zerstückte Körper. p. 137-49.(n. 1)On the competition

- in eighteenth-century Göttingen, see Wagener. *Die Göttinger Anatomie*. p. 76(n. 1) and in nineteenth-century Würzburg, Feser, Georg. *Das anatomische Institut in Würzburg, 1847-1903*. MD diss., Julius Maximilian University of Würzburg; 1977. p. 20-1.
71. Montjoye, Irene, editor. *Oscar Wildes Vater über Metternichs Österreich: William Wilde—ein irischer Augenarzt über Biedermeier und Vormärz in Wien*. Peter Lang; Frankfurt am Main: 1989. p. 67
 72. UA, Dekanatsakten der Medizinischen Fakultät. Z. 324 (1852/3).
 73. There were 400 students and visitors taking the dissection course in the winter semester of 1862/3, while 310 attended anatomical lectures, of whom 170 were first-year students and the remaining 140 either students of higher years or graduate physicians. See UA, Dekanatsakten der Medizinischen Fakultät. Z. 169 (1862/3). The number of matriculated students grew from 718 in 1860 to 1,653 in 1871. See Cohen, Gary B. *Die Studenten der Wiener Universität von 1860 bis 1900: ein soziales und geographisches Profil*. In: Plaschka, Richard G.; Mack, Karlheinz, editors. *Wegenetz Europäisches Geistes II. Universitäten und Studenten: die Bedeutung studentischer Migration in Mittel- und Südosteuropa vom 18. bis 20. Jahrhundert*. Verlag für Geschichte und Politik; Wien: p. 290-316. p. 292
 74. Hyrtl, Josef. *Handbuch der praktischen Zergliederungskunst als Anleitung zu den Sectionsübungen und zur Ausarbeitung anatomischer Präparate*. Braumüller; Wien: 1860. Schultka, Rüdiger; Göbbel, Luminita. *Präparationstechniken und Präparate im 18. und frühen 19. Jahrhundert, dargestellt an Beispielen aus den anatomischen Sammlungen zu Halle (Saale)*. In: Helm, Jürgen; Stukenbrock, Karin, editors. *Anatomie: Sektionen einer medizinischen Wissenschaft im 18. Jahrhundert*. Franz Steiner; Wiesbaden: 2004. p. 49-81. On the history of formaldehyde, see Walker, Frederic J. *Formaldehyde*. Reinhold Publishing Corporation; New York: 1944. p. 1-9.
 75. ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 808, Z. 8242/641 (1852).
 76. UA, Dekanatsakten der Medizinischen Fakultät. Z. 324 (1852/3).
 77. This was granted only in 1928: Mühlberger, Kurt. *Regelungen und Massnahmen bezüglich der Beschaffung von Leichen für das anatomische Institut*. In: Akad. Senat der Universität Wien. , editor. *Untersuchungen zur Anatomischen Wissenschaft in Wien 1938-1945*. University of Vienna; Vienna: 1998. unpublished manuscript
 78. Wittelshöfer. *Wiens Heil- und Humanitäts-Anstalten*. p. 90(n.54)
 79. See Lesky. *Die Wiener medizinische Schule*. p. 129-41.(n. 8)
 80. Strasburg did get a chair in pathological anatomy before Vienna, in 1819, but professor, Johann Lobstein, taught two more subjects, obstetrics and internal medicine. See Eulner, Hans-Heinz. *Die Entwicklung der medizinischen Spezialfächer an den Universitäten des deutschen Sprachgebietes*. Ferdinand Enke; Stuttgart: 1970. p. 102-3.
 81. Lesky. *Die Wiener medizinische Schule*. p. 99(n. 8)
 82. On the differences in disciplinary development of pathology in Europe, especially between London and Berlin, see Prüll. *Medizin am Toten oder am Lebenden?*. (n. 19) and Prüll, Cay-Rüdiger, editor. *Pathology in the 19th and 20th centuries: the relationship between theory and practice*. EAHMH; Sheffield: 1998. In contrast to Germany, at Habsburg universities pathological anatomy remained independent, with newer approaches institutionalized at separate chairs. See Eulner. p. 506p. 641-9.(n. 80)
 83. Miciotto, Robert J. *Carl Rokitansky: a reassessment of the hematohumoral theory of disease*. *Bulletin of History of Medicine*. 1978; 52:183–99.
 84. Lachmund, Jens. *Der abgehorchte Körper. Zur historischen Soziologie der medizinischen Untersuchung*. Westdeutscher Verlag; Opladen: 1997. for a condensed English version of the argument see *Making sense of sound: auscultation and lung sound codification in nineteenth-century French and German medicine*. *Science, Technology and Human Values*. 1999; 24:419–50.
 85. For biographical information on Rokitansky, see Lesky. *Die Wiener medizinische Schule*. p. 129-41.(n. 8)
 86. The General Hospital had 2,000 autopsies a year, all performed by Rokitansky and his team. In addition to that, he conducted 25,000 forensic autopsies in his career. See Lesky. *Die Wiener medizinische Schule*. p. 137(n. 8)

87. UA, Dekanatsakten der Medizinischen Fakultät. Z. 290 (1866/7).
88. My discussion of Rokitansky's privilege is based on his letter (n. 87) and the memoirs of Benedikt, Moritz. Aus meinem Leben: Erinnerungen und Erörterungen. Carl Konegen; Wien: 1906.
Although at first glance it may seem that a strong claim is based on modest evidence, it must be stressed that 1) this was a secret privilege and therefore unlikely to have been discussed frequently or publicly, and 2) Rokitansky's letter has the weight of an official document, because it was written at the request of the Austrian authorities for the Saxon government.
89. Benedikt. Aus meinem Leben. p. 66-7.(n. 88)
90. UA, Dekanatsakten der Medizinischen Fakultät. Z. 36, 90, 150, 361, 458, 506 (1858/9).
91. Ibid.
92. Virchow, who visited Vienna in 1846, wrote that Vienna did not lack corpses for pathological-anatomical exercises, but home students had less chance to perform an autopsy than foreign visitors. See Virchow, Rudolph. Ein alter Bericht über die Gestaltung der pathologischen Anatomie in Deutschland, wie sie ist und wie sie werden muss. Virchows Archiv. 1900; 159:24–39. 34.
93. UA, Personalakten der Medizinischen Fakultät, Anton Friedlowsky, Z. 526 (1864/5).
94. Lesky. Die Wiener medizinische Schule. p. 297(n. 81)
95. UA, Dekanatsakten der Medizinischen Fakultät, Z. 81 (1871/2).
96. Weyrich, Edgar, editor. Rudolfsheim und Fünfhaus: Ein Heimatbuch. Heimatausschuss der Lehrerschaft im VI. Wiener Inspektionsbezirke; Wien: 1922.
97. Understanding differences in attitudes towards dissection between rural and urban communities would require more research. It is, however, clear that Viennese anatomists used rural cadavers rarely—this is the only case in this period—not because of protests, but because transporting small numbers of corpses was uneconomical.
98. UA, Dekanatsakten der Medizinischen Fakultät. Nr. 81, 175, 186, 198, 228, 296, 304, 582 (1871/2).
99. ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 808, Z. 15408 (1873), 18266-18988 (1878).
100. For the content of such a surgical course, advertised in Vorlesungen-Verzeichnis der Universität Wien für 1881/2. Universität Wien; Wien: 1881. see Holl, Moritz. Die Operationen an der Leiche: die Leitfaden für Operationsübungen mit besonderer Berücksichtigung der Anatomie. Ferdinand Enke; Stuttgart: 1883.
101. Lesky. Die Wiener medizinische Schule. p. 605-8.(n. 8)
102. ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 808, Z. 10291 (1885).
103. For instance, the railway was used in Tübingen between 1861 and 1927, when it was replaced with a car, to access bodies from other towns in Württemberg: Mörike. Geschichte der Tübinger Anatomie. p. 62-3.p. 98(n. 1)
104. ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 808, Z. 17731 (1885).
105. Ibid.
106. Ibid.. Z. 9304 (1884), Z. 15288 (1886), Z. 1790 (1887).
107. Ibid., Z 17731 (1885), Z. 4541 (1886), Z. 8096 (1886).
108. Ibid., Z. 1271 (1886), 4541 (1886), 4821 (1887), 22272 (1889).
109. Ibid., Z. 22272 (1889).
110. Ibid.
111. Ibid., Z. 4821 (1887).
112. Ibid., Z. 14856 (1890).
113. Smaller universities that were not as well supplied as Vienna started experimenting with preservation earlier, although it came into common use only with formaldehyde, around 1900. See for instance Schumacher; Wischhusen. Anatomia Rostochiensis. p. 178(n. 1)

114. ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 809, Z. 55656 (1912).
115. Ibid., Z. 8433 (1914).
116. Ibid., Z. 3308 (1898), 17790 (1902).
117. Ibid.
118. This is, to my knowledge, the first recorded protest against anatomy in the study period, 1848-1914: ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig. 4 Med, Anatomisches Institut, Fasz. 809, Z. 18565 (1908).
119. Ibid.
120. Ibid.
121. The party had won the Vienna municipal elections in 1895, but the Emperor Franz Josef refused to accept their victory until he was forced by the government crisis to recruit their support. See Boyer, John W. Political radicalism in late imperial Vienna: origins of the Christian Social Movement 1848-1897. University of Chicago Press; Chicago: 1981. and idem. Culture and political crisis in Vienna: Christian socialism in power, 1897-1918. University of Chicago Press; Chicago: 1995.
122. These changes include the end of the neo-absolutism and the constitutions of 1860 and 1867, administrative reorganization of the country in 1867 and the economic boom of the 1860s ending with the stock market crash of 1873. See, for example, Rumpler, Helmut. Eine Chance für Mitteleuropa: bürgerliche Emanzipation und Staatsverfall in der Habsburgermonarchie. Ueberreuter; Wien: 1997. and Taylor, Alan J. P. The Habsburg monarchy 1809-1918: a history of the Austrian Empire and Austria-Hungary. Penguin; Harmondworth: 1981. c. 1941
123. Beller, Steven. Vienna and the Jews, 1867-1938: a cultural history. Cambridge University Press; Cambridge: 1989. p. 44
124. Cohen. Die Studenten der Wiener Universität. p. 297(n. 73)
125. Schlich, Thomas. Der lebende und der tote Körper. In: Gilman, Sander L.; Jütte, Robert; Kohlbauer-Fritz, Gabriele, editors. "Der schejne Jid": Das Bild des "jüdischen Körpers" in Mythos und Ritual. Picus; Wien: 1998. p. 145-57.
126. Rosner, Fred. Modern medicine and Jewish ethics. 2nd ed.. Ktav Publishing House; Yeshiva University Press; Hoboken, N.J.: New York: 1991. p. 315Breuer, Mordechai. Modernity within tradition: the social history of orthodox Jewry in imperial Germany. Columbia University Press; New York: 1992. p. 257Schlich. Der lebende und der tote Körper. (n. 128)
127. Koch, Tankred. Lebendig begraben: Geschichte und Geschichten vom Scheintod. Edition Leipzig; Leipzig: 1990.
128. Knispel. Bestattungsmuseum Wien. p. 18-19.p. 36-7.(n. 48)Baumgart, Gert; Schaub, Hagen. Der ewige Leib: Mumien in österreichischen Sammlungen und Gräbern. Verlagshaus der Ärzte; Wien: 2003. p. 55-6.
129. Schlich. Der lebende und der tote Körper. (n. 125)
130. The new hospital, financed by the Rothschilds, was opened in 1873 to replace the old institution established in 1698. See Koblizek, Ruth; Heindl, Michael, editors. 125 Jahre Rothschild Spital. Dagobert; Donnerskirchen: 1998.
131. On Jews in Viennese medicine, see Cohen. Die Studenten der Wiener Universität. (n. 73)Beller. Vienna and the Jews. p. 37-8.(n. 126)Hödl, Klaus. Die Pathologisierung des jüdischen Körpers. Antisemitismus, Geschlecht und Medizin im Fin de Siècle. Picus; Wien: 1997.
132. Geehr, Richard S. Karl Lueger: mayor of fin de siècle Vienna. Wayne State University Press; Detroit: 1990. p. 185-8.
133. The same arguments about materialism and the dehumanization of medicine caused by an increasing share of Jewish physicians were made in Germany. See Tröhler, Ulrich; Maehle, Andreas-Holger. Anti-vivisection in nineteenth-century Germany and Switzerland: motives and methods. In: Rupke, Nicolaas A., editor. Vivisection in historical perspective. Croom Helm; London: 1987. p. 149-87.p. 177-8.esp. and Weindling, Paul J. Health, race and German politics between national unification and Nazism, 1870-1945. Cambridge University Press; Cambridge: 1989. p. 170

134. So Wiener Medizinische Wochenschrift, 1884, 34: 1269 reported on the antivivisectionist Ernst Heinrich von Weber, who in the journal that he edited, Der Thier- und Menschenfreund, falsely reported on a case of human vivisection performed by a Jewish physician in Osnabrück.
135. See Pulzer, Peter. *The rise of political anti-Semitism in Germany and Austria*. Wiley; New York: 1964.
136. *Der Kampf gegen die Aerzte*. Wiener Medizinische Wochenschrift. 1903; 53:2133–4.
137. I quote the English translation of the speech, held at the Lower Austrian Diet on 4 November 1903, from Geehr. Karl Lueger. p. 187(n. 132)
138. *Die Fackel*. 1903; 5:5–7.
139. The report, written in 1907, is placed in ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig. 4 Med, Anatomisches Institut, Fasz. 809, Z. 8433 (1914).
140. On the assimilation of Jews in Vienna, see Rozenblit, Marsha L. *The Jews of Vienna, 1867-1914: assimilation and identity*. State University of New York Press; Albany: 1983. I could find no indication that any of the many Jewish medical students and doctors opposed dissection. Arthur Schnitzler, a Jewish medical student in the 1880s and later a famous playwright expressed his distaste for other students' disrespectful treatment of cadavers but that probably had more to do with his personal sensibility than religious feelings: Nickl, Therese; Schnitzler, Hermann, editors. *Jugend in Wien: eine Autobiographie*/Arthur Schnitzler. Fritz Molden; Wien: 1968. p. 127 To my knowledge, no Jewish medical students or doctors in this period bequeathed their bodies for posthumous dissection or other research use, but then neither did Christian professors.
141. Kornberg, Jacques. *Theodor Herzl: from assimilation to Zionism*. Indiana University Press; Bloomington: 1993.
142. The meeting took place in the offices of the Lower Austrian provincial government on 16 October 1907 and brought together representatives of anatomy, pathological anatomy, Viennese hospitals and Lower Austrian authorities. See ÖStA, AVA, Unterricht: Allgemeine Reihe (1848-1914), Universität Wien, Sig. 4 Med, Anatomisches Institut, Fasz. 809, Z. 8433 (1914).
143. Sablik, Karl. *Julius Tandler, Mediziner und Sozialreformer: eine Biographie*. A. Schendl; Wien: 1983. p. 45

Figure 1.

Josephinian communal coffin, with a mechanism for opening the bottom.

As prescribed by Joseph's orders, these coffins were used to transport corpses, sewn into sacks, to the cemetery. As the coffin was lowered into the grave, the bottom would open and the body would fall out. The coffin would then be returned to the parish church and reused. From Franz Knispel, ed., *Bestattungsmuseum Wien: Führer durch die Sammlung*, (Wien: Wiener Stadtwerke-Bestattung Wien, 1997), p. 97.

Figure 2.

Photograph of a drawing by W. Reiche (1874) showing the Siemens cremation oven recommended by Prof. Reclam [*Der Siemens'sche Ofen für Leichenverbrennung empfohlen von Prof. Reclam*]. Karl Reclam was a Leipzig physician who advocated cremation and encouraged Werner Siemens to further develop his oven, produced in 1856, exhibited at the 1867 Paris World Exhibition, and finally tested in Dresden in August 1874. The upper part of the image depicts a standard nineteenth-century Christian burial, with a priest standing under the cross and (divine?) light, the bereaved family and friends, and the pallbearers bringing the coffin to the burial place—only, as the bottom part reveals, this is not a grave but an opening into a brick oven. At the lowest level, a worker operates the mechanism for sinking the coffin. From Franz Knispel, ed., *Bestattungsmuseum Wien: Führer durch die Sammlung*, (Wien: Wiener Stadtwerke-Bestattung Wien, 1997), p. 110-11.

Figure 3.

The distribution of corpses between anatomy and surgery, 1856–8.

The total number of corpses peaked in 1856, the year of a cholera epidemic. Bodies of the drowned, those who died of smallpox and rapidly decaying bodies could not be used so the total number of usable bodies was reported to be around 650; furthermore, a number of corpses underwent extensive autopsies at pathology so the total number of whole corpses that reached anatomy and surgery during the dissection season was between 291 (1857) and 466 (1856). As the graph shows, two surgical departments together received approximately the same number of corpses as anatomy. Source of data: UA, Dekanatsakten der Medizinischen Fakultät, Z. 150 (1858/9).

Figure 4.
The dissection hall in the new anatomical institute in Währingerstrasse, late nineteenth century. From Bildarchiv des Instituts für Geschichte der Medizin der Medizinischen Universität Wien.

Figure 5.

Corpses per student, 1909-13.

On the left graph the number of the whole (unautopsied) corpses, which almost halved between 1909 and 1913, is contrasted with the rapidly increasing student population. The right graph shows the student/corps ratio. From the source it is not clear who was included in the student number. Source of data: ÖStA, AVA, Unterricht, Allgemeine Reihe (1848-1914), Universität Wien, Sig 4 Med, Anatomisches Institut, Fasz. 809, Z. 8433 (1914).