

# **The Artist's Knife**

The art and science of plaster anatomical models at the  
Harry Brookes Allen Museum of Anatomy and Pathology  
The University of Melbourne



A Historiography and Catalogue

Presented by

Lucy Spencer

School of Historical Studies Monash University

Master of Public History

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## Foreword

Within the Harry Brookes Allen Museum of Anatomy and Pathology collection at The University of Melbourne are seventeen plaster anatomical models from the late nineteenth and early twentieth centuries. Remnants from the first years of the Department of Anatomy, the diverse collection comprises professional work, homemade productions and half finished experiments. Relegated to the basement store, the history of the models, having existed as simply teaching apparatus remained an enigma. Without related documentation in university records, a factor indeed consistent with many plaster anatomical collections worldwide, the models provide a tantalisingly obscured view of medicine's past.

This is history shaped upon the two certainties, the models and the university. Where precise historical detail is unavailable, comparative sources relevant to the greater context have been applied. Thus, a story of anatomical models at The University of Melbourne also becomes one of their greater use in the development of modern medicine.



## TO THE EDITOR OF THE TIMES

Sir, – The great dearth of subjects for dissection is now becoming a serious matter to all gentlemen studying anatomy at the various London hospitals, but I think you might possibly help us a little by encouraging some slight discussion, whereby the right authorities may be led to make a proper investigation, and understand for themselves the real state of our affairs. Under the present Anatomy Act we trust almost entirely to the parish and workhouses for our supply of subjects. The admittance of the bodies of criminals into the dissecting-room has been long ago declared illegal, and the hospitals, which formerly sent us all unreclaimed bodies, refuse to continue the practice, asserting that the reputation of the hospital is injured by it, and hence the number of patients and subscribers is considerably lessened.

With reference to the above-mentioned sources of our supply, one – namely, the parish – is fast following the example set by the hospitals, and the unreclaimed bodies of friendless people are frequently buried at the expense of the parish, simply because there is a prejudice against sending them to the dissecting-room. Now, Sir, if this practice continues, while the number of students entering the medical profession increases so rapidly, how can we expect to satisfy the Examining Boards in Anatomy at the end of our second winter's session. It is, therefore, chiefly to prevent the burial of unreclaimed bodies, with the funeral expenses charged to the parish, that I ask your assistance, and beg the insertion of the above remarks in your valuable paper.

I am, Sir, your obedient servant,  
J.G.

*Anatomy Act:  
Letter to the Editor  
The Times, London 1869*

## Introduction

*'You seek for knowledge and wisdom, as I once did: and I ardently hope that the gratification of your wishes may not be a serpent to sting you, as mine has been.'*<sup>1</sup>

*Mary Shelley*

*Frankenstein*

Mary Shelley's *Frankenstein (1818)* provides a fitting introduction to the consequences of death that have long plagued the study of anatomy. Written at the dawn of a new age of medical ingenuity and progress, the social and cultural associations of mortality clash violently with the miracle of new science. The dead, harvested and experimented upon in the search for new life is a fictional continuation of the contemporary activities of early nineteenth century anatomists. A shortage of human cadavers had affected the progress of medical education. While in *Frankenstein* the monster would exact revenge for his unnatural creation, strong public reaction against anatomists who had participated in the raiding of cemeteries for fresh corpses forced the creation of an industry in artificial anatomy.

Anatomical models, made most popularly of wax, papier-mâché and plaster, have supplemented the teaching of anatomy within both the medical fraternity and the general public since the Renaissance. Models, evolving concurrently with scientific discovery, have over the history of their use come to resemble the changing ideal aesthetics of medicine. Reaching the height of popularity in the nineteenth century, the collection of plaster anatomical models of this period in the Harry Brookes Allen Museum of Anatomy

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<sup>1</sup> Mary Wollstonecraft Shelley, *Frankenstein; or, the Modern Prometheus*, Everyman: J.M. Dent ed. (London: Lackington, Hughes, Harding, Mavor & Jones, 1818; reprint, 1998).p.19.

and Pathology at the University of Melbourne, are objects belonging to an incredible history in the development of modern medicine.<sup>2</sup>

In replacing the use of human bodies with anatomical models, the social meaning and context of the medical dissection is not lost. The involvement of art has enriched the models presenting varied representations of the body through a visual history. Indeed the inherent humanity of models is difficult to suppress, as stripped back, they are objects manufactured in the dissecting room. Beneath their artistic appearance the sculptor has worked from a human example; a corpse prepared in a medical school by an anatomist. Becoming incredible objects of intrigue and disgust, the unequalled gothic imagination of the nineteenth century public had good reason to be interested. Their reaction to a very dark chapter in the history of anatomy and its eventual reformation is a crucial element in the story of medicine.

Understandings of death, particularly in terms of loved ones, have and continue to liken dissection and medical experiment towards desecration. Imploring ‘some discussion’ on the topic, the hopeful letter written to *The Times* in London 1869 generates an accurate impression of public antipathy of the period (See page iv). In saving the most vulnerable from the blade of the anatomist, the community afforded what it believed was the common right of decent burial. Beyond religious conviction and charitable duty, by claiming the dead, society reacted against a deeply founded suspicion of medical schools. Although by this date the law had begun to regulate the traffic of bodies into schools, memories of the period prior to the 1832 Anatomy Act continued to affect the relationship between the British medical profession and public. Until the Act of 1832, dead bodies were not considered property able to be stolen, and without regulation grave robbers, collectively known as ‘body snatchers’ had trawled cemeteries for opportunities to exhume and sell corpses to medical schools. Asking few questions of provenance, anatomists supported their trade as a necessary evil in the rapidly expanding profession of medicine.

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<sup>2</sup> I was inspired in this connection between Shelley and Anatomy, not solely by the obvious plot details of a man constructed through harvested anatomy but through the preface of Ruth Richardson, *Death, Dissection and the Destitute*, 2nd ed. (Chicago London: University of Chicago Press, 2000).

Apprehended in 1829 for selling the bodies of their own victims, the murderers William Burke and William Hare incited the most famous case of public reaction against the illicit practices of anatomy. Spared the wrath unleashed upon his partner, Hare's testimony sentenced Burke to be hung, dissected and lain out in public before his skin was peeled back and sold in souvenir strips. Meanwhile, the institution that had paid for the bodies of the sixteen victims, was ransacked and burnt to the ground by a furious mob.<sup>3</sup> Cautious of avoiding any such incident in the colony of Victoria, the supply of cadavers was restricted by an Act of Parliament hastily rushed through before the formation a Medical School at the University of Melbourne. Almost identical to the British Act of Parliament, the 1862 Victorian Act allowed for unclaimed hospital bodies to be transferred to the University. Later this would include the allocation of twelve bodies annually from the Sunbury Asylum<sup>4</sup>

Although not the first to regulate medical dissection, the British Anatomy Act is certainly the most famous within western medicine. Followed by numerous amendments, the modern manifestation of this law has effectively shielded the two worlds of medicine and the public from each other. Fully appreciative of the gains achieved through medical research, a modern audience might view the nineteenth century's perverse fear and fascination of dissection as irrational. Linear to modern sensibilities are the ethical concerns of body snatching, however to truly feel the horror and disgust of contemporary audiences a modern parallel is required. Today the most popular exponent of anatomy is through organ donation. As active contribution to life, this altruism has extended into a regular supply of cadavers for medical schools. Dead bodies are subjects modern society is not forced to greatly dwell on...unless of course, a visit to the exhibition *Body Worlds* is a feature of a weekend's entertainment.

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<sup>3</sup> Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Harper Collins Publishers, 1997). Pp.317-319.

<sup>4</sup> Richard Selleck, *The Shop: The University of Melbourne 1850-1939* (Carlton, Victoria: Melbourne University Press, 2003). Pp.107-8 and "Record of Subjects Sent to School of Anatomy, Melbourne University," in *Asylum Records* (Melbourne: Victorian Public Record Office, 1907-1912).

Abound in controversy, Dr Gunter von Hagens' travelling exhibit of plastinated humans attests to the continued uneasy relationship between society and human bodies. Presenting dissected corpses, preserved through a patented method, in amusing poses for a 'lay audience' von Hagens has rebuffed criticisms of his show as sensationalist and in poor taste by asserting the inherent scientific nature of the subject.<sup>5</sup> While novel and simultaneously educational, neither the construction nor exhibition of anatomical specimens is a modern phenomena. Throughout history anatomical models have attempted to mimic the realism captured in von Hagens' preservation technique. Building even upon the bones of the deceased, model makers grew in fame and notoriety by opening exhibit halls of curiosity and amusement. The debate of science or sensationalism surrounding *Body Worlds* is an echo of the argument of nineteenth century medical institutions working to legitimise the cause of medicine. Yet as an individual achievement, in detailing every intricacy of the body, the von Hagens specimens present a final extension in the art of accurate representation.

The interplay between art, science and medical education is the primary concern of this history. Within, a story of anatomical models from their contemporary place at the University, to their greater development and use are discussed. Beginning with the University of Melbourne, the difficulties and subsequent impact of the first years of the Medical School, of personalities, financial and academic pursuits, are included in the first chapter. A view of the concurrent evolution of art and a favoured aesthetic is followed in chapter two, while the major manufacturing innovations of model making are presented in approach to chapter three. Here within the context of medicine's movement towards a more scientific approach, anatomical model making begins to represent the values of science over art. The plaster models in the collection of the Harry Brookes Allen Museum of Anatomy and Pathology best represents this new clinical aesthetic of late nineteenth to early twentieth century artificial anatomy. Finally, throughout this history, the greater concerns of a human context, where the ideals of medicine and visual representation of the body collide are ever-present elements.

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<sup>5</sup> *Body Worlds: An Anatomical Exhibition of Real Human Bodies: Summary of Ethical Review* (California Science Center, 2004/2005 [cited]); available from [http://www.koerperwelten.de/Downloads/ethics\\_summary.pdf](http://www.koerperwelten.de/Downloads/ethics_summary.pdf).

Weaving through the histories of inherent significance to artificial anatomy, a greater question remains. What value do plaster anatomical models have to The University of Melbourne? The answer, should it be less than faithfully asserted, is beyond examples of teaching apparatus as anatomical models give reference to larger movements in the development of medical education and society. Movements that were to impact on the ideologies and personalities of those who founded and shaped the School of Medicine at The University of Melbourne.

## Chapter One

### Of the University...

*'There were no diagrams, models, osteological specimens, dissected parts for study, lantern slides, microscopes, no books, no anything, not even a room for the professor to sit in. In fact, as the scripture might have expressed it, this Melbourne anatomical world was without form, and void, and darkness was upon the face of the deep.'*<sup>6</sup>

*R.J.A Berry  
Professor of Anatomy  
University of Melbourne*

The classical architecture evoked by the Medical Building constructed in 1864 was in perfect symmetry with the higher ideals of the profession it housed. Embodying the rational and noble spirit of medicine, the building, overlooking the University lake and set apart from the main Quadrangle rested as beacon of what could, but not was always achieved in the study of Medicine at the University of Melbourne. For many years the University had attempted to establish a Medical School and with each successive government application, been denied the funds to make this possible.<sup>7</sup> Stubbornly pressing ahead without buildings or overseeing professor, in 1862 the first classes in the newly founded Medical School began. Unpopular amongst the Professors of Arts and Law whose salaries had been cut to accommodate Medicine, further indignation arose when it was realised for the study of anatomy dead bodies would be brought onto University grounds. Even this newly established school could not escape the difficulties of medical history, and for forty years the Medical School (later the Faculty of Medicine) would struggle.

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<sup>6</sup> R.J.A. Berry, "Chance and Circumstance," in *The University of Melbourne Archives Murphy Papers* (circa 1954). p.109-10.

<sup>7</sup> Selleck, *The Shop*. p. 73. p.78.

The study of anatomy would particularly suffer. As a profession ill favoured by society, there was a general medical consensus that within the field of anatomy the best years of exploration and discovery were spent.<sup>8</sup> Out of vogue, viewed simply as another foundation lesson for medical students, Anatomy at the University of Melbourne was allowed to stagnate. Indeed the overall state of medical education was uninviting. Students fortunate to scrape passes contended with under funding caused by both economic depression and council mismanagement, a lack of staff and a department that as a traditional power base for university politics held its share of erratic personalities. 'To relate the trails of these early days... would now be of no interest to me or anybody else', wrote Richard Berry whose appointment to the University years later would reinvigorate the Department of Anatomy. On this point he was incorrect, as the trials of the early Medical School set the place for the history of medical education, in which the study of anatomy and use of anatomical models played an enormous role.<sup>9</sup>



*'There is nothing so novel in contribution to anatomical science [as] from the antipodes'.<sup>10</sup>*

*The Lancet*  
*December 1863*

This insidious remark, dished out with unequalled condescension by the British medical establishment was nonetheless correct in asserting medicine in the colony of Victoria was an extremely interesting affair. Armed with conviction and a scalpel, the first professor of Anatomy, Physiology and Pathology, George Halford created a sensation as he publicly attacked the theory of evolution. While internationally anatomists compared primate and human in impassioned debates, scientific and theological reason raged in response to

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<sup>8</sup> Erwin H. Ackerknecht, *Rudolf Virchow: Doctor, Statesman and Anthropologist* (Madison: University of Wisconsin Press, 1953). P.231.

<sup>9</sup> Berry, "Chance and Circumstance." p.114.

<sup>10</sup> "Literary Review," *Lancet*, December 1863. In Selleck, *The Shop*. pp.105-6

Charles Darwin's *On the Origin of the Species* (1859). Of the falsity of this theory, Halford, both as scientist and believer, wished Melbourne be assured. Indeed the moral responsibility of belonging to the city's elite demanded that he act. Leading a crowd of curious Melbournians before a display of stuffed gorillas at the new Melbourne Museum<sup>11</sup>, the Professor began what was to be highly entertaining lecture. Explaining the crucial anatomical differences of the species, details asserted in his dissertation *Not like Man, Bimanous and Biped: nor yet Quadrumanous; but Cheiropodous* (1863) the Professor continued, melodramatically spouting Shakespeare and driving the press into frenzy with petty insults he cast at evolutionary supporters. Confident in his observations of a similarly incapacitated primate, and perhaps buoyed by the success of this oration, an open invitation was issued for men of learning to examine his research. Gathering in the University's dissecting rooms, guests intrigued by the initial performance were unwitting of a greater drama to unfold. When presenting the dissection, through foolishness or arrogance, Halford did not expect the force of his own argument to be returned in opposition. For amongst the crowd of supporters and sceptics lay a particularly vehement critic. Confronted and unprepared, George Halford's temper exploded. Forced to flee, the perpetrator and potential victim was taken completely unaware, when scalpel raised the enraged Professor advanced, roaring 'I'll knock you down, sir. You're a d — d vagabond, sir.'<sup>12</sup>

Enjoying the sole position of Professor of Medicine, Halford's exploits wavered precariously between controversial and liability. Involving the University in the most cardinal sin of anatomy, in 1864 he stole the brain of an executed felon.<sup>13</sup> Strong conviction appeared to have conquered good sense, when convinced a murderer was suffering from abnormal lesions of the brain, the Professor attempted to obtain his body first legally, then through subterfuge. Aside from obvious ethical similarities to the age of body-snatching, this incident raises serious implications on the use and representation of

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<sup>11</sup> Between 1856 and 1870 The National Museum of Victoria was located within the grounds of the University of Melbourne.

<sup>12</sup> "Professor Halford," *The Argus*, 18, 22 July 1863. in Selleck, *The Shop*. P.105. In his excellent account of the event, Selleck provides an amusing translation of Halford's scientific jargon. 'Not like man, two-handed and two-footed; nor yet four-handed; but finger-footed'.

<sup>13</sup> Selleck, *The Shop*.pp.105-6

anatomical specimens. A problem, as to be discussed in Chapter Four, that extends through to examples of artificial anatomy.

Overstretched as teacher and administrator of the entire department, in addition to serving as an examiner in French, Halford through his considerable sense of authority made some poor decisions. By splitting his chair in 1882, he was alleviated of the burden of Anatomy and Pathology however bad press for The University of Melbourne continued with high failure rates throughout the late century that questioned academic performance. While George Halford's successor Harry Brookes Allen did much to improve the administrative problems of the Faculty, he was still unable to curb the pressing problem of students abandoning their studies at Melbourne in favour of foreign universities. Complaining cheaper and better tuition could be found abroad, the mass exodus of students would continue for as long as the University failed to meet their expectations.<sup>14</sup>

Good staff were similarly difficult to retain. Exasperated by the limitations of the fledgling University to establish a balance of curriculum and available facilities, valued staff members would take their leave. A complacency within the school towards research also existed, with the authoritarian demeanour of Allen encouraging little change.<sup>15</sup> Becoming Dean in 1897, Allen's assertive nature and fixed ideas halted the individual pursuits of staff, often to the Department's disadvantage. Ambitious and brilliant, Allen was fiercely protective of the methodology of what could only be described as 'his' school. As one of the university's graduates, he had entered at the age of sixteen only to have retirement forced upon him through illness fifty-three years later. Described as friendly, helpful and even kindly to those interested in Pathology, Allen disliked teaching anatomy.<sup>16</sup> Despite the joint Schools of Anatomy and Pathology, instruction in anatomy was carried out largely by part time lecturers and demonstrators, and as a core subject in medical training, anatomy appeared to have a fragile existence.

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<sup>14</sup> Ibid. p.182.

<sup>15</sup> Ibid.p.54.

<sup>16</sup> K.F. Russell, *The Melbourne Medical School* (Carlton, Victoria: Melbourne University Press, 1977). pp.104-05.

If the embarrassment of a 56 per cent pass rate for first year students in 1902 revealed publicly the inadequacies of the school, Allen was fortunate that the Royal Commission ordering these figures had larger problems to address.<sup>17</sup> In a previous year, an accountant of the University Registrar had been arrested for defrauding Melbourne University of £24 000. With virtually no supervision from the council, the Office of the Registrar similarly had become slack in monitoring transactions. Ciphering funds from both government grants and charitable bequests, Frederick Dickson was convicted to five years jail, and to its severe embarrassment the University was subject to a Royal Commission on its financial position, administration, teaching and government.<sup>18</sup> Allen did well to rebuff criticisms aired by the subsequent report. The Commission stating that the Medical School had ‘...fairly kept pace with the current and scientific progress of this branch of learning, and is generally effective’.<sup>19</sup> The outcome of this report was to recommend a split of the chair of Anatomy and Pathology – a proposition entirely to the Dean’s benefit.

Undoubtedly a great relief for Allen, it was the students who benefited most from an autonomous School of Anatomy. To his contemporaries Allen appeared remote and excessively formal, ‘unaware of research developments, out of touch with students and closeted in a medical school that did not provide a sound scientific basis for clinical practice’. In a kinder assertion was his successor in anatomy, ‘Truth of the matter is of course that Allen never had a chance...’. With a new professor to be devoted exclusively to the Department, 1906 saw the beginning of new story of anatomy at The University of Melbourne, and a contrast to the history of the first forty-five years.<sup>20</sup>



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<sup>17</sup> "Royal Commission on the University of Melbourne, Final Report on Government, Administration, Teaching Work, and Finances of the University of Melbourne," (VPP 1904). Qq.2835-49. in Selleck, *The Shop*. p.478.

<sup>18</sup> Stuart Macintyre and Richard Selleck, *A Short History of the University of Melbourne* (Carlton, Victoria: Melbourne University Press, 2003). P.44.

<sup>19</sup> "R.C.U.M. Final Report." In Selleck, *The Shop*. p478.

<sup>20</sup> Charles Martin in Selleck, *The Shop*. P.479. and Berry, "Chance and Circumstance." P.112.

*'...I think you might possibly help us a little by encouraging some slight discussion, whereby the right authorities may be led to make a proper investigation, and understand for themselves the real state of our affairs.'*<sup>21</sup>

*Letter to the Editor  
The Times, London 1869*

Compared to the send off he would receive twenty-four years later and the infamy his research would bring, the arrival of Richard James Arthur Berry in 1906 was an inauspicious event. Onboard the *Orient* docked at Port Melbourne, Berry was greeted by two graduates of the University with an interest in anatomy. Compared to congratulatory dinners he had received upon his appointment in Edinburgh, their curious questioning on whether, he might lift anatomy 'out of the bog, in which, according to their accounts, it had too long wallowed' raised immediate suspicion. It was February and amidst the forty-degree swelter Berry absorbed the shortcomings of the University of Melbourne.<sup>22</sup>

*'Notwithstanding... I determine to go and see for myself if the anatomy department was as bad as was depicted to me. It was worse. It contained literally nothing, not even a skeleton, though later I discovered quite a lot in the cupboard.'*<sup>23</sup>

Finding the grounds similarly to his distaste, the new Professor was left ponder the wisdom of his immigration. With his career exclusively centred in Europe, Berry had flourished within an environment of progressive scientific medicine. Trips to Paris and Germany, the centres of nineteenth century medical advance were regular features in his research, and adjusting to the difficulties of colonial academia brought out the more astringent aspects of Berry's personality. Regarded as an excellent teacher, Berry was stern character with a humour predisposed to sarcasm. His ability to terrify a lax student

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<sup>21</sup> J.G., "The Anatomy Act: Letter to the Editor," *The Times*, November 2 1869.

<sup>22</sup> Berry, "Chance and Circumstance." pp.109-110

<sup>23</sup> Ibid.

or University administrator was notorious, leading, particularly in the latter ‘to lack of co-operation or even to outright opposition’.<sup>24</sup> Almost certainly exaggerating the condition of the anatomy rooms (1898 photographs of a lecture hall and the Museum of Anatomy and Pathology display a passable collection of teaching aids; indeed even the troublesome skeletons were summoned to pose in student photos (Fig. 3,4 & 5)), the department had nonetheless suffered considerable neglect.<sup>25</sup> Hailing from the Royal Colleges of Edinburgh with advanced technology and a proven history in medical education, the peculiar brownish marks of student ‘meat fights’ adorning the walls of Berry’s new, and otherwise bare department, was a reflection of complete revolution the study of anatomy would need undergo at the University.<sup>26</sup>

The philosophical approach to the study of Medicine was the least difficult aspect to overcome. For despite the traditional division of early Melbourne society across protestant and catholic faiths, the University of Melbourne was established as a secular institution. Even with the strong opinions of its professors, illustrated by George Halford’s public defence of creationism, the University as a principle promoted a modern scientific view of medicine. The main problem was the instigation of progressive practice amongst senior staff. The frustrations of dealing with the controlling Harry Allen caused the appointments of talented researchers and teachers to be brief ones. Thomas Cherry, a Melbourne pioneer of the most progressive medical science of the period, bacteriology had been so harangued by Allen that when offered a position in agriculture by the state government he promptly resigned. Another gifted teacher in Charles Martin similarly found the faculty environment to be overly controlling and left.<sup>27</sup> Without significantly resilient personalities to promote progress, the Department of Medicine became tolerant of complacency. The first impressions of Berry as a rather small wiry Englishman were unlikely to have held any forbearance to Allen of a man who, as K.F. Russel described, became one of the few to ‘upset the even tenor of Allen’s Life’. Yet as Allen came to

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<sup>24</sup>Russell, *The Melbourne Medical School*. p.151.

<sup>25</sup>"Lecture Class Anatomy," *Alma Mater, Brownless Memorial Supplement*, June 1896. and "A Corner of the Anatomical and Pathological Museum," *Alma Mater*, June 1896. and "3rd Year Medical Students," in *Medical History Museum* (1905).

<sup>26</sup> Berry, "Chance and Circumstance." p.110.

<sup>27</sup> Selleck, *The Shop*. p.479.

understand, in Richard Berry lay a man whose ideas were fostered solely for the improvement of the School of Medicine.<sup>28</sup>

Having earned a reputation as teacher of outstanding ability, to simply 'make do' with the resources available was disagreeable to Richard Berry. Within a month of his appointment a report as to the requirements of anatomy were submitted to the Council of the University and the Finance Committee.<sup>29</sup> To teach anatomy without visual aids was a challenge, and for students to follow, near impossible. From his own time as a student Berry had noted how with uninformative lectures he had skipped classes, resorting in a panicked rush to anatomical books at exam time to learn his craft. 'That a student would always follow the man who could give him what he sought – good teaching,' was a conviction surely frustrated by the slow process of bureaucracy that hindered the prompt deliverance of funds.<sup>30</sup> Finally in early December of 1906 the Finance Committee resolved that the Department would be granted 'a sum of no more than £200 for apparatus and furniture'.<sup>31</sup>

Taking the £200, and immediately advocating for more, Berry undertook transforming the Department of Anatomy. Naturally it had not been the intention of the Medical School to harbour such a neglected department. George Halford had been delivered £500 to purchase materials necessary for the school before his arrival in the colony, while Allen had repetitively applied for council grants.<sup>32</sup> Rather, it was by 'chance and circumstance' that the professional and financial difficulties of the University caused funds to be unequally distributed across the subjects. Equipping the Department with all the apparatus necessary, including a new collection of anatomical models, was a bureaucratic entanglement that Berry doggedly pursued. Such was his success, eight

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<sup>28</sup> Russell, *The Melbourne Medical School*. P.43.

<sup>29</sup> Council of the University, *Requirement of the Department of Anatomy*, Meeting no. 1, 5th February 1906. and Finance Committee Minutes, *4. Anatomy Department*, Meeting no.3, 2nd April 1906.

<sup>30</sup> Berry, "Chance and Circumstance." p.33.

<sup>31</sup> Finance Committee, *4. Funding*, 10th December 1906.

<sup>32</sup> K.F. Russell, "Halford, George Britton (1824-1910)," in *Australian Dictionary of Biography*, ed. Douglas Pike (Melbourne: Melbourne University Press, 1966). p.321. and for Allen's requests to University Council Harry Brookes Allen, "Furnishing; a Detailed Statement of the Manner in Which the Gov Vote for Buildings and Apparatus Has Been Expanded," in *University of Melbourne Registrar* (Melbourne: University of Melbourne Archives, 1886).

years later the Department of Anatomy, as he modestly commented, was in ‘no way behind its competitors elsewhere.’<sup>33</sup>



This was not the first time Richard Berry had refitted an entire Department of Anatomy. Recalling a buying trip for the College of Surgeons to Paris in 1896:

‘Paris was then, the home of the biological maker of models, and to Paris I had to go... Various portions of the Human body were reproduced in wax, papier-mâché, and such like, and were often more realistic as they were built up on the actual bones of some long since dead Parisian.’<sup>34</sup>

Being home to the workshops of famous anatomical manufacturers Auzoux, Trammond and Deyrolle, Berry conducted the business of renovating his department by day, before descending upon the famous nightlife of Montmartre. Disappointed by the lack of ‘naughtiness’ displayed at the Moulin Rouge, the avant guard *Le chat noir* similarly failed to enchant. Worse still was the band of bohemian artists keen to recite their ‘imperishable verse’ and drink at his expense. Quite apart from his hosts, Berry’s venture into the artistic underworld is an amusing anecdote in a long history of interaction between the worlds of art and science.<sup>35</sup>

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<sup>33</sup> From the title of Berry’s memoirs “Chance and Circumstance” and R.J.A. Berry, “The Present Needs and Future Requirements of the Medical School of the University of Melbourne,” in *University of Melbourne Medical School Jubilee, 1914*, ed. Ford (Melbourne: 1914). p.80.

<sup>34</sup> Berry, “Chance and Circumstance.” p.75.

<sup>35</sup> *Ibid.* p.76.

## Chapter 2

### ...The Art...

*'Everything that is most unsettling about human experience can be directly associated with bodies... Yet neither artists and anatomists on one hand, nor viewers on the other, are fully conscious of all these dimensions when making or responding to body images.'*

*Ludmilla Jordanova  
The Quick and the Dead<sup>36</sup>*

Renaissance artists were far more advanced in their understanding of the human body than contemporary anatomists. Considered taboo since ancient civilisations, dissection was similarly forbidden by the Catholic Church until 1482. This overruling was naturally in the church's favour, for despite freedom the act appeared to grant the study of medicine, the anatomists of the age, primarily interested blood and nerves had not been the pursuers of illegal dissection prior to the ruling. Hunting the graveyards at night, shovel in hand were the Church's most favoured scholars – artists. The sublime forms adorning cathedrals gained increased expressivity once artists were able to unravel the human form through dissection. Both Leonardo da Vinci and Michelangelo conducted dissections, the latter allegedly refusing to begin work on sculptures for the Church of the Holy Ghost in Florence unless he was paid with human corpses.<sup>37</sup> Da Vinci's own dissections numbered over one hundred, and despite amassing an enormous collection of anatomical illustrations, without any application to contemporary medicine this work did not have great influence.

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<sup>36</sup> Ludmilla Jordanova, "Happy Marriages and Dangerous Liaisons: Artists and Anatomy," in *The Quick and the Dead: Artists and Anatomy*, ed. Deanna Petherbridge and Ludmilla Jordanova (Berkeley, California: The University of California Press Hayward Gallery, 1997). p.106.

<sup>37</sup> Thomas N. Haviland and Lawrence Charles Parish, "A Brief Account of the Use of Wax Models in the Study of Medicine," *Journal of the History of Medicine* 25, no. 1 (1970). p.53.

Andreas Vesalius' landmark *De Fabrica Corporis Humani* (Concerning the Construction of the Human Body) published in 1543 finally asserted the importance of the study of anatomy in the advance of medicine. Lavishly illustrated by John Stephan of Kalkar, *De Fabrica* was the catalyst for a philosophy committed to unearthing the structure of the human body.<sup>38</sup> Until this point the use of anatomical models in teaching was restricted predominantly to art schools. Thomas Haviland contributes this primarily to artistic skill 'being adept in the techniques for reproducing objects in various media including wax, plaster, terra-cotta, bronze, marble, wood, and ivory – techniques completely beyond the training and capabilities of pure anatomists.'<sup>39</sup> As a three dimensional subject, the descriptive texts and illustrations of flayed humans that had supplemented anatomical study were unable to depict the human body in great accuracy, thus at the beginning of the seventeenth century artists and anatomists began to collaborate on anatomical models for medical education.

During his studies Leonardo da Vinci had experimented with coloured wax, injecting it into the veins of anatomical specimens in order to understand their internal structure. If cleaned and properly prepared, liquid wax could be injected and subsequently harden without destroying the blood vessels, revealing an internal map of the vascular system. The potential of this technique was seized upon by Dutch anatomist Frederick Ruysch (1638-1731). Combining wax injection with existing preservation techniques of alcohol and dehydration, Ruysch created a museum of highly unusual anatomical specimens. Accompanying the fairly orthodox potted specimens of hearts, livers and reproductive organs, were highly ornamental dioramas featuring preserved cadavers frolicking amidst an Eden of exotic fernery. Extremely popular, the collection emphasised the skill of preservation somewhat above anatomical instruction. Modern critics have described his museum as lacking any serious attempt at biological science in the grotesque show of 'his proficiency with the syringe.'<sup>40</sup> Intrigued, Peter the Great purchased the collection in 1717 and as a testament to the success of Ruysch's techniques, despite the hardships of three hundred years the majority of the collection is still preserved in St Petersburg today.

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<sup>38</sup> Roy Porter, *Blood and Guts: A Short History of Medicine* (London: Allen Lane, The Penguin Press, 2002). p.57.

<sup>39</sup> Haviland and Parish, "A Brief Account of the Use of Wax Models." p.54.

<sup>40</sup> Ibid. p.57.

Like his modern counterpart Dr von Hagens, Frederick Ruysch's fame ensured that the large quantity of dead bodies required to build his museum was never in short supply. Having made a tidy profit from the Russian Tsar, Ruysch similarly had the good business sense to guard his technique and wax formula secretively. Although in retrospect, perhaps he need not have bothered. Requiring specialist skill and an available supply of cadavers, the revolutionary technique was impractical for most medical schools that had trouble legally securing one corpse, let alone the dozen or so required for wax injection.<sup>41</sup> Their solution was to look towards the art world in the creation of anatomical models made entirely from wax.

Indeed, first in the Italian states, and later in France, anatomical wax modelling was to become an art form. In Florence the Museo della Specola created a workshop dedicated to the production of wax models. Notable artists Giulio Gaetano Zumbo (1656-1701) Felice Fontana (1730-1805) and Clemente Susini (1754-1814) were able to combine a precision expected from medical anatomy with concurrent artistic themes. Displaying flayed and partially dissected bodies standing or reclining as if alive, the wax models retain a distinctive 'classicising flavour' of eighteenth century fine art.<sup>42</sup> The influence of the artists would become less obvious as anatomical models progressed with the advance of science, yet the basic method of production would remain similar into the twentieth century. During a residency at the Museo della Specola in 1793 an army medical officer recorded the process of creating the wax models.

'Most of the organs represented by coloured waxes are cast in plaster moulds formed directly from the natural organs. The finishing touches are then added by a skilled sculptor who works side-by-side with the actual cadaver. The sculptor always works under the supervision of an anatomist, because even the most excellent sculptors would be unable to reproduce

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<sup>41</sup> K.F. Russell, "Ivory Anatomical Manikins," *Medical History* 16, no. 2 (1972). p.132.

<sup>42</sup> Deanna Petherbridge, "Art and Anatomy: The Meeting of Text and Image," in *The Quick and the Dead: Artists and Anatomy*, ed. Deanna Petherbridge and Ludmilla Jordanova (Berkeley, California: University of California Press Hayward Gallery, 1997). p.90.

nature accurately without such guidance. Any organs that cannot be cast directly are modelled in clay or wax by artists who are extremely skilled in this type of work and copy from the cadaver itself. A plaster impression is then cast on these models. This technique is used particularly for statues of whole figures. When a plaster cast is to be made for an anatomical statue, a sculptor is firstly commissioned to produce a full size wax model. This is copied from life, nude and in the position the anatomist finds that the organs or parts to be represented are shown to the greatest effect. This first stage takes about six months. When complete, separate models of the individual organs must be made once each has been dissected; and the entire process must be carried out under constant supervision and guidance.’<sup>43</sup>

A member of the Napoleonic army, Doctor De Genette’s record would have been of great interest to contemporary medical schools in Paris. Opportunities afforded by the French Revolution had created a centralised medical system of large public hospitals that progressively became used for medical education.<sup>44</sup> Despite the availability of the city’s poor for the students to dissect, a supporting industry of anatomical model makers became well established in Paris. Exporting to schools across Europe, America and the Colonies, the companies of Tramond, Deyrolle and Auzoux commercialised the manufacture of anatomical models. At the height of anatomical model making in both popularity and refinement of technique, the great industrial and scientific discoveries of the nineteenth century are reflected in the concurrent aesthetic alterations made by manufacturers. Changes that would lead production away from ‘classical’ wax to more modern representations of the human body.



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<sup>43</sup> De Genettes, *An Account of Tenure at the Florentine Museo Della Specola* (University of Cagliari Faculty of Medicine, 2002 1793 [cited 27th March 2006]); available from [http://pacs.unica.it/cere/mono03\\_en.htm](http://pacs.unica.it/cere/mono03_en.htm).

<sup>44</sup> Porter, *Blood and Guts*. p.75.

*'It is well known that imitations of the human subject, for anatomical study, have been made in wax hitherto, in consequence of its flexibility. These imitations, however striking and correct, could only present the surface of objects; they could not give the internal details, which are still more necessary to the study; they were fitter for purposes of a museum than a theatre of anatomy. M. Auzoux... has made an astonishing improvement in those imitations.'*<sup>45</sup>

*The Times*

### **London 1823**

Models made by the company of Louis Auzoux (1797-1880) represent some of the finest craftsmanship in media other than wax. A French physician, Auzoux's career in modelling stemmed from his frustrations as a student. Unable to access expensive wax models, he began experimenting with papier-mâché in attempts to replicate his student dissections. Comparatively inexpensive, papier-mâché held several advantages over wax preparations of which Auzoux was able to capitalise. A factory producing human, animal and botanical models was opened in 1827, and with rapid success, Auzoux models soon became staples of European anatomy classrooms. Popular for their durability; the models unlike wax could be directly handled and were not susceptible to dust and heat, the removable parts featured in many papier-mâché models made them highly adaptable in illustrating different functions of the body (Fig. 6).

Keen to emulate European standards, nineteenth century Colonial and American medical schools embraced anatomical models as conspicuous status symbols. Beyond their general usefulness in class, the visual impact of anatomical models proved them exceptional tools of promotion. Luring wealthy benefactors and prospective students with images of well-equipped laboratories was standard practice, and within a University of Melbourne publication, lectures in 1898 claimed to be 'illustrated by specimens, models

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<sup>45</sup> "Artificial Anatomy," *The Times*, Dec 30 1823.

and an abundance of coloured drawings.’<sup>46</sup> Indeed a bountiful table of anatomical material is laid before Professor Allen in the accompanying photograph, although mysteriously absent are the anatomical models. The small collection of Auzoux and Trammond models holding the cash-strapped University in some form of self-respect, were perhaps far too valuable to leave the safety of their cabinets within the museum (Fig. 3 & 4). Instantly recognisable, the impressively detailed models became public symbols of the complex and extremely advanced state of medical education undertaken, and on occasion as one visitor to The Independent Medical College of Chicago in 1897 found, supplanted the teaching of dissection entirely.

‘...On the walls were charts and in a corner of the room was an anatomical model of a man skinned from head to foot.

“You don’t use cadavers?” asked the visitor?

“We teach from this splendid model,” said Dr. Armstrong.

“They cost a great deal of money,” said Assistant Hovey.’<sup>47</sup>

For a college that charged seventy-five dollars for a diploma, the purchase of a full-scale anatomical model was an investment worthy of boasting. Indeed the likely resale value of such a model may have contributed to Dr. Armstrong’s legal costs three years later when the college was closed and he was jailed for fraud.<sup>48</sup>

For legitimate institutions, the affordability of Auzoux models compared with wax preparations did not necessarily equate to inexpensive purchases. A catalogue issued by Harvard University for a medical exhibit at the 1893 World’s Fair provides an inventory of anatomical models and their purchase costs. One Auzoux model of a brain is priced six times above a model depicting similar anatomy by Leipzig firm Bock-Steger.

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<sup>46</sup> "Our Medical School," *Alma Mater: Brownless Memorial Supplement*, September 1898. p.19.

<sup>47</sup> "College Is in Danger," *Chicago Daily*, 21st June 1897.

<sup>48</sup> Ibid. And "'Diploma" Dealer Punished," *New York Times*, December 16 1900.

3. Natural sized clastic model, showing the nerve-fibres in one hemisphere, and the cerebral ganglion masses on the other. After Luys, by Auzoux, Paris. \$56
4. Natural sized clastic model. By Bock-Steger, Leipzig. \$9<sup>49</sup>

‘Clastic,’ is an Anglicisation of ‘clastique,’ the term Auzoux commonly used to describe the removable features of his models. From the detailed description it is likely the Auzoux model featured several more intricately detailed sections than the Bock-Steger model, however the major influences in the discrepancies of cost were prestige and method of construction. The esteem in which Louis Auzoux was held in the nineteenth century has ensured that despite the presence of other manufacturers of anatomical models, the majority of published works detailing artificial anatomy scarcely omit his name. The early University of Melbourne certainly could not overlook the exquisite yet expensive Auzoux, however as its greater collection of anatomical models demonstrates plaster was the economical alternative to wax and papier-mâché.

Unlike the signature papier-mâché of Auzoux, the German company Bock-Steger worked predominantly in plaster. Sculpting and casting anatomical preparations, the company’s models, even in small comparison demonstrate the qualities of plaster. While the lacquer of papier-mâché gave a luminous glow to the superb paintwork, the method of production for plaster models, often equal in detail, resulted in a model of heightened realism. This effect can indeed be startling, particularly in models inclusive of body parts traditionally associated with humanistic traits such as hands, feet, and faces. Indeed in production, plaster afforded more control and through precise casts of the dissections, the anatomist became suddenly in equal prominence to the artist. Reproducing every natural imperfection of the body, models cast from plaster reflected the general movement of medicine away from subjective philosophies to a scientifically backed study. Accurate, durable and above all affordable, plaster presents an alternative approach to anatomical models of the nineteenth century.

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<sup>49</sup> Hugo Munsterberg, *Psychological Laboratory of Harvard University* [Catalogue] (Christopher D. Green Classics in the History of Psychology, 2000 1893 [cited 11 December 2005]); available from <http://psychclassics.yorku.ca/Munster/Lab/>.

## Chapter Three

### ...and the Science.

*'... Now, Sir, if this practice continues, while the number of students entering the medical profession increases so rapidly, how can we expect to satisfy the Examining Boards in Anatomy at the end of our second winter's session.'*<sup>50</sup>

*Letter to the Editor  
The Times, London 1869*

Chronically short of cadavers, nineteenth century medical schools were brought to breaking point in the transition between old world practices and modern medicine. Without the support of the public, who continued to hold dissection with absolute abhorrence, medicine's path of evolution into a thoroughly modern profession would rely on a change of perception. From acknowledgment of the common good it achieved to flashy public displays of scientific skill, by the century's end, medicine, with a dose of elitist condescension demanded respect. Ridding the image of body-snatching and human desecration, it once again became a noble profession to the thousands enrolling as students at the universities and medical colleges.

As home to the finest examples of artificial anatomy, Paris at the dawn of the nineteenth century combined artistic tradition with progressive medicine to become the birthplace of modern medicine. Had Parisians known this landmark would forever alter the easy association between art and medicine, perhaps the achievement of hospital schools would be tinged with a little sadness. Differing to the contemporary use of the hospital as a

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<sup>50</sup> J.G., "The Anatomy Act."

place of charity, Parisian hospitals in the nineteenth century invested an educational facet in collating the experiences of disease and death for research. This radical approach defied the accepted medical philosophies of the period by actively pursuing the path of disease as it affected the human body. Listening to the sounds of the living heart and lungs for diagnosis, the stethoscope became a symbol of the Parisian hospitals and a new age of medicine based on clinical observation and science.

Soon evolving from Parisian phenomena, the medically based hospital became the mainstay of western medicine. For in addition to treating the sick, hospitals held an 'abundance' of opportunities for research and education. Medical historian Roy Porter aptly navigates this complicated period in his short history *Blood and Guts* to summarise the function of period hospitals.<sup>51</sup>

As well as processing the sick, the nineteenth century hospital thus became the place *par excellence* where disease could be displayed to students on what became standard ward rounds: being charity cases, the patients could not complain. Further, its morgue was perfect for training students and conducting research.<sup>52</sup>

Foreign students returned from France enthused about Parisian methods, and for a time Paris became a beacon of medical ingenuity. In Britain and America Teaching Hospitals soon appeared, yet east of the Rhine dissatisfaction with both old philosophies and French dominance fuelled a movement that would promote universities as the ideal provider of medical education.

Germany, disinclined to accept French initiative, had plunged into the depths of metaphysical theory to create a distinctly German approach to medicine. Widely used in the extensive network of German universities, *Naturphilosophie* inclusive of all art and science was considered suited to the 'romantic mood' of a people defeated at the hands of Napoleon. While this approach satisfied the moral indignation of the nation, the

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<sup>51</sup> Porter, *Blood and Guts*. p.144

<sup>52</sup> Ibid. p.144

limitations of 'armchair theorising' were felt keenly by students of medicine. Comparing the methods of the Fatherland with Parisian diagnostics, German students were left in considerable shock. In uncertain times, how could a philosophy of nature compete against the real industry and science produced by powerful neighbours? And with every student who returned from Paris, the resolve of a new generation strengthened towards establishing a scientifically progressive approach to medicine.<sup>53</sup>

Nowhere would the transformation of modern medicine be as rapid or complete as in the German states from 1820 onwards. Overthrowing archaic philosophy to instil a new sense of scientific quest, the dogmatic students engaged in their own romantic quest of saving German medicine. Diligent and thorough, the new researchers chose universities above hospitals and were rewarded when native innovation began to better the achievements of foreign institutions. Proving the limitations of hospital research in imposing too many variables, universities created the first entirely controlled environments for the systematic study of disease. Laboratories have since established themselves as fundamental to serious research, however medical research before 1825, it is important to note, existed only within libraries and the dissecting room.<sup>54</sup>

One student who benefited and subsequently came to dominate the new age of scientific medicine was Rudolph Virchow (1812-1902). As both a researcher and teacher at Berlin University, the pathologist made extremely valuable contributions in cell theory, crossing fields to work in anatomy, physical anthropology and public health. Certainly within medical science his most famed discoveries included identifying the nature of leukaemia, however to the German public, Virchow's name was better recognised as a liberal politician and influential spokesman for medicine. With gentle wisdom from an enlightened approach, the public face of Rudolph Virchow epitomised a story of nineteenth century medicine that sought to restore the faith and pride of society in medicine.

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<sup>53</sup> Richard Harrison Shryock, *The Development of Modern Medicine: An Interpretation of the Social and Scientific Factors Involved* (Madison, Wisconsin: The University of Wisconsin Press, 1979). p.194

<sup>54</sup> *Ibid.* p.195.



*'The ethics of Twentieth Century Medicine have determined that the anatomical body should only be displayed in a 'neutralised' scientific and scholarly context.'*<sup>55</sup>

*Deanna Petherbridge  
The Quick and the Dead*

Accompanying the rapid expansion of modern medicine throughout the German university system was an increased prominence of locally made artificial anatomy. Early anatomical models, particularly in ivory had been manufactured in Germany during the seventeenth and eighteenth centuries with the purpose of aiding doctors in public liaison. Illustrating only basic anatomy, the majority were used during consultation for diagnosis and to enlighten women in particular on physiology of childbirth.<sup>56</sup> The delicacy of the ivory figures harmonised with the aesthetic combination of art and medicine, and following the institution of scientific medicine German anatomical models would correspondingly evolve. Producing models for this medical revolution, model-makers were able to capitalise both on the increased demand for teachings aids within the ever growing medical schools, and the buoyant positivism for the new ideals of science. Unlike their French counterparts, German manufacturers aligned themselves closely with universities to play a secondary public role to the anatomist. Advertising an authorised medical content in addition to the fine workmanship of the modeller, the fame of the country's medical men promoted sales of models democratically named though a combination of anatomist and company.

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<sup>55</sup> Deanna Petherbridge, "Anatomical Waxworks and Museums of the Grotesque," in *The Quick and the Dead: Artists and Anatomy*, ed. Deanna Petherbridge and Ludmilla Jordanova (Berkeley, California: The University of California Press Hayward Gallery, 1997). p.96.

<sup>56</sup> Russell, "Ivory Anatomical Manikins." p.134.

Immortalised as ‘mediocre’ by his father’s biographer, an imposing model owned by Melbourne University is a more fitting testament of anatomist Hans Virchow (Fig. 7). In a profession, indeed Nation that admired Rudolph Virchow, his competent but not exceedingly gifted son Hans found promoting ones achievements when none existed a difficult venture. Perhaps stretching out in his study to read of the public exploits of anatomists or amidst the collection of teaching models at Berlin University, Hans was struck with inspiration. For collaborating with his head of department and personal friend of his father, Professor Wilhelm Waldeyer, an anatomical model was conceived that would communicate the higher ideals of modern medicine. Sculpted by artist Karl Schultz as stoic and purposeful, the partially flayed man is an impressive tribute to the progress of nineteenth century medicine.

With the excellent names of Virchow and Waldeyer associated with the project, the Brothers Micheli, well known for their production of Wagner and Mozart piano busts became responsible for the manufacture and distribution. Unlikely to favour a flayed human as muse of their music parlour, the young ladies frequenting the Brothers’ Jaegerstrasse shop would nonetheless certainly have appreciated their enterprising nature. Later during World War I, the company travelled ahead of the German Army, to create a business of casting town sculptures before the bronzed works were carted off for ammunitions.<sup>57</sup> Less lucrative than composers, or concerned townsfolk, it is unlikely the Micheli Brothers completed a large run of the 1892 model. Amongst the other showpieces of the Jaegerstrasse shop, the anatomical man, too heavy and immobile on its artificial stone base to be convenient for teaching, would have to await a buyer appreciative of its noble heritage, and department in need of furnishing.

Despite a self-confessed fondness for Wagner, the early years of Richard Berry’s Department of Anatomy at The University of Melbourne were unlikely to have had the funds to splash out on such a romantic anatomical model. The urgency of the bare

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<sup>57</sup> *Aus Den Akten Des Stadtarchivs Rendsburg (Acts of the Rendsburgtown Archive)* (Christian-Albrechts-Universitat zu Kiel, 2001 [cited April 8 2006]); available from <http://www.uni-kiel.de/gza/10/denkmal/erterweltkrieg.htm>.

department required foremost models of educational use. Both cost effective and practical, the first acquisitions were likely to have been the plaster His-Steger anatomical models. Speculation as to the provenance of the Virchow production suggests a later trip made by Berry in 1910 to Berlin. Having met and befriended Professor Waldeyer on a previous trip to Germany, is it possible the model was a belated souvenir of old times? Around this time 'The Argus' had pleased Richard Berry immensely by describing the 'glamour' his appointment had brought the public face of medicine (Fig. 12). Intrusted with resurrecting Melbourne anatomy, a task purportedly of great public importance his career held similarities to Swiss model-maker and anatomist Wilhelm His.<sup>58</sup>

A prominent figure in both German university and public life, His became one of Leipzig's own during his distinguished career in the city. As a founding member of the international *Anatomical Society*, he worked hard to assert the professionalism of anatomy within German society. Mindful of a society prejudiced against dissection, Wilhelm His undertook public work to legitimise and promote the benefits of anatomical study. His greatest public feat came in 1894 when he was commissioned successfully to identify the body of Johann Sebastian Bach. The composer buried in 1750, had been lost amongst jumble of graves in Johannis cemetery. Inaccurate records described the grave as resting six steps from south entrance of the church, and with this loose knowledge, His undertook a scientific comparison of thirty-seven exhumed skulls. Identifying the body that correctly corresponded to age and physical health of Bach at the time his of death, the anatomist created a complete facial reconstruction of the skull for artist Carl Seffner to sculpt a memorial statue.<sup>59</sup> Ironically, the acclaim His received for playing graveyard detective was the in same territory the public most despised anatomists for treading. But at last scientific quest and the public had met half way.

Promoting public interest in anatomy, a profession easily recalled from the early century for its mad surgeons and body snatchers, was a relatively simple task in the nineteenth century. Every week the halls of public museums, curiosity cabinets and sideshows

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<sup>58</sup> Berry, "Chance and Circumstance." For references to Berry's acquaintance with Waldeyer p.91-2 and on the report in *The Argus* 7<sup>th</sup> December 1909 p.120

<sup>59</sup> Ingrid Kaestner, *100th Day of the Death of Wilhelm His* (22 April 2004 [cited 2006]); available from <http://lidw-online.de/pages/de/news?print=78804>.

across Europe and America were crowded with people indulging in a little 'rational amusement'. Ranging from moderate to farcical in anatomical accuracy, these public displays were of the few places where ideally, in separate parties of ladies and gentlemen, the wonders of the human body were visible through large collections of wax anatomical models. Such was the immense popularity of these 'amusements' that a public anatomical museum reached Melbourne in 1861, two years before the establishment of a medical school in the colony.<sup>60</sup> Discussed with immense scope by Michael Sappol in his study of the implications of anatomy on nineteenth century America, popular anatomical museums actively promoted their exhibits as medical science.

'In the nineteenth century, the anatomy museum was one of only two public arenas where naked bodies were permitted representation. Fine art was the other, but anatomy museums went much further, displaying sexual organs. Such public representations of flesh were licensed by the assignation of scientific names and categories for body parts and functions, by the claim of filiation with science.'<sup>61</sup>

Mostly the scientific content was awash with sensationalism in displays of depicting venereal disease, however these suspect justifications illustrate the growing prominence of medicine as a respected field in nineteenth century public life.

As fellow collectors of anatomical objects, the medical elite of universities and colleges chose not to associate closely with the self proclaimed 'professors' and 'doctors' presiding over public establishments. Models used in medical education presented the body in clinical context and beyond the occasional presentation of physiological deformity, of which anatomists were as enthralled as the public, the type of anatomical model required for teaching naturally differed in content and style from those used for public amusement.<sup>62</sup> Just as the explicitly of popular exhibits were tailored to tantalise a

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<sup>60</sup> Mimi Colligan, "Anatomical Wax Museums in Melbourne 1861-1867," *Australian Cultural History* 13 (1994). p.52.

<sup>61</sup> Michael Sappol, *A Traffic of Dead Bodies: Anatomy and Embodied Social Identity in Nineteenth-Century America* (Princeton, New Jersey: Princeton University Press, 2002). p.291.

<sup>62</sup> *Ibid.* pp.303-4 and 276.

curiosity of the taboo, scientific apparatus in the late nineteenth century would create a parred backed sobriety as the visual ideal of scientific medicine. Disposing of unnecessary ornamentation, exotic illustrations and expressive figurines, even the tapered stands began to disappear from anatomical models. Unchallenged by what art historian Deanna Petherbridge labels the 'frivolity of art', the new clinical, objective style of model produced for medical institutions 'legitimised notions of 'serious' science and powerful medicine' reclaiming the use of anatomical models for medicine.<sup>63</sup> For the public, popular anatomical museums were the closest they would get to the process familiar both to the anatomist and model-maker, dissection.



*'His method of work is familiar to all anatomists, who devote their attention to dissection... The bones of the vertebrae and the cranium were carefully chipped and sawed, until the spinal cord and the brain were fully exposed. Then the dura mater of the spinal cord was carefully opened, and the great nerve that it contained and all the little branching strands that connect with the nerves of the body were laid bare... he would have to take special precautions to prevent the dissected nerves drying and breaking. In order, therefore, to keep them moist and supple, each nerve, after being separated from the flesh and bone, was wrapped carefully in gauze and kept wet by soaking it in alcohol. These wrappings had to be changed, and moistening renewed. As the network of filaments increased, this moistening operation became arduous task.'*<sup>64</sup>

*Los Angeles Times*  
*July 1902*

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<sup>63</sup> Petherbridge, "Art and Anatomy: The Meeting of Text and Image."p.96.

<sup>64</sup> "Worth Ten Times Its Weight in Gold: Most Remarkable Anatomical Model Ever Prepared," *Los Angeles Times*, July 27 1902.

The fervour with which the medical establishment guarded its scientific profession was well respected by the anatomical model makers with whom they chose to work professionally. A loyal union between the model making company Steger and Leipzig University existed in the later half of the nineteenth century to produce a range of affordable models for use of medical schools. Previously collaborating with pathological anatomist Carl Ernst Bock (1809-1874), Franz Josef Steger continued his association with the university upon Bock's death to form a thirty-year partnership with Wilhelm His. The professional output of the Leipzig workshop in volume and variety of anatomical models attest to the skill and ingenuity of Steger. Producing models in plaster, porcelain and wax, Steger is known to have even enquired into the early use of plastics, although it is the plaster preparations for which he is best known. Using direct casts and representative sculpture, the success of His-Steger models flowed into the twentieth century with reissues produced as late as 1931.<sup>65</sup>

Appearing in German shops of scientific apparatus and international catalogues, Steger was a name that was well regarded yet lacked the allure of the French companies. Selling on the scientific ideals championed by Wilhelm His and the German University system, the models remained nonetheless comparatively simple productions to other anatomical models. Without the staggering production processes of wax and papier-mâché, costs were kept low, effectively eliminating their desirability to market buyers looking for extravagant showpieces. 'Sensible models for sensible men' could well have been a motto for Steger's plaster production. Following a process of dissection very similar to other anatomical preparations, plaster models, particularly the gypsum-casts could be made rapidly and in multiple numbers. With the skill necessary to hasten the process of accurate cast making, the most labour intensive factor of production beyond the anatomist's dissection was the paintwork. As an experienced model maker it is unlikely Steger would have been forced to consult often with the anatomist on accurate colour and fine detailing, and once mounted on an appropriately understated stand the model was complete. Having purchased eight His-Steger models, the University of Melbourne is fortunate that their collection, unlike the universities of Leipzig and other German cities

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<sup>65</sup> Franz Josef Steger and Wilhelm His, "Torso of a Girl (Series)," (Leipzig: Hygiene Museum Dresden, 1931).

remained intact after the catastrophes of war in the twentieth century. Including examples of freeform sculpture, casts and one model belonging to series illustrating progressive dissection, the diversity of the small collection is indicative of science's continued quest to capture the art of accurate representation (Fig. 8).

Auzoux's mastering of castique model making had been the last great innovation in artificial anatomy. Being able to view behind and inside organs broadened the versatility of his models, the minute detailing created astounding effect, however Steger and His were able to equal this challenge in their creation of frozen casts (Fig. 9). The chief complaint of orthodox anatomical models was of their inexact detail. Where fine paintwork could create a similar effect it could not replicate the texture of human organs, neither were model makers truthful in their representations of the human bodies as imperfect messes. By taking a corpse, freezing it then slicing the torso precisely down the centre, Wilhelm His enabled Franz Steger to take a precise cast illustrating the natural placement of organs, muscles and bones. Even the nature of organs, whether they were solid or cavity, such as the heart and stomach were visible. The exact impression made through this process is a true credit to the skill of Steger, whose aptitude in anatomical reproduction has resulted in models of incredible realism. In a trade with models of the seventeenth century possessing an artistic component equal or above that of science, His-Steger models are unequalled in reflecting the work of the anatomist.



In employing the services of a professional model maker, the flawless reproduction possibilities of plaster could be fully exploited. The artists, famously protective of their techniques provided a natural complement to the visual and surgical skills of the anatomist, who despite unfamiliarity often experimented in anatomical model production. At the University of Melbourne some of the least accomplished plaster anatomical models are also the most precious as examples of 'homemade' artificial anatomy. Amongst the collection a particularly gruesome, unpainted plaster cast of a foot hangs

from a wire loop (Fig. 10). Showing numerous superficial dissections, bunion and contorted toes, small human hairs have caught in the discoloured plaster. The imperfect technique is visible. A miscast section on the toe suggests this model to have been abandoned before completion, while another adorning a pedestal appears from a distance to be a mismatched coloured blob (Fig. 11). Painting the corresponding anatomy from a grim little palate of spare colours, the artist has included a title for this work *Male. Age 2 Years 7 Months – R.J.A. Berry.*

## Chapter 4

### Chance, Circumstance and Folly.

*'The humanity of disembodied specimens is easy to overlook, even to deny. They are currently exhibited to the honour of the surgeon, and of medical science. Victim or donor, these body parts represent human individuals and values.'*<sup>66</sup>

#### **Ruth Richardson**

Like the 'depersonalised' and 'biography-less' cadavers found dissecting rooms, the vast proportion of anatomical models made for medical schools are anonymous. In addition to keeping with the scientific and clinical aesthetic of the late nineteenth century, models came to resemble the ages' new expectations of medicine. The Collections amassed by institutions illustrate ideals of modernity, specialisation and the professional approach of the field of medicine. Yet even amongst universities, are anatomical items that have become symbolic of the trial and error of scientific progress. As collectors, anatomists appreciated the unique. Personal acquisitions could include objects that held more curiosity than medical interest, and in many instances, the inclusion of personal details was considered enlightening. Specimens displaying physical deformities naturally demanded explanation for what was visually obvious, while political or scientific motivation similarly produced histories. The German production of transparent humans in the twentieth century provides a fascinating account of an anatomical model whose political story conceals an implied a scientific theory. As a 1936 American newspaper reports:

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<sup>66</sup> Richardson, *Death, Dissection and the Destitute*. P.418.

‘The lady from Dresden... is the first of her kind. She is Caucasian, thirty years of age and five feet six inches in height. She stands with her arms outspread and her chin thrown back scanning the horizon.

‘I’m hoping some Communist doesn’t come along in the night’ he said, ‘and shoot a hole right through her. She’s a pretty thing. She deserves to be taken care of.’ Mr Camp’s fears may have been based on fact that this young woman with no secrets is a Nazi by origin, or comes, at least, from a Nazi country.’<sup>67</sup>

A modern perspective certainly appreciates the underlying association of eugenics, and while disputable whether the intent of the model’s manufacturers followed Nazi doctrine the association is sinisterly close.

The history of eugenics movement had its own story within Melbourne. Fuelled by increased interest for scientific explanation, eugenics applied evolutionary theory as explanation for society’s ills. For the public who had been enthralled by exhibitions of disease and deformity, theories preached by eugenicists under the guise of public health made some sense. Formulating new medical categories of degeneracy, Eugenics provided a scientific context for social ills. Drunks, thieves and whores, could now be effectively isolated along with the disabled and mentally unfit from future generations through selective breeding. As an anatomist Richard Berry was convinced. Subscribing to theory based on physical correlation between skull size and intelligence, Berry’s career became focused beyond the teaching of anatomy to include physical anthropology and mental studies of criminals and children.

Conducting his first study as mental specialist, Berry ventured into Melbourne’s prison system, measuring tape and clipboard in hand to discover a correlation between the size of skulls and intelligence. Comparing these results with a sample from a similar English study of anatomists, academics and students, a surprising verdict was reached.

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<sup>67</sup> John Lardner, "You Can See through Her," *Los Angeles Times*, Aug 29 1936.

Anatomists, through intelligence and well developed domes towered above the cattle thieves and bigamists belonging to the 'league of the small headed'.<sup>68</sup> Encouraged by this satisfactory result, the professor furthered his enquires. Undertaking studies of mental deficient, the kinder moniker given to the disabled and ill, Berry established himself as an expert in the field, gaining appointments as consulting psychiatrist at the Melbourne and Children's Hospitals. From a modern perspective it appears absurd that an anatomist experienced most with the physical remnants of the dead could be the reigning authority of psychiatric medicine, however within contemporary society this application of science provided a convenient answer. If crime, stupidity and general degeneracy were genetic, little introspection of societal misdeed was required.

A series of public lectures undertaken in the interwar years provides a strong connection to the final anatomical models related within this history. Concerned of the 'menace' society faced through the 'uncontrolled activities of the feeble minded' Berry accepted the responsibility of a prominent anatomist and toured regional Victoria.<sup>69</sup> Given a little freedom from the usually staid topics of anatomical detail, the evocative language used to describe his ventures into the asylum and penitentiary, were likely to have been illustrated by equally dramatic visual aids. With a weathered face and blank eyes, the mouth of an elderly person hangs ajar in stupor (Fig. 12). This is the easily the most ghoulish model in the Harry Brookes Allen Museum's collection, a plaster model cast from life that through correlating evidence suggests that indeed, this model was manufactured to represent mental illness.

The provenance of the model, along with two others belonging as a series, was initially difficult to ascertain. Constructed in a similar production process to Steger, yet marked only by a number on the base of the neck, there was little information to suggest by whom, and for what purpose such vivid models were made. Atypical to the sobriety displayed by most anatomical models used in contemporary education, the dissected heads suggested a unique function within the Medical School. By chance, within the

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<sup>68</sup> Berry, "Chance and Circumstance." p.127. p.143. and Berry & Buchner, 'The correlation of size of head and intelligence as estimated from the cubic capacity of the brain of 355 Melbourne Criminals' pp.229-44 as in Selleck, *The Shop*. p578-9.

<sup>69</sup> Berry, "Chance and Circumstance." p.145.

same Harvard University document used to price Auzoux and Bock-Steger models was the following description:

14. Model of the head of elderly female, insane, brain exposed on the side.  
By Casciani Dublin. \$5.50<sup>70</sup>

An accompanying photograph from the department's laboratory supports the identification of these models as belonging to a series made by Anatomist Daniel John Cunningham (1850-1909) and model makers Casciani and Son of Dublin (Fig. 13). Similarly interested in physical anthropology, these models were likely commissioned as a result of Cunningham's research into hemisphere dominance; the correlation between one side of the brain favoring right or left-handedness. Differing greatly in approach, it was surprising to find models of the same series in both a psychological laboratory and within the contemporary collection of the University of Melbourne. Regarding psychology with skepticism, Berry was not isolated amongst his peers in considering the theories of Freud to be conceited. Exclaiming the famous psychologist 'had done more to hide the truth than any other man living, Jung possibly excepted' the Melbourne Medical School remained firmly focused on a hereditary approach to explaining mental illness.<sup>71</sup>



Through divergent approaches, anatomical models could easily be used to argue for either eugenic or psychological theory. Within this history they have come to embody the opposing schools of thought in late 19<sup>th</sup> to early 20<sup>th</sup> century medicine, and only through historical perspective can we appreciate the failing of one so completely. Roundly criticized for his adamant belief in eugenics, Richard Berry has been accused of insensitivity, gross intolerance and prejudice. Yet modern understandings of equality, disabilities and mental health do not fully equate for the direction of period medicine.

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<sup>70</sup> Munsterberg, *Psychological Laboratory of Harvard University* ([cited]).

<sup>71</sup> Ann Westmore, *History of Medicine, Dentistry and Health Sciences at Melbourne. Berry, Richard James Arthur ('Dicky') (1867-1962)* [Biographical Entry] (Centre for the Study of Health and Society, 23 May 2005 2002 [cited 22 February 2006]); available from <http://www.cshs.unimelb.edu.au/programs/jnmhu/umfm/biogs/FM00008b.htm>.

Guilty of all three and more, amongst contemporaries Berry's work was consistent with research practices that, like the body-snatching period, failed the society it sought to heal.

Was it by 'chance and circumstance' that Berry's career took the path of a mental specialist? Berry himself described it as a 'leap over the ages' from his early years at the University. For it was in these first few years, furthered in his memoirs as the best, that he achieved the most for the Department of Anatomy. From the mysterious brown stains of the dissecting room, to the construction of an entirely new building to accommodate rising enrollments, the study of Anatomy under Richard Berry's guidance was revived and refreshed. The new building, jokingly named *Berry's Folly* for its enormous size, was one example of his farsightedness another was his investment in anatomical models. For beyond their use in general teaching, the plaster models are valuable remnants of a history of medicine interacting with art, science, the public, and education.<sup>72</sup>



In the same oppressive heat that had welcomed him twenty-four years previously, Richard Berry would depart Melbourne with a much-improved view of the University of Melbourne Medical School. For standing below him on the wharf, overdressed and behaving raucously, students in white lab coats had congregated en masse to wave farewell.

*'For a student would always follow the man who could give him what he sought – good teaching' ...*<sup>73</sup>

*R.J.A Berry*

*Chance and Circumstance*

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<sup>72</sup> Berry, "Chance and Circumstance." pp. 126-7. p.114.

<sup>73</sup> Ibid. p.33.

## List of Illustrations



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The University of Melbourne Medical History Museum [(31) MHM00422]

**Figure 2:** Body Worlds

Gunter von Hagen's Body Worlds: The Anatomical Exhibition of Real Human Bodies.  
[http://www.koerperwelten.de/en/pages/Kinder\\_Bilder.asp](http://www.koerperwelten.de/en/pages/Kinder_Bilder.asp)

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**Figure 4:** Lecture Class Anatomy

*Alma Mater: Brownless Memorial Supplement*, September 1898.

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The University of Melbourne Medical History Museum [(31) MHM02917]

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*History Wired*. Smithsonian National Museum of American History.  
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**Figure 9:** His-Steger Sectioned Torso

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Lucy Spencer 2006.

**Figure 10:** Unfinished Plaster Foot

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**Figure 11:** MALE. Aged 2 years 7 months – R.J.A. Berry

From the Harry Brookes Allen Museum of Anatomy and Pathology. Photograph:  
Lucy Spencer 2006.

**Figure 12:** Casciani Model Head

From the Harry Brookes Allen Museum of Anatomy and Pathology. Photograph:  
Lucy Spencer 2006.

**Figure 13:** Harvard Psychological Laboratory 1893

Munsterberg, Hugo. "Interior of a Laboratory Room (Chain Reaction  
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<http://psychclassics.yorku.ca/Munster/Lab/>

**Figure 14:** Professor Richard Berry, Circa 1920

University of Melbourne Medical History Museum [(30) MHM00325]

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The research of Historian Kenneth Russel encompasses in great scope almost all the topics I have attempted to undertake in this one history. For in biographical detail of the University of Melbourne Medical School and its characters, Russel is unequalled. Similarly his short work in ivory anatomical models provided a solid introduction to the topic.

Expansive studies of artificial anatomy are rare. The best resources are to be found in academic journals, where the work of Thomas Schnalke (the majority unfortunately in German) is the most complete in the field of German anatomical models. Failing a good translator, Thomas Haviland and Lawrence Charles' study of wax gives excellent background for the models' development.

For a general overview of the medicine, Roy Porter's *Blood & Guts* is an alternative of Richard Shyrock's standard *Development of Modern Medicine*, while Ruth Richardson and Michael Sappol provide histories with cultural considerations. Finally for histories of The University of Melbourne aside from Russel's *Melbourne Medical School*, Richard Selleck's *The Shop* is by far the most inclusive history.

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