

# Proposed European anatomical collections network

ELENA CORRADINI & MAREK BUKOWSKI<sup>1</sup>

## Abstract

*Universities, colleges, medical institutions and professional societies in the past used their museums as tools to establish themselves as the rightful producers of anatomical knowledge. Anatomical and medical museums, nearly ubiquitous in the cities of Europe and the United States, exhibited and preserved anatomical specimens as well as models and sculptures – some displaying great artistic and technical finesse – which depicted human anatomy in graphic detail.*

*A European anatomical collection network proposes to obtain, collect, and analyze a wide range of information about anatomical collections in Europe.*

*For our proposal it is important to focus the attention on ‘how’ as well as ‘what’ has been collected, to the strategies adopted for showing the collections, to the people who had access to the collections and the degree to which their prior experiences and expectations may have shaped their responses to it. It is also important to consider the geographical location and origins of anatomical collections, their anatomical models and specimens, the contents of lectures, the audiences targeted and also the questions raised in historical, sociological and anthropological literature about anatomy.*

## Introduction

Universities, colleges, medical institutions and professional societies in the past used their museums as tools to establish themselves as the rightful producers of anatomical knowledge. Anatomical and medical museums, nearly ubiquitous in the cities of Europe and the United States, exhibited and preserved anatomical specimens as well as models and sculptures – some displaying great artistic and technical finesse – which depicted human anatomy in graphic detail (KEMP & WALLACE 2000).

A good collection was a mark of status which would not only distinguish a university, a college or an institution from the others, but also serve as an assertion of legitimacy which grounded itself within the larger context of the natural sciences.

Museums are dynamic, vibrant entities that grow, shrink and adapt to shifting circumstances: It was common for anatomical and medical museums to retain scientific equipment in order to allow laboratory work to be done on site, and a museum’s ability to house a large collection of specimens and to possess space available to scientists and scholars was considered a primary role of the institution.

Renaissance ‘cabinets of curiosity’ boasted elaborate skeletal displays and in the 17th century, new preservation techniques allowed the long-term storage of soft tissues in spirits. But only in the mid-18th century did anatomical collections in their modern form begin to emerge (ALBERTI 2011a).

For a project about anatomical collections, it is important to focus the attention on ‘how’ as well as ‘what’ has been collected, to the strategies adopted for showing the collections, to the people who had access to the collections and the degree to which their prior experiences and expectations may have shaped their responses to it (BONNER 1995; CHAPLIN 2008, 138). It is also important to consider the geographical location and origins of anatomical collections, their anatomical models and specimens, the contents of lectures, the audiences targeted and also the questions raised in historical, sociological and anthropological literature about anatomy (SCHNALKE 2004; SECORD 2004).

---

<sup>1</sup> *Anatomical collections for teaching and explaining anatomy* is primarily Bukowski’s work; *Anatomical and medical museums* is primarily Corradini’s work and the introduction and the third part is common work.

### **Anatomical collections for teaching and explaining anatomy**

The human body with its functions is an object of research and an instrument of experience: in the late medieval period anatomical knowledge in Britain and Europe was largely based on manuscripts from classical Greece and medieval Italy, the dissection of animals such as pigs, and the intermittent dissection of condemned criminals (VESALIUS 1543; PARK 1994; PARK 1995; OLRYS 1997; FRENCH 1999). However, by the 17<sup>th</sup> century, the situation changed as printed books of anatomical texts from Italy and France became more widely available (CUNNINGHAM 1997; CREGAN 2010; MITCHELL ET AL. 2011, 91).

Anatomical dissections took place in universities or schools of medicine or in others government supported institutions and were often commemorated in paintings or in printings: both the body and the audience were subject to the abstracting power of the anatomy text (GUERRINI 2004, 222; RUGGERI & PONTONI 2005; NESI ET AL. 2009).

The dissections were public in a limited sense: they were used as pedagogical displays intended for the edification of persons who were interested in the practical arts of setting bones, letting blood, kidney stone and kindred operations (lithotomy) and assisting in difficult childbirths. They were educational displays to learn the structure and functions of human body for the professional training: the recasting of dissections can be considered both as a form of personal improvement (PAYNE 2007) and a means for the development of the important professional competences of clinical detachment and empathy (HILDEBRANDT 2010).

Learning human body structure by performing hands-on dissections in the anatomical theatre had become a fundamental element of contemporary medical education to know as much as possible about the parts of the body and their functions, the body's physiology and, when faced with illness, its pathology, being in professional competition with physicians: the human body was studied as a book to be read to learn what it was and what it meant to be alive with respect to anatomical, physiological, pathological and therapeutic knowledge (PÉREZ-PÉREZ 2010, 38; 46).

Starting from the seventeenth century and during the eighteenth century, auditoriums across Europe were filled with audiences attending lectures that included anatomical demonstrations of dissection upon human cadavers (FERRARI 1987).

In the following century forthcoming dissections were also advertised in newspapers and public anatomies were arranged for permanent exhibitions; for example, at the Präuscher's Panoptikon und Anatomisches Museum, established in the Prater amusement park from 1871 until its 1945 destruction (BUKLIJAS 2010).

According to traditional strategic and disciplinary methods, through the practice of anatomical dissections the body was handled – literally and figuratively – framed, presented and represented, abstracted in texts and illustrations (CHOULANT 1852; KEMP 2004; RIVA ET AL. 2009): Anatomical treatises were designed to be used in front of a dissected cadaver, but the drawings could not portray the experience of the sight and smell of a dismembered body (FRANCIS ET AL. 2001; MANDRESSI 2003; HORSLEY 2010, 17).

The space in which these anatomies were performed and the practices by which that knowledge was imparted, shaped the ways in which the human body was understood – a slow and uneven process – by which the body was subjected to a process of abstraction (KEMP & WALLACE 2000): with anxiety and wonder concerning knowledge of the body (HAYES 2008; WOLFE & GAL 2010).

It is interesting to study the processes and ceremonies involved in learning anatomy in the rooms where corpses were dissected and how the dissected bodies were treated, perceived and reshaped by the practice of anatomical pedagogy. According to Kate Cregan (2009), there are two key factors: the structure of the space in which the anatomical dissections took place, and the embodied actions performed within that space associated with the dissections conducted there.

The public autopsies at the hall were ceremonial occasions: As the construction of the anatomical theatre ensured the regulation of the people that entered it, so too did the carefully regulated anatomical performances which took place in it, following an old tradition explained in Alexander Read's (1638) *The manual of the anatomy or dissection of the body of man: containing the enumeration and description of the parts of the same which usually are shewn in the publick anatomical exercises*. The dissection would also lead inevitably to contemplation of the meaning of death itself. The excessive emotion provoked by witnessing anatomy and particularly vivisection could turn against the moral purpose of the demonstration. In theory, dissection appealed first to the intellect and then to the emotions, but – as the proponents of the ancients contended in their ongoing debate with the moderns – witnessing anatomy could engage the emotions of the audience far more than it engaged their intellectual faculties. But as with public executions, the close presence of a dead human body could be emotionally disturbing: Dissection and vivisection could be intended as violent and transgressive acts (GUERRINI 2009, 10).

Moreover, sometimes these public dissections could have a limited role in education and research, because the performance was frequently geared towards the entertainment of authorities and paying visitors, and students could not discuss controversial issues at length. In addition, they were seated at a considerable distance from the dissecting table, behind the rows of professors and municipal officials (MARGÓCSY 2011, 3).

### **Anatomical and medical museums**

Medical institutions and professional societies used their museums as tools to establish themselves as the rightful producers of anatomical knowledge: Very significant was the role of museums as formal spaces for the display of the products of anatomical investigations, not only preparations, pieces of human preserved in spirit or later in formalin (wet preparations) or in the exsiccated form (dry preparations) or obtained with a variety of processes used in their manufacture – like dissections, injections, fixation, maceration, and mounting (POLE 1790) –, but also of objects classed as either 'humane rarities' or 'anatomical curiosities' (APPLEBY 1996).

Anatomical and medical museums were aimed at professional societies or institutions where men learned to become doctors: on the one hand the discipline of anatomy afforded obvious contributions specific to the creation of the medical professional's identity (WOLFE & GAL 2010); on the other hand, the medical profession was responsible for disseminating information about anatomy to a larger audience (KNOX 1836).

Historical anatomical and medical museums were founded as the result of the collections made by medical teachers and practitioners who would then bequeath them to an institution or professional society. These collections would then be added to over time, enhancing the eminence of the institution. Interest in these collections was by no means limited to would-be medical professionals, but was shared by what might be understood as an 'anatomically-curious' public audience (FERRARI 1987).

Until the late eighteenth century, natural science collections, like artistic and archaeological collections, were accessible to an audience limited to elites who, most frequently by dint of birth or

occasionally by educational attainment, possessed the status necessary to view them (PORTER 1995). Only at the end of that century in Italy the anatomical collection created by the Grand Duke of Tuscany Peter Leopold (1765-1790) in Florence in the Imperial-Royal Museum for Physics and Natural History at La Specola was accessible to a general public including, specifically, the 'lower classes': It also provided an institutional model for displaying anatomy which was subsequently copied in Europe and America (POGGESI 2001, 6).

With a sort of an aesthetic strategy, the dissector and the preparer transformed messy and complicated bodies into abstracted and neatly presented objects, which mirrored naturalistic representational practice in medical or scientific illustration in which objects were generally presented

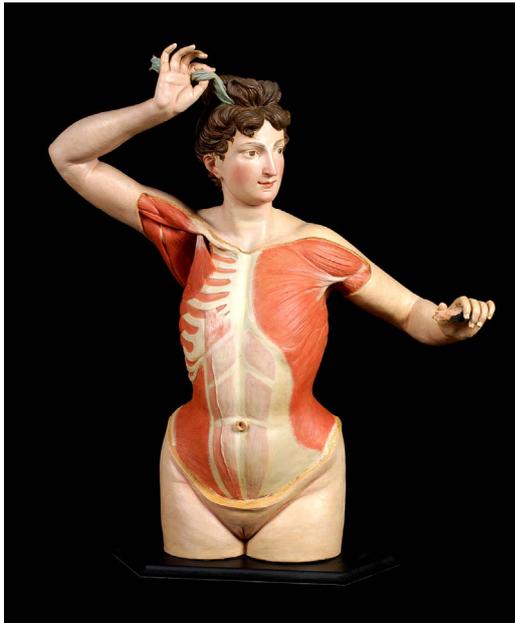


Fig. 1 - Giovan Battista Manfredini, Anatomical clay representing a feminine bust, 2<sup>nd</sup> half of 18<sup>th</sup> century. Photo: Giorgio Merighi © Anatomical Museum Archive



Fig. 2 - Anatomical wax representing a feminine pelvis with urogenital system and stretch of abdominal aorta, 2<sup>nd</sup> half of 18<sup>th</sup> century. Photo: Giorgio Merighi © Anatomical Museum Archive

without contextual imagery or symbolic adornment (LATOURE 1990, DASTON & GALISON 1992; ROBERTS & TOMLINSON 1992; BENSUADE-VINCENT & BLONDEL 2008; CHAPLIN 2008, 144; RIVA ET AL. 2009).

Preparations of dehydrated organs were placed on plaques in rows; specimen jars filled with wet preparations were available for spectators to examine on shelves; moulages in wax demonstrated pathologies of various kinds, partial and whole skeletons lined the walls, and every organ known to the discipline of anatomy could be on view.

Specimens and preparations were particularly useful for recording morbid features and abnormalities: They were used to register the results of specific observations or experiments, and were often cited by authors as evidence of priority in anatomical discovery (EALLES 1974), and they played a crucial role for teaching in anatomy, surgery and midwifery, where they were used alongside, rather than instead of, cadavers as a means of demonstrating normal or morbid anatomical structures (ALBERTI 2011b). Their utility was partly a function of their physical properties. While not impervious to decay, preparations were more stable than fresh tissue and lacked the noisome qualities of freshly dissected cadavers. Moreover they could be handled and transported in ways that cadavers or unfixed tissues could not.

Learning to 'read' specimens and preparations was one of the specific practical skills which anatomy teachers sought to inculcate in their students, by encouraging their use as one element of a tripartite autopsy system that also involved observation of the dead cadaver and the live patient (HUNTER 1784, 89–92; LAWRENCE 1993, 165–170). Students were encouraged to make their own preparations as a way of becoming familiar with their properties as material objects, and also, for private study, to amass their own collections of specimens and

preparations. Thus were collected in private museums (HUNTER 1784, 110; COOK 2002) images in print, oil, and watercolors (CHAPLIN 2008, 140) but wet preparations preserved in liquid and stored in sealed glass (towards the late nineteenth century, formaldehyde, a compound synthesized in the mid-19th century and used in organic chemistry, came to dominate bodily preservation); dry preparations obtained by extracting all liquid from the specimen and then injecting the object with wax – as wax replaced blood in the circulatory system, the cadaver's collapsed organs were restored to their natural state of life (DEGUEURCE & ADDS 2010); anatomical casts prepared in plaster from molds created from actual anatomical subjects; anatomical models in papier-mâché, clay (fig. 1–2), ivory or bronze (OLRY 2000); petrified preparations, organs and body parts hardened by chemicals, combined together and then cut into decorative tableaux. Anatomical models in wax (BALLESTRIERO 2010; COOKE 2010) started to appear from the 17th–18th century (fig. 3) and continued in the following century (fig. 4) in order to provide more visual information than was possible in the two-dimensional illustrations. These wax models compensated for the lack of effective preservation techniques for cadavers, which made dissection of deteriorating bodies highly unpleasant (MUSAJO SOMMA 2007; PATTISON 2007; RIVA ET AL. 2009, 220).

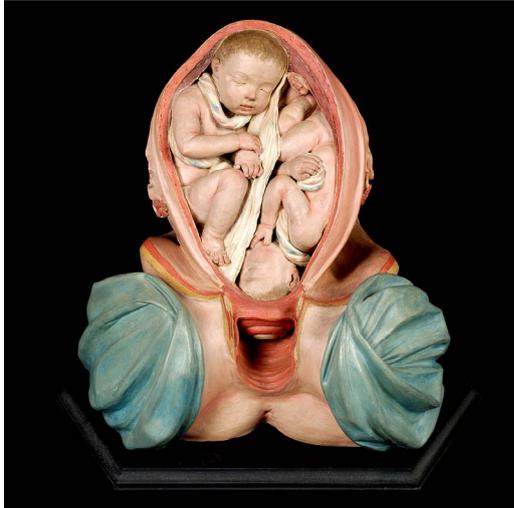


Fig. 3 - Giovan Battista Manfredini, Anatomical clay representing a womb of a twin birth, 2<sup>nd</sup> half of 18<sup>th</sup> century. Photo: Giorgio Merighi © Anatomical Museum Archive



Fig. 4 - Remigio Lei, Table with several enlargements representing the sensory corpuscle of Pacini, 19<sup>th</sup> century. Photo: Giorgio Merighi © Anatomical Museum Archive

The aim of displaying certain groups of specimens and preparations was not only to demonstrate physical difference, but to explain the larger implications of what these physical differences might mean. However even if the models on display had been subject to a neat categorization, they would still escape full mastery, for death refuses to be mastered by the living (JORDANOVA 1999, 14; CASSELL 2005).

Starting from the middle of the nineteenth century, the developing fields of ethnography and anthropology moved into the anatomical museums, sometimes to the point of incorporating these disciplines' names into the appellations of museums themselves or the collections of specimens or into the exhibition of the anatomical museums. The anatomical museum created a revelatory space in which self-evident principles could be more broadly applied to racial or ethnic populations, where the bodies were, in essence, documentation of the types of persons on display. The nineteenth century is rife with examples of anthropologically-based racial constructions that arose in scientific institutions; it should hardly be surprising that central to these constructions was the body itself (WOLF 2010, 49). The anatomical museums became a sort of forum for proposing social constructs of race, reinforced by the purported objectivity of science.

In the medical museum of nineteenth century, doctors were eager to distance their profession with the scientific triumph of logic over the superstitions of 'monstrosities' that characterized medical texts of

the previous century. The specialized knowledge that medical authorities trained so arduously to comprehend were rendered visible to anyone (RUGGERI & PONTONI 2005).

By century's end, medical institutions had insisted on the right to display the human body in the medical museum, though the museum itself had lost much of the pedagogical value for the discipline which it had been founded to serve (WOLF 2010, 66).

Medical museums remained large and well used into the twentieth century as the popularity of health exhibits in vast international expositions demonstrated. Changes in medical education and the academic status of material culture generally took their toll in the later twentieth century, however, especially the reduction in the number of post mortem examinations (Cooke 2006; BUKLIJAS 2010).

Dissection remained a keystone in the training of the would-be medical doctor, but was attended by difficulties quite similar to those found in the anatomical theatres dating from earlier times. As with anatomical theaters of the eighteenth century, bodies as 'source material' were not easy to acquire, and controversies over how medical colleges obtained these bodies was a matter of public debate (SAPPOL 2002). For this reason, medical and anatomy museums were a teaching tool where the medical trainee could approach anatomy without taking an active role in acquiring the bodies of the dead (RICHARDSON 2001; CRIGNON-DE OLIVEIRA & GAILLE-NIKODIMOV 2004).

In recent years anatomy and pathology collections have diminished their leading roles in medical education for many reasons: a lot of specimens in anatomical and medical museums have become artifacts of a past which had once favored gross anatomy, bypassed by professionals in the field who were busily pursuing increasingly complex biological theories and their interests in biological and biomedical research activities, even if recently new anatomical specimens have been created like plastinated specimens, obtained by a tissue preservation technique that uses durable polymers to replace water and lipids, resulting in durable, dry and odorless specimens (WALTER 2004; MARKOVIĆ & MARKOVIĆ-ŽIVKOVIĆ 2010).

Dissections and preparations by anatomists or medical students and the disposal and burial of the remains or the preservation of teaching specimens that survive today in medical museums are complex and fascinating (HACKETT 1951; MITCHELL ET AL. 2011, 91).

To avoid collections being seen as ghoulish repositories of disembodied remains, it is important to find in labels, documents or books their stories with their own narratives and variable meanings (BLACKWELL 2007; WOLF 2010).

Even though medical museums failed to erase the need for dissection and other types of medical training, they met professionalizing needs similar to those of natural science museums in the nineteenth century, where the collections were exhibited for pedagogical purposes and where knowledge production and experimentation could flourish (MARREEZ ET AL. 2010).

There are some controversies which are just as relevant today as they were when they were discussed in past centuries: Who was authorized to exhibit anatomy? What sorts of bodies were appropriate for display? Who ought to be permitted to view anatomy?

Through a careful planning of an interdisciplinary collaboration, anatomical and medical museums can generate and facilitate a range of activities pertaining to an education and research functions: by seeking out such opportunities they will remain relevant and innovative (e.g. the Wellcome Collection recently opened in London which revealed considerable public appetite for medical heritage<sup>2</sup>).

---

<sup>2</sup> [www.wellcomecollection.org/Default.aspx](http://www.wellcomecollection.org/Default.aspx) (accessed January 31, 2012).

## European Anatomical Collections Project

Among many possible systematic approaches for a project concerning the anatomical collections, we have decided first of all to design a prototype for an online survey. This survey aims at collecting a first set of data about anatomical and medical collections and it will be submitted to the museums that are recorded in two significant databases about University Museums: the Italian POMUI – the Portal of Italian University Museums<sup>3</sup> (CORRADINI 2012) – and the international UMAC Worldwide Database of University Museums & Collections<sup>4</sup> (fig. 5–6). Working in a network is a basic cultural choice, a commitment to grow and to improve as production centers of knowledge, activities and services.

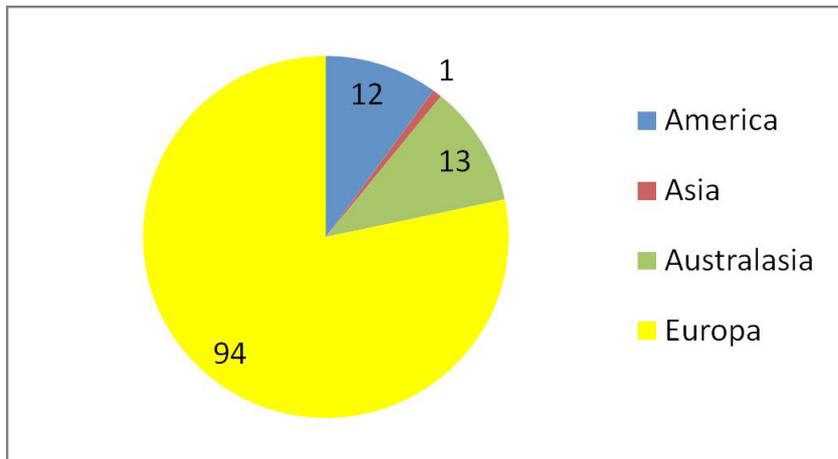


Fig. 5 - Anatomical and medical museums and collections recorded in the UMAC Worldwide Database of University Museums & Collections (as at September 2011).

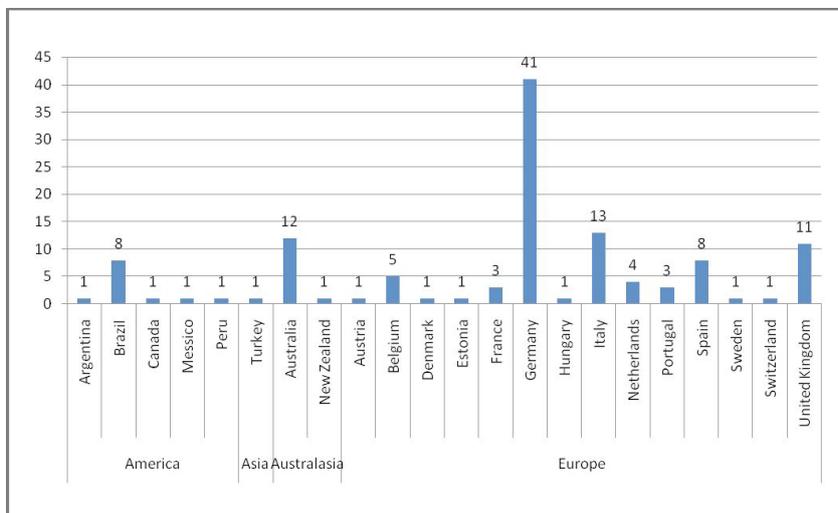


Fig. 6 - Anatomical and medical museums and collections recorded in the UMAC Worldwide Database of University Museums & Collections: detail for each country (as at September 2011).

The prototype for the online survey to collect a first set of data about anatomical collections is structured in nine sections. The basic areas of interest for the project are:

<sup>3</sup> [www.pomui.unimore.it](http://www.pomui.unimore.it) (accessed January 31, 2012).

<sup>4</sup> [publicus.culture.hu-berlin.de/collections](http://publicus.culture.hu-berlin.de/collections) (accessed September 28, 2011).

- A. General information
- B. History and type of collection
- C. Status of research connected with the collections
- D. Objects of the collections
- E. Conservation
- F. Documentation
- G. Exhibition
- H. Accessibility
- I. Contemporary anatomists and fields of interest

The survey has altogether twenty questions; each section is composed of several specific questions as follows:

- A. General information: questions 1–2.
- B. History and type of collections : questions 3–7.  
For the historical survey, it is important not only to complete the historical overview, but also to clarify the invisible mechanisms behind the making of anatomical and medical museums and their relations with public audiences and medical professionals.
- C. Status of research connected with the collections: question 8.  
The aim is to illustrate the influence of changes in anatomy on development of medicine and the changes in anatomy 'per se': more sophisticated methods of research, analyzing and synthesizing of results, to better understand the structure and the functions of the human body.
- D. Objects of the collections: questions 9–10.
- E. Conservation: questions 11–14.
- F. Documentation: question 15.
- G. Exhibition of historical specimens: questions 16–17.  
The main questions are: how are historical specimens presented in today's museum and how are their meanings transformed so as to fit today's interests? How do those who manage the collections regulate public curiosity? This will lead to a better understanding of the reciprocal relation between those looking at the collections and specific ways of exhibiting the anatomical body; for what purposes (teaching or general interest?) and how they should be exhibited?  
The display of human remains in any museum is a complex issue that demands a complex answer. Allowances need to be made for the missions within museums that display human remains, as medical and science museums present exhibitions in a different context than natural history and historical museums. In anatomical and medical museums, it is necessary to define curatorial practices regarding human remains through legal guidelines and museum policies – in particular according to ICOM (International Council of Museums)<sup>5</sup> and Department of Culture, Media, and Sport,<sup>6</sup> and to the American Association of Museums (American Association of Museums)<sup>7</sup> and other recent documents –, clarifying the need for thorough interpretation, ethical context and provenance, and for sensitive displays of human remains appropriate to the mission of the museum. (ANDERSEN 2010).
- H. Accessibility: question 18.
- I. Contemporary anatomists and fields of interest: questions 19–20.

<sup>5</sup> *ICOM Code of Ethics for Museums, 2006*, 2006, 9, [icom.museum/fileadmin/user\\_upload/pdf/Codes/code2006\\_eng.pdf](http://icom.museum/fileadmin/user_upload/pdf/Codes/code2006_eng.pdf) (accessed January 31, 2012).

<sup>6</sup> *Guidance for the care of human remains in museums*, 2005, 12, [icom.museum/who-we-are/the-vision/code-of-ethics.html](http://icom.museum/who-we-are/the-vision/code-of-ethics.html) (accessed January 31, 2012).

<sup>7</sup> *Code of ethics for museums*, 2000, [www.aam-us.org/museumresources/ethics/coe.cfm](http://www.aam-us.org/museumresources/ethics/coe.cfm) (accessed January 31, 2012).

The future development of the project envisages a second step to integrate the mailing list of anatomical collections existing in the UMAC databases with other existing networks; moreover, the survey set of questions will be refined according to the first results and feedback from colleagues; finally, the integrated survey will be submitted to anatomical and medical museums in order to continue the collection of data.

### Acknowledgements

I thank Silvia Rossi – research assistant at the University of Modena and Reggio Emilia – for her fundamental collaboration.

### Literature cited

- ALBERTI, S. J. M. M. 2007. The museum effect: Visiting collections of anatomy and natural history in Victorian Britain. In: *Science in the marketplace: nineteenth-century sites and experiences*, eds. A. FYFE & B. LIGHTMAN (Chicago: University of Chicago Press), 371–403.
- ALBERTI, S. J. M. M. 2011a. Medical museums past, present and future. *Bulletin of the Royal College of Surgeons of England* 93, 2: 56–58.
- ALBERTI, S. J. M. M. 2011b. *Morbid curiosities: Medical museums in nineteenth-century Britain*. Oxford: Oxford University Press.
- ANDERSEN, L. 2010. Exhibiting human remains in the museum: A discussion of ethics and museum practice. *Columbian College of Arts and Sciences of the The George Washington University, Museum Studies* 270. Final Research Paper. [programs.columbian.gwu.edu/museumstudies/sites/default/files/u6/Exhibiting\\_Human\\_Remains.pdf](http://programs.columbian.gwu.edu/museumstudies/sites/default/files/u6/Exhibiting_Human_Remains.pdf) (accessed January 31, 2012).
- APPLEBY, J. 1996. Human curiosities and the Royal Society, 1699-1751. *Notes and records of the Royal Society of London* 50, 1: 13–27.
- BALLESTRIERO, R. 2010. Review. Anatomical models and wax Venuses: Art masterpieces or scientific craft works? *Journal of Anatomy* 216, 2: 223–234.
- BENSAUDE-VINCENT, B. & C. BLONDEL (eds.) 2008. *Science and spectacle in the European Enlightenment*. Aldershot: Ashgate.
- Blackwell, M. (ed.) 2007. *The secret life of things: Animals, objects, and it-narratives in eighteenth-century England*. Lewisburg: Bucknell University Press.
- BONNER, T. N. 1995. *Becoming a physician: Medical education in Britain, France, Germany, and the United States, 1750–1945*. New York: Oxford University Press.
- BUKLIJAS, T. 2010. Public Anatomies in Fin-de-Siècle Vienna. *Medicine Studies* 2, 1: 71–92.
- CASSELL, J. 2005. *Life and death in intensive care*. Philadelphia: Temple University Press.
- CHAPLIN, S. 2008. Nature dissected, or dissection naturalized? The case of John Hunter's museum. *Museum and society* 6, 2: 135–151.
- CHOUANT, L. 1852. *History and bibliography of anatomic illustration in its relation to anatomic sciences and the graphic arts*. Chicago: The University of Chicago Press.
- COOK, H. J. 2002. Times' bodies: crafting the preparation and preservation of naturalia. In: *Merchants and marvels: Commerce and representation of nature in Early Modern Europe*, ed. P. SMITH & P. FINDLEN (New York: Routledge), 223–247.
- COOKE, R. A. 2006. *Scientific medicine in the Twentieth Century*. Augusta, GA: United States and Canadian Academy of Pathology.
- COOKE, R. A. 2010. A moulage museum is not just a museum. Wax models as teaching instruments. *Virchows Archiv* 457, 5: 513–520.
- CORRADINI, E. 2012. POMUI. The web portal of Italian university museums. *University Museums and Collections Journal* 4: 77–81. [edoc.hu-berlin.de/umaci/2011/corradini-77/PDF/corradini.pdf](http://edoc.hu-berlin.de/umaci/2011/corradini-77/PDF/corradini.pdf) (accessed January 31, 2012).

- CREGAN, K. 2009. *The theatre of the body: staging death and embodying life in early-modern London*. Turnhout: Brepols Publishers.
- CREGAN, K. 2010. Teaching the anatomical body in seventeenth-century London. *Medicine Studies* 2, 1: 21–36.
- CRIGNON-DE OLIVEIRA C. & M. GAILLE-NIKODIMOV 2004. *À qui appartient le corps humain? Médecine, politique et droit*. Paris: Belles Lettres.
- CUNNINGHAM, A. 1997. *The anatomical renaissance: The resurrection of the anatomical projects of the ancients*. Aldershot: Scolar Press.
- DASTON, L. & P. GALISON 1992. The image of objectivity. *Representation* 40. Special Issue: Seeing science: 81–128.
- DEGUEURCE C. & P. ADDS 2010. The celebrated Écorchés of Honoré Fragonard, Part 1: The classical techniques of preparation of dry anatomical specimens in the 18th century. *Clinical Anatomy* 23, 3: 249–257.
- EALLES, N. 1974. The history of the lymphatic system, with special reference to the Hunter-Monro controversy. *Journal of the history of medicine and allied sciences* 29, 3: 280–294.
- FERRARI, G. 1987. Public anatomy lessons and the carnival: The Anatomy theatre of Bologna. *Past and Present* 117, 1: 57–107.
- FRANCIS, N. R. & W. LEWIS 2001. What price dissection? Dissection literally dissected. *Journal of Medical Ethics: Medical Humanities* 27, 1: 2–9.
- FRENCH, R.K. 1999. *Dissection and vivisection in the European Renaissance*. Aldershot: Ashgate.
- GUERRINI, A. 2004. Anatomists and entrepreneurs in early eighteenth-century London. *Journal of the history of medicine and allied sciences* 59, 2: 219–239.
- GUERRINI A. 2009. Theatrical anatomy: Duverney in Paris, 1670–1720. *Endeavour* 33, 1: 7–11.
- HACKETT, C. J. 1951. List of medical museums of Great Britain (1949–50). *British Medical Journal* 1: 1380–1383.
- HAYES, B. 2008. *The anatomist. A true story of Gray's anatomy*. Melbourne: Scribe Publications.
- HILDEBRANDT, S. 2010. Lessons to be learned from the history of anatomical teaching in the United States: the example of the University of Michigan. *Anatomical sciences education* 3, 4: 202–212.
- HORSLEY, P. 2010. Teaching the anatomy of death: a dying art? *Medicine studies* 2, 1: 1–19.
- HUNTER, W. 1784. *Two introductory lectures: Delivered by William Hunter, to his last course of anatomical lectures*. London: J. Johnson.
- JORDANOVA L. 1999. *Nature displayed: Gender, science, and medicine, 1760-1820*. London: Longman.
- KEMP, M. 2004. Il mio bell'ingegno. L'anatomia visiva. In: *Il teatro dei corpi, le pitture colorate di anatomia di Fabrici d'Acquapendente*, eds. M. RIPPA BONATI & J. PARDO-TOMÀ (Milano: Mediamed), 83–107.
- KEMP, M. & M. WALLACE 2000. *Spectacular bodies: The art and science of the human body from Leonardo to now*. London: Jointly published by the Hayward Gallery and the University of California Press.
- KNOX, F.J. 1836. *The anatomist's instructor, and museum companion being practical directions for the formation and subsequent management of anatomical museums*. Edinburgh: Adam & Charles Black.
- LATOUR, B. 1990. Drawing things together. In: *Representations in scientific practice*, ed. M. LYNCH & S. WOOLGAR (Cambridge: MIT Press), 20–69.
- LAWRENCE, S. 1993. Educating the senses: Students, teachers and medical rhetoric in eighteenth-century London. In: *Medicine and the five senses*, eds. W. BYNUM & R. PORTER (Cambridge: Cambridge University Press), 154–78.
- MANDRESSI, R. 2003. *Le regard de l'anatomiste: dissection et invention du corps en Occident*. Paris: Editions du Seuil.

- MARGÓCSY, D. 2011. A museum of wonders or a cemetery of corpses? The commercial exchange of anatomical collections in early modern Netherlands. In: *Silent messengers. The circulation of material objects of knowledge in the early modern low countries*, eds. S. DUPRÉ & C. LÜTHY (Berlin: LIT Verlag), 185–215.
- MARKOVIĆ, D. & B. MARKOVIĆ-ŽIVKOVIĆ 2010. Development of anatomical models – chronology. *Acta Medica Mediana* 49, 2: 56–62.
- MARREEZ Y.M., L.N. WILLEMS & M.R. WELLS 2010. The role of medical museums in contemporary medical education. *Anatomical Sciences Education* 3, 5: 249–253.
- MITCHELL, P. D., C. BOSTON, A. T. CHAMBERLAIN, S. CHAPLIN, V. CHAUHAN, J. EVANS, L. FOWLER, N. POWERS, D. WALKER, H. WEBB & A. WITKIN 2011. Review. The study of anatomy in England from 1700 to the early 20th century. *Journal of Anatomy* 219, 2: 91–99.
- MUSAJO SOMMA, L. 2007. *In cera. Anatomia e medicina nel XVIII secolo*. Bari: Progedit.
- NESI, G., R. SANTI & G.L. TADDEI 2009. Art and the teaching of pathological anatomy at the University of Florence since the nineteenth century. *Virchows archiv* 455, 1: 15–19.
- OLRY, R. 1997. Medieval neuroanatomy: The text of Mondino dei Luzzi and the plates of Guido da Vigevano. *Journal of the history of neurosciences* 6, 2: 113–123.
- OLRY R. 2000. Wax, wooden, ivory, cardboard, bronze, fabric, plaster, rubber and plastic anatomical models: Praiseworthy precursors of plastinated specimens. *Journal of the international society for plastination* 15, 1: 30–35.
- PARK, K. 1994. The criminal and the saintly body: Autopsy and dissection in renaissance Italy. *Renaissance quarterly* 47, 1: 1–33.
- PARK, K. 1995. The life of the corpse: Division and dissection in late medieval Europe. *Journal of the history of medicine and allied sciences* 50, 1: 111–132.
- PATTISON, S. 2007. *Seeing things: Deepening relationships with visual artefacts*. London: SCM Press.
- PAYNE, L. 2007. *With words and knives: Learning medical dispassion in early modern England*. Aldershot: Ashgate.
- PÉREZ-PÉREZ, N. 2010. Medicine and science in a new medical-surgical context: The Royal College of Surgery of Barcelona (1760-1843). *Medicine Studies* 2, 1: 37–48.
- PHILLIPS, C. & M. COOKE 2011. Supporting the education of surgical trainees. The Wellcome Museum of Anatomy and Pathology. *Bulletin of the Royal College of Surgeons of England* 93, 1: 34–35.
- POGGESI, M. 2001. The wax figure in “La Specola” in Florence. In: *Encyclopedia Anatomica: Museo La Specola Florence* (Köln: Taschen).
- POLE, T. 1790. *The anatomical instructor; or, an illustration of the modern and most approved methods of preparing and preserving the different parts of the human body, and of quadrupeds. By injection, corrosion, maceration, distention, articulation, modelling, & c.* London: Couchman and Fry.
- PORTER, R. 1995. *The Western medical tradition, 800 BC to AD 1800*. Cambridge: Cambridge University Press.
- READ, A. 1638. *The manual of the anatomy or dissection of the body of man: containing the enumeration and description of the parts of the same which usually are shewn in the publick anatomical exercises*. London: F. Constable.
- RICHARDSON, R. 2001. *Death, dissection and the destitute*. Chicago: University of Chicago Press.
- RIVA, A., G. CONTI, P. SOLINAS & F. LOY 2009. The evolution of anatomical illustration and wax modelling in Italy from the 16th to early 19th centuries. *Journal of anatomy* 216, 2: 209–22.
- ROBERTS, K. B. & J. D. W. TOMLINSON 1992. *The fabric of the body: European traditions of anatomical illustration*. Oxford: Clarendon Press.
- RUGGERI, A. & L. PONTONI 2005. L'insegnamento dell'anatomia nelle sedi universitarie. In: *Le arti della salute*, eds. G. CAMPANILI, M. GUARINO & G. LIPPI (Milano: Skira), 457–469.

- SAPPOL, M. 2002. *A traffic in dead bodies: Anatomy and embodied social identity in Nineteenth-Century America*. Princeton: Princeton University Press.
- SCHNALKE, T. 2004. Casting skin: Meanings for doctors, artists, and patients. In: *Models: The third dimension of science*, eds. S. DE CHADAREVIAN & N. HOPWOOD (Stanford: Stanford University Press), 207–221.
- SECORD, J.A. 2004. Knowledge in transit. *Isis* 95, 4: 654–672.
- VESALIUS, A. 1543. *De Humani Corporis Fabrica Libri Septem*. Basel: J Oporini.
- WALTER, T. 2004. Plastination for display: A new way to dispose of the dead. *Journal of the Royal Anthropological Institute* 10, 3: 603–627.
- WOLF, S.A. 2010. *Narratives of anatomy: arranging identity and regulating visibility in the nineteenth century anatomical museum*. Undergraduate Honors Theses. Paper 3. [digitalarchive.gsu.edu/cgi/viewcontent.cgi?article=1003&context=honors\\_theses](http://digitalarchive.gsu.edu/cgi/viewcontent.cgi?article=1003&context=honors_theses) (accessed January 31, 2012).
- WOLFE C. T. & O. GAL (eds.) 2010. *The body as object and instrument of knowledge. Embodied empiricism in early modern science*. Dordrecht, New York: Springer.

### Contact

Elena Corradini

Professor of Museology

Address: University of Modena and Reggio Emilia, Faculty of Arts and Humanities, Largo

Sant'Eufemia 19, Modena, 41121, Italy

E-mail: elena.corradini(at)unimore.it; anatomicalcollections(at)unimore.it

Marek Bukowski

Pediatric Surgeon

Address: Museum of Medical University of Gdańsk, Al. Zwycięstwa 41/42, Gdańsk, 80-210, Poland

E-mail: marekbukowski(at)poczta.onet.pl

## APPENDIX – The online survey

### A. General information

1. Filling date
2. Name and e-mail to contact

### B. History and type of collection

3. Type of collection
  - Anatomical
  - Pathological
  - Mix
  - Other (please specify)
4. Date of foundation
5. Founder's name
6. Primary venue of collection  
(separate cabinet in university, palace or court, part of anatomical theatre)
7. Collections providers and rulers

### C. Status of research connected with the collections

8. Researchers connected with the collections
  - Teacher
  - Schools and universities
  - Followers
  - Collaborators
  - Main fields of interest in anatomy
  - Impact of collection and anatomy
  - Publication
  - Journeys

### D. Objects of the collections

9. Famous objects
10. Description of sort of objects
  - Natural bone models (complete skeletons or parts)
  - Wooden models
  - Clay models
  - Ivory models
  - Bronze models
  - Wax models
  - Dried models
  - Papier-machés models
  - Petrified models
  - Objects in glass containers
  - Plastinated models
  - Schemes and illustrations: printings, drawings, paintings

### E. Conservation

11. Conservation strategy for the objects
  - To handle
  - To clean
  - To repair

- To transport
- To store
- To exhibit

12. Instruments for microclimate

- To measure
- To record
- To check

13. Instruments to check light radiations

14. Former conservation

**F. Documentation**

15. Documentation

- Databases of objects
- Databases of publications
- Websites

**G. Exhibitions of historical specimens (title, venue, date, author, organizer)**

16. Past exhibitions

17. Present exhibitions

**H. Accessibility**

18. The collection is accessible to

- Students
- Researchers
- Doctors/Nurses/PAMs
- General public/tourists

**I. Contemporary anatomists and fields of interest**

19. Followers

- Anatomists names
- Name of collections
- Universities

20. Contemporary main fields of research