

# “Luigi Rolando” Museum of Human Anatomy University of Turin



VISITOR'S GUIDE

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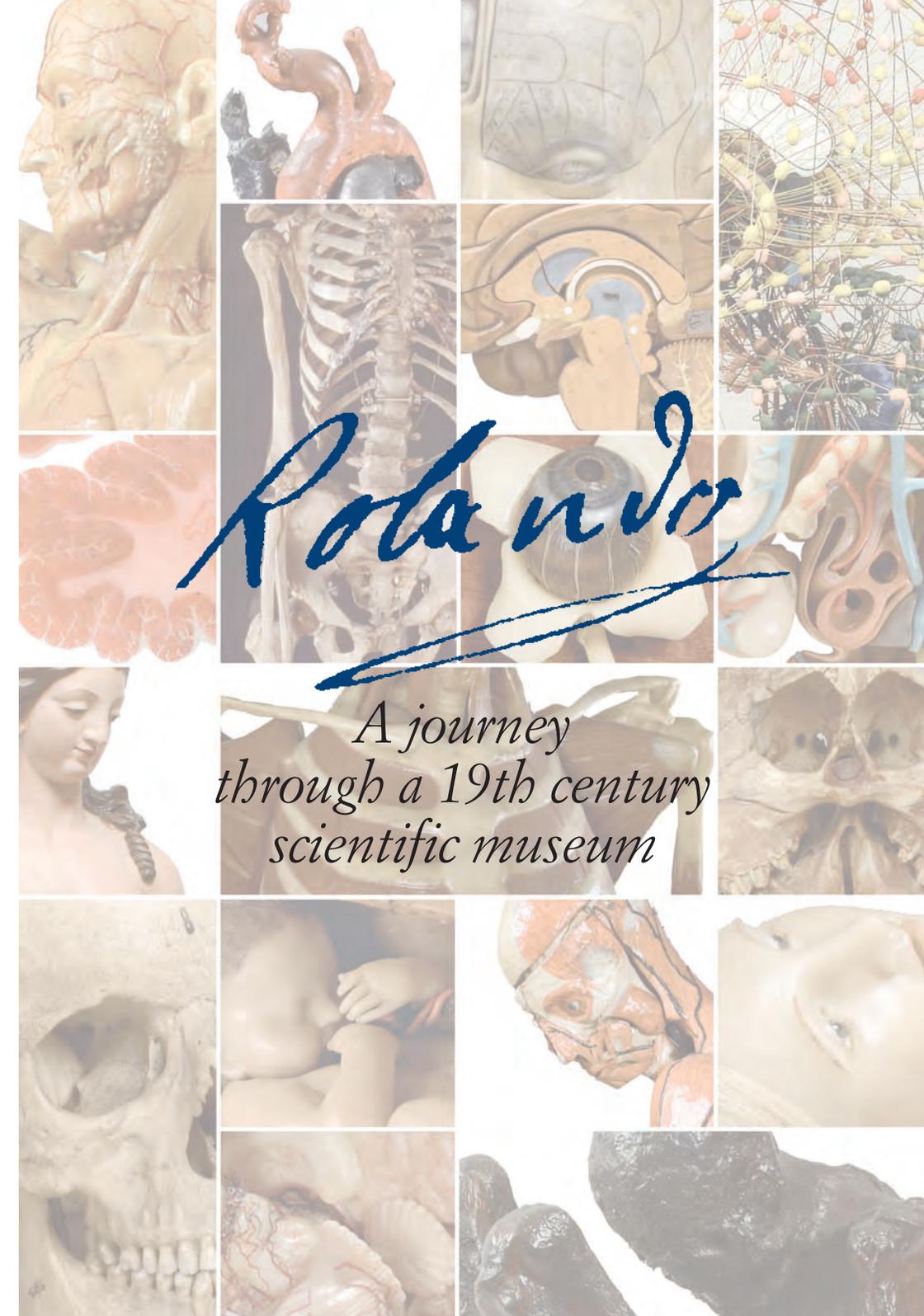
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# Rolando

*A journey  
through a 19th century  
scientific museum*

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*Cover:*

The "Auzoux man", 1830. "Luigi Rolando" Museum of Human Anatomy University of Turin.



**“Luigi Rolando”  
Museum of Human Anatomy  
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*Edited by*

Giacomo Giacobini, Cristina Cilli, Giancarla Malerba

VISITOR'S GUIDE



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## Foreword

*The purpose of this guide is to accompany visitors on their journey through the collection of the Museum of Human Anatomy, helping them to discover its most interesting specimens and the stories behind them.*

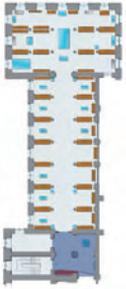
*The origins of the museum date to 1739, when Gian Battista Bianchi, Professor of Anatomy, developed the Project for the Museum of the Royal University, with the approval of King Charles Emmanuel III. In 1898, after several relocations, the anatomy collections were arranged in their current premises, in monumental halls specially built to house them.*

*Since the museum set-up remained largely unchanged throughout the 20th century, visitors today have the opportunity to experience an exceptional example of a 19th century scientific museum, left practically untouched and recently restored to enhance this aspect. The three-year restoration (2003-2006) allowed the museum to reopen its doors to the public, making an extraordinary scientific patrimony available to all.*

*The museum showcases contain models (made of wax and other materials) and anatomical preparations (dry or in liquid). These categories of objects correspond to two phases of anatomical museology: “artificial” anatomy, whose finest period was between the end of the 18th century and the first half of the 19th, and “natural” anatomy, which developed subsequently.*

*The showcases are crowded with specimens and are almost entirely devoid of descriptive texts, as was customary in 19th century museums. The choice to maintain the atmosphere of the time, unaltered by invasive communication interventions, has inevitably hindered the possibility of conveying scientific information. Interventions have been restricted to the inclusion of three video screens which narrate stories related to the history of the museum collections and the Turinese anatomical school.*





## The atrium

A showcase in the museum's atrium contains specimens of collections dating to the late 18th and early 19th century which reveal a special regard for exotic, curious or rare objects. They include the wax model of a "giant snail" and the shark jaws depicted here, as well as a "monstrous double calf skull", the "scaly skin of an ostrich leg", the "head and foot of an Egyptian mummy", a trichobezoar and a phytobezoar, a mastodon tooth ...





1791-1876

TESTA E COLLO

1791-1876





## **The first hall. A “cathedral of science”**

You now find yourself in Turin’s only science museum still with 19th century rooms and exhibits. The monumental architecture and the paintings enhance the celebratory tone of the hall, underlining the importance attributed to science in late 19th century Turin which, according to Norberto Bobbio, was the capital of Italian Positivism.



When entering the museum, one has the sensation of being in a “cathedral of science”, with a series of granite columns sustaining high cross vaults and dividing the space into a nave and two aisles. The nave is free while the aisles accommodate the showcases, arranged in such a way as to create a succession of “chapels”. Overlooking the exhibition area is a sequence of lunettes with oil paintings on canvas depicting important figures of the world of anatomy and natural sciences.

The visit to the museum highlights aspects that go beyond the mere scientific importance of the exhibited specimens, involving also their historical, architectural and artistic significance.





## The portrait gallery

The two halls of the museum are adorned with eleven lunettes containing oil paintings on canvas made by the painter Pasquale Barone, a native of Pavia, between the end of the 19th century and the beginning of the 20th. The portrait gallery celebrates illustrious figures in the history of anatomy and other scientific disciplines, such as Galen of Pergamon, Andreas Vesalius, Realdo Colombo, Marcello Malpighi, Luigi Rolando, Karl Ernst von Baer, Johannes Peter Müller, Theodor Schwann (together with Matthias Jakob Schleiden), Charles Darwin, Giulio Bizzozero and Albert von Koelliker.





**Andreas Vesalius** (Andries van Wesel)  
(Brussels 1514 - Zakynthos 1564)

After studying medicine in Paris, Andreas Vesalius moved to Venice in 1537 and then to Padua, where he taught at the university until 1543. Contrary to the tradition of Galen's ancient school, Vesalius personally dissected human cadavers.

During the years spent in Padua, he wrote his great work on anatomy *De Humani Corporis Fabrica*, beautifully illustrated by one of Titian's pupils, Jan Steven van Calcar, which marks the beginning of modern anatomical research.

He died in adventurous circumstances following a shipwreck on his return from a pilgrimage to the Holy Land.



### **Marcello Malpighi**

(Crevalcore 1628 - Rome 1694)

Marcello Malpighi, recognized as one of the founding fathers of histology, encountered fierce opposition from Bolognese medical circles influenced by the tradition of Galen because of his innovative ideas in the field of experimental medicine. In 1656 the Grand Duke of Tuscany Ferdinando II created a professorship of theoretical medicine for him at the University of Pisa. He applied a new research method based on macroscopic and microscopic observations to his fundamental studies on the lung. He was the first to describe the renal corpuscles, which are named after him.

Some of his many writings were collected in *Opera Posthuma* published in London in 1697.



### **Giulio Bizzozero**

(Varese 1846 - Turin 1901)

Giulio Bizzozero was an “enfant prodige” of science: at the early age of 16, as a medical student in Pavia, he was already publishing the results of his scientific research. After his graduation at the age of 20 and a brief period of activity in Pavia, the 26-year-old Bizzozero was appointed Professor of Pathology in Turin. He was responsible for the discovery of platelets and their role in blood coagulation, as well as important studies in the field of General Pathology. In the last few decades of the 19th century, his work proved essential for the methodological advancement of scientific research in Turin.

Bizzozero invented the instrument he is holding in his hand, called haemochromocytometer, to measure the amount of haemoglobin in the blood.



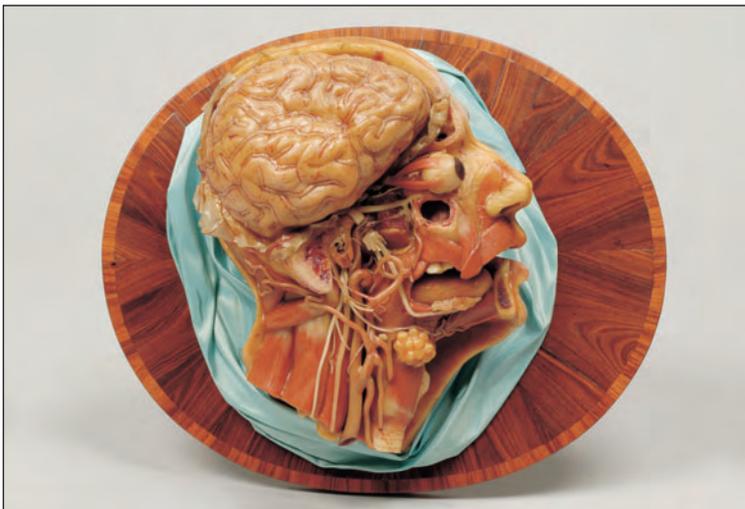
## Wax models and “artificial” anatomy

The museum’s recently restored anatomical wax models represent one of the richest collections of its kind, a patrimony of great historical, scientific and artistic interest.

Between the end of the 17th century and the middle of the 19th, problems related to the preservation of cadavers and opposition to their use for scientific purposes from the clergy and governors favoured the development of so-called “artificial” anatomy. Models in wax and other materials (wood, plaster, papier-mâché) were increasingly used for teaching purposes.

Anatomical wax modelling flourished with the schools of Bologna and Florence, whose works were also sent abroad.

The museum’s collection of anatomical wax models consists of over 200 pieces distributed in many showcases. Some of them date to the second half of the 18th century and several were





made in Turin. But it is only from 1815 onward that Turin saw the creation of a particularly active “Waxworks Laboratory” on the initiative of the anatomist Luigi Rolando, who had learned the technique of anatomical wax modelling in Florence. The Turinese production of this period was due to Luigi Cantù and his son Giuseppe, who followed the “Florentine technique” in which the bones were also made of wax, as opposed to the Bolognese technique which made use of real bones. Around 1830, wax models were purchased from workshops in Florence and Naples.

During the second half of the 19th century, anatomical wax modelling lost importance as new preparation and conservation techniques allowed the display of “natural” anatomical preparations. Hence wax models were considered obsolete from a scientific and educational point of view.

## Dry preparations and “natural” anatomy

In the second half of the 19th century, new preparation techniques allowed the display of “natural” anatomical preparations obtained from organs or body parts stored dry or in liquid.

The museum’s showcases contain numerous dry preparations, in many cases partially coloured. In the illustrated specimen of the hand, the nerves were coloured white and the arteries were injected with red wax.



In some showcases this type of preparation seems very repetitive. However, careful observation reveals differences in the branching of blood vessels and nerves, the subject of studies on individual variability, a topic of practical interest for clinical applications.

The museum houses a rich collection of skeletons of human foetuses at various stages of development, some of which are protected under glass bells. Their very delicate preparation

retained the articulation of the bones thanks to the dry preservation of the joint structures. The series on display shows the progression of the ossification process from the third month of gestation to birth and beyond.

The rich collection of dry brains, exhibited in the second hall of the museum, provides an example of a special preservation technique developed by the Turinese anatomical school in the second half of the 19th century.

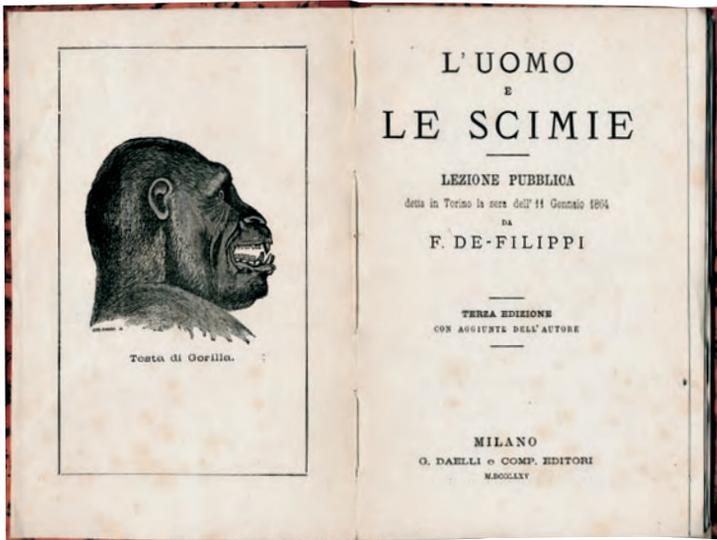


## Darwinism in Turin



*Filippo De Filippi*

Darwin's ideas were presented for the first time in Italy by the zoologist Filippo De Filippi in a lecture given in Turin on 11 January 1864 entitled *L'Uomo e le scimie* (Man and the Apes). In the years that followed, Michele Lessona's scientific endeavours and his efforts to spread scientific knowledge, paralleled by UTET's editorial initiatives, made Turin the main centre for the diffusion of evolutionary theory in Italy. In the last decades of the century, Turin's scientific milieu was greatly influenced by Darwin's ideas.



Some of the museum's collections reflect the interest in primatology and palaeoanthropology by the anatomical school and the Academy of Medicine, for example those of primate skulls and "ancient" human skulls. The latter includes prehistoric, Phoenician, Greek, Etruscan and Roman specimens.



### **Charles Robert Darwin**

(Shrewsbury 1809 - Down 1882)

The presence of Charles Darwin's portrait in a gallery of individuals connected to the history of anatomy is due to the influence his ideas had on the research carried out by the Turinese anatomical school in the fields of anthropology and primatology. His two books *On the Origin of Species* of 1859 and *The Descent of Man* of 1871 constitute the basis of his evolutionary theory.





### **Luigi Rolando**

(Turin 1773 - 1831)

The lunette depicting Luigi Rolando, the only one in the second hall of the museum, indicates his importance in the development of modern research on the brain.

Rolando was a pupil of Gianfrancesco Cigna and during the Napoleonic period, when the Savoy Court took refuge in Sardinia, he was a professor in the University of Sassari, where he published his fundamental work *Saggio sopra la vera struttura del cervello* (*On the true structure of the brain*) in 1809. With the Restoration and the return of the Savoy monarchy to Piedmont, he was appointed Professor of Anatomy in Turin, where he expanded the collections of the Museum of Anatomy. On account of his experience with the Florentine school of wax modelling, he trained the technicians who created many of the anatomical wax models now on display in the museum. Some nervous system structures are named after him, such as the “fissure of Rolando” (central sulcus) and the “substantia gelatinosa of Rolando”.



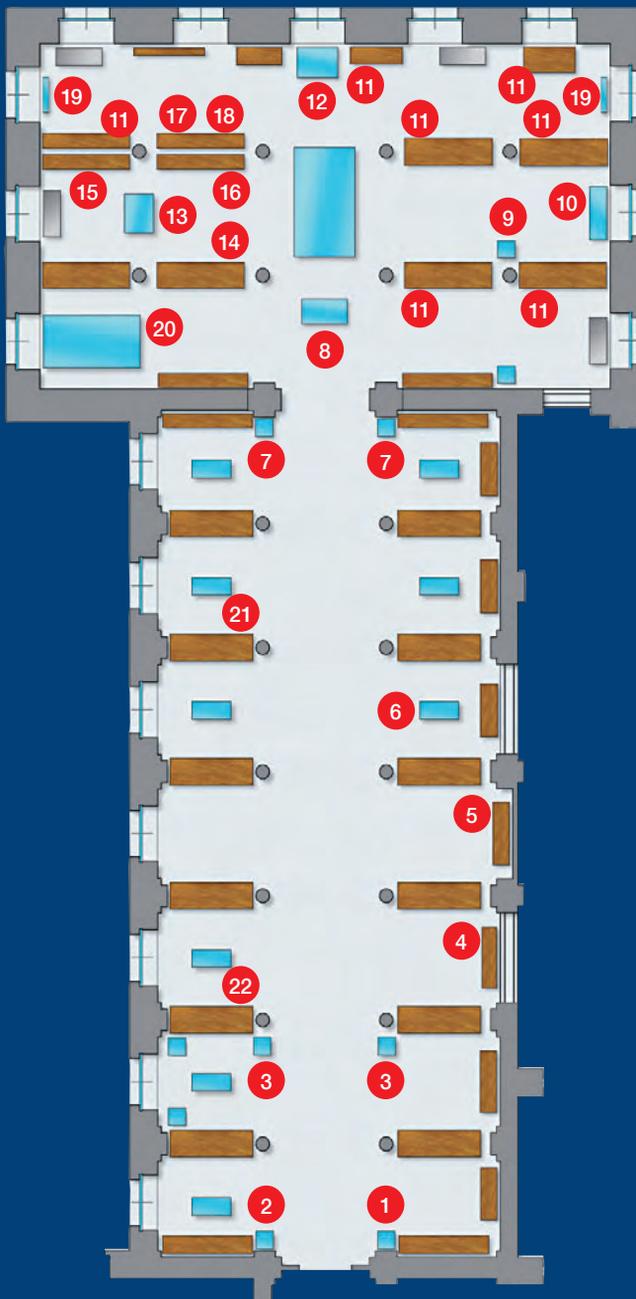




## Twenty-two wonders of the museum

The red circles with numbers on some of the showcases mark the most interesting objects and collections in the museum.

- 1 The pregnant woman “only with the womb opened”
- 2 The 18th century “écorché”
- 3 The skeletons of a giant and a dwarf
- 4 Ziegler’s embryos
- 5 The microscopic slide cabinet
- 6 The wax of discord
- 7 The two Florentine “écorchés”
- 8 The “Auzoux man”
- 9 The model of the brain in wood and ivory
- 10 Brains for a cathedral of science
- 11 Dry brain specimens
- 12 The phantasm of a brain
- 13 The skeleton of Carlo Giacomini
- 14 Two famous microscopes
- 15 The craniological collection
- 16 The phrenological collection
- 17 “Baby chimpanzee”
- 18 The first Etruscan cranium and Italy’s first human fossil
- 19 A large atlas
- 20 Foetal development and pregnancy
- 21 Two South American mummies
- 22 The heart and the aortic arch



# 1

## The pregnant woman “only with the womb opened”



The full-scale plaster statue “depicting a woman ... six to seven months pregnant only with the womb opened” is one of the few objects in the museum to have been originally cited in the *Project for the Museum of the Royal University of 1739*.

The position of the statue on the pedestal and its posture suggest that it was accompanied by “a small child situated below the left hand of the aforesaid pregnant woman”, referred to in the same document but now missing.





# 2

## The 18th century “écorché” (“flayed man”)

On this topic see also

7 The two Florentine “écorchés”



This anatomical wax statue was based on one of the two wooden “écorchés” supporting the canopy over the professor’s seat in the ancient Anatomical Theatre of the Archiginnasio in Bologna. Those works of art, created by Ercole Lelli in 1734, are renowned throughout the world.

The statue depicts a man in a natural pose, a recurring feature of 18th century anatomical wax models. The various muscle groups are contracted or relaxed according to the position of the different parts of the body.

During the complex restoration of the statue, which presented numerous breakages and broad detachments, it was possible to identify how it was made. The statue consists of a plaster and iron wire framework covered with several layers of wax.





# 3

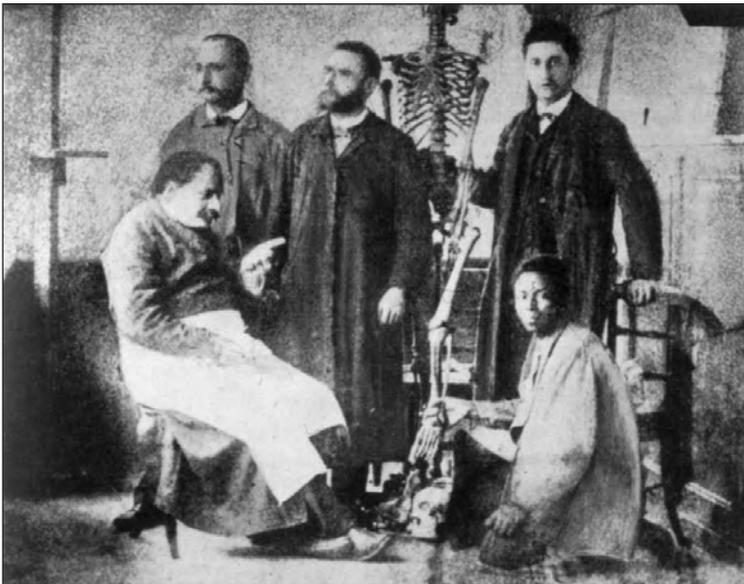
## The skeletons of a giant and a dwarf



Displayed in two showcases opposite one another, the skeletons of a giant and a dwarf symbolize the interest in human variability which was an important research topic of the anatomical and anthropological schools of the 19th century.

The skeleton of the giant was that of Giacomo Borghello, who was born in Novi Ligure in 1810 and died at the age of 19. He was 2.19 metres tall and had worked in a circus. His body was assigned to the museum by the Ministry of Public Education. The skeleton was exhibited in the “Anthropology Section” of the Italian National Exposition held in Turin in 1884.

Carlo Giacomini (seated) supervising the mounting of the giant’s skeleton (ca. 1880).



No archival information has been found regarding the dwarf's skeleton, which was prepared in the 19th century. It is an example of proportionate dwarfism, in which the individual retains the height and proportions of a child.



## **Gigantism and dwarfism**

*The growth of the skeleton is controlled by growth hormone (GH) produced by the pituitary gland situated at the base of the skull. This hormone is very important during childhood and adolescence. Its lack or excess during development can cause proportionate dwarfism or gigantism, respectively.*

# 4

## Ziegler's embryos

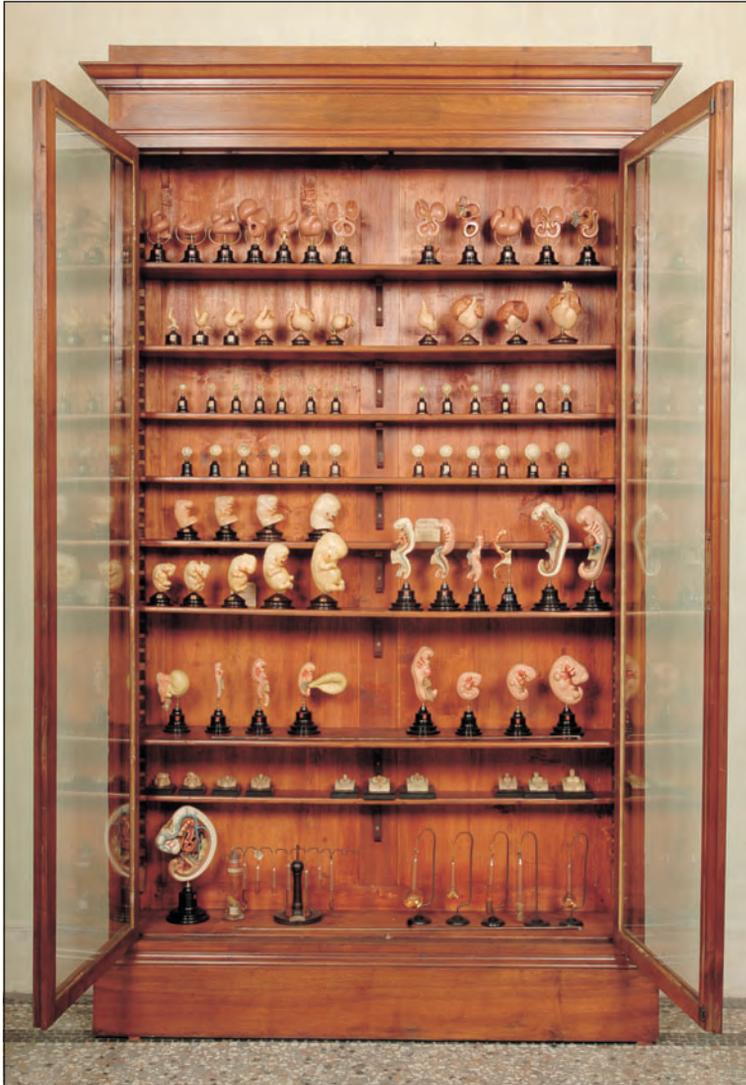
On this topic see also  
20 Foetal development and pregnancy



Between 1889 and 1893 the museum acquired a series of 82 oversized wax models of human embryology produced in Freiburg, Germany, by Adolf and Friedrich Ziegler, mainly under the guidance of the great embryologist Wilhelm His.

They are the oldest models accurately representing the development of the human embryo (beginning with the stage of egg fertilization). There are also models showing the development of isolated embryonic organs. Of particular interest is the series on the heart, whose development is complex and during which there may occur errors that lead to congenital cardiopathies.





## **Embryo and foetus**

*The product of conception is called the embryo up to the second month of gestation. During this period it acquires its definitive form and the main organs begin to take shape. From the beginning of the third month to the moment of birth, it is called the foetus. During the foetal period, the different organs gradually mature.*

# 5

## The microscopic slide cabinet (“istoteca”)

On this topic see also

- 10 Brains for a cathedral of science
- 13 The skeleton of Carlo Giacomini
- 14 Two famous microscopes



This valuable piece of furniture in eclectic neoclassical style, made of pear wood around 1880, is called “istoteca” in Italian. It is a cabinet for the storage of microscopic slides arranged in over 300 thin drawers.



The cabinet was created mainly to contain the large brain sections prepared by Carlo Giacomini. It also holds other microscopic preparations made for educational and research purposes between the 19th and 20th centuries, accompanied by a series of watercolours illustrating interesting details.



The Latin sentence engraved at the top of the cabinet, quoted from an 18th century publication by the Turinese anatomist Giovanni Fantoni, makes reference to the brain: *Exigua est capitis moles, sed immensa recondit misteria: omnis molecula divinum exhibet artificium.*

(The head is of small dimensions, yet it conceals immense mysteries: each molecule is an expression of divine power).



# 6

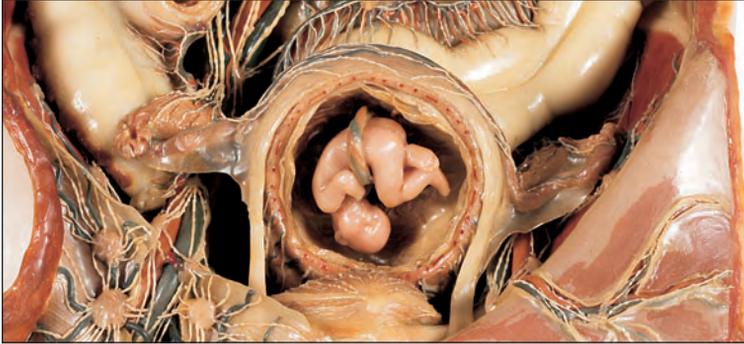
## The wax of discord

On this topic see also  
20 Foetal development and pregnancy



In 1830, Luigi Rolando, anatomy professor and physician to the Royal House, received considerable funding from King Charles Felix to purchase wax models “abroad” in order to enrich the collections of the museum, which would soon be opened to the public. Rolando commissioned a series of works to the Florentine modeller Francesco Calenzoli. When the models arrived in Turin, it was found that many of them presented errors in anatomical details, since no consultation with Florentine anatomy professors had been made prior to their construction. Legal action followed and only came to a conclusion in 1838. Some models were returned and others were modified.





This model is an example of an error that was never rectified. Judging by its size, the foetus is in the third month of gestation, yet its body proportions are those of a newborn baby.

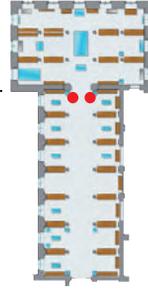


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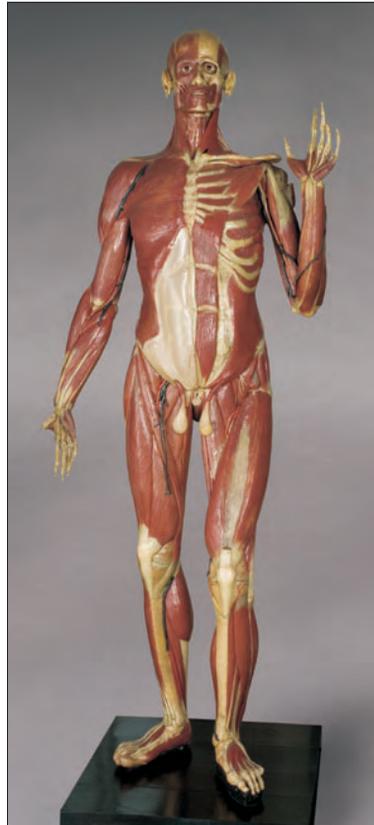
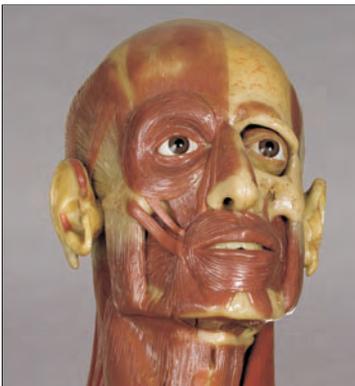
## The two Florentine “écorchés”

On this topic see also

2 The 18th century “écorché” (“flayed man”)



The two statues at the end of the first hall are examples of full-scale “écorchés”. They are listed in the 1858 inventory of anatomical preparations as pieces coming from Florence, yet there is evidence of their presence in the museum as early as 1830.



In anatomical schools and fine art academies the “écorché” or “skinned man” was used to illustrate the morphology of the muscles and their arrangement within the architecture of the body. One of the statues shows the superficial muscles while the other demonstrates the deeper layers and parts of the skeleton.



### **The Florentine school of wax modelling**

*The school began in 1766 when Felice Fontana set up an “anatomical wax modelling workshop” whose activity lasted for over a century. The rich collection in Florence’s “La Specola” Museum, the most important in the world, illustrates the success of this discipline, which reached its peak between the 18th and 19th centuries. In the models created according to the Florentine technique, all the parts are made of wax.*

# 8

## The “Auzoux man”

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In 1830 in Paris, Louis-Jérôme Auzoux began selling anatomical teaching models that he made in papier-mâché, a material not only easily mouldable and colourable but also durable and thus ideal for the manufacture of modular models.

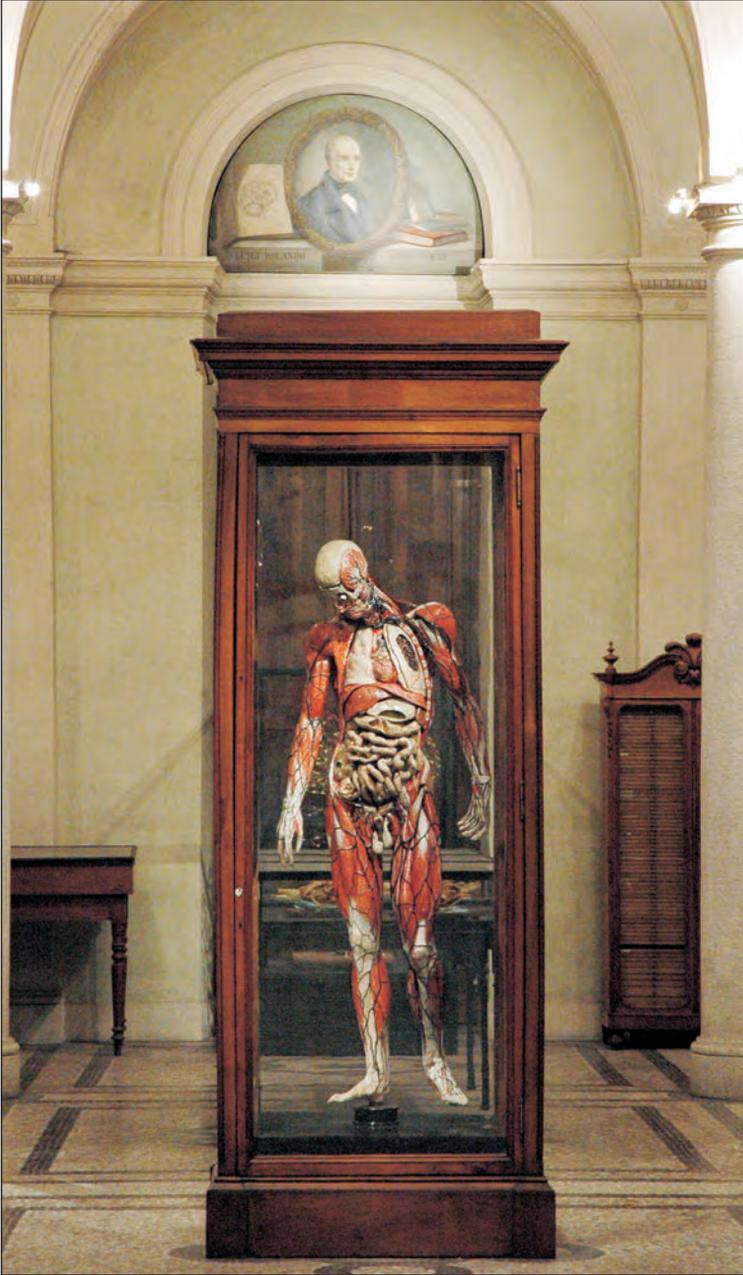
For more than a century, the mannequins and isolated organs made and sold by Auzoux’s firm were an effective teaching tool in universities and secondary schools throughout the world.

The “Auzoux man” in the museum is 1.70 metres tall and made up of 129 pieces illustrating 1115 anatomical details.

Bearing the inscription “Auzoux fecit Paris 1830” on the right thigh, the model was part of the first series sold and the oldest remaining example. It was bought at the exorbitant price of 3000 francs, which in those years was equivalent to half the yearly salary of France’s most important scientist, the palaeontologist Georges Cuvier, Director of the *Muséum National d’Histoire Naturelle* in Paris.

### The “Auzoux man” in literature

*Bouvard and Pécuchet, the protagonists of Gustave Flaubert’s homonymous novel (1881), decided they would study anatomy using one of Auzoux’s models. Flaubert describes the arrival of the box containing the mannequin: “...they carried it into the bakehouse. When the planks were unfastened, the straw fell away, the tissue paper slipped off and the mannequin appeared. It was brick-coloured, without hair, without skin, variegated with innumerable blue, red and white filaments. It did not look at all like a cadaver but rather a sort of plaything, very ugly, very clean, smelling of varnish. Then they opened the thorax and saw the two lungs looking like two sponges, the heart like a large egg a little to one side, the diaphragm, the kidneys, the whole mass of entrails.”*



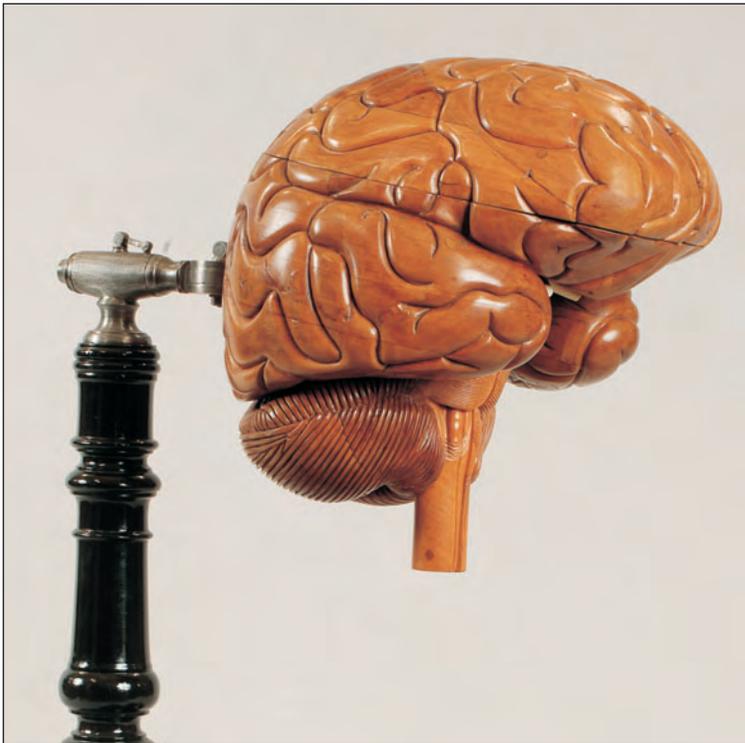
# 9

## The model of the brain in wood and ivory

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The acquisition of good macroscopic knowledge of the brain is demonstrated by a modular model enlarged eightfold, made of wood and ivory around 1860 by Carlo Bonino, a museum curator. The model fulfilled the desire of Cristoforo Tomati, then Director of the Anatomy Laboratory, to have an enlarged reproduction to be used for teaching purposes.



A publication dealing with this model reveals that it took Bonino five years to make it “during his autumn vacations and [...] his spare time”; its construction required “one attempt after another, and as much wood as a horse could possibly drag”.



This wood and ivory model of the brain is considered a unique specimen, with no counterpart in other museums. This has made it the protagonist of many exhibitions, both in Italy and abroad, dedicated to the brain and the relationship between art and science.

# 10

## Brains for a cathedral of science

On this topic see also

5 The microscopic slide cabinet (“istoteca”)

13 The skeleton of Carlo Giacomini

14 Two famous microscopes



The sensation of being in a “cathedral of science” is accentuated by a large glass pane set in front of a window and made up of 24 glass panels with painted brain sections. The frame in which the glass panels are mounted rests on a wooden structure which, by means of mirrors, allows the visitor to see real backlit brain sections, stained and mounted between glass panes.

These paintings celebrate the pioneering research on the microscopic anatomy of the brain conducted by Carlo Giacomini beginning in 1882.

Archival documents demonstrate that this showcase was made in 1897 by the famous Turinese cabinet-maker Negri in anticipation of the renovated museum set-up in the new premises then under construction.



### Brain and encephalon

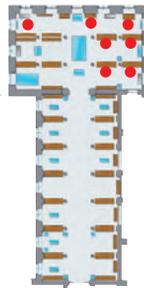
*In anatomical terms what is commonly called the brain corresponds to the encephalon, the part of the central nervous system contained inside the skull. The encephalon consists of the brain stem, the cerebellum and the cerebrum, composed of the two cerebral hemispheres.*



## Dry brain specimens

On this topic see also

**13** The skeleton of Carlo Giacomini



Four showcases in the Rolando Hall contain the collection of over 800 dry human brain specimens, which testify to the interest the Turinese anatomical school took in the late 19th century in individual variability of brain morphology (particularly the arrangement of the sulci and gyri, i.e. the grooves and ridges).

These specimens were preserved by means of a special technique devised in 1878 by Carlo Giacomini in order to handle the brain specimens more easily and to avoid the difficulties and costs of displaying liquid-preserved preparations.



### The recipe for brain preservation

*Published by Carlo Giacomini in 1878, the 'recipe' "makes the brain firm and easy to handle, without the loss of its essential characteristics". The treatment consists of two phases.*

*Phase one: hardening of the nervous tissue by immersion in zinc chloride (or in potassium bicarbonate, chromic acid, nitric acid or alcohol).*

*Phase two: immersion of the hardened brain in glycerine, "a substance that removes the moisture and does not evaporate", which maintains the preparation's characteristics unaltered in time.*

## **Criminal brains**

*This collection of brains was of great significance in Turin's scientific milieu towards the end of the 19th century, since it was here in Turin that Cesare Lombroso developed his theories on the "criminal man" and the relationship between deviant behaviours and anatomical anomalies. Giacomini demonstrated instead that the morphological variability of the brain can be very broad in "normal" individuals. The label "brains of criminals" simply means that they came from individuals who had died in jail and whose corpses were automatically sent to the Anatomical Institute. It also stimulates reflection on the contrast between Giacomini's ideas and those of Lombroso.*



# 12

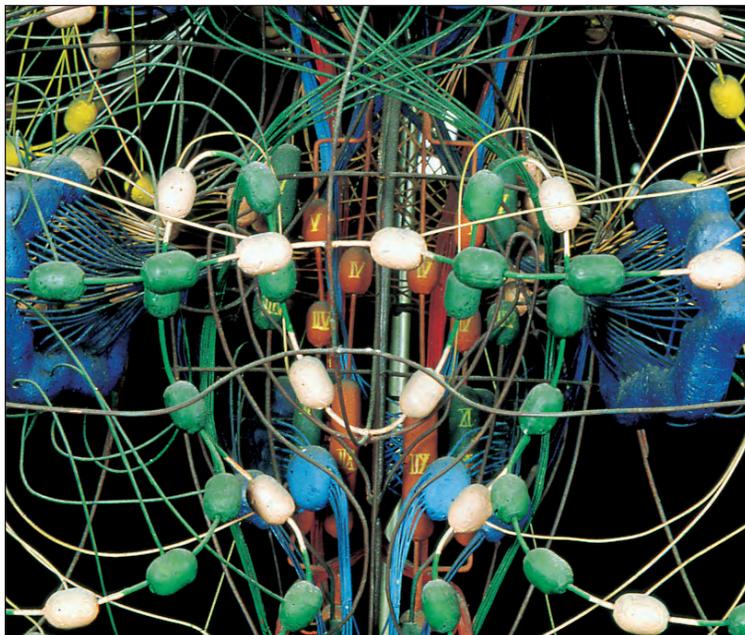
## The phantasm of a brain

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On display is a large model of the brain and spinal cord constructed with iron wire and small coloured cork balls by the Swiss artisan F.R. Büchi in 1883. In the sales invoice, still kept in the museum archive, the model is defined as the “phantasm” of a brain. This model is an expression of the increasing importance of research on functional neuroanatomy in the last decades of the 19th century.

New physiological and clinical discoveries would increasingly supplement the anatomical data and help reveal the significance of brain areas and neural pathways as well as their connections.





# 13

## The skeleton of Carlo Giacomini

On this topic see also

- 5 The microscopic slide cabinet (“istoteca”)
- 10 Brains for a cathedral of science
- 11 Dry brain specimens
- 14 Two famous microscopes



Carlo Giacomini was born in Sale di Alessandria in 1840 and graduated in Medicine and Surgery in Turin in 1864. He soon chose a career in anatomy, carrying out studies in various fields and developing original technical procedures for the study and conservation of organs. His research on the nervous system was particularly important.

In 1876 he was appointed Director of Turin’s Anatomical Institute and gave great impetus to the organization of the museum and its research collections.

He died in 1898, not long after the inauguration of the Anatomical Institute’s current premises. In respect of his will, his skeleton was prepared “and exhibited in the museum among the others”. It was placed in the Rolando Hall during a ceremony held on the first anniversary of his death. His brain is displayed between the skeleton’s feet, prepared according to the technique he developed.

### A Red Cross Volunteer

*The Museum conserves evidence of Carlo Giacomini’s activity as a member of Turin’s Ambulance Service, made up of volunteer doctors and nurses, which operated under the aegis of the Red Cross during the third War of Independence (1866) and the Franco-Prussian War (1870). The objects include surgical instruments, photographs, documents and publications.*

**From Carlo Giacomini's will (22 June 1898)**

*"[...] Not being a supporter of Cremation or of Cemeteries I wish for my bones to rest in the Anatomical Institute, where I have spent the best years of my youth and to which I have dedicated all of my efforts [...] I also wish for my brain to be preserved by means of my technique and placed in the Museum among the others [...]"*



## Two famous microscopes

On this topic see also

- 5 The microscopic slide cabinet (“istoteca”)
- 10 Brains for a cathedral of science
- 13 The skeleton of Carlo Giacomini



The museum houses a rich collection of historical microscopes used in the Turinese anatomical school from the late 18th century onward. About a hundred instruments are currently conserved in the storerooms.

The showcase contains two microscopes that belonged to Luigi Rolando and Carlo Giacomini, who made important contributions to neuroanatomical research.



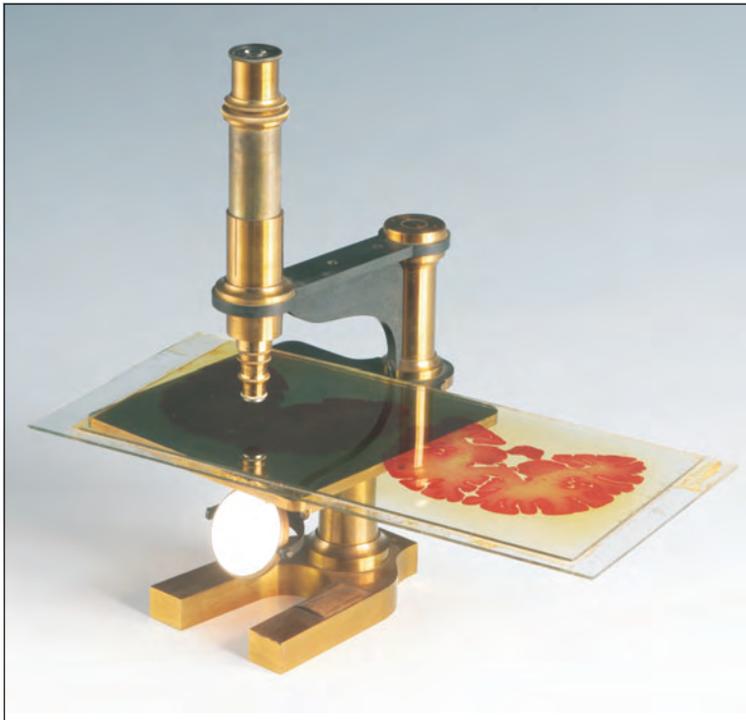
### Luigi Rolando's microscope

This instrument is a Cuff-style compound microscope, in its storage box with accessories, constructed around 1770. At the

beginning of the 19th century, Rolando, like other scientists of his time, sought to isolate the structures making up tissues. Between 1838 and 1839, Matthias Jakob Schleiden and Theodor Schwann identified the cell as the elementary unit of living organisms.

### **Carlo Giacomini's microscope**

This instrument was constructed, according to Giacomini's design, by the Koristka firm of Milan in 1883. It has a large stage to facilitate the observation of complete brain sections. On the basis of such observations, Giacomini published a series of important studies on microscopic neuroanatomy.



### **Brain sections**

*Through the use of carmine staining, the full sections of the brain prepared by Giacomini demonstrate the differences in the distribution of grey matter (dark red) and white matter (pink). These sections are still well preserved and nerve cells can be seen when they are examined under the microscope.*

# 15

## The craniological collection

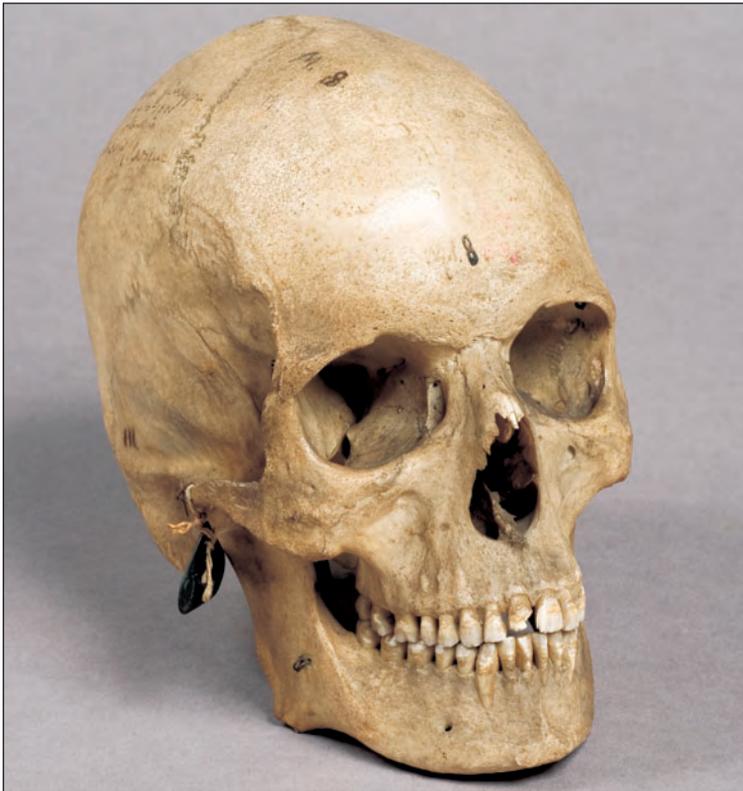
On this topic see also

- 18 The first Etruscan skull and Italy's first human fossil



One of the museum's showcases exhibits a sample of the very rich craniological collection, consisting of over a thousand skulls mainly prepared in the second half of the 19th century.

It is one of the most important collections in terms of the number of skulls of individuals of known age and sex, thus representing



a reference series of international renown. In 1913 the collection was enriched by the donation of the Craniology and Phrenology Museum of Turin's Academy of Medicine.



# 16

## The phrenological collection



Donated to the museum by the Academy of Medicine in 1913, the phrenological collection consists of the “phrenology heads” of Franz Gall, founder of the discipline, and of his pupil Johann Spurzheim, as well as plaster casts of the skulls and heads of famous individuals (artists, scientists, soldiers, politicians and criminals). Among these are Raphael, Napoleon Bonaparte, Talleyrand, Cavour, Goffredo Mameli, Vincenzo Bellini, and famous criminals such as Giorgio Orsolano, known as “the hyena of San Giorgio.”





*The Craniology and Phrenology Museum of Turin's Academy of Medicine and its curator Alberto Gamba (ca. 1900).*



### **“The hyena of San Giorgio”**

Giorgio Orsolano, also called “the hyena of San Giorgio”, was hanged in San Giorgio Canavese in 1835 for having raped, killed and cut up three girls from whose flesh he also allegedly made sausages. The script of Guido Ceronetti’s puppet show, entitled *The hyena of San Giorgio*, represents a freely adapted version of this famous 19th century sequence of events in Piedmont.

## **Phrenology**

*Phrenology was very popular in the first half of the 19th century and represented an initial attempt to anatomically locate specific functions of the brain. Phrenologists were convinced that the various “tendencies, moral qualities and intellectual faculties”, present in different degrees in each individual, corresponded to differential development of parts of the brain and thus of the shape of the skull. They thought that an external examination of the head could help identify “bumps” of benevolence, amateness (i.e. inclination towards physical affection), combativeness, poetry, self-esteem, etc. Analysis of the heads and skulls of famous people was the illusory scientific basis of the identification of these “bumps”. What the phrenologists created was a pseudoscience, although the idea of the localization of certain cerebral functions was an ingenious intuition. From 1861 onward, functions different from the ones they had imagined were indeed identified in specific areas of the brain (such as that of language).*

## “Baby chimpanzee”



The autopsy carried out in Turin's Anatomical Institute on a young chimpanzee belonging to the Beck menagerie, which had died in December 1888, was the first study of this kind in Italy. The showcase contains the materials used for the analysis and description of this individual: the wax cast of the face, the skull, the plaster endocranial cast and a box of photographic plates. In 1897 a pupil of Carlo Giacomini, Giuseppe Sperino, published a book entitled *Anatomia del cimpanzé (Anatomy of the chimpanzee)* based on the analysis of this specimen. The interest in primatology led to the creation of a collection of skulls of great apes (gorilla, orangutan, chimpanzee) and other primates.





Bambino  
Chimpanze'

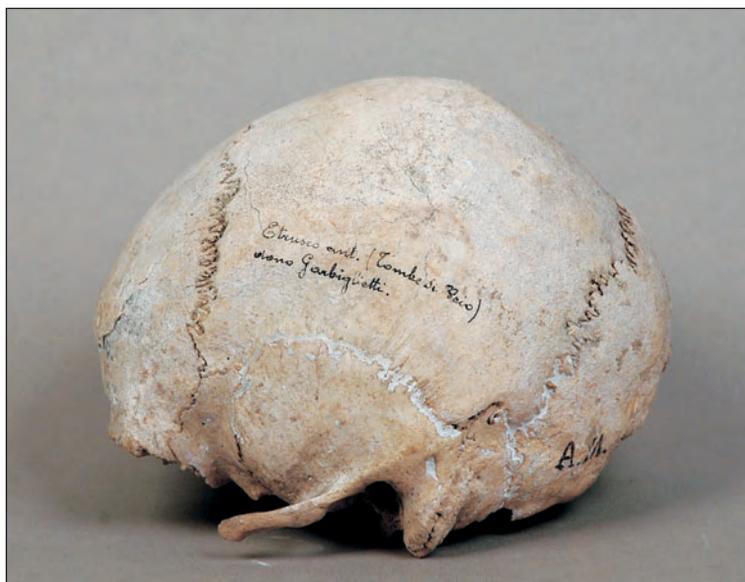
## The first Etruscan cranium and Italy's first human fossil

On this topic see also

15 The craniological collection



The collection of “ancient” skulls, originally belonging to Turin’s Academy of Medicine, includes specimens of great importance in the history of Italian anthropological research.



### The Etruscan cranium

One of them, from Veio, was the first Etruscan cranium to be the subject of scientific research and publication.

This specimen was found and studied by Antonio Garbiglietti. The discovery took place near Veio, on the estate of Queen Maria Christina of Sardinia, widow of King Charles Felix. In an 1841 article, Garbiglietti wrote: “The tomb [...] was opened on 7 May 1839 in the presence of Her Majesty the Queen [...] and other

persons, among whom myself [...]. The skull was the only part of the skeleton conserved, since the other bones had become so friable they were reduced to dust when touched.”



### **The Mezzana Corti cranium**

Another specimen, discovered at Mezzana Corti near Pavia, was the first human “fossil” described in Italy, even though it turned out to be a relatively recent specimen.

This specimen was discovered around 1865 during construction of the railway bridge over the river Po between Pavia and Voghera. Bartolomeo Gastaldi, who described it in 1866, considered it contemporary with the fossil remains of a Pleistocene deer (*Megaloceros*) found at the same site. In previous works, Gastaldi had declared that he was “little inclined to admit the existence of fossil man”, but following this discovery, he became convinced that “in the Po Valley, man lived at the same time as a species that no longer exists”. This is the first official statement in favour of the existence of fossil man in Italy, occurring at a time of intense debate about Darwin’s ideas.

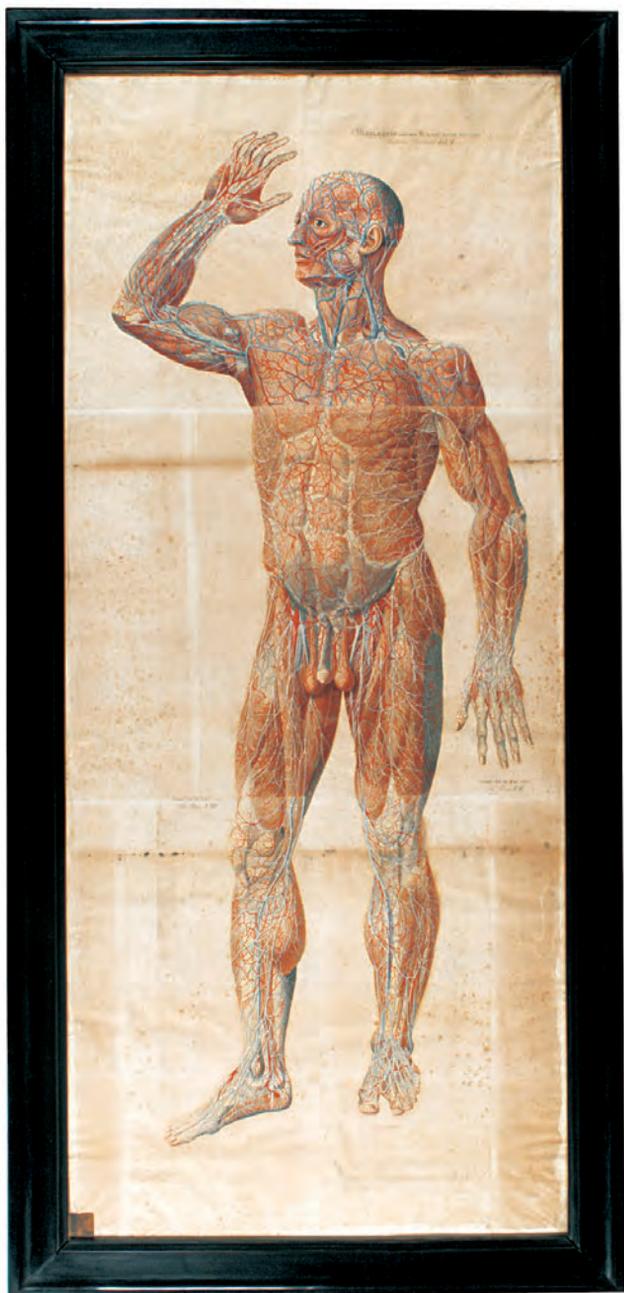


Paolo Mascagni's *La Grande Anatomia*, published in Pisa between 1823 and 1831, is the first atlas to include a full-scale reproduction of the human body and its organs. Turin's Museum of Anatomy possesses one of the very rare complete series of the watercolour edition.

The atlas consists of eight illustrations of the human body depicting the different "layers" (from the superficial musculature to the skeleton) from the anterior (*facie adversa*) and posterior (*facie aversa*) views. In addition, there are 20 plates illustrating various organs and anatomical regions, as well as 9 booklets containing the introduction to the work and the legends of the illustrations.

Mascagni's illustrations were often used by wax modellers for the creation of their works.



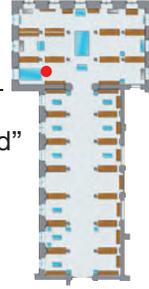


# 20

## Foetal development and pregnancy

On this topic see also

- 1 The pregnant woman “only with the womb opened”
- 4 Ziegler’s embryos
- 6 The wax of discord

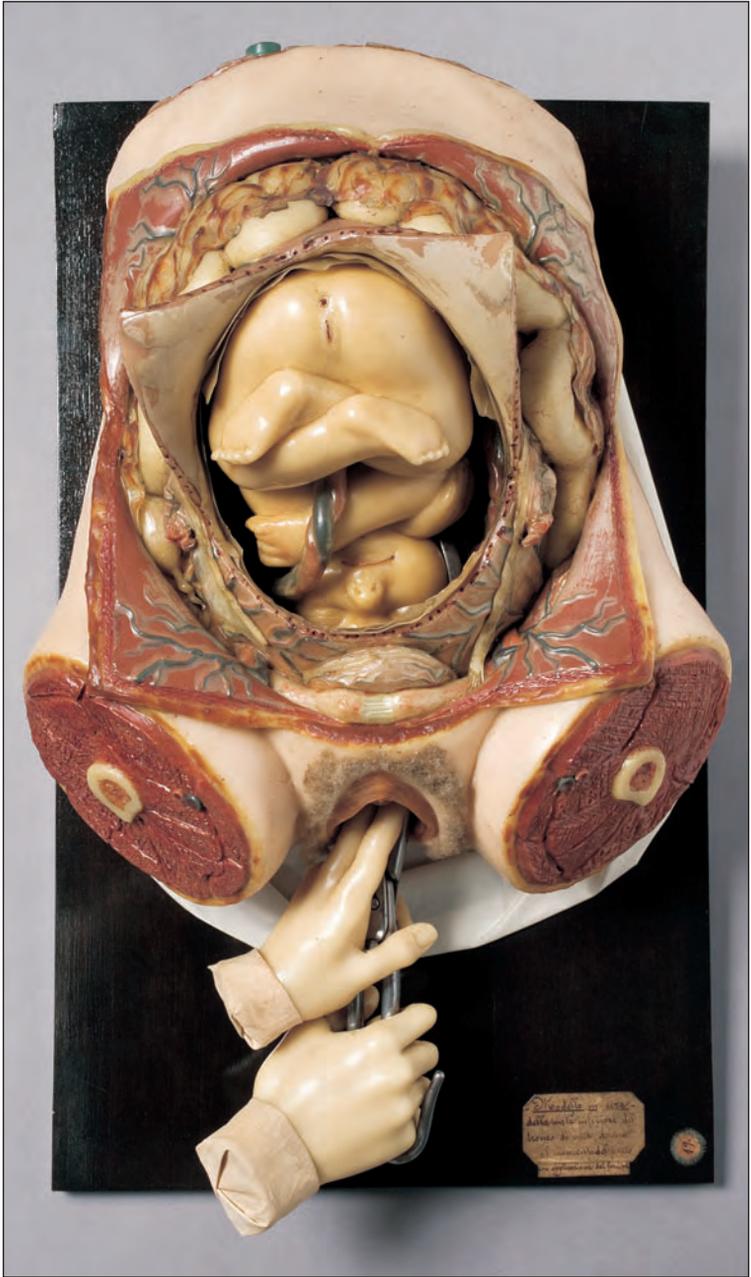


The interest in pregnancy and birth is reflected in the rich collection of models exhibited in the museum.

The showcase contains wax models of the uterus during the different stages of development up to the end of gestation. One of the models shows the moment of birth with a “Demonstration of a difficult obstetric case requiring the use of forceps” (according to the *Catalogue of preparations of the human body and of comparative anatomy involving the use of drying processes, preservation in alcohol and wax models* compiled in 1858).

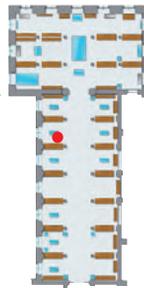
The lower part of the showcase also contains three anatomical wax models of the male urogenital apparatus.





# 21

## Two South American mummies



The showcase contains two South American mummies in the classic foetal position. They are “natural” mummies since, unlike Egyptian mummies, they were not eviscerated or treated with special substances. Preservation was due to special climatic conditions which caused rapid dehydration of the tissues.



### **The Ando-Peruvian mummy**

This mummy was part of the anthropological collection of Turin’s Academy of Medicine given to the Museum of Anatomy in 1913.

It had been donated to the Academy by Michele Lessona in 1872. The mummy was found during the voyage around the world of the frigate *Novara* of the Austrian Imperial and Royal Navy (1857-59).



**The Aymara mummy (from Cobija, Bolivia)**

This is the mummy of a female carrying a child in her arms. The mummy's head was skeletonized upon its arrival in Europe in order to observe the skull. The skull presents artificial deformation produced by compression of the head during childhood, a common practice among individuals of certain social classes of those populations. The mummy was part of the anthropological collection put together during the journey of the steam corvette *Magenta* (1865-68), the first ship of the Kingdom of Italy to circumnavigate the globe.

## The heart and the aortic arch

On this topic see also  
4 Ziegler's embryos

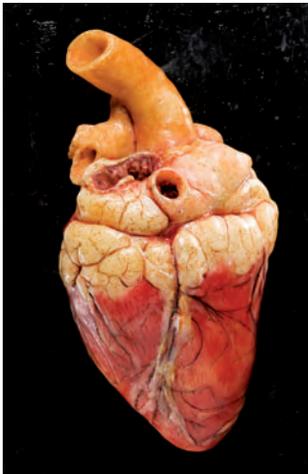


The showcase displays a series of dry preparations of the cardio-circulatory apparatus. There are also two wax models of the heart made around 1830, one in Naples and the other probably in Turin.

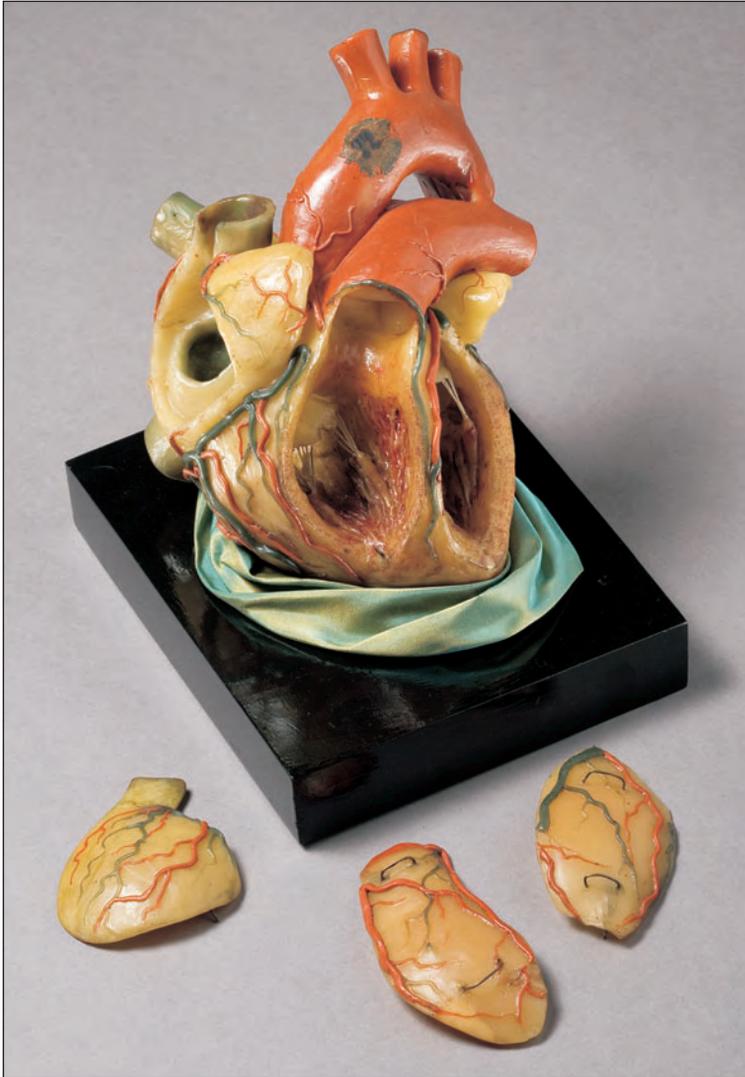
In the first model, three “flaps” can be removed to look inside the heart’s chambers and see the valves.

Also on display are dry preparations of the heart at different stages of development, from the foetal period to adulthood. In some of them, different colours distinguish the right side of the heart (in blue), where venous blood circulates, from the left side (in red), where arterial blood flows.

The showcase also contains a series of preparations of the aortic arch, which gives rise to the large arteries serving the upper limbs and the neck and head.



These preparations demonstrate the individual variability in the origin of these branches of the aorta. The individual variability of the form and position of the various anatomical structures, of clear anatomical and surgical importance, was one of the main research interests of many anatomical schools in the late 19th century.





## **The restoration of the Museum of Human Anatomy**

The common objectives and constant collaboration of the University of Turin, local institutions and Superintendences of Piedmont resulted in a rigorous methodological approach to the restoration of the Museum of Human Anatomy and other parts of the building.

Between 2003 and 2006, thirty-five restorers and technicians worked to re-establish the original conditions of the museum spaces and collections, left untouched for over a century.

Conservative restoration was applied to the plaster and stucco work, bringing back their original colour, as well as to the white granite columns, the Venetian “terrazzo” floors, the lunettes



housing eleven oil paintings portraying scientists of the past, and the showcases and windows which with their drawn sheet glass evoke a 19th century atmosphere. The new illumination system was carefully planned to highlight the solemn architecture of the two halls.



The objects belonging to the main collections were also restored, among which the more than 200 wax models constituting one of the world's most important collections of this type.

The historical archive was reorganized and catalogued, allowing the recovery of information essential for the reconstruction of the history of the displayed specimens and the people who worked in the museum.

These conservative restoration operations have given us a museum that is one of the few examples of authentic 19th century scientific museology.

Since the vintage exhibition set-up hinders scientific communication, the museum staff developed a project entitled

*New media for old memories.* Several technologically advanced devices have been placed along the exhibition course to help the displayed objects recount fascinating stories about people and scientific achievements without disturbing the 19th century ambience.



*The full-scale plaster statue “depicting a woman ... six to seven months pregnant only with the womb opened” is the oldest object in the museum. Discovered in a poor state of preservation and without the foetus, the statue required challenging restoration work which, following a correct methodology, did not include reconstruction of the missing parts.*

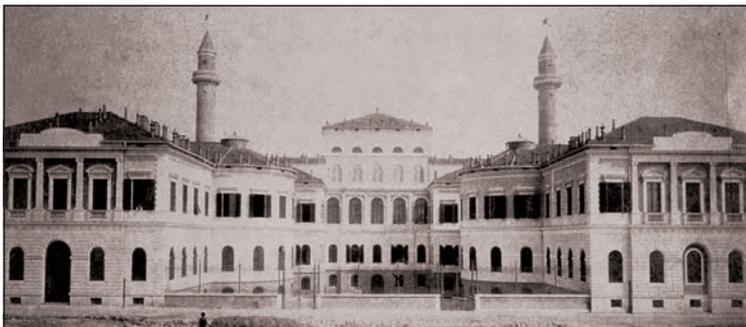


## **A Museum of Mankind in Turin**

The agreement stipulated in 2001 by the University of Turin and the Piedmont Region officially initiated the Museum of Mankind Project, developed thanks to funding by the Ministry of Public Education, University and Scientific Research, the Piedmont Region, the City of Turin and the Regional Superintendence for Public Works.

The aim of the project was to unite three of the University's museums devoted to human biology - namely the Museum of Human Anatomy, the Museum of Anthropology and Ethnography and the "Cesare Lombroso" Museum of Criminal Anthropology - to create a single museum complex. The historical collections will be supplemented by new exhibition "trails", for instance the one on the physical and cultural evolution of mankind.

The new museum complex is situated in the Anatomical Institutes Building, the site of the Museum of Human Anatomy since 1898. The two "minarets" which characterize the building were designed to function as ventilation shafts assuring a constant change of air in the dissection halls and laboratories. Thanks to the intervention of the City of Turin, this building also houses the Museum of Fruit, home to the 19th century collection of models of fruit made by Francesco Garnier Valletti.





## For more information

Aa.Vv.

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La Stampa e Regione Piemonte, Torino, 2004.

Giacobini Giacomo (*a cura di*)

**La memoria della scienza. Musei e collezioni dell'Università di Torino.**  
Fondazione CRT, Torino, 2003.

Giacobini Giacomo (*a cura di*)

**Invito al Museo. Nove racconti e una poesia per suggerire una visita al Museo di Anatomia umana di Torino.**  
Galleria del Libro dal 1951, Torino, 2008.

Novelli Luca

**L'uomo che ci regalò il suo scheletro.**  
**Storia verissima di Carlo Giacomini studioso del cervello.**  
Editoriale Scienza, Torino, 2008.

Aa.Vv.

**I Musei Scientifici. Il Museo di Anatomia Umana "Luigi Rolando". Il Museo della Frutta "Francesco Garnier Valletti". Il Museo Regionale di Scienze Naturali.** Collana "I Grandi Musei del Piemonte".  
Umberto Allemandi & C., Torino, 2008.

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MUSEO  
DELL'ISTITUTO ANATOMICO