



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



Anatomy and cultural heritage in Padua

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Anatomy and cultural heritage

On November 2001 the United Nations General Assembly adopted a resolution proclaiming 2002 “United Nations Year for Cultural Heritage”.

But what we mean with cultural heritage ?

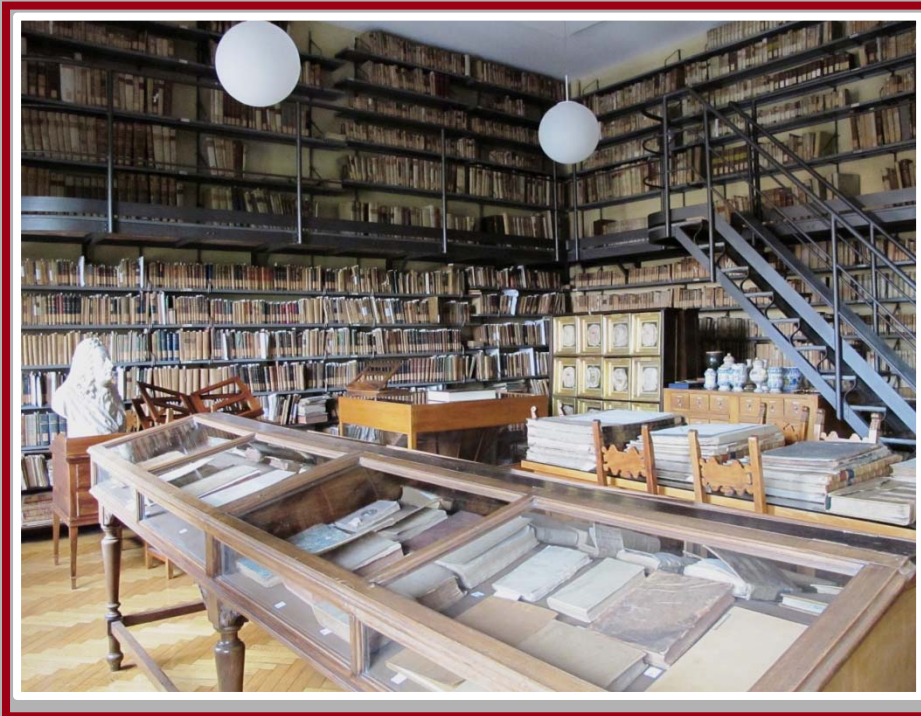
Cultural heritage is the legacy of physical artifacts and intangible attributes of a group or society. It is expressed in many different forms, both tangible like monuments and objects and intangible like languages and know-how.

We focused on the legacy of the anatomical school of Padua from 15th to 19th century.

The Libraries of Padua Faculty of Medicine collect many ancient documents, books, atlases, anatomical plates, models in wax or clay and objects as cultural heritage from the great anatomists and physicians of the past who studied, taught and contributed to the progress of the scientific research in the Medical School of Padua during the centuries.

These documents have come to us in University’s collections or thanks to the gift or legacy by private collectors during 19th century; the Medical Libraries have gathered and preserved this cultural historical-scientific heritage, that has become valuable for the modern researchers and their studies.

Pinali antica Library



Pinali antica – Ducceschi Room

Pinali antica was the very first library available for specific use of the University of Padua Medical School.

Prof. Vincenzo Pinali in 1875 bequeathed to the medical School his library and his example was later followed by others.

At present Pinali antica library is a unique series of medical books collected by professors and donated to the scientific community.

Over 7.000 books are dating back from the hand press book period (ca.1450-1830) including 9 incunables. The oldest book is an illustrated parchment manuscript dating of end of 14th.

Department of Human Anatomy and Physiology



The Library of Department of Human Anatomy and Physiology with its highly specialized collection of books, has always been a point of reference for teaching and for scientific research in the medical field.

Collections include over 400 ancient books from 1528 to 1830.

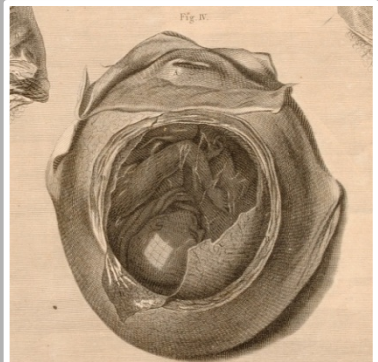


By anatomical plates meticulously drawn by experienced artists in the ancient texts of Anatomy we understand the importance and the value that had the discipline of the Anatomy in the training of a good Physician.

Department of Gynaecological Science

In 1819, Rodolfo Lamprecht founded the modern Obstetric and Gynaecologic Clinic, with the rich specialized library that collects about 500 ancient books and atlases, from 1538 to 1830, well preserved, in Latin, German, French, English and Italian language.

The authors were the great names of Obstetrics of the past: Mercurio, Rousset, Mauriceau, Baudelocque, Smellie, Hunter, Caldani, Kilian, Velpeau, Maygrier etc. Topics include Obstetrics, Midwifery, Gynaecology, Surgery and Pediatrics.



W. Hunter – *Anatomia uteri humani gravidi*, 1774
Bilingual text, Latin and English.
Drawings by J. Van Rymsdyk
This copperplate is very realistic, like a photo. To note the reflex of the window on the head of the fetus, under the amniotic membranes.

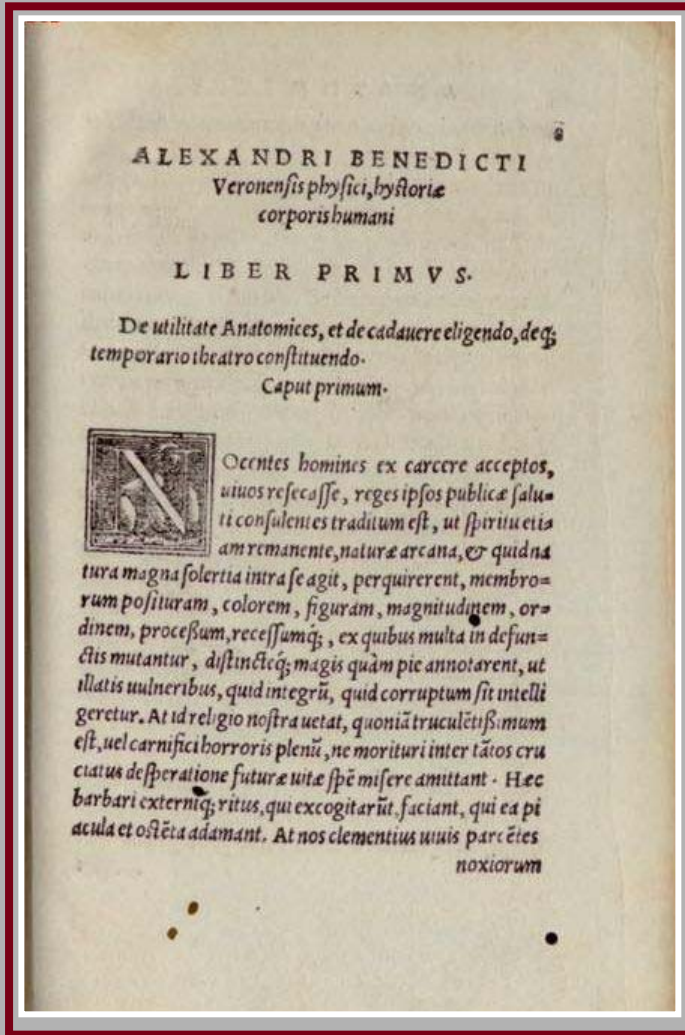
Library - Ancient books



Libraries and Books

**A selection of rare books of our
libraries significant for the
history of Anatomical School
of Padua**

Alessandro Benedetti 1450ca.-1512



Alessandro Benedetti was professor of anatomy and surgery at Padua University. In many ways he prefigured Vesalius.

He underlines the importance of cadaver dissection and describes how and where make the autopsy.

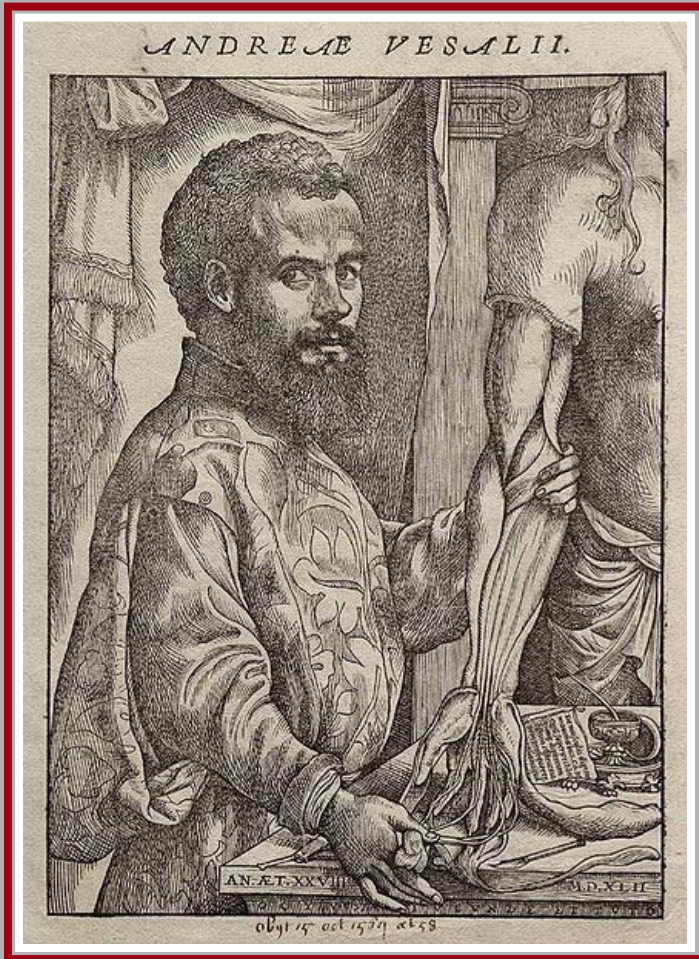
In his work *Anatomice* he describes a temporary anatomical theatre.

He was also an humanist and he introduced innovations in anatomical language.

This explains why he didn't accorded importance to illustrations and he believed that words provided a better vision of anatomical reality.

Alexandri Benedicti ... Anatomice, siue de hystoria corporis humani Argentorati, mense martio 1528 (Argentorati : apud Johannem Hervagium, 1528)

Andrea Vesalius 1514-1564



The increase in illustrated books of anatomy is related with the rise in the importance of dissection for anatomists.

Andrea Vesalius, who graduated in Padua in 1537 and taught anatomy, emphasized the importance of direct human anatomical investigations and introduced also the practice of making detailed and accurate drawings of observations made during autopsy.

Images became an integrant part of anatomical knowledge and had a direct relationship to the text.

De humani corporis fabrica - Basilea 1543



Andreae Vesalii Bruxellensis, ... De humani corporis fabrica libri septem Basileae (Basileae : ex officina Ioannis Oporini, 1543 Mense Iunio)

With his work *De humani corporis fabrica* a new standard for the anatomical treatise was set .

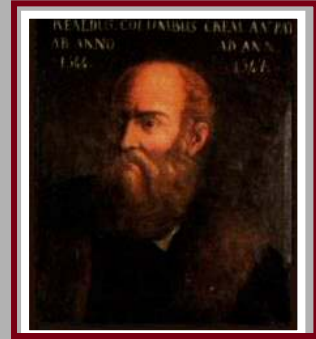
The text is based on Paduan lectures of Vesalius and illustrated by more than 200 woodcuts. Drawings are notable for their accuracy, detail, and beauty.

The proximity to Venice was also an important factor : the woodcuts with illustrations were made by an artist of the “studio” of the venetian painter Titian and then sent to Basel where the book was printed .

Traditionally Jan van Calcar, a pupil of Titian, is assumed to have been the illustrator of Vesalius.

The original woodcuts were lost, later found in Munich in 1934 and finally destroyed in a bombing in 1944.

Realdo Colombo (ca.1510-1559)



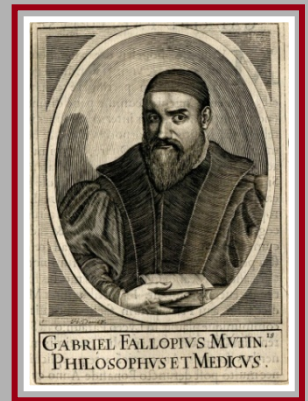
Realdo Colombo graduated in Padua in 1544 he succeeded to Vesalius before moved to Pisa in 1545.

His work *De re anatomica* was largely used as a textbook. The title-page is attributed to the school of Veronese.

In particular Colombo developed the description of the movement of the pulmonary circulation and his studies were crucial to Harvey who credited Colombo's work in his landmark book: *On the Motion of the Heart and Blood in Animals*.

Realdi Colvmbi Cremonensis ... De re anatomica
(Venetiis : Ex typographia Nicolai Beuilacquæ, 1559)

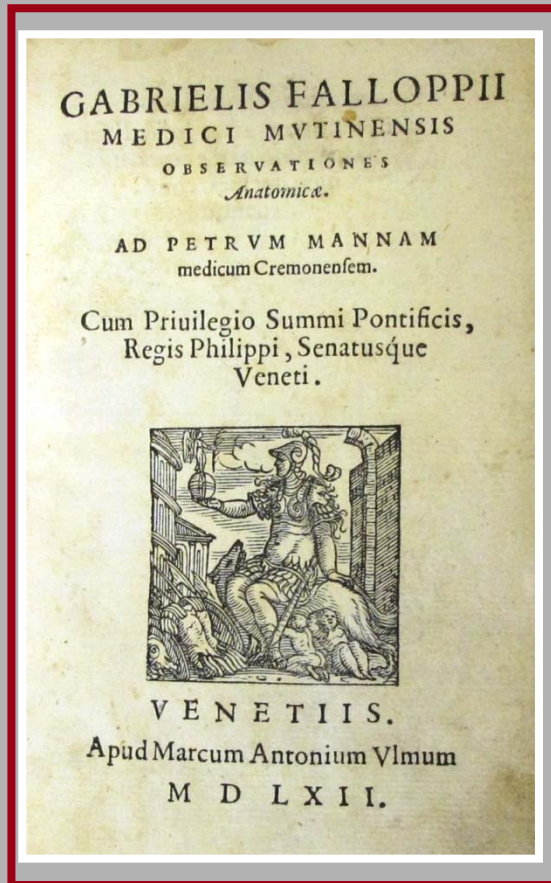
Fallopian (Gabriele Falloppio) 1523-1562



Fallopian was a student of Vesalius and succeeded to Colombo.

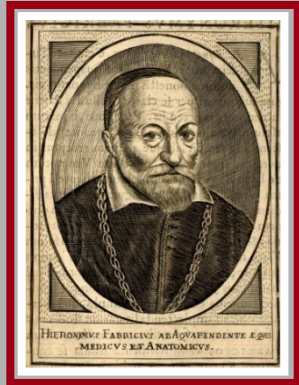
He performed an extensive study of the structures of the ear and was the first anatomist to describe the semicircular canals (*chorda tympani*).

He corrected Vesalius's findings on the course of the cerebral arteries, and provided a more detailed description of the ocular muscles and cerebral nerves. His best known discoveries are the structures of the male and female reproductive organs in particular fallopian tubes. Only one treatise by Fallopian appeared during his lifetime, *Observationes anatomicae*. His collected works, *Opera genuina omnia*, were published at Venice in 1584.



Gabrielis Falloppii ... Obseruationes anatomicae Venetiis : apud Marcum Antonium Vlmum: [per Giovanni Grani], 1562

Fabricius – Girolamo Fabrici d'Acquapendente 1533-1619



Fabricius studied under Fallopius at the University of Padua and succeeded him as professor of anatomy.

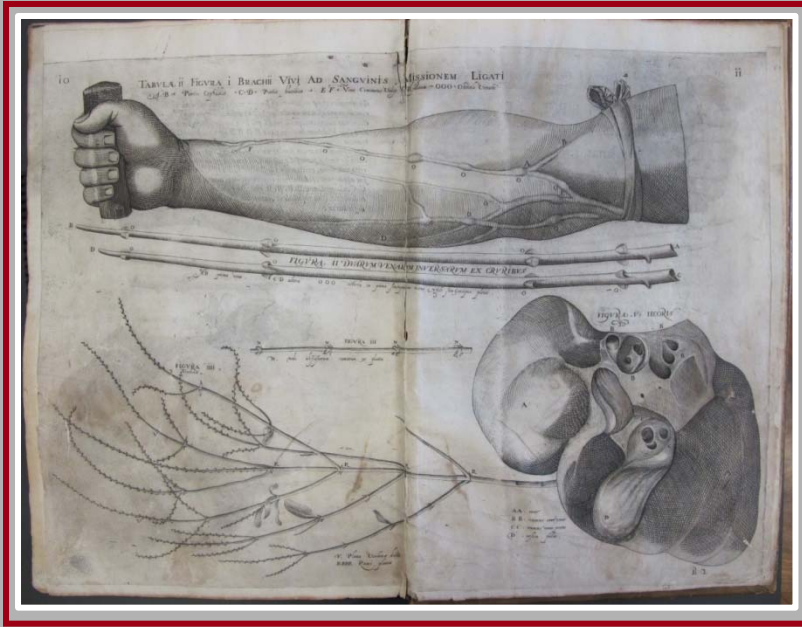
He contributed to the building of the anatomical theatre.

He is also considered the father of embryology for his work *De formato foetu*.

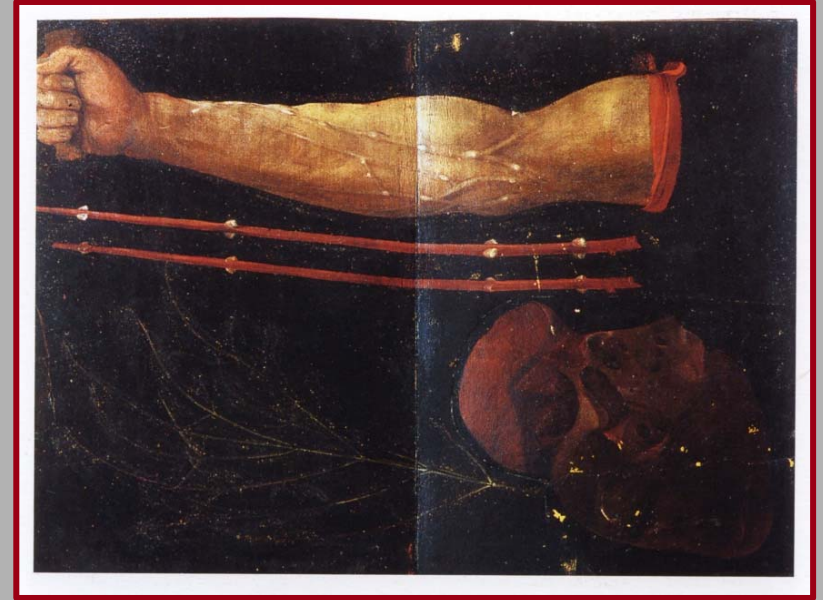


Hieronymi Fabricii ab Aquapendente *De formato foetu* Venetiis : per Franciscum Bolzettam, 1600

Girolamo Fabrici d'Acquapendente 1533-1619



Hieronymi Fabricii ab Aquapendente ... De venarum ostioliis Patauii : ex typographia Laurentij Pasquati, 1603



Venice – National Library of St. Mark's- oil on paper

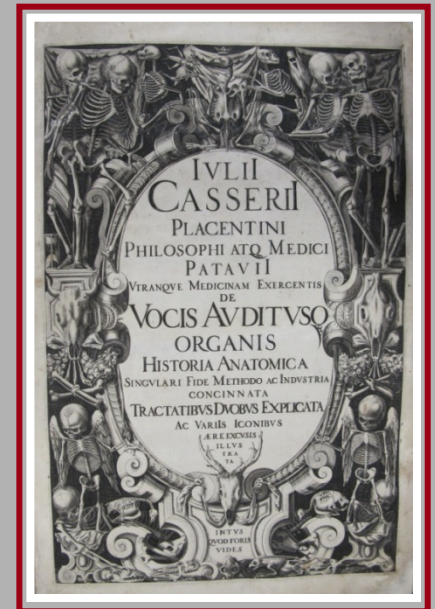
In *De Venarum Ostioliis*, Fabricius identifies and describes the valves found in the veins of the human circulatory system. He failed, however, to understand their function or importance to blood circulation.

Casseri - Giulio Cesare Casseri (1552 - 1616)



Giulio Cesare Casseri came from Piacenza to Padua in 1552 in quality of "cliens et domesticus famulus" a domestic attendant of Fabricius and served him also for the dissection of corpses in the anatomical theatre.

In 1600 he published "De historia vocis auditusque Organis".



Casseri - Giulio Cesare Casseri (1552 - 1616)



De vocis auditusque organis historia anatomica, consists of two treatises, on anatomy of organs of speech and hearing, both illustrated with plates of comparative anatomy .

The author of illustrations is unknown.

We know that Casseri collaborated, for his works *Tabulae anatomicae* and *De formato foetu*, with the artist Odoardo Fialetti a pupil of venetian painter Tintoretto and brother of the physician Fialetti. Fialetti completed the preliminary drawings and Francesco Valegio engraved them in copperplate. Casseri died before he could see them realised in his own *Tabulae anatomicae*.

Iulii Casserii ... *De vocis auditusque organis historia anatomica* ... (Ferrariae : excudebat Victorius Baldinus typographus cameralis ; Patauii : sumptibus Vnitorum, 1600-1601)

Spigelius - Andriaan van Spiegel 1578-1625

Adriaan van der Spieghel (Spigelius), a Flemish anatomist and botanist graduated in Padua in 1603, succeeded both Casserius and Fabricius as professor of anatomy and surgery.

He carried out important studies on human foetus and he described the caudate lobe of the liver (named after him).

Spigelius had prepared the text of an anatomical treatise intended to be a review of Vesalius's *Fabrica*, reporting new results in anatomy.

This work lacked images when Spigelius died untimely in 1625.

The executor of his will, Daniel Bucretius, obtained from Casserius's grandson the rights to the use of the copperplates of Fialetti-Valeggio and commissioned about 20 new plates.



Spigelius - Andriaan van Spiegel 1578-1625



Finally Casserius-Fialetti's plates were published in 1627 in Spiegel's *De humani corporis fabrica* edited posthumously by Daniel Bucretius and later in 1645 in Spiegel's *Opera Omnia*.

Adriani Spigelii Bruxellensis ... Opera quæ extant omnia. Ex recensione Ioh. Antonidæ Vander Linden ... Amsterdami : apud Iohannem Blaeu, 1645

Andriaan van Spiegel - Casseri



Adriani Spigellii
Bruxellensis ... Opera
quæ extant omnia. Ex
recensione Ioh. Antonidæ
Vander Linden ...
Amsterdami : apud
Iohannem Blaeu, 1645



Giambattista Morgagni 1682-1771



Morgagni is considered the leading anatomist of his time and the founder of pathological anatomy.

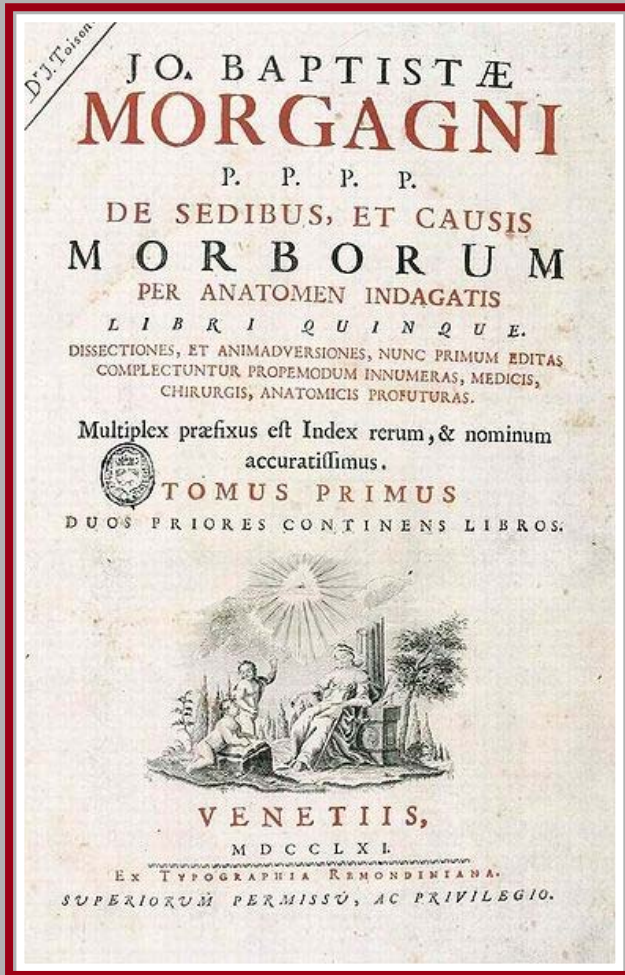
In Italy he was often called 'His Anatomical Majesty'. He was elected to many learned societies, including the Royal Society (1722), the Academy of Sciences of Paris (1731), the Imperial Academy of St Petersburg (1735), and the Academy of Berlin (1754).

Morgagni had a personal anatomical museum, a collection of portraits of his predecessors and an important personal library.

He also planned an anatomical museum inside Bo' Palace, next to the anatomical theatre of Fabricius, but this work was never finished.

After his death the library went up for auction and purchased by Biblioteca Universitaria of Padua, where is still preserved.

De sedibus et causis morborum per anatomen indagatis - Venetiis 1761

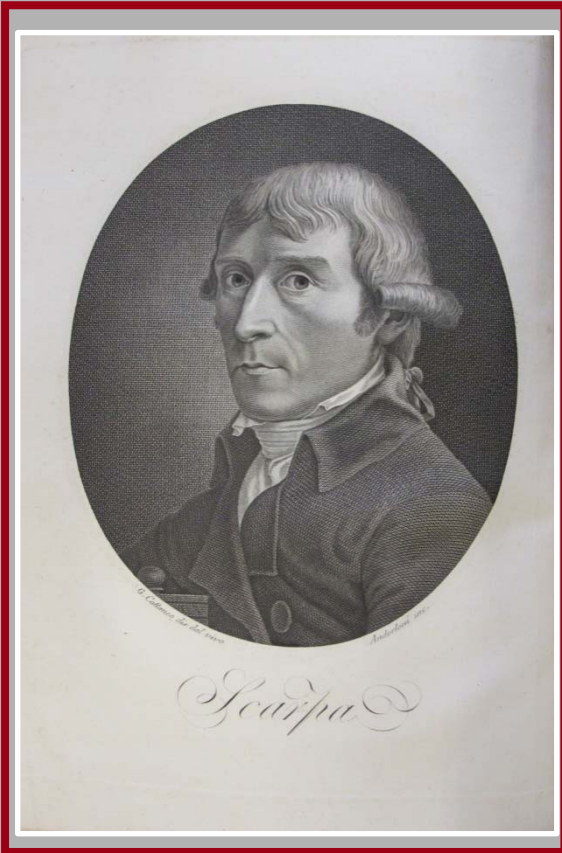


Morgagni was consulted by scholars and physicians and his opinions on cases were given by correspondence.

He adopted an epistolary form for his major work *De sedibus and causis morborum per anatomen indagatis* which provides a description of the appearances found by autopsy of almost 700 cases.

De Sedibus et causis Morborum was translated into several languages and had many editions within a few years.

Antonio Scarpa (1752-1832)

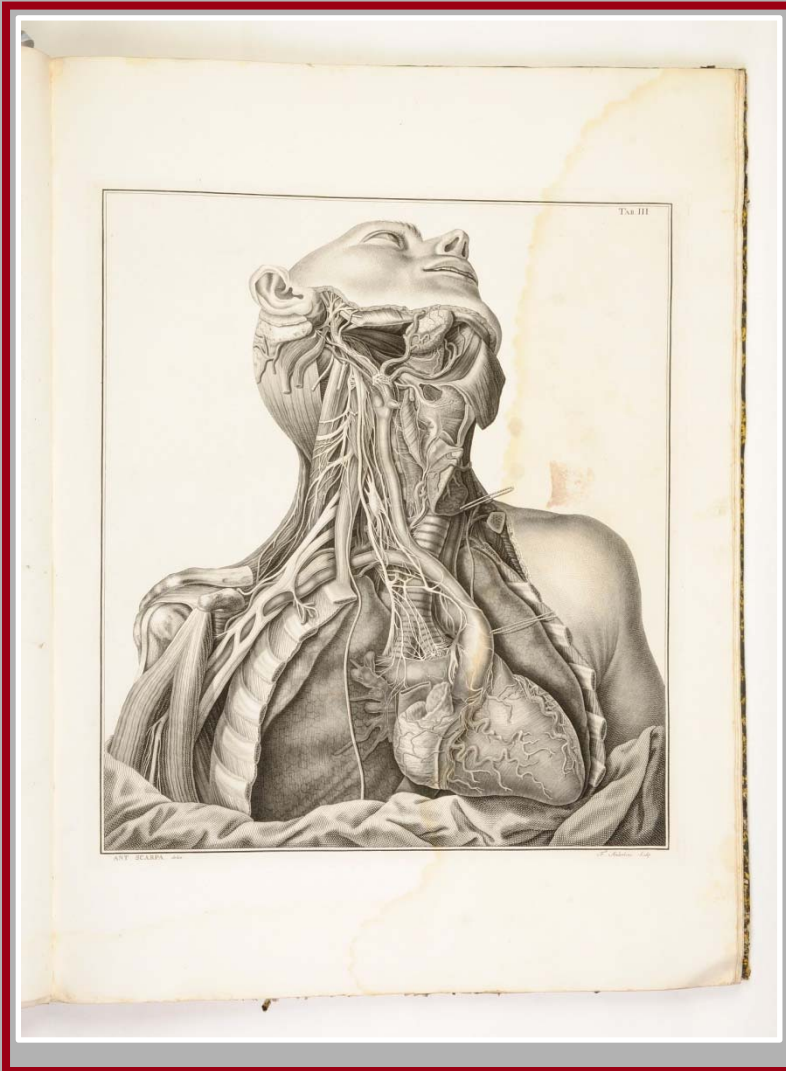


He studied and graduated at University of Padua in 1770 and was pupil and fellow of the great anatomist G.B. Morgagni.

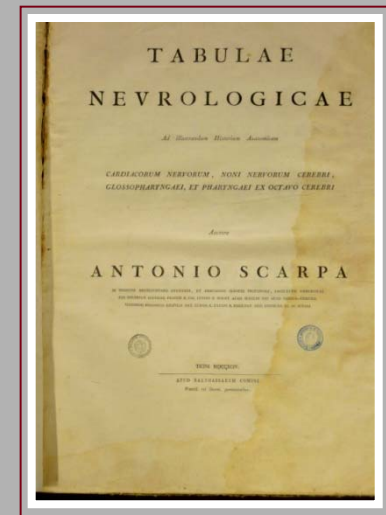
In 1772 he moved to the University of Modena, where he was charged of teaching anatomy and he promoted the construction of an Anatomical Theatre based on the model of Padua.

In 1783 Scarpa was called to the University of Pavia where founded an important school of anatomical studies and built another anatomical theatre and constituted an Anatomical Museum, which is still the core of the Historical Museum of the University.

Tabulae Neurologicae – Ticini 1794



Scarpa was a prolific writer and a draftsman skilled at drawing. In 1794 he published his work *Tabulae Neurologicae*, in which he gave evidence of the cardiac innervation. His study differed by the corrent knowledge: *cor nervis carere* and he demonstrated his theory in 7 copperplates, drawn by himself and engraved by Faustino Anderloni.



Tabulae neurologicae ... Auctore Antonio Scarpa
Ticini : Apud Balthassarem Comini, 1794

Leopoldo Marco Antonio Caldani (1725-1813)



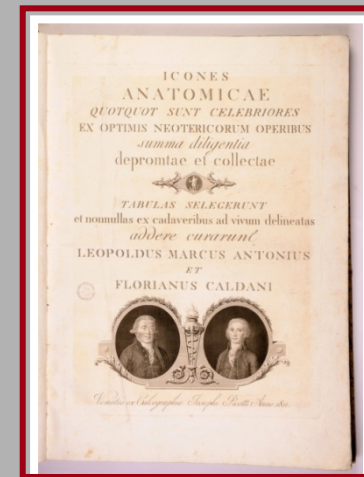
Leopoldo Marco Antonio Caldani was an anatomist and physiologist. He was born in Bologna, where he studied and received a medical degree in 1750. Then Caldani went to Padua, where, as one of Morgagni's best pupils, he was later made professor of theoretical medicine and in 1771, after Morgagni's death, became professor of anatomy.

His most celebrated work is the anatomical atlas made in collaboration with his nephew.

Icones anatomicae quotquot sunt celebriores - Venetiis 1801-1814

This work assembles over 450 copperplates, skillfully engraved by various artists and printed on fine paper by Joseph Picotti.

It is a compilation of the best anatomic representations of the past periods from Albinus, Hunter, Monro, Mascagni, Scarpa etc. However, many of the plates were drawn from original preparations by the younger Caldani. The allegorical frontispiece represents the dissection of a body in an arcadian setting, a favourite subject for the anatomical frontispieces in the 18th and 19th centuries.



Teaching aids



Anatomical preparations, wax and clay models were used as medical teaching aids to illustrate anatomical structures, and document visible pathological conditions.



They were tridimensional and colored and are testimony to the accurate way in which lessons were given to students before photography was invented.

Teaching aids -Anatomical Waxes



**Johann
Nepomuk
Hoffmayr**

These ophthalmological wax models show different eye diseases .

They are part of a collection belonged to the Padua University Eye Clinic, currently preserved in Pinali antica library.

48 were made in Wien by Johann Nepomuk Hoffmayr

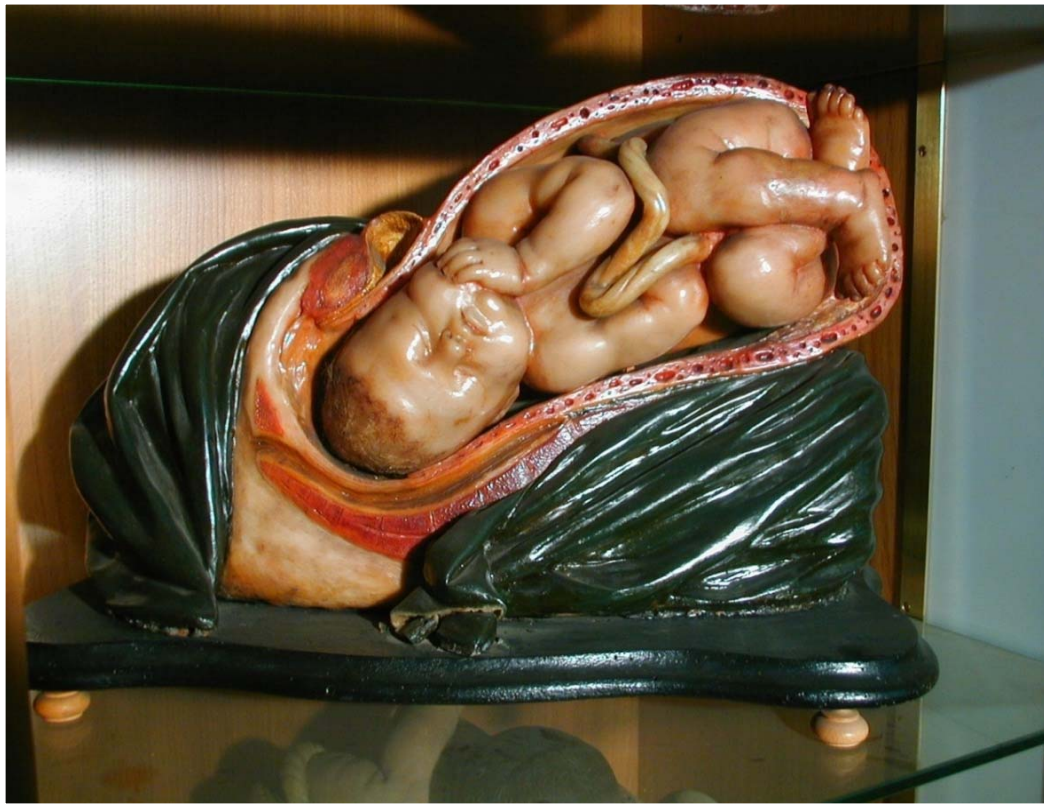
12 were made in Padua by Pietro Gradenigo (1813-1904)

Hoffmayr was a pioneer of wax models and he achieved in 1820 first ophthalmological wax in Wien under the direction of Anton Rosas an hungarian ophthalmologist who became the first professor of ophthalmology at Padua University.

**Pietro
Gradenigo**



Teaching aids -Anatomical Waxes



Anatomical wax model: term pregnancy, fetus in cephalic presentation.

The collection is online:

<http://www.ginecologia.unipd.it>

The Department of Gynaecological Science takes in a collection of 40 female anatomical models, in polychrome wax and 22 female pelvis, in coloured clay, acquired for didactic use by Prof. Luigi Calza (1736-1783), obstetrician at the University of Padova from 1765. In the arrangement of this obstetric collection, Antonio Scarpa (1752-1832) collaborated with Calza. The authors were: Giovan Battista Manfredini and Giovan Battista Sandri, ceroplastics from Bologna.

Cultural heritage - Bo' Palace

**The treasures of our
University**

Bo' Palace - The anatomical theatre

A tangible legacy is the anatomical theatre inaugurated in 1594. that rises through two storeys into Bo' Palace, the central building of University.

It is considered the world's oldest permanent anatomical theatre surviving. To say it with Goethe's words in 1786 'It is 'a tall pointed funnel'.

During the autopsy, the oval tiers - barely 40 cm wide - were crowded up to 250/300 persons.

The local skills in woodworking, honed by the demands of shipbuilding of republic of Venice, allowed to built a structure that could bear such concentrated weight.



A curious tradition is reported by chronicles of the 15th and 16th cent. : musicians were brought in to the theatre to entertain during breaks.

Bo' Palace - Pancreatic duct – copper plate J. G. Wirsung



Pancreatic duct - Original copper plate

Johann Georg Wirsung (1589-1643) studied anatomy in Paris under Jean Riolan and in Altdorf under Kaspar Hoffmann and he graduated in Padua in 1630

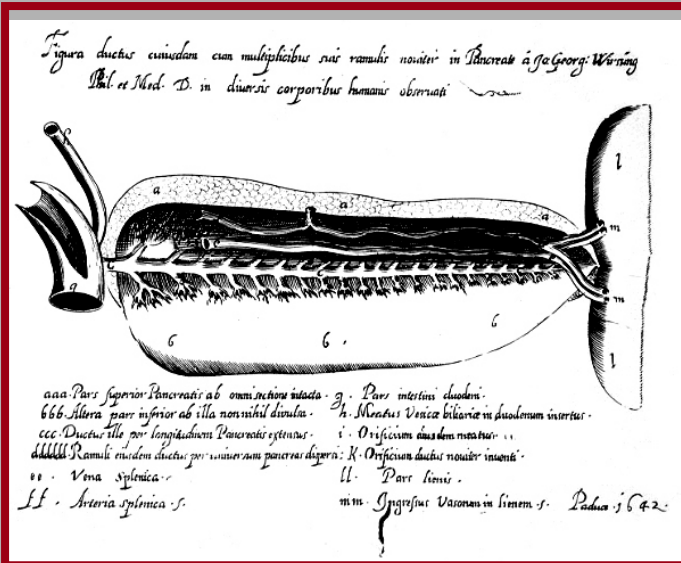
In 1642 first demonstrated in man the presence of the pancreatic duct which is named after him.

The new anatomical finding was fixed in a copper plate, still preserved at the University of Padua, probably engraved by himself.

Copperplate printing is a direct printing process so the image is engraved in copper in reverse as reflected in a mirror.

Wirsung also carried out experiments on the circulation of the blood.

He was murdered in 1643 by a Belgian student probably after a quarrel over who was the first to discover the duct. Discovery was later claimed by other scholars



Imprint from the copper plate

Bo' Palace - Old courtyard - Harvey' coats of arm



Harvey' coats of arm - Oldcourtyard -Bo' Palace

The Old Courtyard of Bo' Palace is a double loggia decorated with the heraldic devices of scholars who attended the University.

William Harvey who discovered in the 1628 the circulation of the blood graduated in Padua in 1602. At Harvey's time Academic degree were granted by the 'Sanctum collegium' presided over by the local Bishop as Chancellor of the University and could be given only to catholics. In fact the University of Padua belonged to the jurisdiction of Venice and granted also a non ecclesiastical form of degree in which any testimonial of orthodoxy or confession of faith was omitted.

This made it possible for non catholic as Harvey and jewish students to graduate.

The tolerant and liberal spirit characteristic of Padua and the total freedom of thought is resumed by the motto '*Universa Universis Patavina Libertas*' – 'complete liberty for all at the University of Padova'

Bo' Palace - Hall of the forty



The Hall of the Forty is a tribute to the past. It was painted by Giacomo Dal Forno in 1942, and takes its name from the portraits of 40 great foreign scholars who came from all Europe to attend the university. The hall also houses Galileo's podium.

The medical School is represented by 20 ideal portraits of :

William Harvey and Thomas Linacre from England

Olof Rudbeck from Sweden

Thomas Bartholin and Olaus Worm from Denmark

Johann Wirsung and Werner Rolfinck from Germany

Caspar Bahuin and Jean Prevost from Switzerland

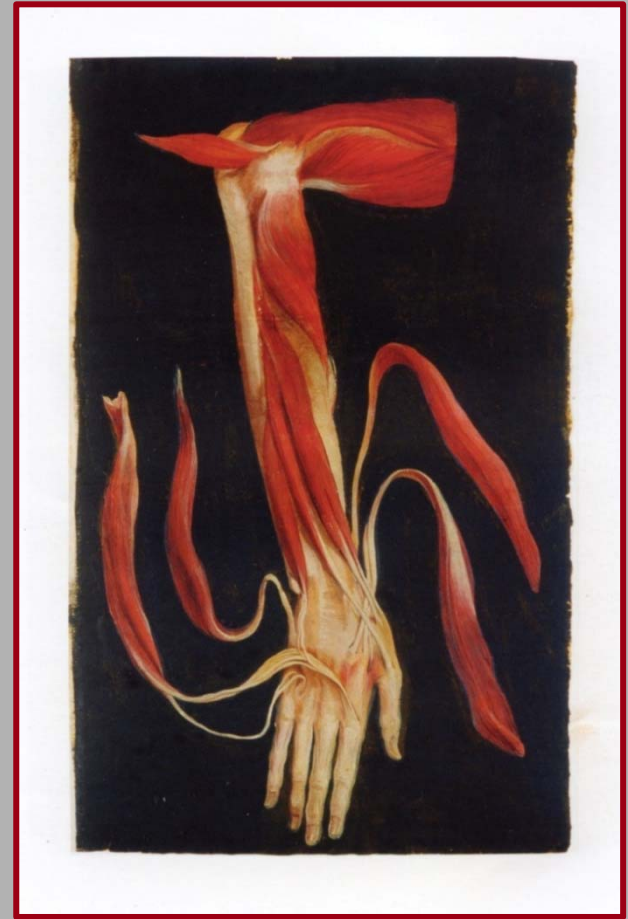
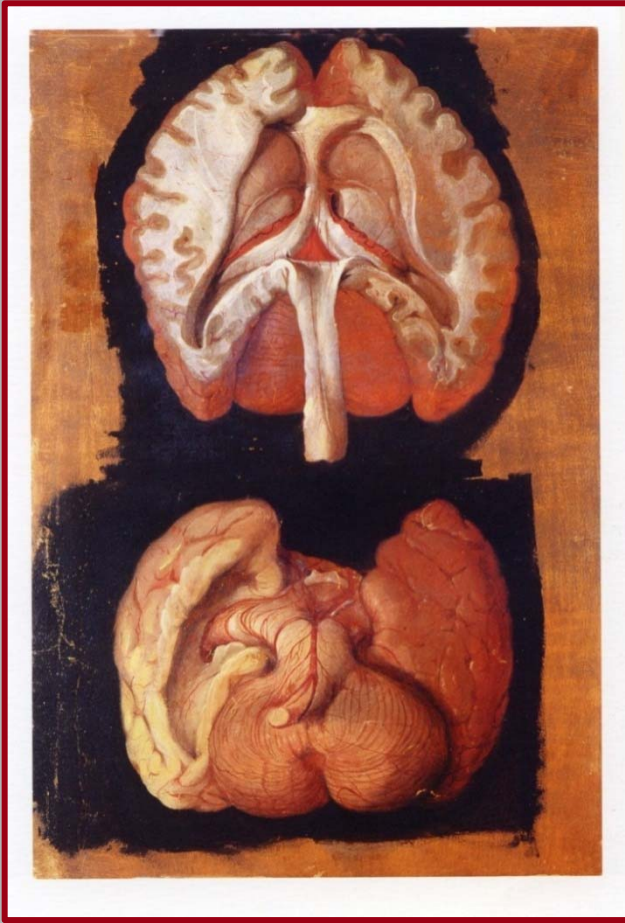
and others from Russia, Poland, Bohemia, Hungary, Croatia and Greece.

A special case

Venice - National Library of St Mark's colored
anatomical pictures of Fabricius

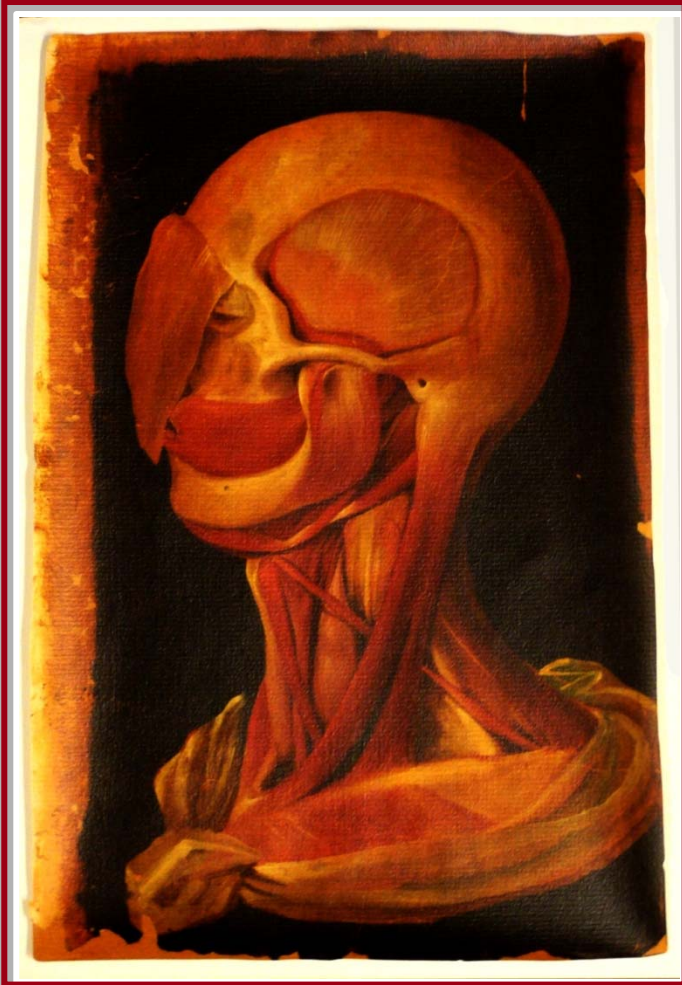
Venezia – Biblioteca Marciana *Pitture colorate
di anatomia* di Gerolamo Fabrici
d'Acquapendente

Girolamo Fabrici d'Acquapendente 1533-1619



Fabricius conceived and committed the realization of an important set of over 300 colored anatomical plates (both of human and animal anatomy) known as 'Pitture colorate di anatomia' that he bequeathed to St. Mark's Library in Venice. Over 200 anatomical plates - oil on paper are preserved since 1622 in Venice

Girolamo Fabrici d'Acquapendente 1533-1619



As is plainly evident this plates, used by Fabricius for didactical purpose, are part of the cultural legacy of the Anatomical School of Padua.

St. Mark's Library library also owns 2.200 books bequeated in 1589 by Melchior Wieland - Guilandino who was physician, botanist, and director of the Botanical garden of Padua.

Only few years later in 1629 a University library (Biblioteca Universitaria) was established in Padua by the Venetian Republic to "greater ornament" of the University. This is the oldest italian university libraries. At present Biblioteca Universitaria falls under Ministry of Cultural Heritage and Activities.

Digitization projects

- **ImMed - Images in Medicine**
- **Phaidra**

ImMed – Images in Medicine

Libraries's role is not only to preserve but also to communicate to a wide range of users.

Libraries and CAB (University of Padua Centre for Libraries) are developing some Projects to enhance and promote remote access to high-quality historical collections, at present, accessible with difficulty or unknown.

ImMed – Images in Medicine, is a digitization project of the Medicine Faculty under scientific responsibility of prof. Raffaele De Caro

The project was born in 2006 and collects up to date about 800 images from ancient and precious books and atlases from the Medicine libraries, dated from 1794 to 1844. The project's aim is the creation of effective digital tools to support the scientific and teaching practice of the academic staff.

From December 2007, the project is online:
<http://polomedicina.cab.unipd.it/immed/>



Immed



Albini, B. S., Tabulae Sceleti et Musculorum Corporis Humani (1747)

Caldani, L., Icones anatomicae vol. I (Tab.I-LI) 1801



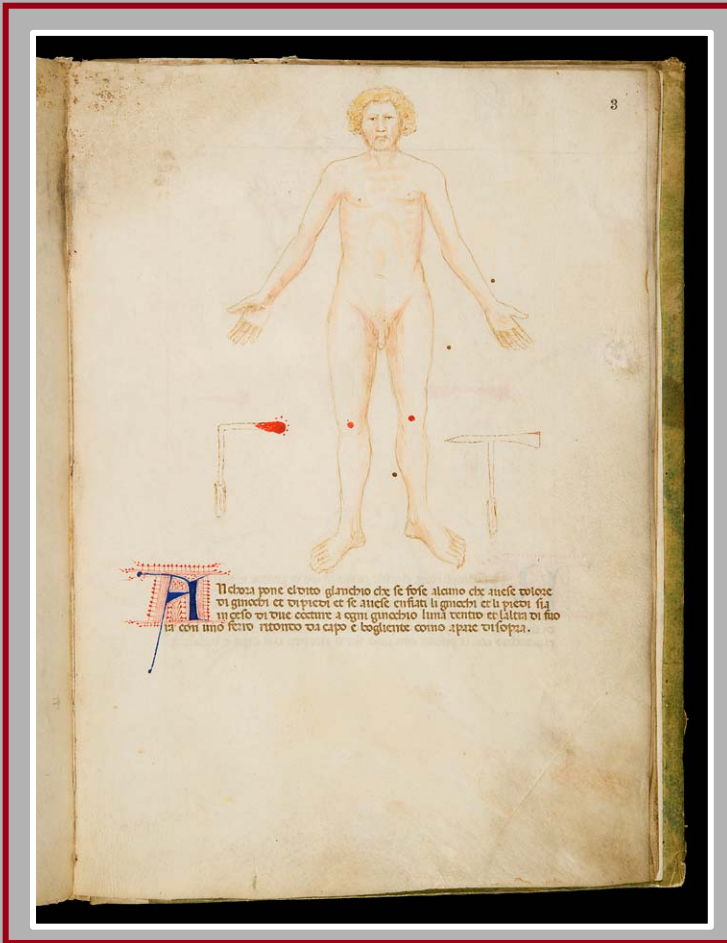
Kilian, H.F., Geburtshulflicher Atlas (1835-1844)



Maygrier, J.P. Nuove dimostrazioni di ostetricia (1831)

Phaidra

Phaidra (acronym Permanent Hosting, Archiving and Indexing of Digital Resources) is a system of managing, saving and linking objects (texts, images, audio, files etc.) with long-term archiving functions. Searching and browsing of the contents is possible worldwide, without logging in, to: <https://phaidra.cab.unipd.it/>



On this platform has been recently digitized the manuscript *De cauteri* (late 14th - early 15th) preserved in Pinali antica library. This precious manuscript of 10 parchment leaves, written in old italian , originated in Padua but influenced by oriental text, is a medieval treatise of therapeutic attributed to Bartolomeo Squarcialupi Treatment was simple : iron tools were heated on fire and then applied to a specific part of the body.

Thank you for your attention

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