# "Museums"

October 24 -28

Buenos Aires **2016**

IFSSH 50th Anniversary

Buenos Aires Argentina 13th 2016 10th IFSSH & IFSHT Triennial Congress

24th - 28th October

# Station I

## The Hand in the Evolution.

*José M. Rotella, MD*

*Mario Rodríguez Sammartino, MD*

**AACM**

Asociación Argentina de Cirugía de la Mano y Reconstructiva del Miembro Superior

ASOCIACIÓN ARGENTINA DE CIRUGÍA DE LA MANO A.A.C.M. y R.M.S.

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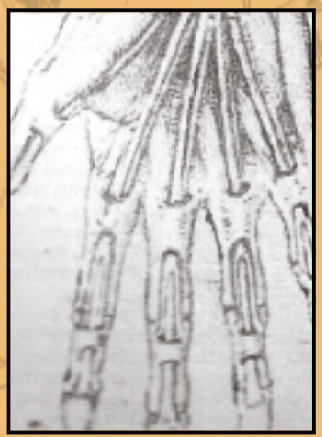
# Station II

## Historical Hand Anatomy Landmarks in the Renaissance



Leonardo Da Vinci
1442-1519

*Juan C. Cagnone, MD*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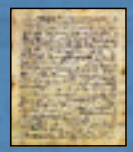
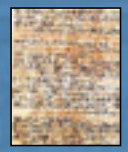
# "Museums" Station II

## General historical landmarks before Renaissence of human anatomy

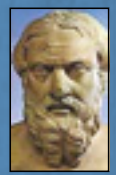




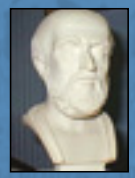
***First written evidences were found in Egyptian civilization***

Papyrus of Ebers (1550 BC)

Papyrus of Edwin Smith (1600 BC)



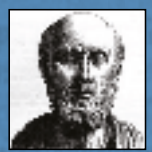
**Herodotus (484 B.C)**
Historian Greek.
First description of Egyptian embalming



**Aristotle (384 - 322 B.C.)**
First to use the word *"anatomy"*, derives from the Greek word *"ana temnein,"* which means *"to cut up."*

**Hippocrates (460 - 377 B.C.)**
Anatomy science founder .
The earliest description of structures of the human body.

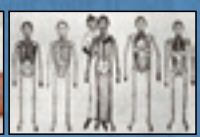
**Herophilus (335 - 280 B.C.)**
Greek MD of Medical School of Alexandria .
First anatomical dissections in public (300 B.C).



**Erasístrato Kea (304 - 250 B. C.)**
Cofounder and disector of Medical School of Alexandria.

**Galen of Pergamun (130 - 200 A.C)**
Greek physician. He development the Modern anatomy. His ideas dominated European medicine for over a thousand years. Because in ancient Rome the dissection of corpses was forbidden by law, Galen conducted studies dissecting animals such as pigs and monkeys.

**Mondino de Luzzi (1270 - 1326 )**
Italian physician. He published one of the first texts of human anatomy withouth drawings *"Anatomia corporis humani"* (1316). It is considered the first example of a modern dissection manual and as the first true anatomical text . He introduced the anatomical dissection in medical courses.



**Guido da Vigevano (1280 - 1350),** disciple of Mondino, was an italian physician and inventor and he was also one of the first to add drawings of organs to his anatomical descriptions. In his book *"Anathomia Designata per Figures"*, written in 1345.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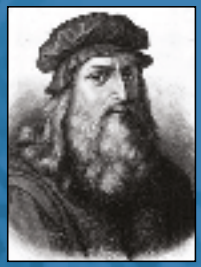
# "Museums" Station II

## "The great anatomists of the hand" in the Renaissance

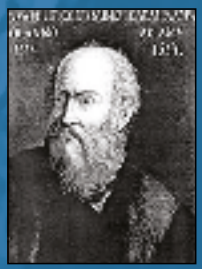


**Leonardo Da Vinci**
1452 - 1519

**Bartolome Eustaquio**
1500 - 1574

**Andrea Vesalio**
1514 - 1564

**Giovanni B. Canano**
1515 - 1579



**Realdo Colombo**
1516 - 1564

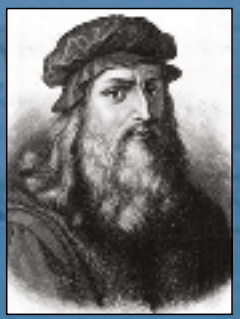
**Gabrielle Fallopio**
1523 - 1562

**Juan Valverde de Hamusco**
1525 - 1588



# "Museums" Station II

## "The great anatomists of the hand" in the Renaissance



**Leonardo da Vinci (1452-1519)**
He was an Italian artist, thinker and researcher who, by his insatiable curiosity and multifaceted genius, represents the most perfect model of Renaissance man.

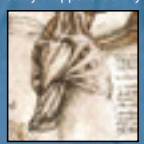
His anatomical studies are collected in the *"Anatomical Manuscript A"* (1510-1511) focus on the osteology and miology .
It´s believed that he started with human dissection shortly before 1480. He dissected his friend *"Vecchio"*.This fact is reckoned as the First Scientific Autopsy. He said that *"the cause of death were the arteries..."*

***"The noblest pleasure is the joy of understanding"***

He describes among many topics the *"Vitruvian Man"*, Canon of human proportions, famous drawing made around year 1490, where he presents a study of the proportions of the human body made from the texts of Vitruvius, architect of ancient Rome, from which the drawing takes its name. He Includes here the hand as part in the description of the mathematical proportions of the human body: *"The palm of the hand from the wrist to the tip of the middle finger is one-tenth of the total height of the individual", "Four fingers do a palm", "Four palms make a foot", "Six palms make an elbow", "Twenty-four palms make a man".*

First description of brachial plexus formed by c5 to c8 and t1 (with great precision in relation to current concepts)

Study of upper extremity muscles.



Descriptions of the pulleys of the flexor tendons of the fingers with its retention mechanism for avoiding tendon bowstringing in the digital flexion

These sheets comprise a sequence of eight drawings in which Leonardo turns a body through 180 degrees. The animation above captures this sequence. All the superficial muscles of the upper arm and shoulder can be identified. There are a few idiosyncrasies (such as the division of the deltoid muscle, over the shoulder, into distinct elements), but the drawings and notes reveal a profound understanding of the muscles.

# "Museums" Station II

## "The great anatomists of the hand" in the Renaissance

### Giovanni Battista Canano

was born in Italy in 1515 and his work is mostly unknown. His only published work was "Musculorum humani corporis picturata dissection" in 1543, a small book but of outstanding importance for its originality

It contains the first anatomical drawings of the lumbrical and interosseus muscles of the hand, and the first description and drawing of the short palmar muscle (palmaris brevis) and of the thumb adductor, which Vesalius did never observed and which was unknown to Galeno.
Also he described the extensor tendons in detail.

### Juan Valverde de Amusco (or "de Hamusco") (1525-1588)

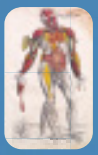
was born in the Kingdom of León (Spain) and studied medicine in Padua and Rome. He published "Historia de la Composición del Cuerpo Humano" (1556).
All but four of its 42 engraved copperplate illustrations were taken almost directly from Vesalius's Book, however Valverde corrected some Vesalius' images

One of Valverde's most striking original plates is that of a muscle figure holding his own skin in one hand and a knife in the other one, which has been compared to St Bartholomew´s in The Last Judgment (Michelangelo) of the Sixtina Chapel. It was a major step in the use of spanish as the language of science, as it increased the anatomical vocabulary in this language.

He describes the function of cutaneous fixing of the palmar aponeurosis: "The palmar aponeurosis provides, because of its many insertions, a strong and stable hand grip", and made the first descriptions of the extensor apparatus of the fingers (single central tendon).



"Museums" Station II

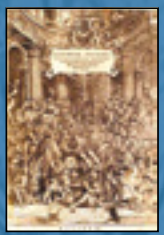


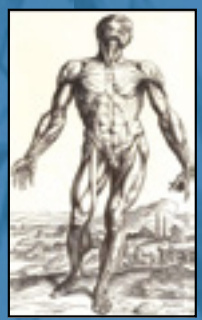
"The great anatomists of the hand" in the Renaissance

### Andreas Vesalius (1514-1564)

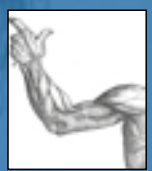
The renaissance descriptive anatomy acquires its apogee with Andreas Vesalius (1514-1564) born in a Bravantian (in modern-day Belgium). In 1537 he goes to Padua where he became, with only 23 years, professor of anatomy and surgery.

He published in 1543 "De humani corporis fabrica" consisting of 7 volumes with 300 illustrations by E. Calcar, disciple of Tiziano (Italian painter).
He describes the huge disparity that existed between what it can be read in the works of Galen and the reality of dissection. He is considered to be *"the founder of modern anatomy"*.
He was the first to give each muscle a name according to the movement it performed.

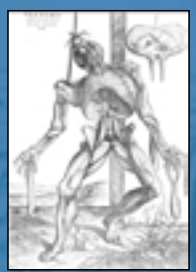




He defined hand as the main part of the human body as among its functions he described: *"to carry hand near the mouth to maintain whole body", "to exercise all the mechanical arts", "to perceive and recognize all objects by touch sensitivity, which is most perfect in the hand than in the rest of the body", " they are useful for defending the body but also can attack holding all kinds of weapons".*
For this last reason he called hands *"weapons above all the weapons"*



Hand's bones and joints descriptions



Hand's intrinsic muscles and extensor tendons descriptions.

Palmaris brevis anatomical details.

Hand's vascularization

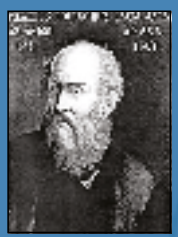
# "Museums" Station II

## "The great anatomists of the hand" in the Renaissance

### Bartolomeo Eustachi (Eustachius) (1500 - 1574)

Italian physician and anatomist published his *"Opuscula anatomica"* (1563) in Venice with annotations made by his relative and disciple, Pier Matteo Pini.
This book contains a series of anatomical illustrations.


He gave the name to the *"lumbrical"* hand muscles and described the extensor apparatus of the last four fingers and thumb with their interdigital connections with its approximate morphology.
He drew the distal ends of the intrinsic muscles of the thumb on the extensor mechanism.



### Realdo Colombo (1516 - 1554)

The Italian anatomist born in Cremona, first disciple and then successor of Vesalius, with the support of his work *"De re anatomica"* (Venice 1559) is one of the undisputed references of anatomy. He described the morphology of the lumbrical muscles in the hand.

### Gabrielle Fallopio (1523 - 1562)

was another physician influenced by the work of Vesalius.
He teached in Padua surgery and anatomy at the beginning of 1551, and publishing *"Anatomical observations"* (Venice, 1561); review of the Fabrica of Vesalius, without illustrations. In conjunction with Vesalius he described the extension of the IFD fingers through the interosseous muscles and mentions the functions thereof.

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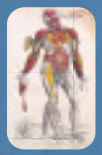
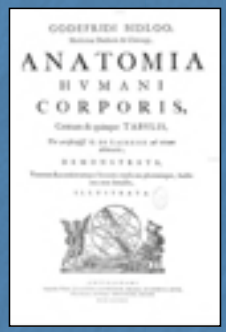


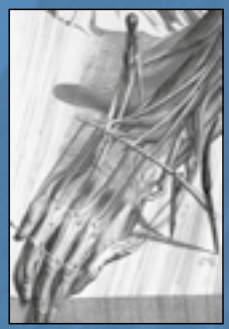
## Post Renaissance hand´s anatomical descriptions

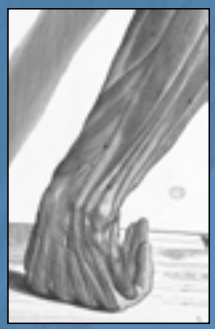
### Godofredo Bidloo (1649 - 1713)

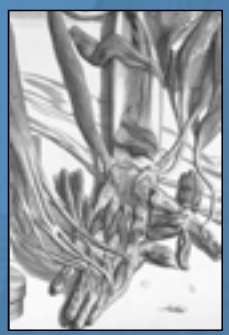
He was a Dutch anatomist.
He taught at The Hague and Leiden and was the Doctor of William III, King of England.
His major works include *"Variae anatomiae medicae positiones"* and *"Anatomia corporis humani"* (1685)

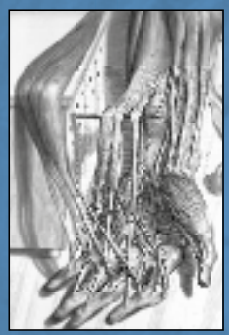



He described the inclusion in the phalanges of the extensor apparatus of the fingers and the extensor retinaculum of the wrist









Excellent drawings of the thenar and intrinsic muscles and the flexor tendons

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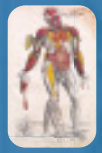
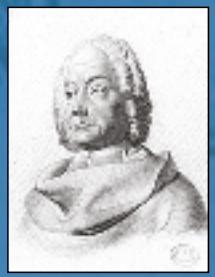
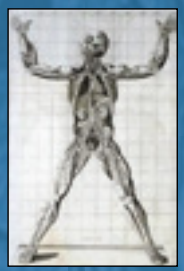


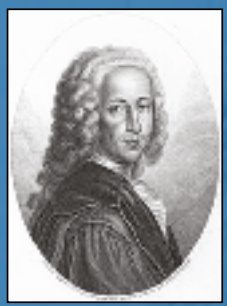
## Post Renaissance hand´s anatomical descriptions



### Jacques Benigne Winslow (1669 - 1760)

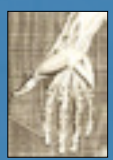
Was a French physician and anatomist (Danish origin).
His major work was *"Exposition Anatomique de la Structure du Corps Humaine"* in 1732. He describes the extensor tendinous rhombus, the extensor tendinous rhombus's triangular ligament, the sagittal band (lateral expansion of the extensor tendons), the trapeziometacarpal joint as *"double ginglymus"*, and recognizes the actual longitudinal rotation of the thumb. He is the first one to describe that some muscle fibers of the thenar muscles(which in the present are recognized as part of the short flexor of the thumb) end up on the lateral or palmar sesamoid bone.



### Bernhard Siegfried Albinus (1697 - 1770)

was a Dutch anatomist of German origin.
He taught at the University of Leiden, best known for the exalted prints of his book *"Tables of the skeleton and muscles of the human body"* (1734)

In the hand he described: the transverse fibers of the middle palmar fascia, the bifurcated fibers of pretendinosas bands *("two prolongued")*, the current terminology of the thenar muscles; he gave the name to the "interosseous muscles" and classified them in dorsal and palmar and finally gave name also to the paratendinous vertical partitions



# "Museums" Station II

## Post Renaissance hand's anatomical descriptions Anatomist's French School. Nineteenth century


Portal 1742-1832

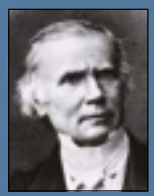

Desault 1744-1795

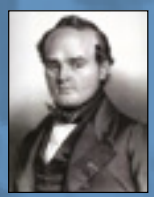

Bichat 1771-1802


Dupuytren 1777-1835


Cloquet 1790 -1883


Cruveilhier 1791-1874


Velpeau 1795-1867


Bourgery 1797-1849


Duchenne 1806 -1875


Farabeuf 1841-1910


Ranvier 1835-1922


Testut 1849-1925


Rouvière 1876-1952


Latarjet 1877-1947


Poirier and Charpy 1899

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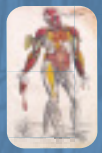

## Post Renaissance hand's anatomical descriptions

**Francesco Antommarchi (1789-1838).**

Personal physician to Napoleon Bonaparte on the island of St. Helena.
*"Planches anatomiques du corps humain exécutées d'après les dimensions naturelles accompagnées d'un texte explicatif"*; [1826]. Twenty four natural size sheets of the human body, actually there are only eight games of Antommarchi lithographic sheets in the world and one is in the Medical School Graduate's Library at the University of Buenos Aires, Argentina.

He performed here the anatomical description of the hand's deep palmar arch with details of the blood supply to the intrinsic muscles.

Flexor and extensor tendons.
He called *"ligamenta vaginalia"* to A2 and A4 pulleys, *"annuli ligamentous"* to A1 and *"ligamenti obliqua cruciformia"* to C1 and C2 of the last four fingers.
He also describes the flexor pollicis fibrous sheathwith a pulley at the level of the metacarpal phalangeal articulation and another oblique pulley on the first phalanx.

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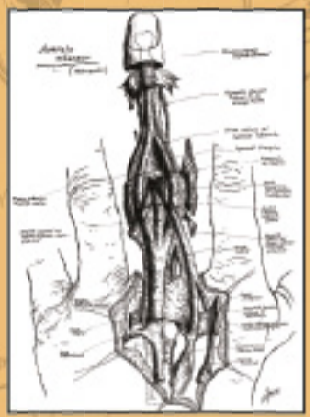
# Station II

## Surgical Anatomy

Drawings by Eduardo A. Zancolli



*Acad. Prof. Eduardo A. Zancolli, MD*

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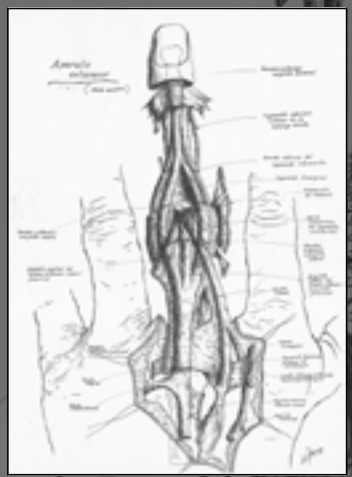
# "Museums" Station III

Buenos Aires 2013

## Surgical Anatomy

Drawings by EA Zancolli



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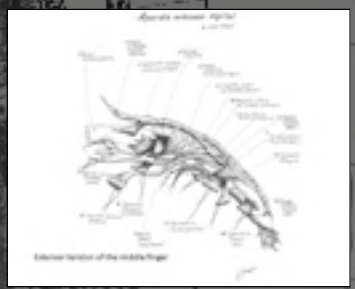

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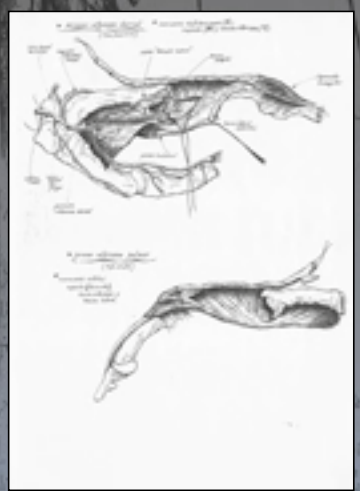
Ed. Med. Pan.



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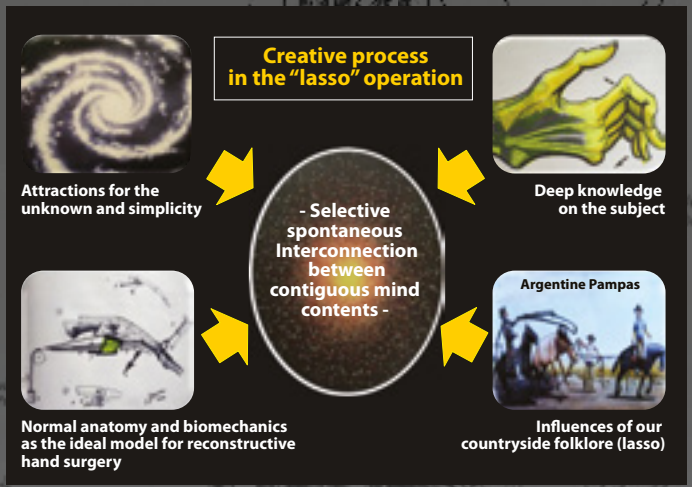
# "Museums" Station III

## Surgical Anatomy

Drawings by EA Zancolli




The "lasso" technique

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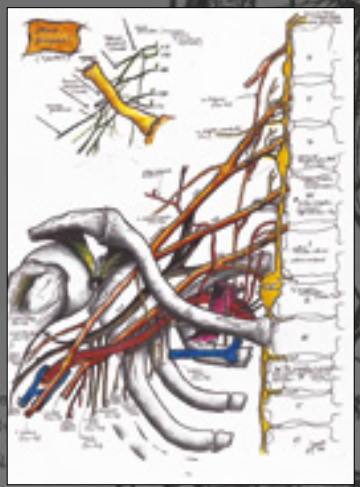
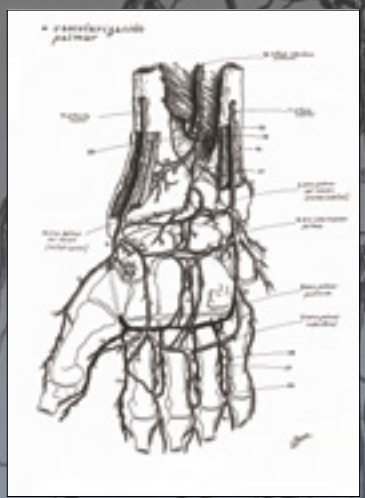
# "Museums" Station III

## Surgical Anatomy
Drawings by EA Zancolli



Ed. Med. Pan.



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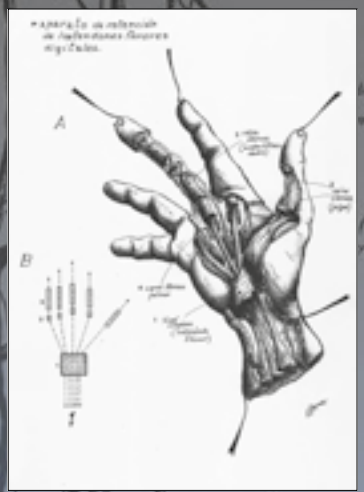

Ed. Med. Pan.

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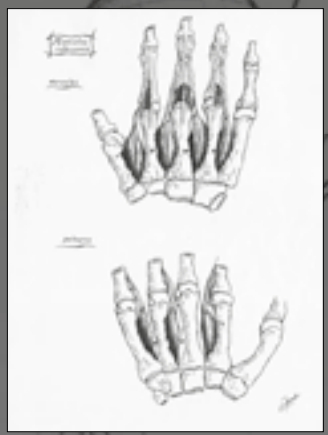
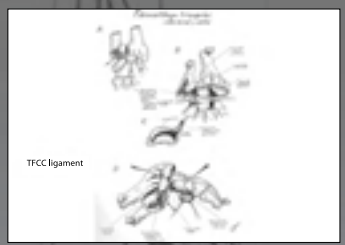
# "Museums" Station III

## Surgical Anatomy
Drawings by EA Zancolli







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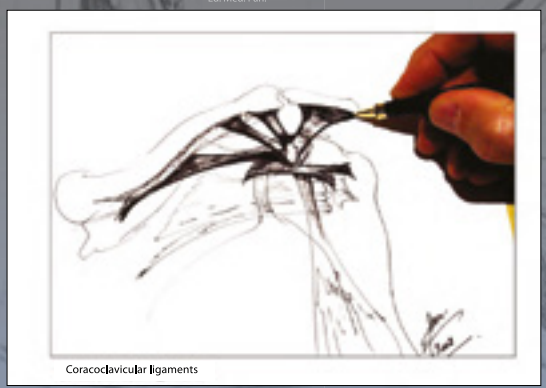


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# Station IV

## Hand Anatomy in Argentina

"Tribute to Elbio Cozzi"

*Carlos Zaidenberg, MD*

*Homero Bianchi, MD*

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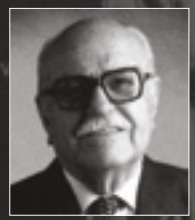
# "Museums"
# Station IV

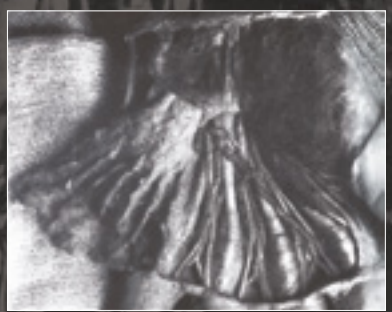


**Dr. Rodolfo Cosentino**
*(in memorian)*


**THENAR AND HYPOTHENAR MUSCLES. LONG FLEXOR TENDONS OF THE DIGIST. LUMBRICALS. FIBROUS FLEXORS SHEATHS**

The Median nerve supplies all the tenar muscles (excepted for the Adductor pollicis and the deep head of the Flexor pollicis brevis) and the two first Lumbricals.
The deep branch of the Ulnar nerve supplies the hypothenar muscles, the two medial Lumbricals, the Adductor pollicis, the deep head eof the Flexor pollicis brevis and all the Interossei.
The four Lumbricals are located in the palm between the flexor profundus tendon. The Lumbricals arise from the radial sides of the profundus tendons and inser into the radial sides of the extensor apparatus of the corresponding digits and the proximal phalanx. However, the two medial Lumbricals, arise from both adjacent profundus tendons. This accounts for the greater freedom of motion of the index finfger. The surgeon can reach the interosseous layer of the index and middle fingers without damaging the first and second Lumbricals muscles.
Within the proximal fibrous sheaths, on the proximal phalanx, the flexor sublimis tendon bifurcates and the profundus tendon glides through the sublims.
Observe insertion of the sublims tendon into the sides of the middle phalanx. The profundus tendons are inserted on the proximal volar surface of the distal phalanges.
Observe the insertion of the first and fourth Lumbricals on the proximal flexor fibrous sheath.

The palmar aponeurosis with the septa cut
at their base of insertion.
Digital nerves and Digital vassels.



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## Dr. Roque Nigro

Plexus Brachialis Vascularizations


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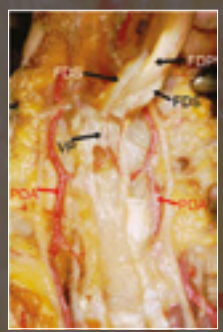
## Dr. Luciano Poitevin

First Rib. Costo-Septo-Costal Ligament

Scalene Muscle Complex


T1 Buttonhole

Blood Supply to the Fingertip



Blood Supply to the PIP Joint and flexor tendons

Distal Interosseous Membrane of the forearm

Radio-Scapholunate-Ligament (Testut-Kuenz)

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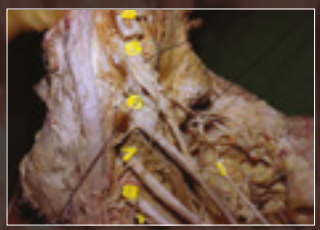
# "Museums" Station IV

## Original Dissections by Elbio Cozzi




Braquial plexus



Supraescapular and frenic nerves



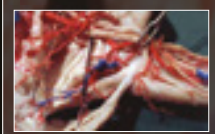
Cervical's roots

Symphatetic fibers braquial plexus



Latisimus dorsi fascicle

Braquial plexus vascularization



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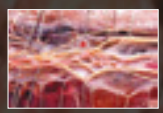
Original Dissections by Elbio Cozzi





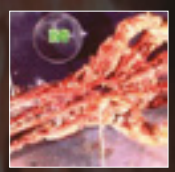


Ulnar nerve fasciculation




Braquial plexus


Median nerve



Superficial palmar arch

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# Station V

## The Hand in Animals

in photographs

*Alberto Garay, MD*

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# Station VI

## The Hand in Philately


*Carlos E. Martínez, MD*

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