University of CINCINNATI

The Illustrated Human: The Impact of Andreas Vesalius

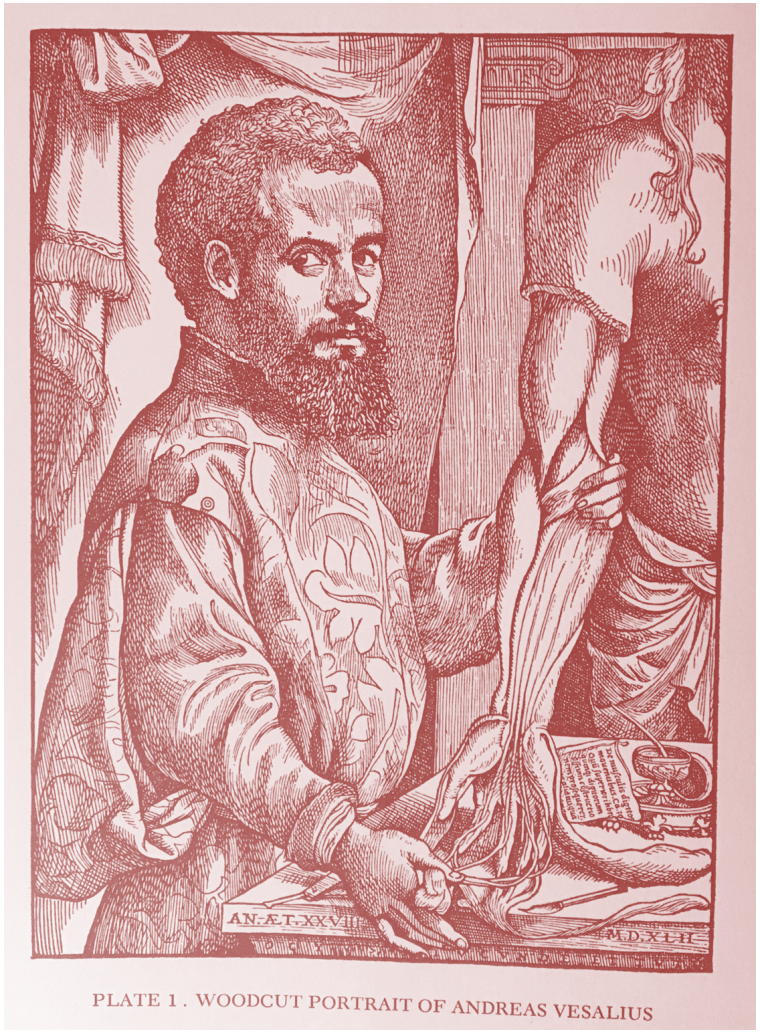
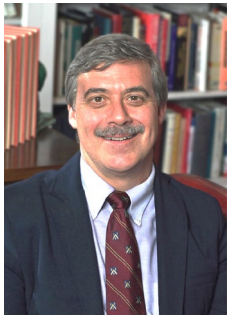


PLATE 1. WOODCUT PORTRAIT OF ANDREAS VESALIUS

Andreas Vesalius: Life and Times Revolutionizing Human Anatomy



Philip M. Diller, MD-PhD
Professor and Chair, Winkler Center Advisory Board

Introduction to the Exhibits

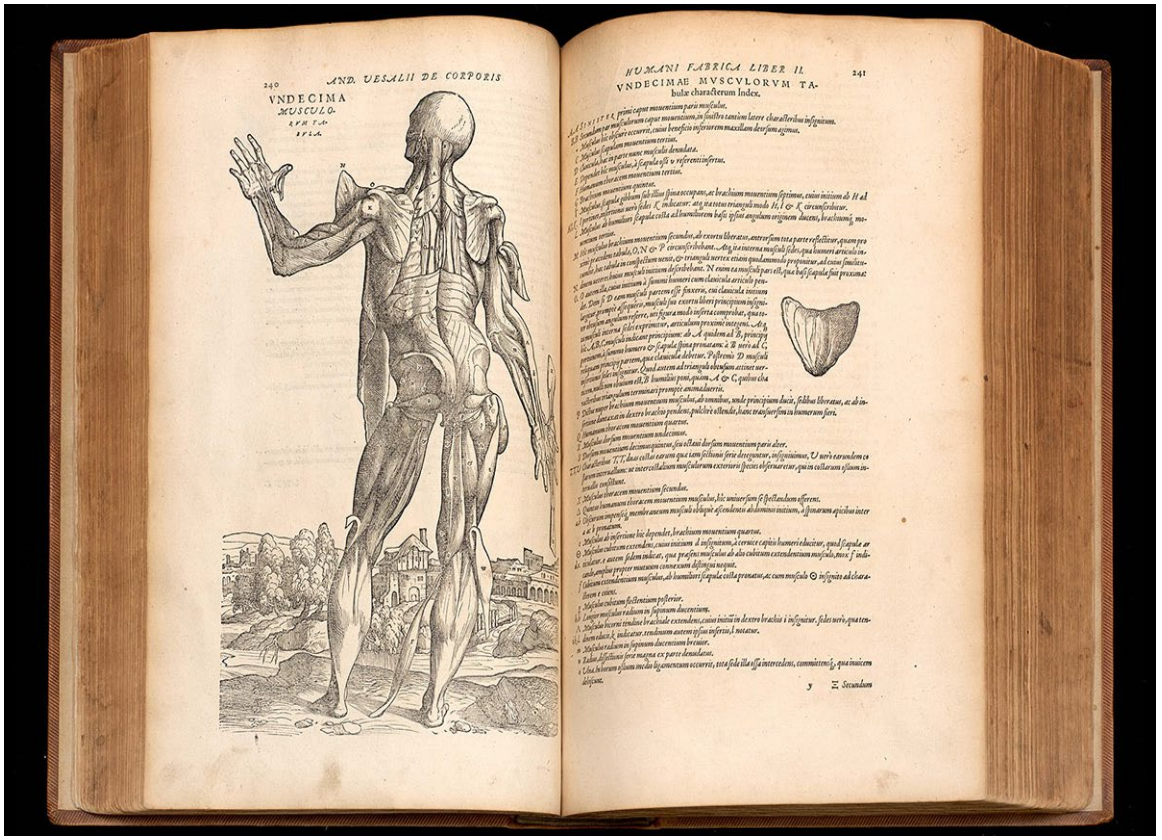
Gino Pasi, MA. Associate Librarian and Archivist, Winkler Center

October 26, 2021
7:00PM

University of Cincinnati
Henry R. Winkler Center for the History of the Health Professions

One of the greatest treasures of Western Civilization

"The work of Andreas Vesalius constitutes one of the greatest treasures of Western Civilization. His masterpiece, ***The Fabric of the Human Body,*** issued in 1543, established the beginning of observational science and research. Vesalius ranks among the great physicians …. and discoverers in the history of medicine. The book is not only one of the most remarkable known to science, it is one of the most noble and magnificent volumes in the history of printing. In it, illustration, text and typography blend to achieve an unsurpassed work of creative art, the embodiment of the Renaissance. [1]



[1] JB de C. M. Saunders and Charles O'Malley. *Vesalius : The Illustrations from His Works* The World Publishing Company. New York 1950. p9.

PLATE 1. WOODCUT PORTRAIT OF ANDREAS VESALIUS

The Illustrated Human: *The Impact of Andreas Vesalius.*

Multi-Media Series featuring International Vesalius Scholars and Local Faculty & Experts

Lectures and Exhibits

Session each month October, 2021 through March, 2022

PLATE 1. WOODCUT PORTRAIT OF ANDREAS VESALIUS

Lead Sponsors of the Series Stephen and Sandra Joffe

Supporting Sponsors of the Series

- UC Libraries – Led by Dean Xuemao Wang
- The Cecil Striker Society of the Henry R. Winkler Center for the History of the Health Profession
- Winkler Center Advisory Board Members and Friends of the Winkler Center

Special Thanks to the Vesalius Series Planning Team

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UC Foundation

Maggie Ibrahim-Taney
UC Alumni Association

Session 1 Agenda

- Introducing the Multi-Media Series: *How the series was conceived and what we hope to accomplish*
- *The Exhibits to See and Engage* – Pasi
- *The Life and Times of Andreas Vesalius* – Diller

  How was Vesalius able to create the Fabrica by age 28?
- Introduce Future Lectures – Diller

The Idea for the Series

Introducing the Multi-Media Series:

An Inspiring Mentor

Dr. Stephen Joffe MBBCh, MD, FACS, FRCS

- Education: South Africa, London, Scotland (Glasgow & Edinburgh)
- 1975-1980 Faculty University of Glasgow, Dept of Surgery; 1976 MD Thesis;
- 1980-1989. University of Cincinnati Dept of Surgery; *Professor of Surgery and Medicine*, and Director of the Division of Gastrointestinal Surgery
  - Developer of neodymium YAG laser in surgery with patented contact sapphire probes;
    - Nearly 200 peer-reviewed articles, author or editor of 9 books on lasers and their application in medicine and surgery.
- 1990-present. *Esteemed Quondam Professor of Surgery*, Department of Surgery, University of Cincinnati
- *Entrepreneur*. began in 1983, and full-time in 1990. Founder of multiple companies—notable, founder & CEO of LCA-Vision Inc. 1995-2006.
- *Medical Historian*—life-long interest
  - Published 2 books on Andreas Vesalius; multiple peer-reviewed publications and is a rare book collector of the early anatomists from the Renaissance.
  - 2018-2023. Visiting Professor in History of Medicine, Cedars-Sinai, Los Angeles, CA

The Illustrated Human: *The Impact of Andreas Vesalius. Series Intent*

- Share stories describing the impact of Vesalius on
  - adoption of the *scientific method* to advance medical science and how it initially met resistance
  - *understanding the human body*
  - *Creating books* that integrate text and illustrations
  - How *critique and new discoveries lead to revisions* and new editions
  - *teaching of anatomy* for physicians and artists.
- Unique opportunity to exhibit and engage with the 1543 and 1555 books in their original state.
  - Additional Companion Exhibits


PLATE 1. WOODCUT PORTRAIT OF ANDREAS VESALIUS

Exhibits to See and Engage

Introduction to the Exhibits

Gino Pasi, MA. Associate Librarian and Archivist, Winkler Center

How Was Vesalius able to Create the Fabrica by Age 28?

1. Time Period and Place
2. Family Heritage
3. Schooling & Mentors
4. Faculty Position at University of Padua
5. Publishing the Fabrica 1543
6. Summing Up: How Vesalius was able to create the Fabrica by age 28.
7. Reception of the Fabrica
8. Post-Fabrica Years: Career as Surgeon and Physician

Time and Place:
Renaissance Europe (1400-1600)

- Period of questioning, inquiry and discovery: "Rebirth"
- Major Social Changes During the Renaissance
  - Creation & *commercialization of the printing* press 1450—
  - *Exploring the world; discovery of the new world* 1492, accurate maps; new peoples
  - *Reformation* 1517 Martin Luther—*empowering individuals to read* the scripture, *question, and decide for themselves* vs the traditional Catholic Church dogma
  - *Humanism*—the importance of critical thinking, reasoning and scholarship in human affairs: *study of humanity; re-discovery* of the language, literature, and philosophy of *ancient Greece* translated into Latin.
- Vesalius lived (b. Dec 31, 1514--d. May ?, 1564) in the middle of the Renaissance; his life and work major impetus for a scientific approach to understand "fabric" of the human body.

Family Heritage: *Medicine, Education and Public Service to the Royal Family .*

- Born in Brussels to Andries and Isabel Van Wesele.
- Family of Origin Influences
  - *i.* *Role models* of medicine, educators and scholars
  - *ii.* *Service* to the Emperors through the generations
  - iii. Catholic tradition; early *classical education*
  - *iv.* *Financially secure*
  - *v.* *Valued learning* and scholarship; *books* passed down
  - vi. Promoted interest in and expectations for a medical career

5 Generations of Witing's originating from Wesel

Peter van Wesele	Physician, scholar ?Served Emperor Fredrick III
↓	
Johannes de Wesele b. ~1410/13 -- d. 1476	Physician, Dean of Medical School Served Emperor Fredrick III, Public Health City of Brussels
↓	
Everard van Wesele b. 1449 – d. 1485	Physician, Scholar; served Royal Family
↓	
Andreis van Wesele b. 1479 – d. 154?	Apothecary to Emperor Charles V
↓	
Andreas van Wesele "Vesalius" b.1514 – d. 1564	Physician, Scholar; served Emperor Charles V as physician/surgeon

Early Schooling

Childhood. Little known; started school around age 6, leading to college preparatory course for University. Grammar, dialectic, rhetoric.

University. Age 15 started at Castle College in the University of Louvain (”most distinguished school)”) studying for Master of Arts degree; a degree required for entrance into professional school

Castle College, Louvain

-lecture based curriculum: Latin and Greek, literature, philosophy & rhetoric; e.g., Aristotle’s *de Anima*

-develops proficiency as a detailed illustrator;

-took extra course at the Trilingual School: Latin, Greek, Hebrew -excels in learning and special interest in medical subjects emerged—e.g., “When is the human fetus complete?’

Deciding on a Medical Career and Mentors

- Appears Vesalius made the decision while at University.
  - Strong family tradition, role models; natural interest in the human body; did well in school
- *Mentor*: *Nicholaus Florenas*, family friend, father-like figure, patron, physician to the Emperor, played a determining role in Vesalius's life:

"When you became aware several years ago that I was going to devote my labors to the study of medicine, you deemed it worthy to prescribe for me a certain and most useful method of studying the Hippocratic art. This method I have followed with the greatest possible diligence."

- *Key Family Event 1531*: Father Andreis's birth is legitimized the Emperor; securing the open door for Vesalius' medical school after graduation in 1533.

Medical School at University of Paris (1533-1536)

4 year program leading to Bachelor of Medicine

YR 1	YR 2	YR 3	YR4
Materia Medica	Pharmacy	Physiology	Physiology
Pharmacy	Pathology	Materia Medica	Surgery
Physiology	Surgery	Pathology	Pathology

- November to June school year
- Lectures: Regent Lecturer 1— 8-11AM
  Regent Lecturer 2— 2-4PM

Lecture Style at University of Paris 1533

Reading texts of

Hippocrates

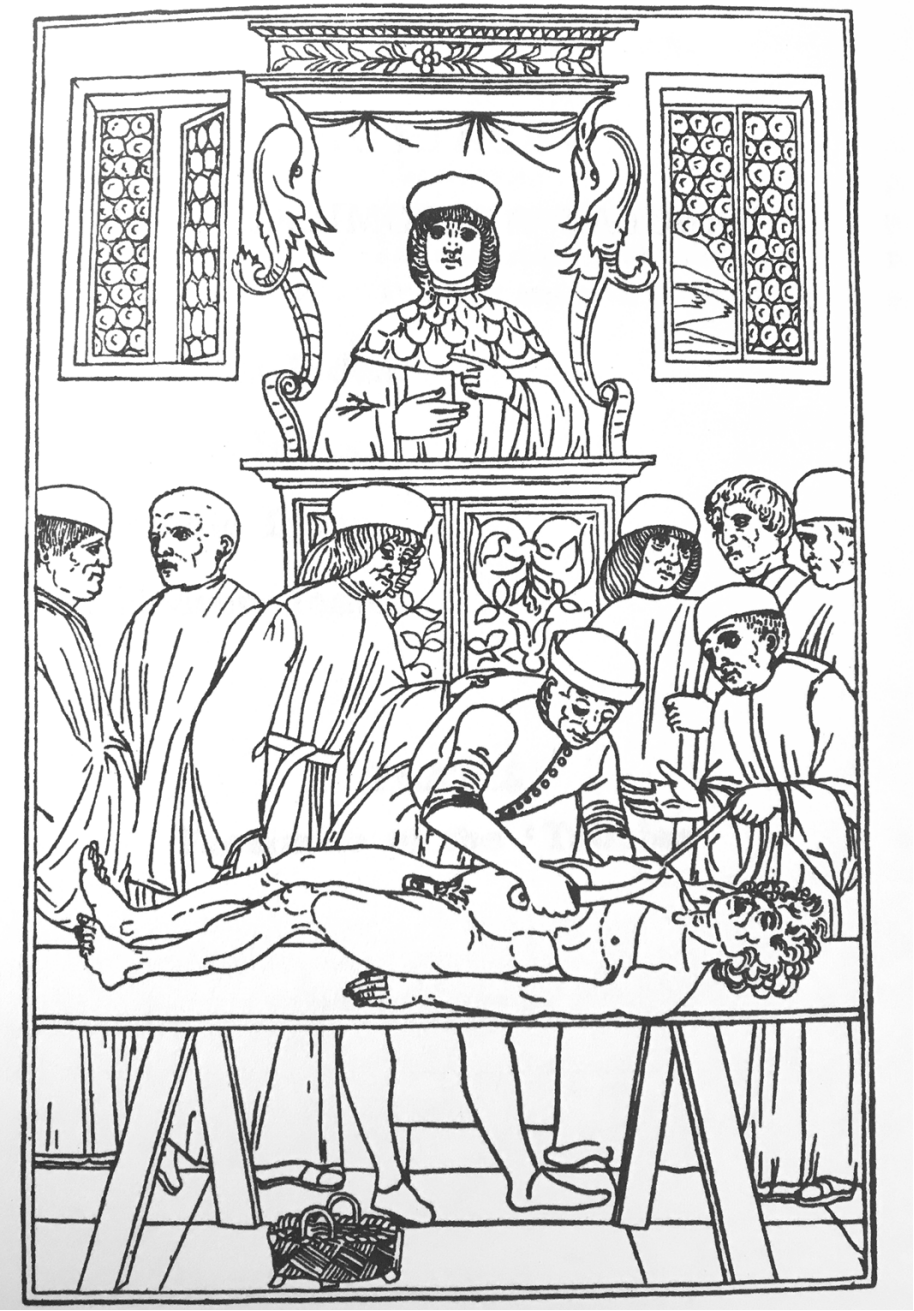
Galen

Theophilus

Avicenna

Rhazes

and with a Demonstrator



Mentor from earlier time Period: Galen (129-216 CE)

Claudius Galenus "Galen"

-a learned Greek Physician—writings dominated Western medicine for 1300 years.

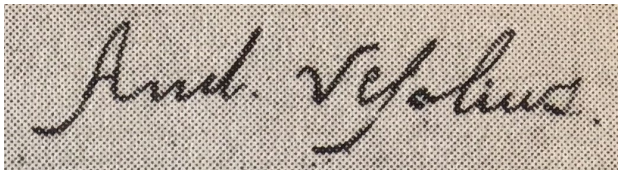
-Prolific. 22 volumes of works–considered to be 1/3 of his total corpus of work

-Anatomy is foundation to medical practice.

-New translations of Galen's work from Greek to Latin as part of the Renaissance beginning in 1490 and continuing for the next 50 years.

-15 Books "Anatomical Procedures" describe methods of dissection and findings

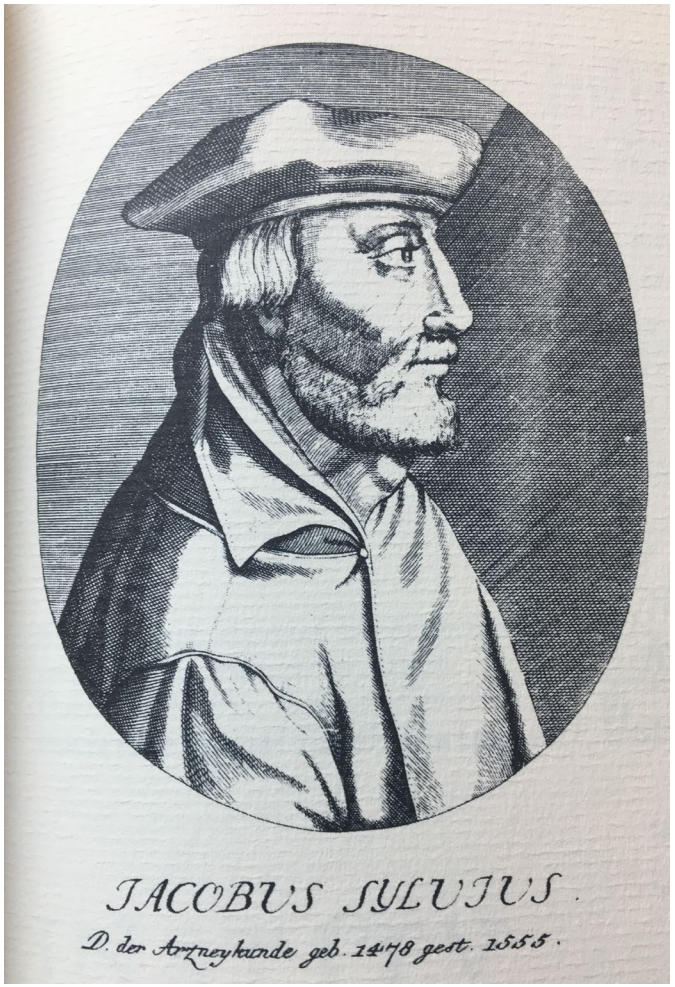
- Vesalius used Galen as his primary text; later translated Galen's works;



Vesalius Copy of Galen Text

Mentors in Paris: *Formative Anatomy Teachers*

Johannes Guinter of Andernach
(1505-1574)



Jacobus Sylvius
(1478-1555)

Teaching & Learning Anatomy In Paris 1530s

- Surgery was subservient to medicine and *anatomy was not seen as foundational or a separate discipline*.
- Very limited availability of human bodies for learning
- Guinter translated Galen's 9 books on *Anatomical Procedures* in 1531 and was the basis for teaching and learning anatomy.
  - Galen's seen as the authoritative source of truth and infallible. No spirit of free inquiry.
  - Vesalius assisted as demonstrator.
- Sylvius translated Galen's works and dissected animals as part of his lectures allowing students to participate; did not use demonstrators.
- Both responsible for introducing anatomical terms still in use.
  - Guinter—e.g., coronary, colon, interseptum
  - Sylvius—e.g., blood vessels: gastric, popliteal, axillary, mesenteric, subclavian

Finishing his Medical Degree at the University of Louvain

- Due to war in 1536 between France and the Holy Roman Empire, Vesalius, an enemy alien, had to leave Paris abruptly.
- Returned to University of Louvain Medical School for his final year.
  - *Opportunities for human dissection* were greater; e.g., Burgomaster made cadavers of executed criminals available upon request.
  - Served as an anatomy demonstrator and lecturer while performing the dissection
  - MD Thesis—A Paraphrase of Rhazes 9th Book (on treatments)—suggested by Florenas, was his first published work; had great-grandfather's commentaries .
  - Graduated ~ August 1537 with Bachelor of Medicine.

Age 23 has M.B. What to do next?

Young Vesalius Portrait
by Stephen van Calcar

?

Practice?

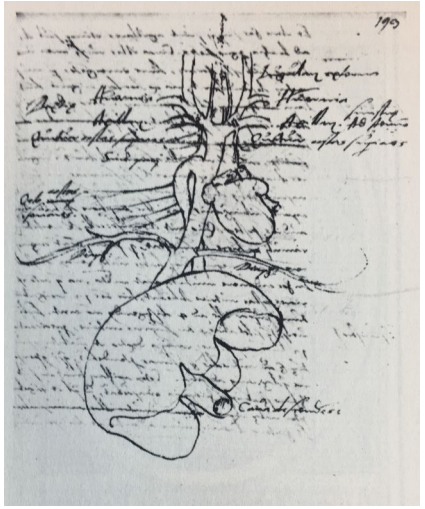
More Training gain M.D.

Academia?

Seek to serve the Emporer

Academia. Faculty Position at Padua: *December 1537 – June 1542*

- **Receives MD:** Completes 3 Exams in Five days Dec 1537.
- **Opportunity:** Chair of Surgery and Anatomy with human bodies available for teaching
- Adopted a scientific approach to learning human anatomy making & recording discoveries through direct observation
- *Introduced innovative approaches to teaching* anatomy
  - Prepared illustrations for students
  - Lecturer, dissector, demonstrater all in one
  - Used Guinter's Institutes of Anatomy and Galen as texts for students



Copy of one of Vesalius drawings from his first anatomy lectures 1537.

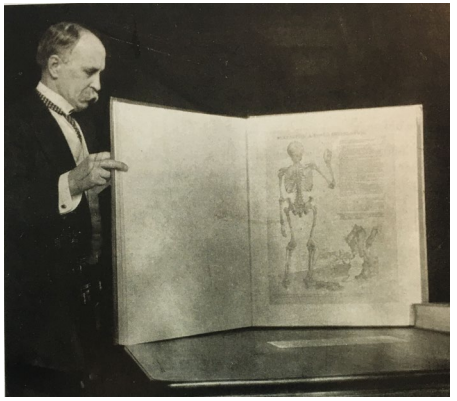
- *All the elements and vision for a major work were emerging.*

Faculty at Padua:
December 1537 – June 1542

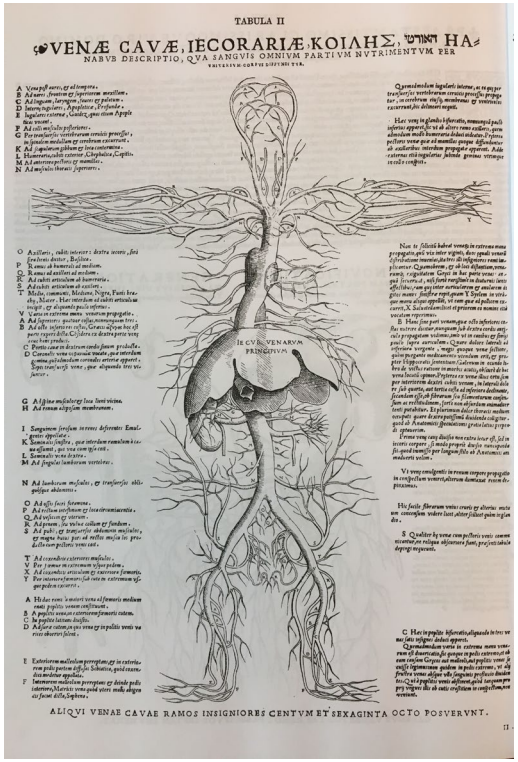
- Produced two educational resources for students in the first five months
  - Publication of *Tabulae Anatomicae Sex (March, 1538) 6 annotated illustrations*
  - Revised Guinter's *Institutes of Anatomy* as a dissector manual (April, 1538)
- Well-received by students and marked a transition in Vesalius's career: No longer a pure Galenist.

"Study of human anatomy should depend solely upon dissection and observation of human specimens."

Introduction of the Tabulae: "hopes to add something more considerable."



William Osler holding a copy of the *Tabulae Anatomicae Sex.*

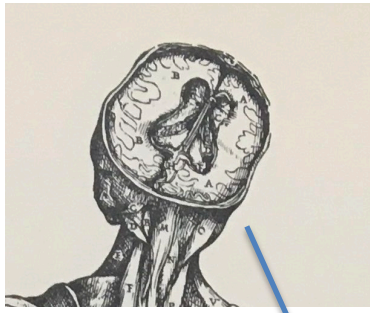


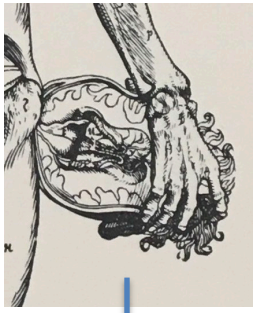
One of the 6 pages of the *Tabulae Anatomicae Sex.*

Faculty at Padua: Creating the Fabrica
December 1539 – June 1542

- While teaching begins work on the Fabrica in 1539-1540, and is completed by June 1542 (2 ½ years).
- 700 pages of Latin text integrated with nearly ~300 illustrations created by Venetian artists (Titian studio) and block cutters using engraved pear wood blocks.
- Required extensive reading plus investigation by dissection.
  - Likely had a team of students who attended his required "Private Dissections." akin to Research Seminar
  - Did dissections alone at his home as well.
  - "No domestic responsibilities."
- *Fabrica*: 7 books in one describing human anatomy in its fullest description, with great visual detail and offering an approach to others on how to dissect, retaining much of Galen's work while beginning to correct Galen's errors.

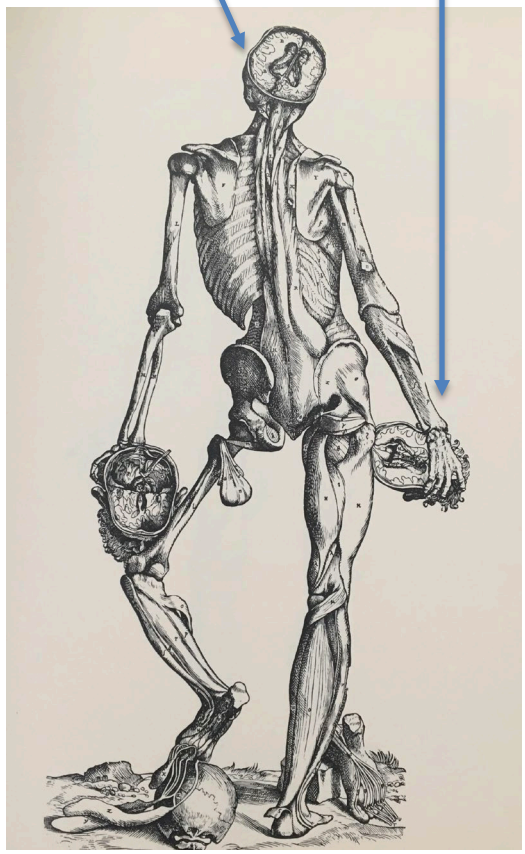
Illustrations





Human Skeleton
"Skeletal Hamlet"

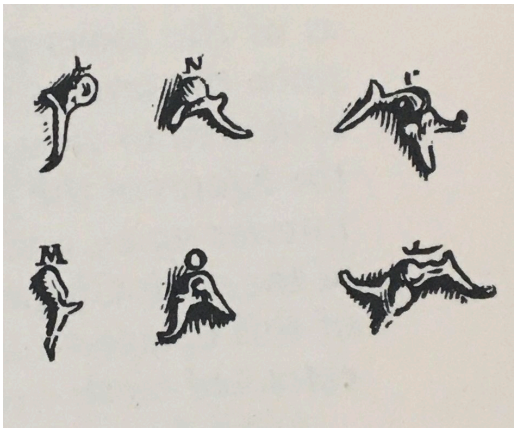
Muscle Man



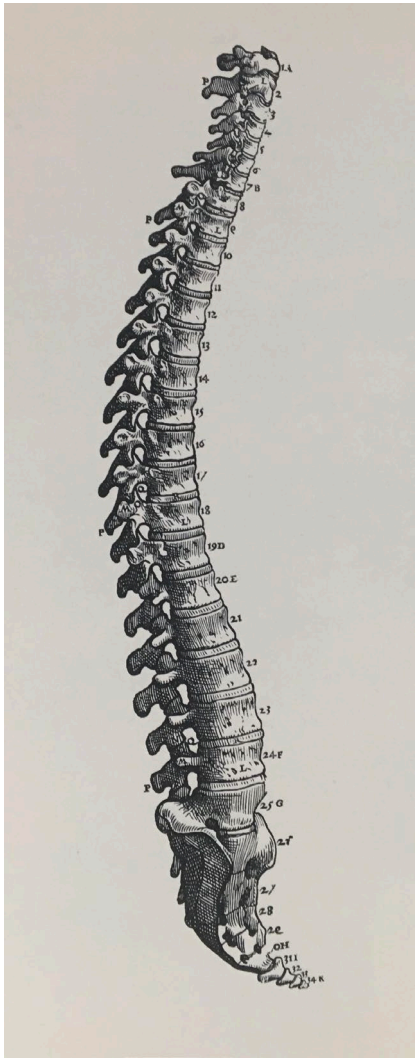
Showing the Inner Mind

Illustrations

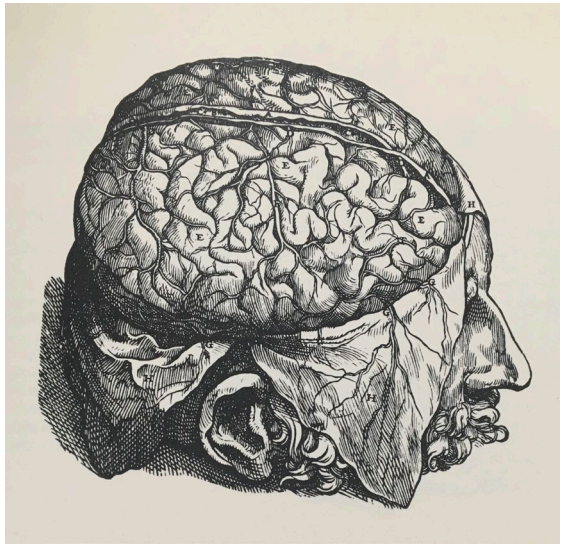
PLATE 1. WOODCUT PORTRAIT OF ANDREAS VESALIUS



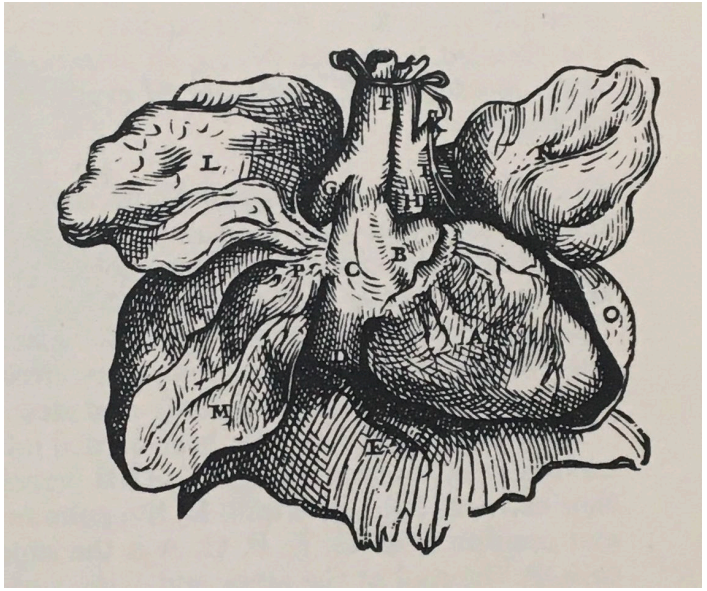
Bones of the ear
(two views)



Spine



Surface of human brain



Human heart and great vessels

Publishing the Fabrica: *Basel 1542-1543*

- Woodblocks packed and shipped to the Printer in Basel: Johannes (Herbst) Oporinus in Basel
  - Each woodblock accompanied by a proof
  - Descriptive text for each illustration
  - Full directions for the arrangement of illustrative material integrated with the text.
- Printed on 17 ½ by 22 ½ inch paper (demy-size)
- Vesalius took leave from University of Padua to oversee the printing and publication in Basel (January-July 1543).
  - Also included a smaller book, the *Epitome* (1543)

    an abbreviated 36 page version for medical students including 9 illustrations; larger than the Fabrica by ~3 inches.

Summing Up: *How Vesalius Was Able to Create the Fabrica*

- ***Time period***: Renaissance – time of open inquiry and discovery
- ***Family of origin***: had financial resources; physician/teacher role models; access to books and legacy of scholarship; value of aesthetics in books
- ***Mentors***: directing his path
- ***Paris Medical School in 1530s***: Galen re-discovery as foundation, leading faculty (Guinther and Sylvius)
- ***Acquired Skills:*** drawing; ability to dissect and recognize different body tissues
- ***Louvain and Padua*****:** ***Access to human bodies*** *(*use of executed criminals) *for dissection to make his own observations.*
- ***Comparative Anatomy*** **Approach**: dissecting apes and dogs
- ***Encouragement*** of Students and fellow faculty at Padua; early works and teaching methods well received; desire for more.
- ***Character qualities***: Learner, Analytical, Ideation, Committed to Accuracy, Intellectualization, Self-Assurance, and Achiever

Reception of the Fabrica

Primary Audience: limited to wealthy intellectual elite who were able to afford it and read Latin.

Negative

- Heavily criticized from
  - His fellow physicians on the Emperor's staff
  - Paris Faculty: Sylvius and Guinther strongest

Positive

- Early Converts
  - Previews by printers in Basel
  - Those who followed him at Padua
    - Fallopios who eventually held the Chair for Surgery and Anatomy in Padua
- Plagiarized
  - Many

Within 15-20 years after publication the criticism waned and his approach to teaching and learning anatomy in Fabrica became more widely accepted.

Post-Fabrica Years: 1543-1564 Surgeon and Physician

- 1543. Applied and accepted for Imperial service to the Emperor as a physician and surgeon, also serving on the battlefield;
  - 1543-1556 Charles V; multiple war campaigns
  - 1556-1564 Philip II (1559 moved to Madrid, Spain w/Philip II)
- Home in Brussels; married Anne Van Hamme 1544 and daughter Anne born in 1545.

Charles V

Philip II

Post-*Fabrica* Years: 1543-1564

Surgeon and Physician

- *Learning how to practice*—eventually progressed to a distinguished physician and surgeon
  - 1553-1556 Primarily in Brussels building his clinical practice; time finishing revision of Fabrica (1555)
  - Surgical intervention for empyema, osteomyelitis
  - Entrusted with care of notable individuals (e.g., Don Carlos, son of Philip II) and difficult cases (e.g., Henry II w/ Ambrose Pare)

Post-*Fabrica* Years: 1543-1564

Surgeon and Physician

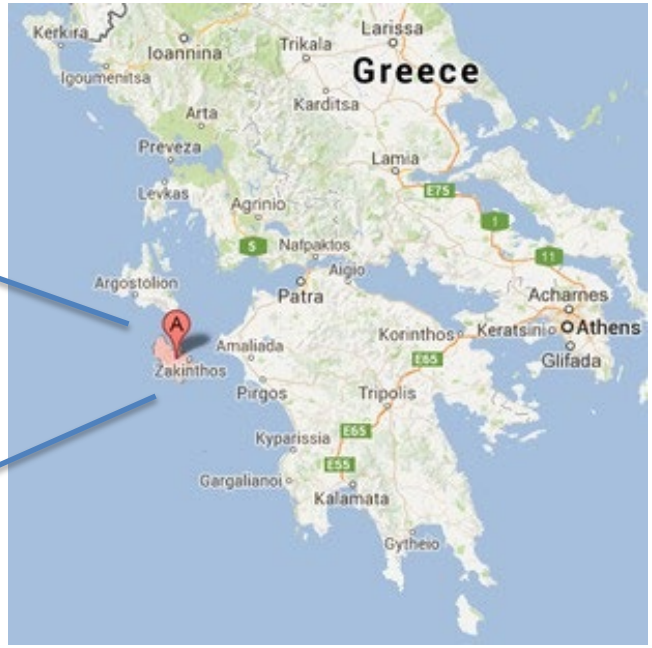
- Limited time for *scholarly pursuits*; additional published works
  - 1546 *China Root Epistle*
  - *1561 or '62 Examen of Fallopio's Observationes anatomicae* (Gabrielle Fallopio 1523-1562, Chair of Surgery and Anatomy at Padua)

Post-*Fabrica* Years: 1543-1564

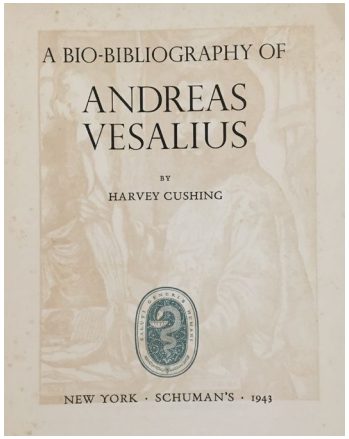
Surgeon and Physician

1564, age 50. *Death* after a brief illness while returning from a Pilgrimage to Holy Land at behest of Philip II, carrying a subsidy from Spain for Christian Churches; buried on the Greek Island of

Zante (Zankynthos)



Vesalius Bibliography:
Reading Primary Works



1. The Paraphrase of the Ninth Book of Rhazes (Feb, 1537)
2. The Tabulae Anatomicae Sex (April, 1538)*
3. Guenther's '*Instituiones Anatomicae*' (May, 1538)*
4. The Venesection Epistle (Jan 1539)
5. Contributions to the '*Opera Galeni*' (1541-1542); a new Latin translation from the original Galen books written in Greek

   Dissection of veins, arteries and nerves; Anatomical Procedures
6. The Fabrica* (June,1543)
7. The Epitome* (June, 1543)
8. The China Root Epistle* (June, 1546)
9. The 'Consilia'*—series of case reports written by Vesalius when he served as a consultant (1542-1562)
10. The Fabrica* 1555 2nd edition
11. The Examen of Fallopio's *Observationes anatomicae*, letter to Fallopio written in 1561-2, but published May, 1564

English Translations

2. A Prelude to Modern Science. A discussion of the history, sources and circumstances of the "Tabulae Anatomicae Sex of Vesalius. Charles Singer and C. Rabin. University Press Cambridge 1946.
3. Principles of Anatomy according to the Opinion of Galen by Johann Guinter and Andreas Vesalius. Edited by Vivian Nutton. Routledge. 2017
4. Andreas Vesalius Bruxellensis: The Bloodletting Letter of 1539: An Annotated Translation. John B.C,M, Saunders and Charles O'Malley. Henry Schuman, 1947.

6 & 10. Vesalius, The Fabric of the Human Body. DH Garrison and MH Hast. Kargar. 2013.

7. The Epitome of Andreas Vesalius. Translated by L.R. Lind and CW Asling. MacMillan Co. 1949.
8. Vesalius: The China Root Epistle. A new translation and Critical Edition. DH Garrison. Cambridge Univ Press. 2015.
9. Included in Andreas Vesalius of Brussels 1514-1564 by Charles D. O'Malley. Univ California. Press 1964

Second Session: November 16th

- **Speakers:** Dr. Daniel Margocsy and Gabrielle Fox
- **Title:** Making the *Fabrica*: *The Intellectual and Material Efforts Behind the Production of a Book*
- **Where:** Live in Kresge Auditorium UC COM/ also live-streamed recording using Webex format.
- **When:** 5:30PM with a reception.

Daniel Margocsy PhD
Reader in History of Science, Technology & Medicine
Cambridge University, England

Gabrielle Fox,
Rare Book Preservationist
Cincinnati, Ohio

Third Session: December 14th

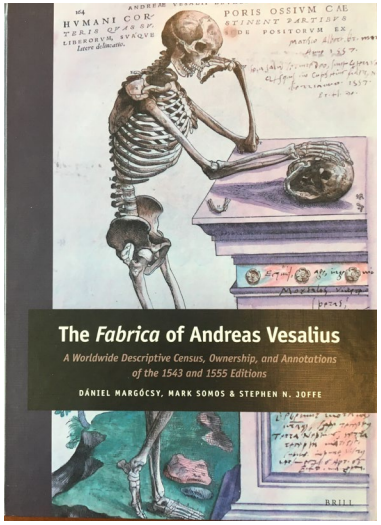
Speaker: Dr. Daniel Margocsy

Title: The Impact of Vesalius: Short-term and Long-term Perspectives.

Where: Live-streamed and recorded using Zoom format.

When: 12 Noon

Daniel Margocsy PhD
Reader in History of Science, Technology & Medicine
Cambridge University, England



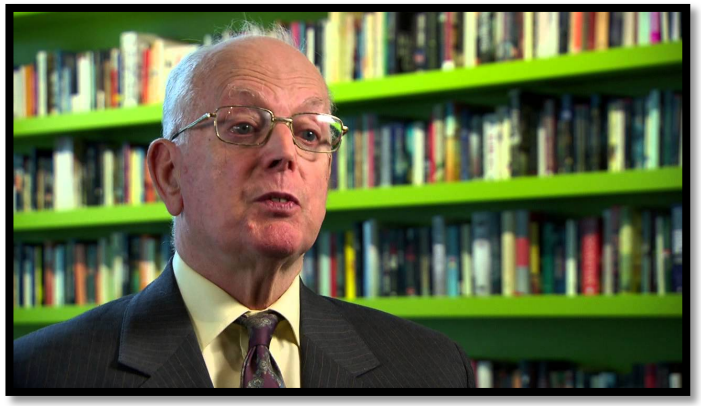
Fourth Session: January 18, 2022

Speakers: Dr. Vivian Nutton and Dr. Gerard Vogrincic, joined by Dr. Daniel Margocsy

Title: Planning for the 3rd Edition of the *Fabrica*

Where: Live-streamed and recorded using Zoom format.

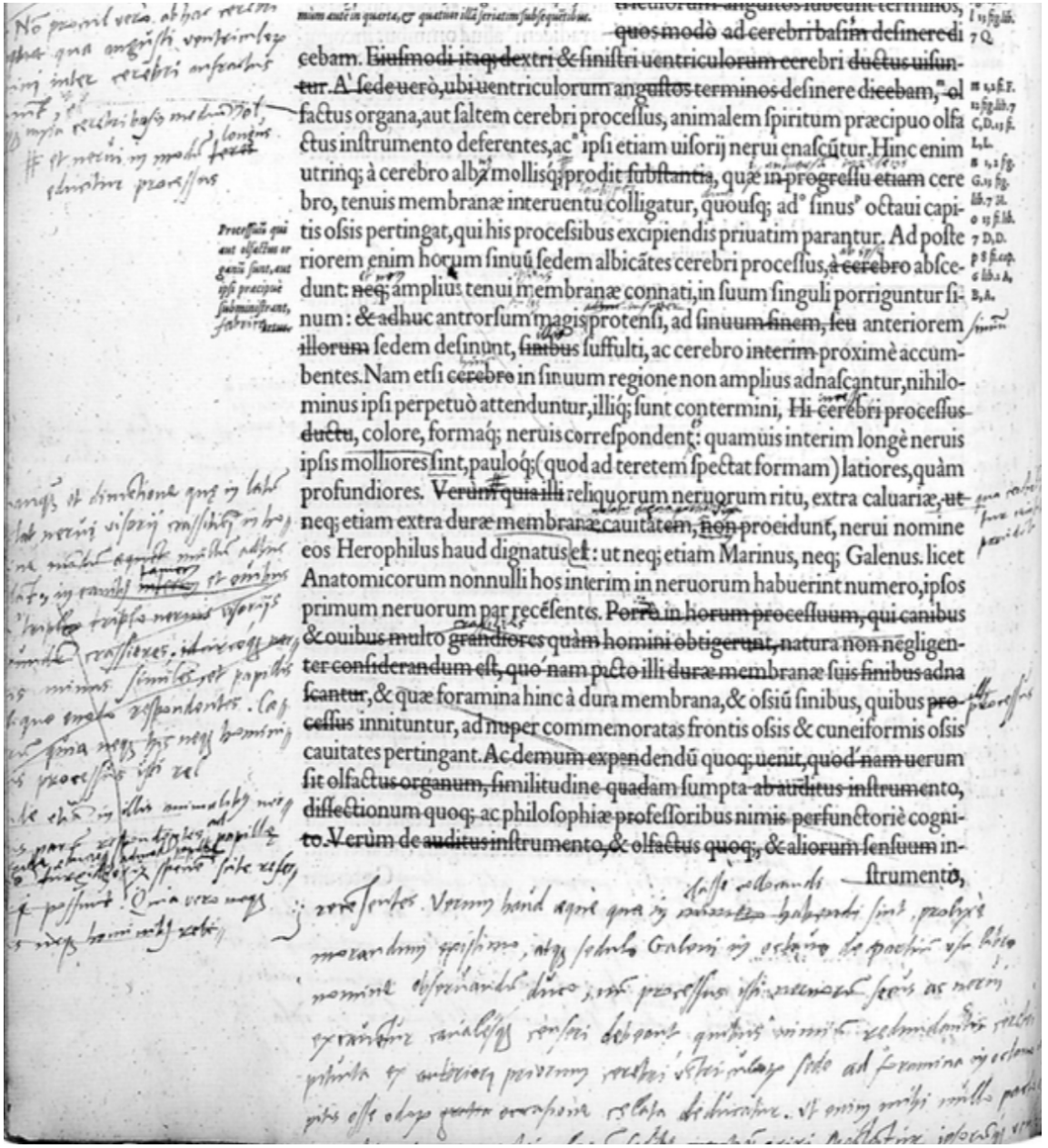
When: 12 Noon



Vivian Nutton PhD
Emeritus Professor of the History of Medicine
Univ College London, England

Gerard Vogrinic MD, FRCPC
Pathologist, Rare Book Collector
Vancouver, Canada

Vesalius Notes and Revisions to the 2nd Edition



Fifth Session: February 15, 2022

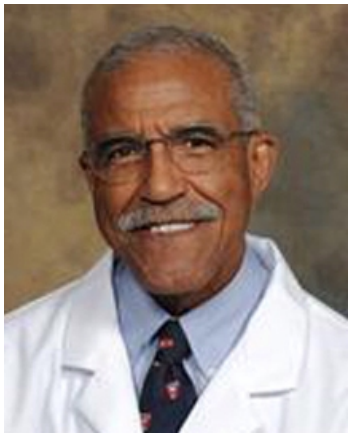
Speakers:

Dr. Alvin Crawford
Dr. Myles Pensak
Dr. Richard Becker
Dr. Charles Prestigiacomo

Title: *Vesalius: Presenting and Interpreting the Different Organ Systems*

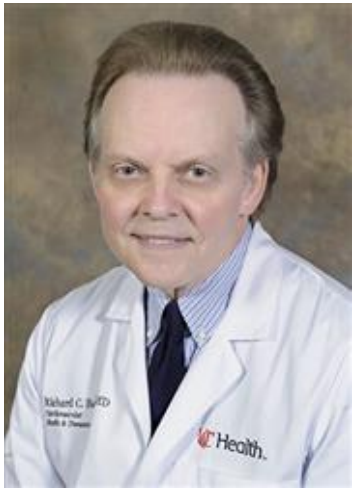
Where: Live in Kresge Auditorium UC COM/ also live-streamed recording using Webex format.

When: 5:30PM with a reception to follow.



Alvin Crawford MD
Orthopedics

Myles Pensak MD
Otolaryngology



Richard Becker MD, MEd
Cardiology

Charles Prestigiacomo MD
Neurosurgery

Sixth Session: March 15, 2022

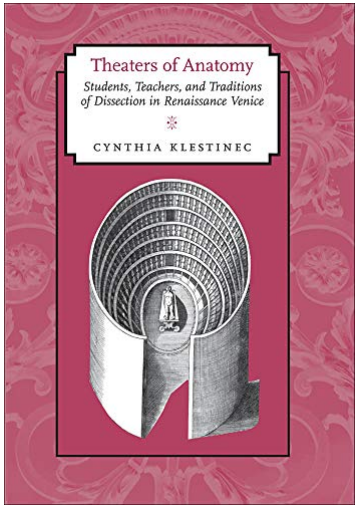
Speakers: Dr. Cynthia Klestinec and Dr. Bruce Giffin

Title: *The Innovative Teaching of Human Anatomy Beginning in the 1500s*

Where: Live in Kresge Auditorium UC COM/ also live-streamed recording using Webex format.

When: 5:30PM with a reception to follow.

Cynthia Klestinec PhD
Associate Professor, Dept of English
Univ of Miami, Oxford



Bruce Giffin PhD
Professor, Dept of Medical Education
Univ of Cincinnati

University of CINCINNATI

The Illustrated Human:
The Impact of Andreas Vesalius.

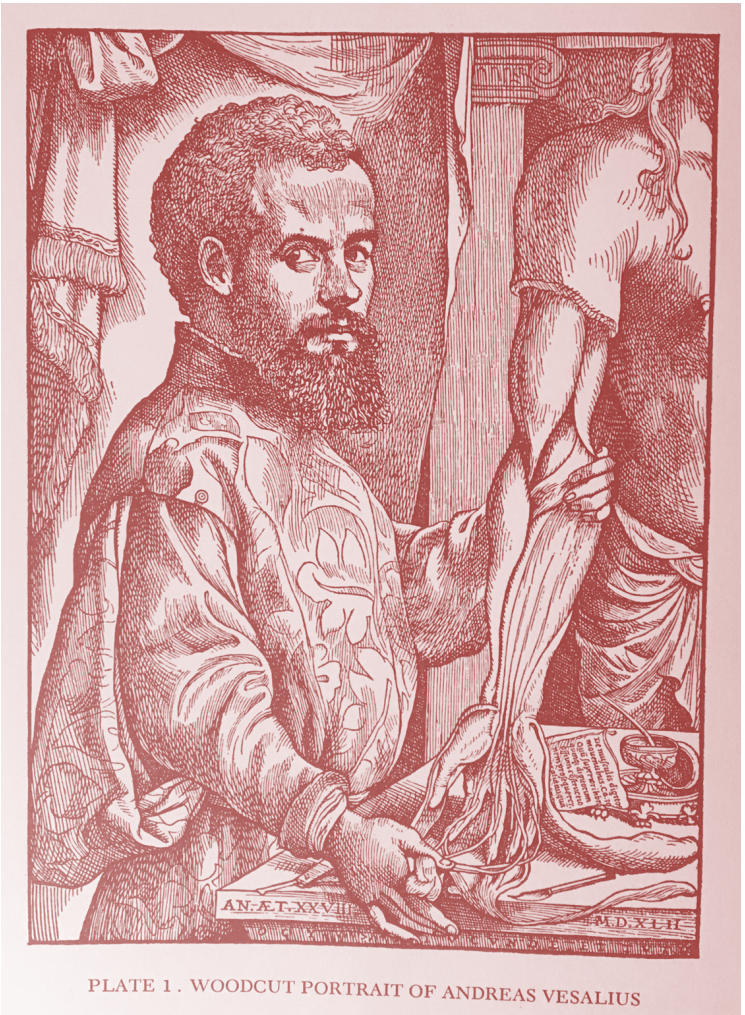


PLATE 1. WOODCUT PORTRAIT OF ANDREAS VESALIUS

Discussion
&
Questions?

Unmute or in the Chat