

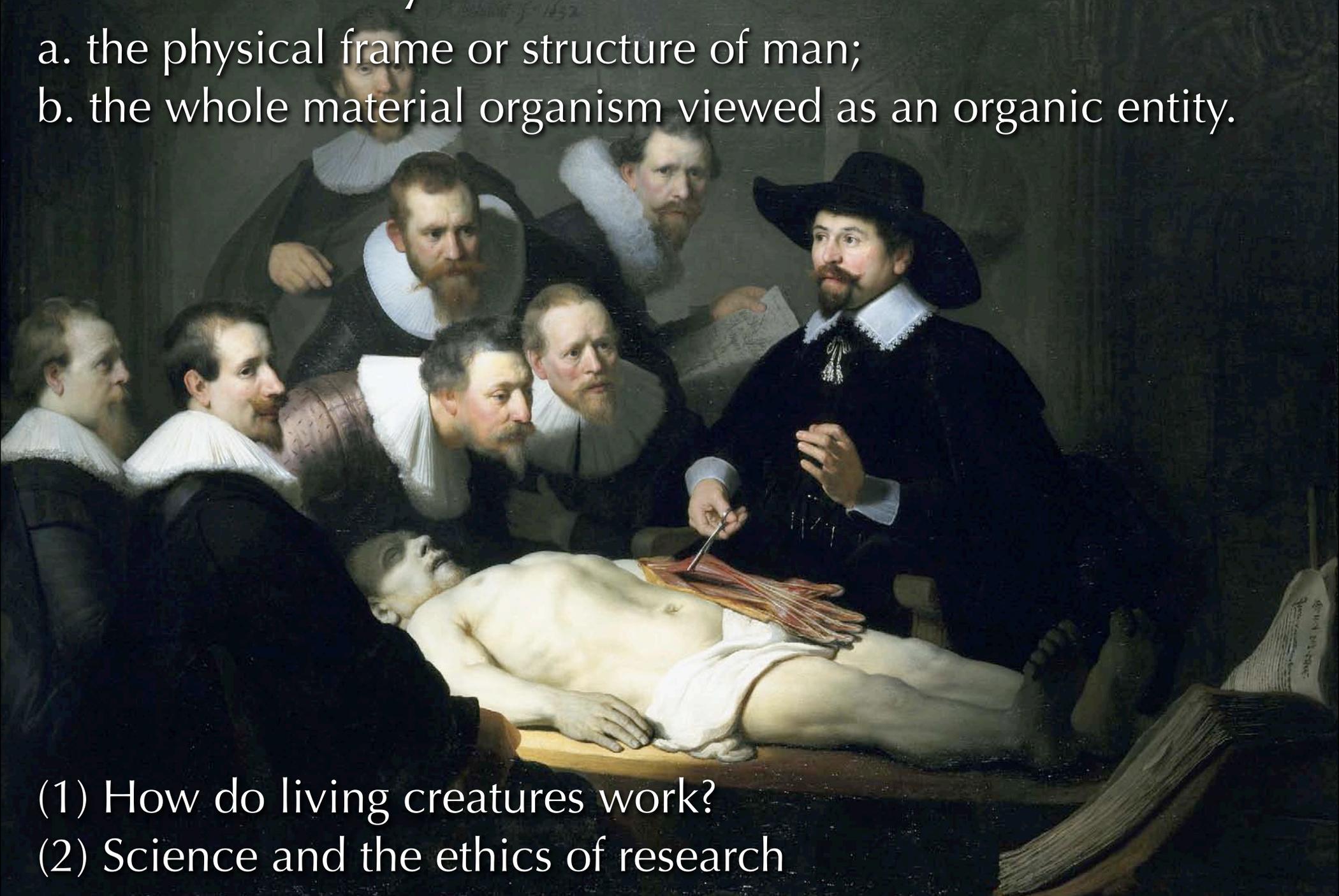
# Blood, Guts, and Images

STS.003, Fall 2010



# Unit 4: Body

- a. the physical frame or structure of man;
- b. the whole material organism viewed as an organic entity.



- (1) How do living creatures work?
- (2) Science and the ethics of research



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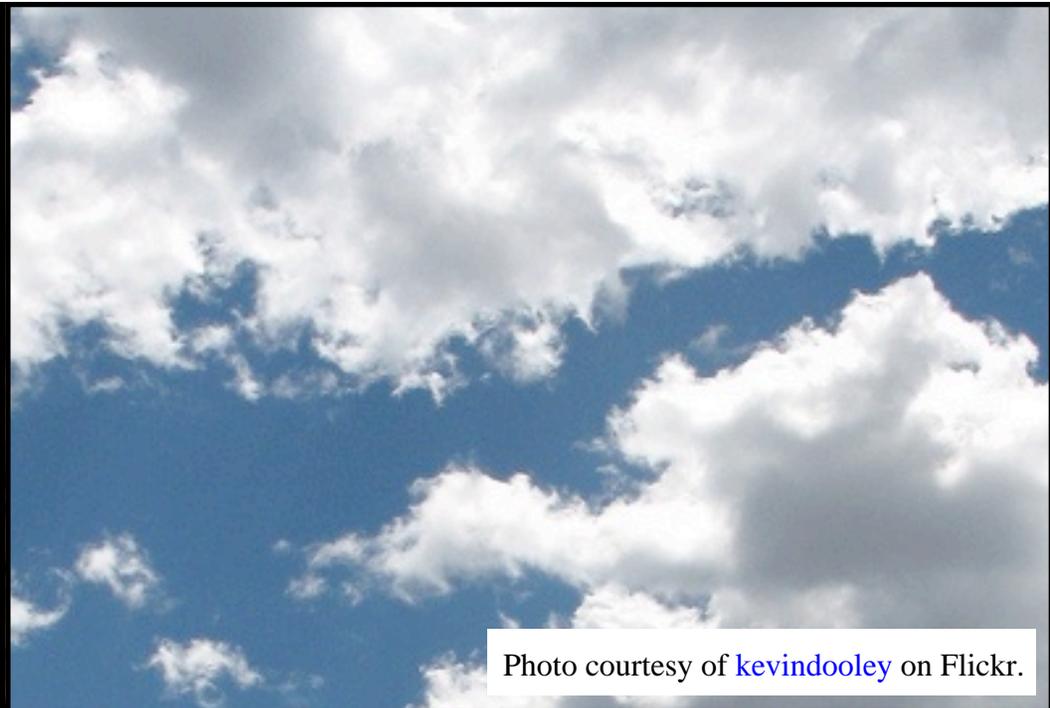


Photo courtesy of [kevindooley](#) on Flickr.

# What Is the Matter of Nature?

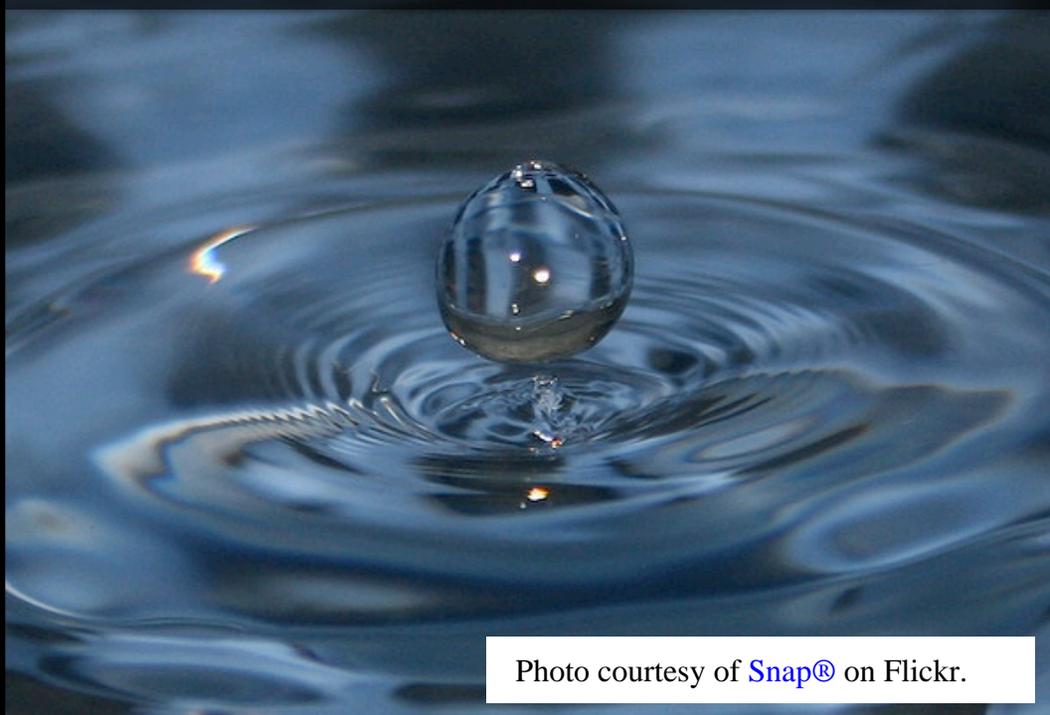


Photo courtesy of [Snap®](#) on Flickr.



Photo courtesy of [Loving Earth](#) on Flickr.

# Humoral Medicine



Air / Blood / Spring / Child

**WET**

Water / Phlegm / Winter / Old



Fire / Cholera / Summer / Youth

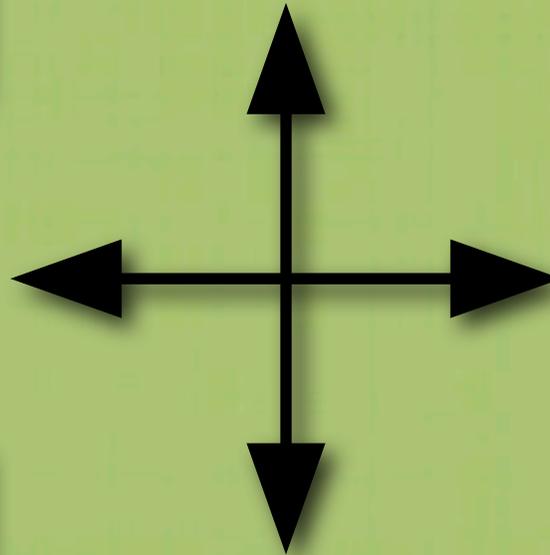
**DRY**

Earth / Black Bile / Fall / Adult



**HOT**

**COLD**





Published by W. & A. G. & Co. 11, Abchurch Lane, London.

*Brisk - CATHARTIC.*

If humors are out of  
balance,  
then restore balance:

environment, diet,  
rest, activity,  
emotions,  
evacuations

Symptoms: cough, runny nose,  
cranky





Symptoms: cough, runny nose,  
cranky

Diagnosis: phlegmatic

Etiology: playing in snow, cold  
and wet

Treatment?

Treatment:  
get warm and dry,  
visit Great-grandmother in Florida





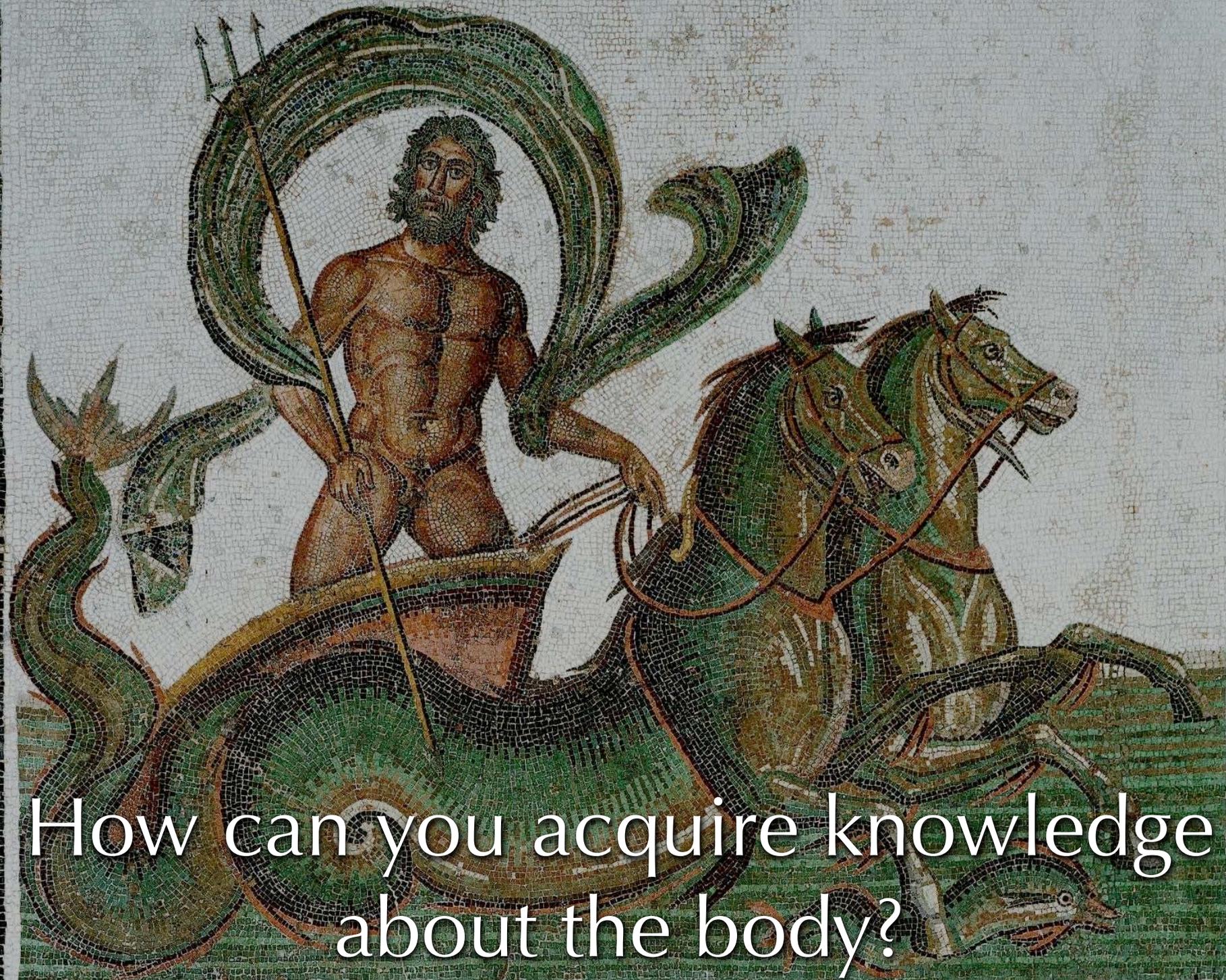
# Humoralism Works?

Case: fever, delirium

Dx: hot and dry, excess blood

Rx: bleeding

Outcome: relief of symptoms



How can you acquire knowledge about the body?

Photo of anatomy class removed due to copyright restrictions.

# Aristotle and the Ancient Greeks: Knowledge of Animals, Wounds



# Alexandria:

Herophilus (330-260 BCE)

Erasistratus (330-255 BCE)

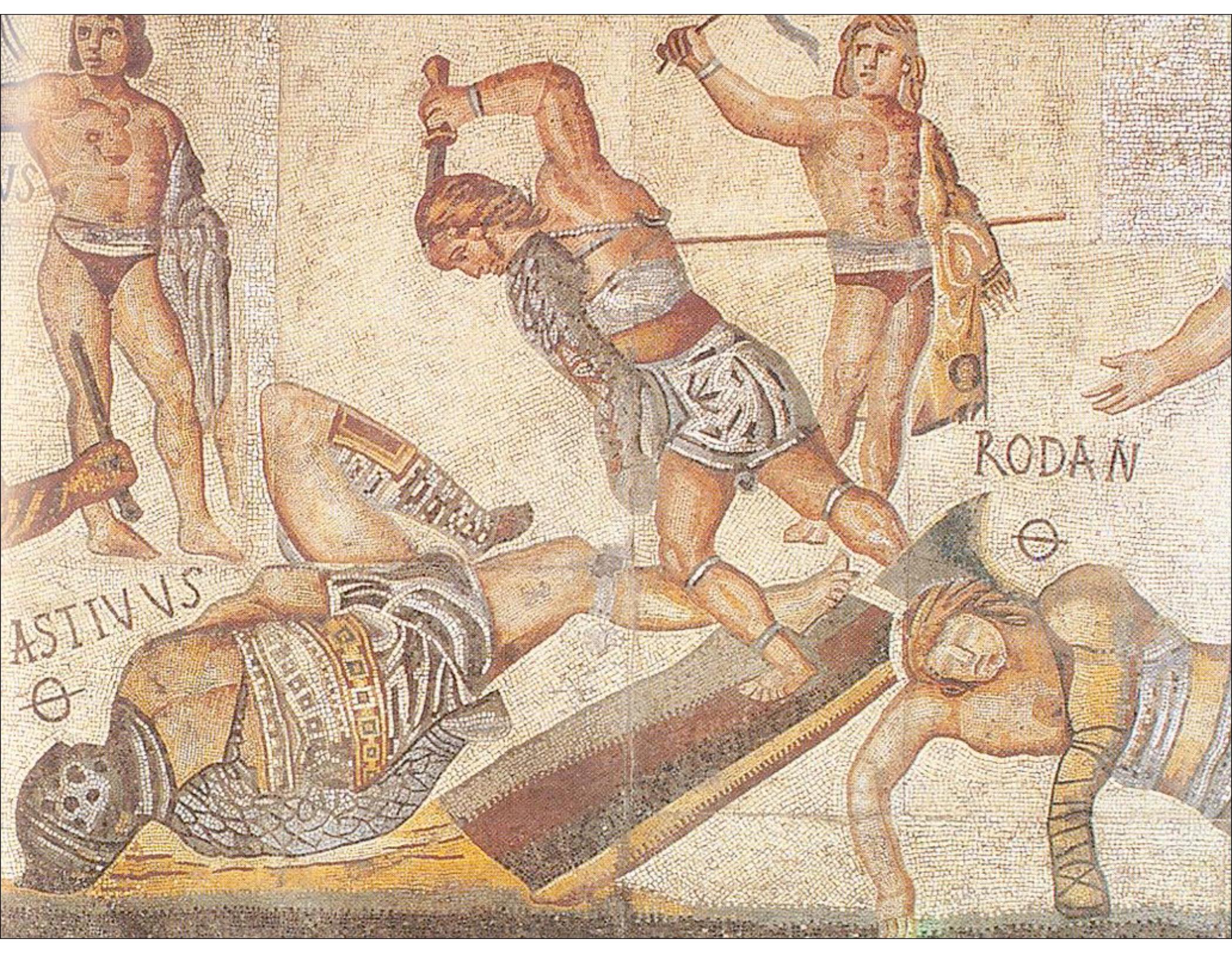


Dissection  
And  
Vivisection

“since both pains and various types of diseases arise in the internal parts, they think that no one who is ignorant of these parts can apply remedies to them. It therefore is necessary to dissect the bodies of the dead and to examine their viscera and intestines. Herophilus and Erasistratus, they say, did this in the best way by far when they cut open people who were alive, criminals out of prison, received from kings. And while breath still remained in these criminals, they inspected those parts which nature previously had concealed, also their position, color, shape, size, arrangement, hardness, softness, smoothness, connection, and the projections and depressions of each ... Nor is it cruel, as most people maintain, that remedies for innocent people of all times should be sought in the sacrifice of people guilty of crimes, and of only a few such people at that.” -- Celsus, AD 40

Artist rendition of Alexandria removed due to copyright restrictions.

Why Alexandria, why c. 300 BCE?



ASTIVVS

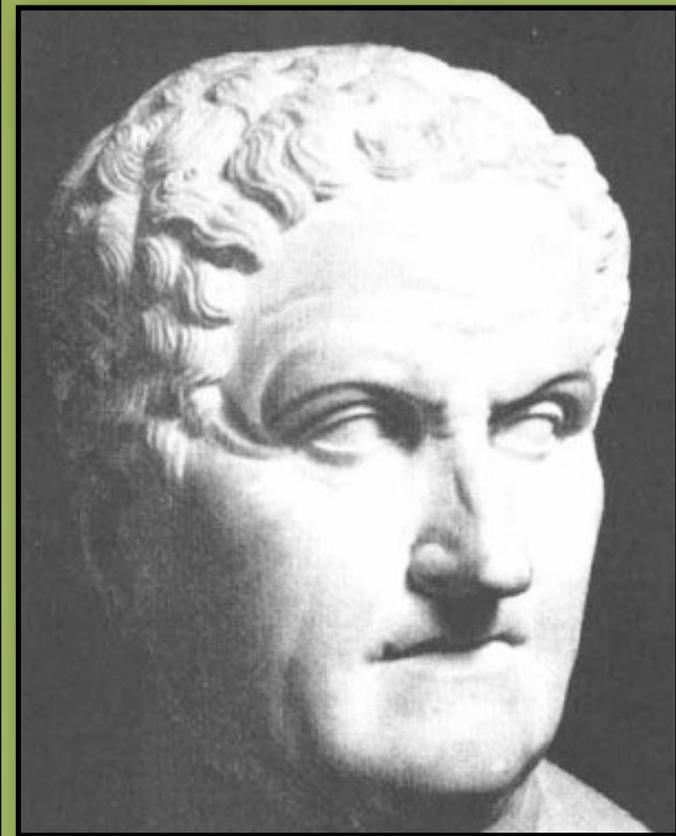


RODAN



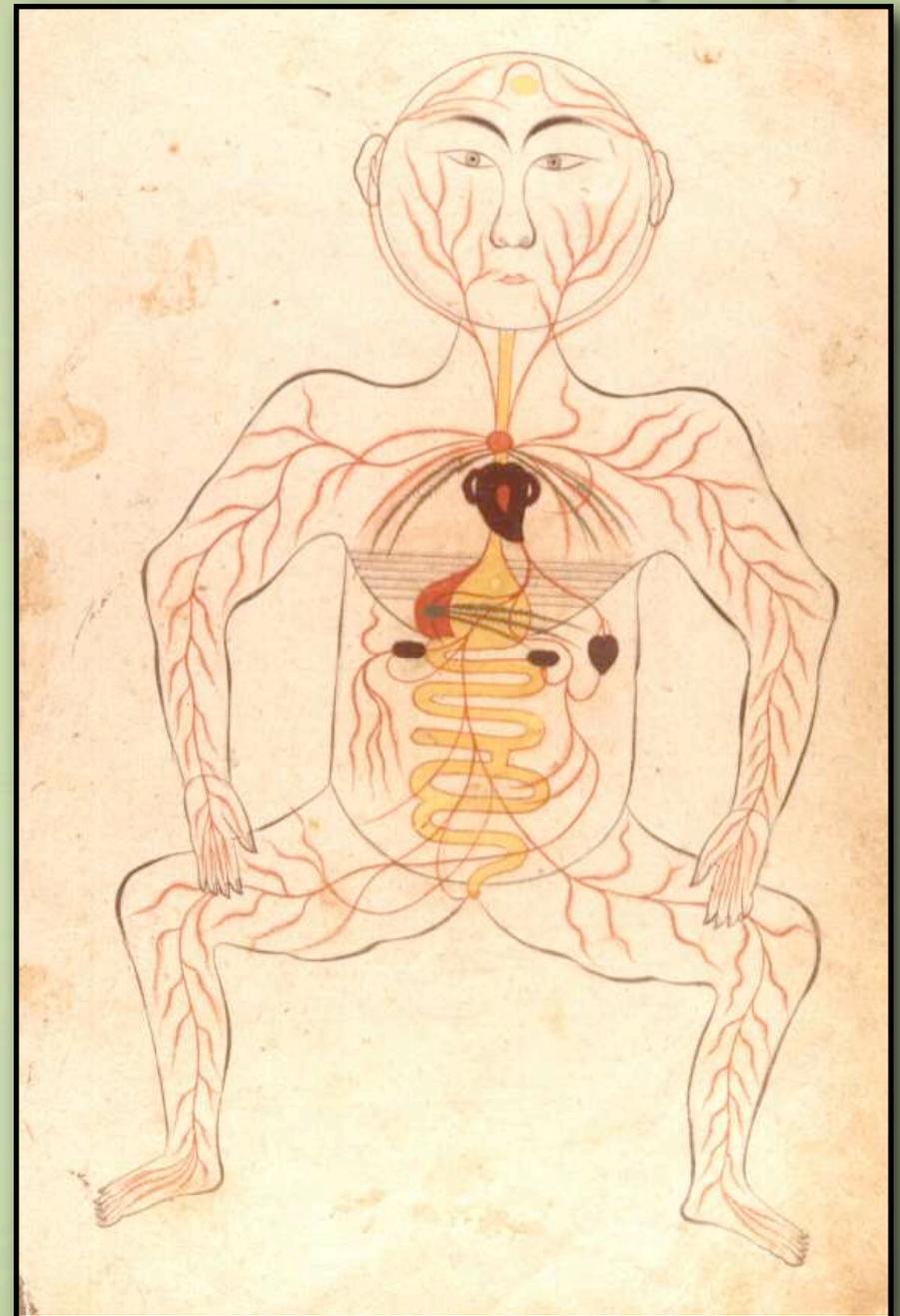
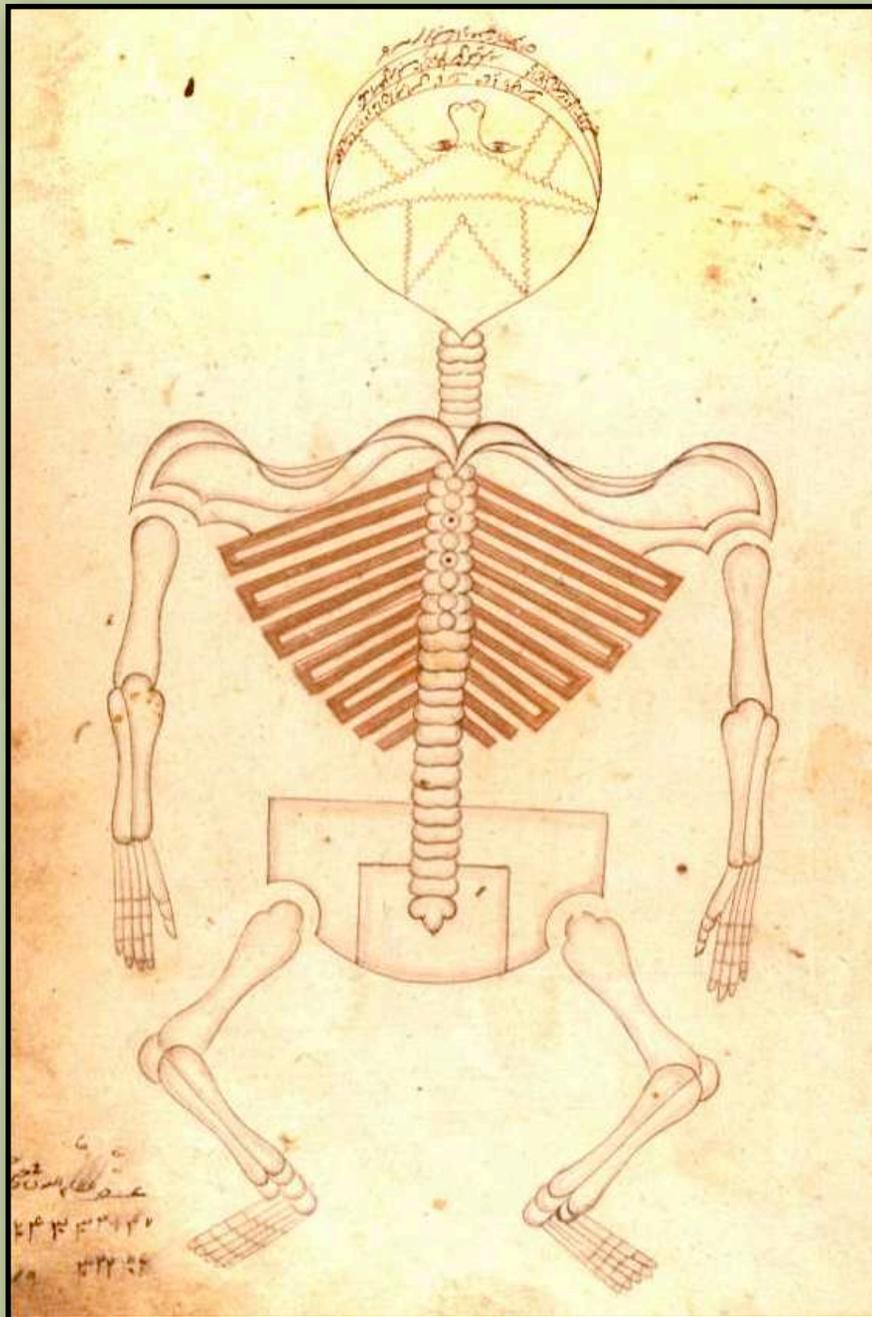
# Galen of Pergamon (c. 129-217)

Gladiator anatomy,  
Animal dissection,  
Public demonstrations



# Tashrih-i-mansuri, c. 1396

Mansur ibn Mohammed ibn Ahmad ibn Yusuf ibn Faqih Ilyas





## Henry I of England

Died 1135, in France;  
body shipped in pieces  
back to England.

“horror and faintings”

Photos of reliquary removed due to copyright restrictions.

# Saints, Bodies, and Reliquaries

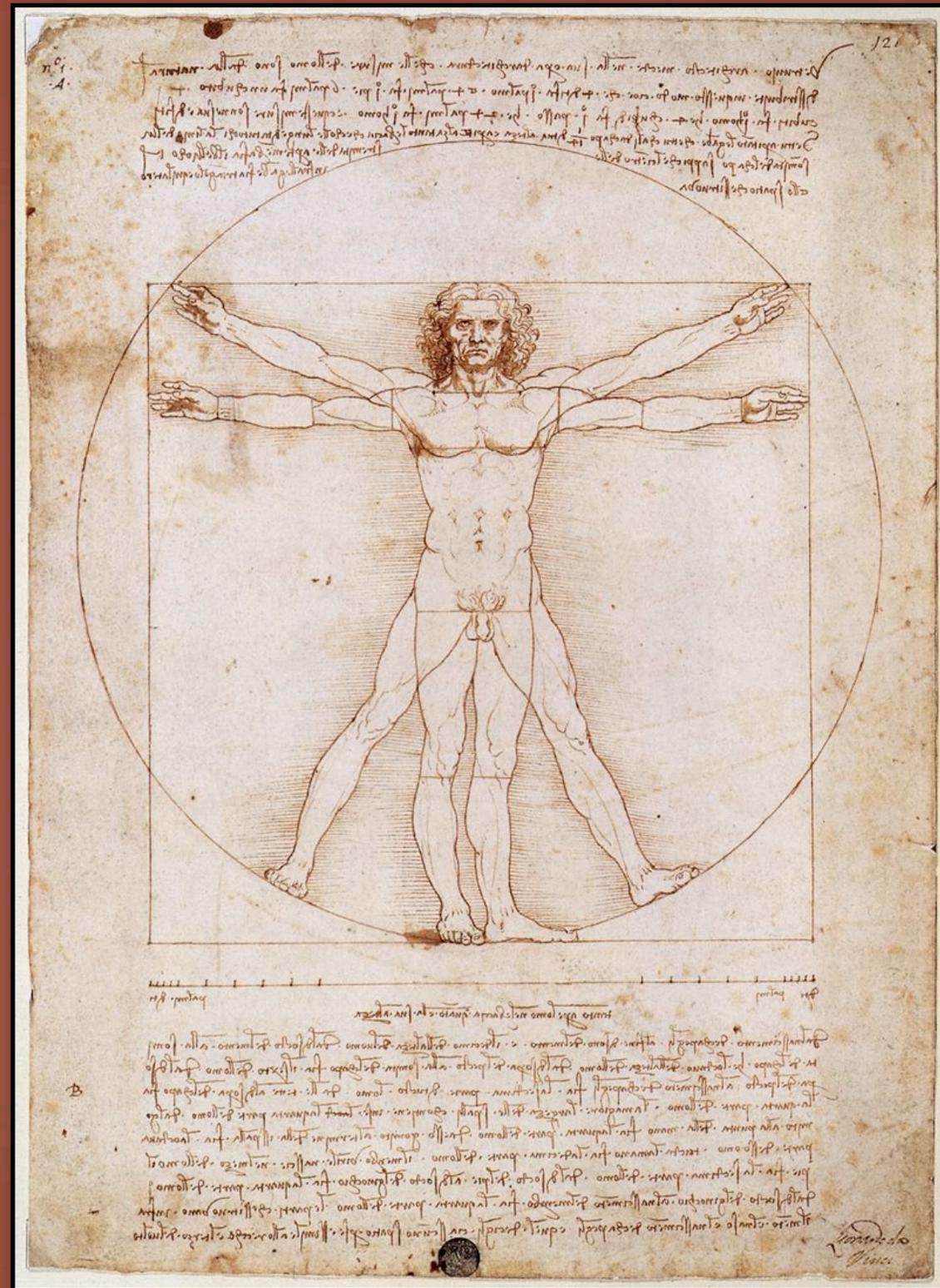
Northern Europe: dying gradual, corpse semi-animate

Southern Europe: separation of body and soul, corpse inert

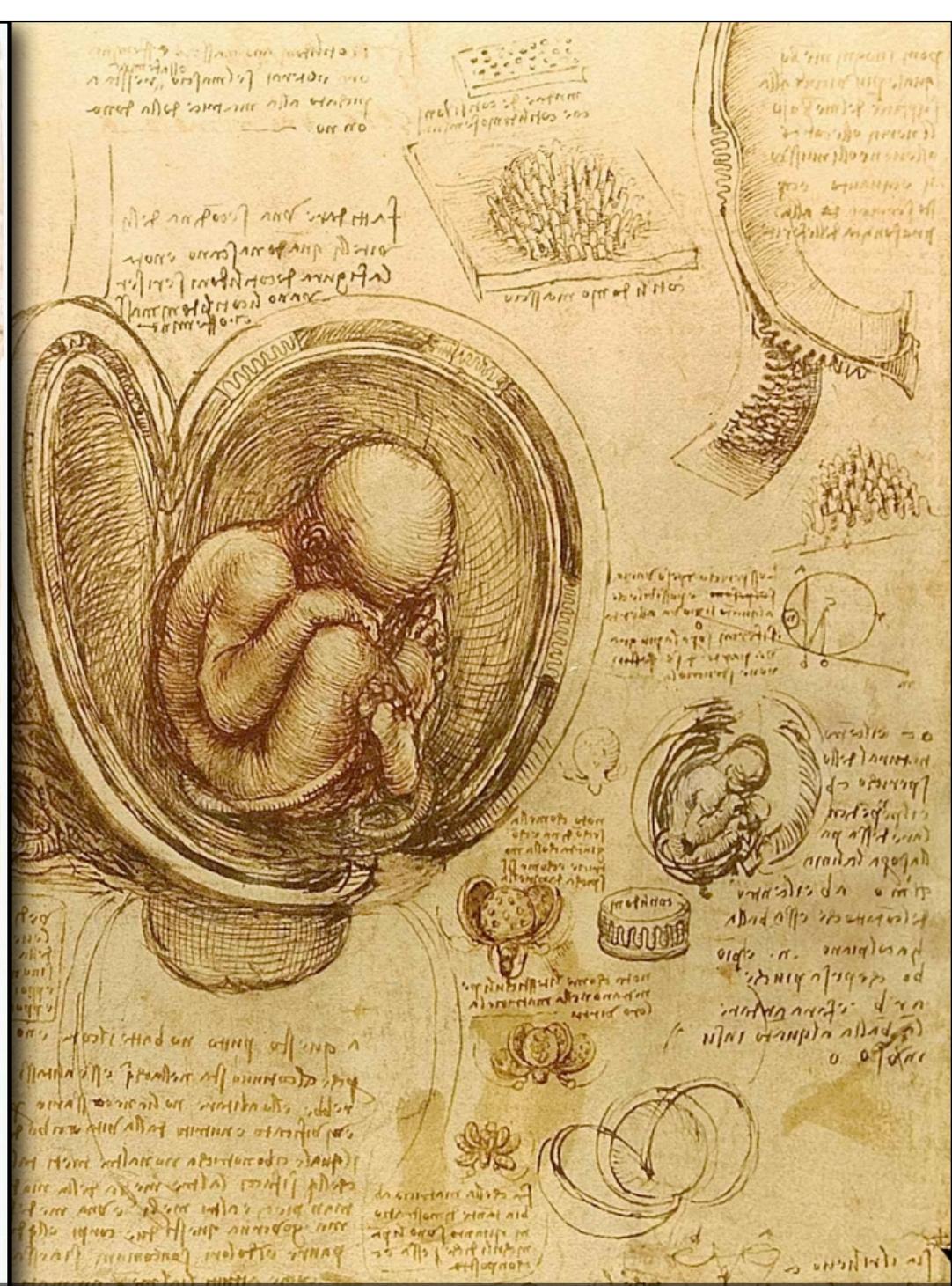


# Late Medieval Italy: Anatomy as Public Spectacle





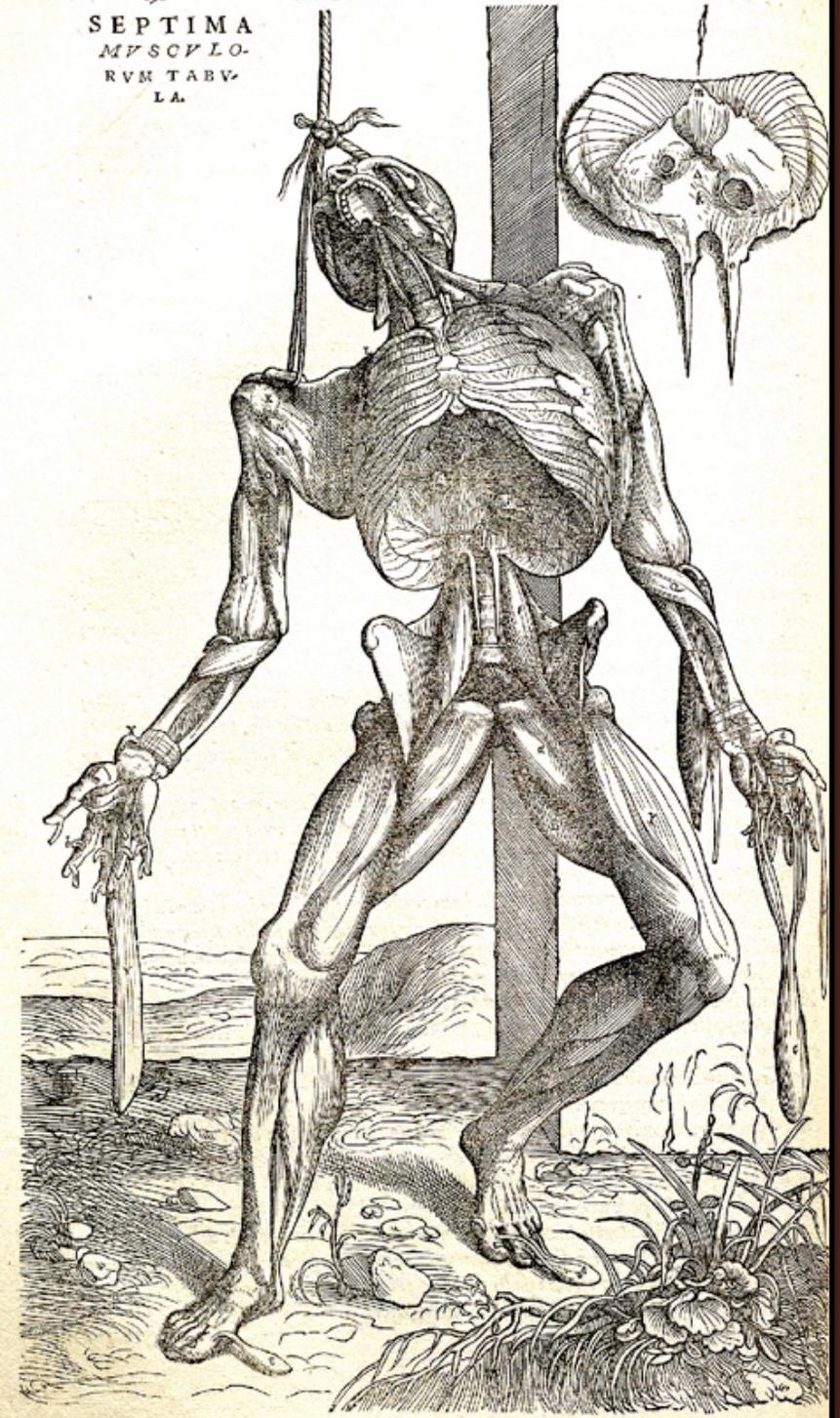
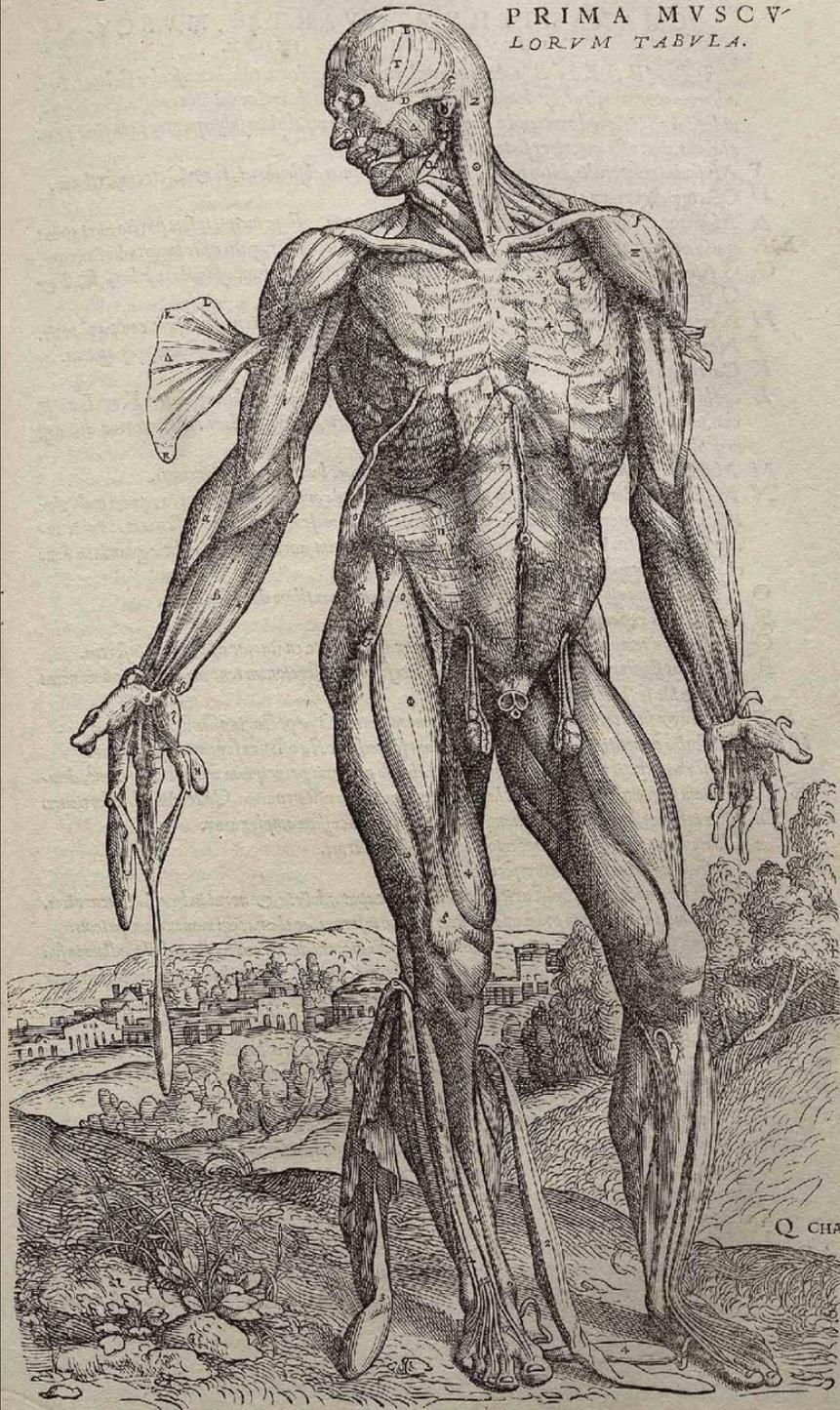
# Renaissance Art and Anatomy: Leonardo da Vinci



Going Beyond Ancient Knowledge

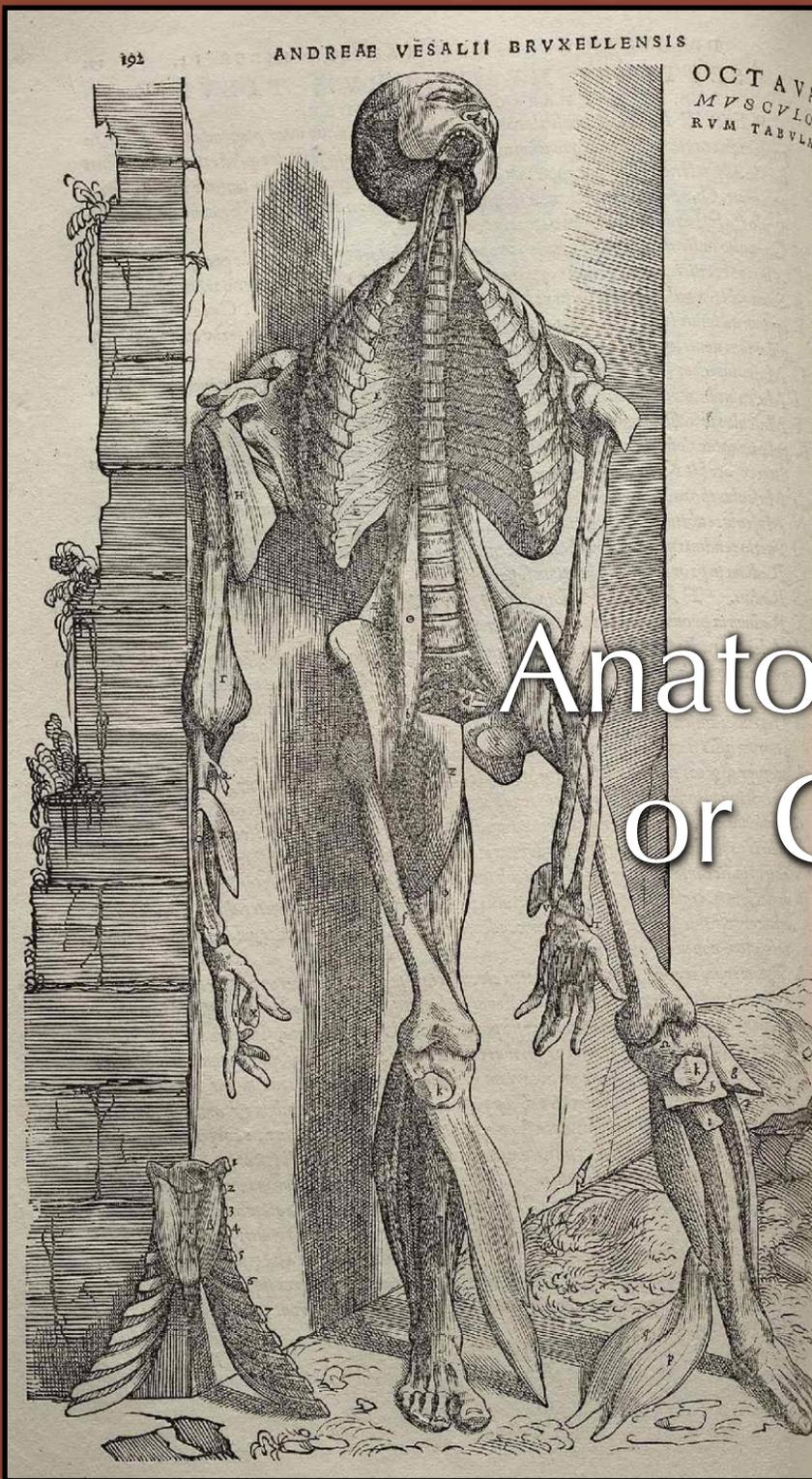


*De Humani Corporis  
Fabrica, 1543*





# Anatomy as Public Spectacle



# Anatomy: Disgust or Grandeur?



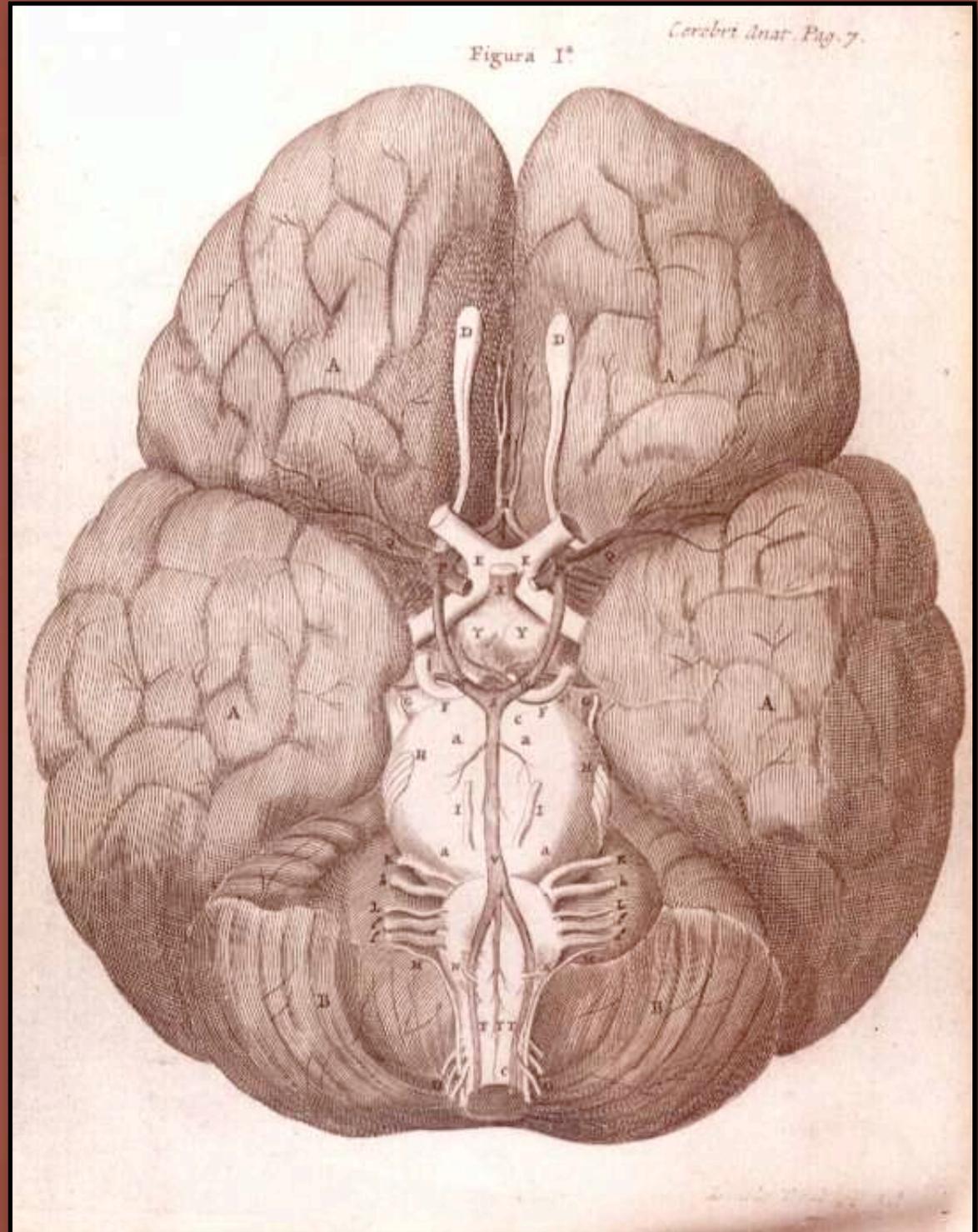
Photo courtesy of [jay8085](#) on Flickr.



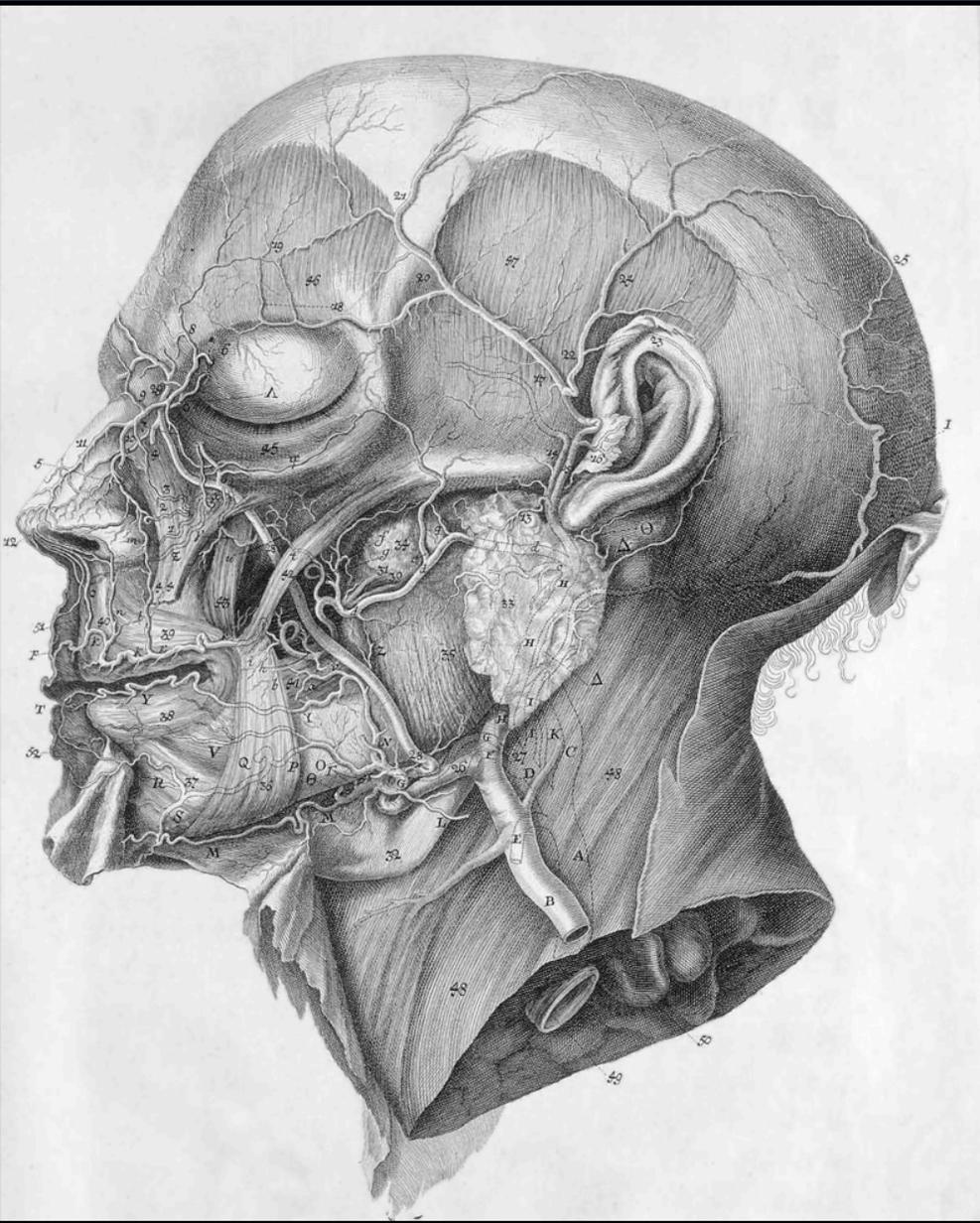
Sources of Cadavers:  
Executions, Hospitals, Grave Robbers



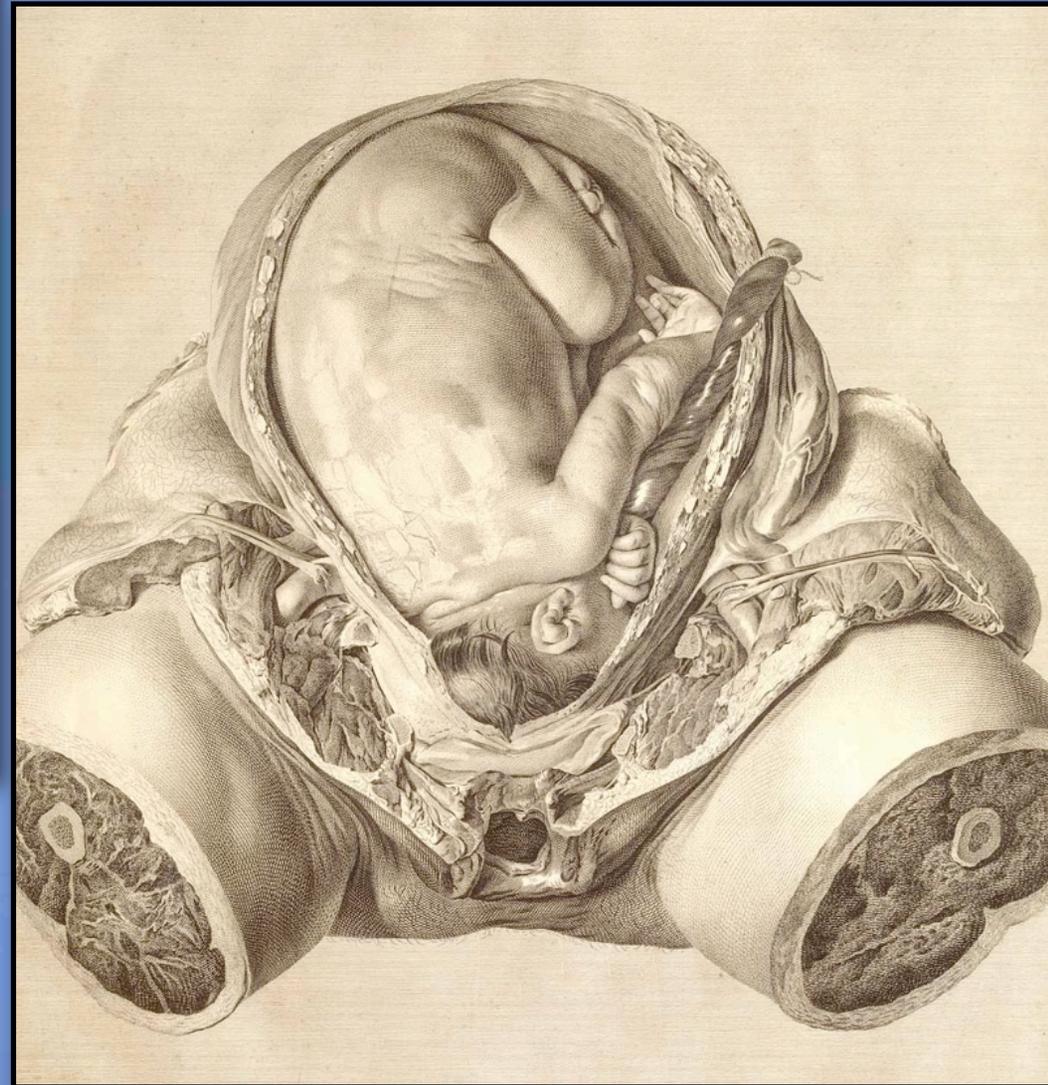
Thomas Willis,  
Fashionable Anatomy



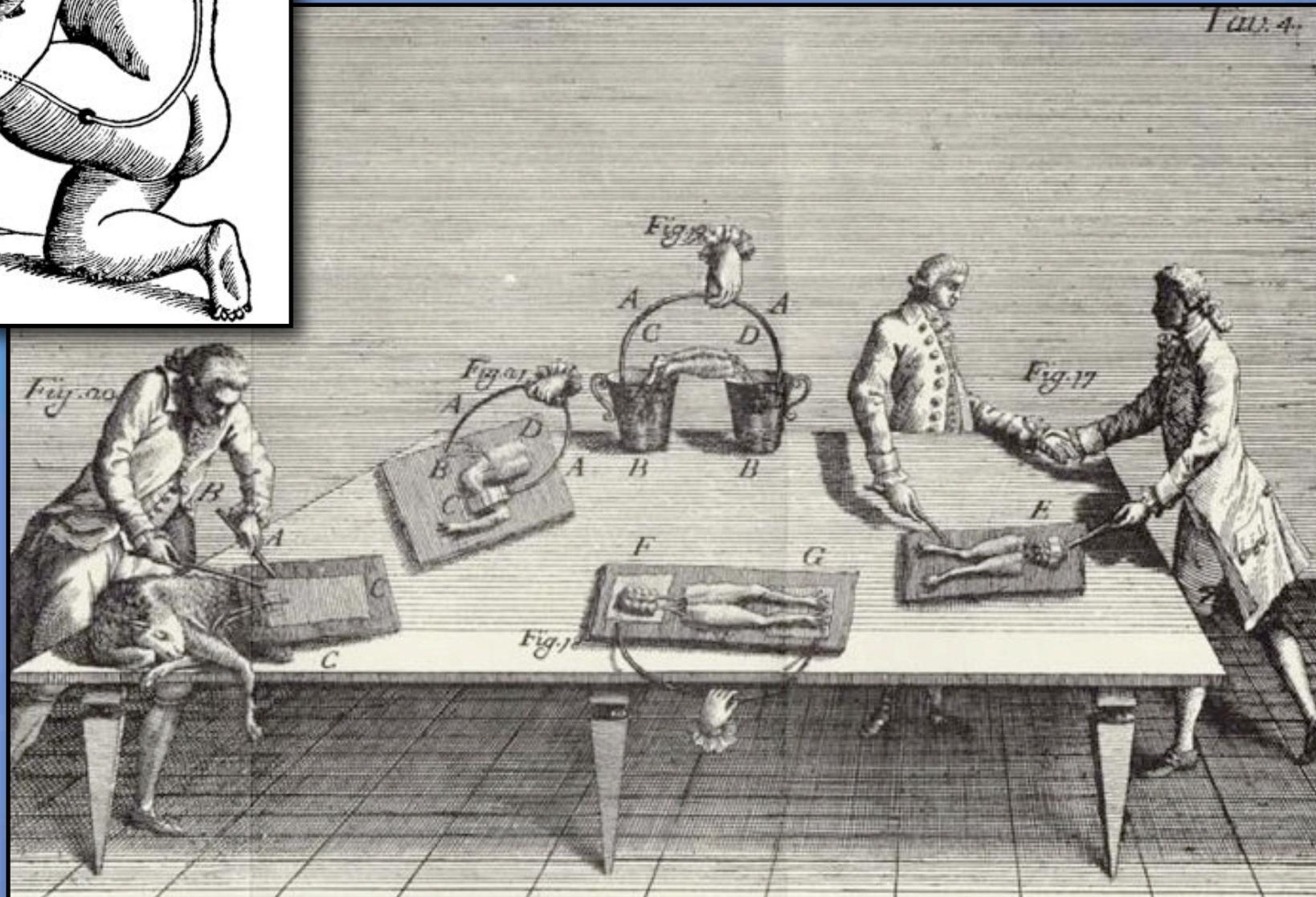
# Enlightenment Anatomy



Albrecht von Hallers  
William Hunter

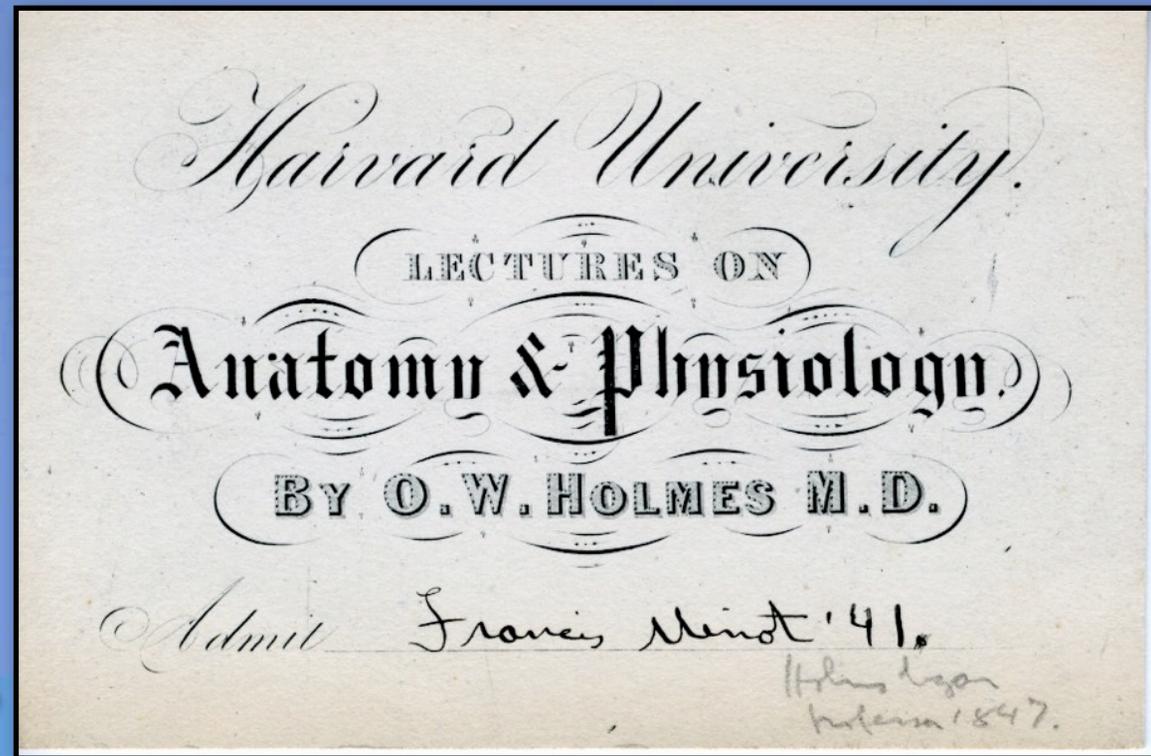


# Mechanical Models of the Body: Descartes, Galvani, and others



# Anatomy in Massachusetts

- 1692: a crime
- 1784: if killed in a duel
- 1831: unclaimed bodies



# Procuring Cadavers:

Resurrectionists, "Sack-em-up Men"  
Anatomy Riots



"Hark! the Doctor knocks - she is almost done - and ready for you - you old Pity"



BURKING POOR OLD M<sup>rs</sup> CONSTITUTION. Aged 141 -

Cover of "Dissection Photographs of a Rite of Passage in American Medicine: 1880-1930," John Harley Warner and James M. Edmonson, removed due to copyright restrictions.







UNIVERSITY OF LOUISVILLE.  
MEDICAL DEPT.  
1908 1909  
DISSECTING GLASS.

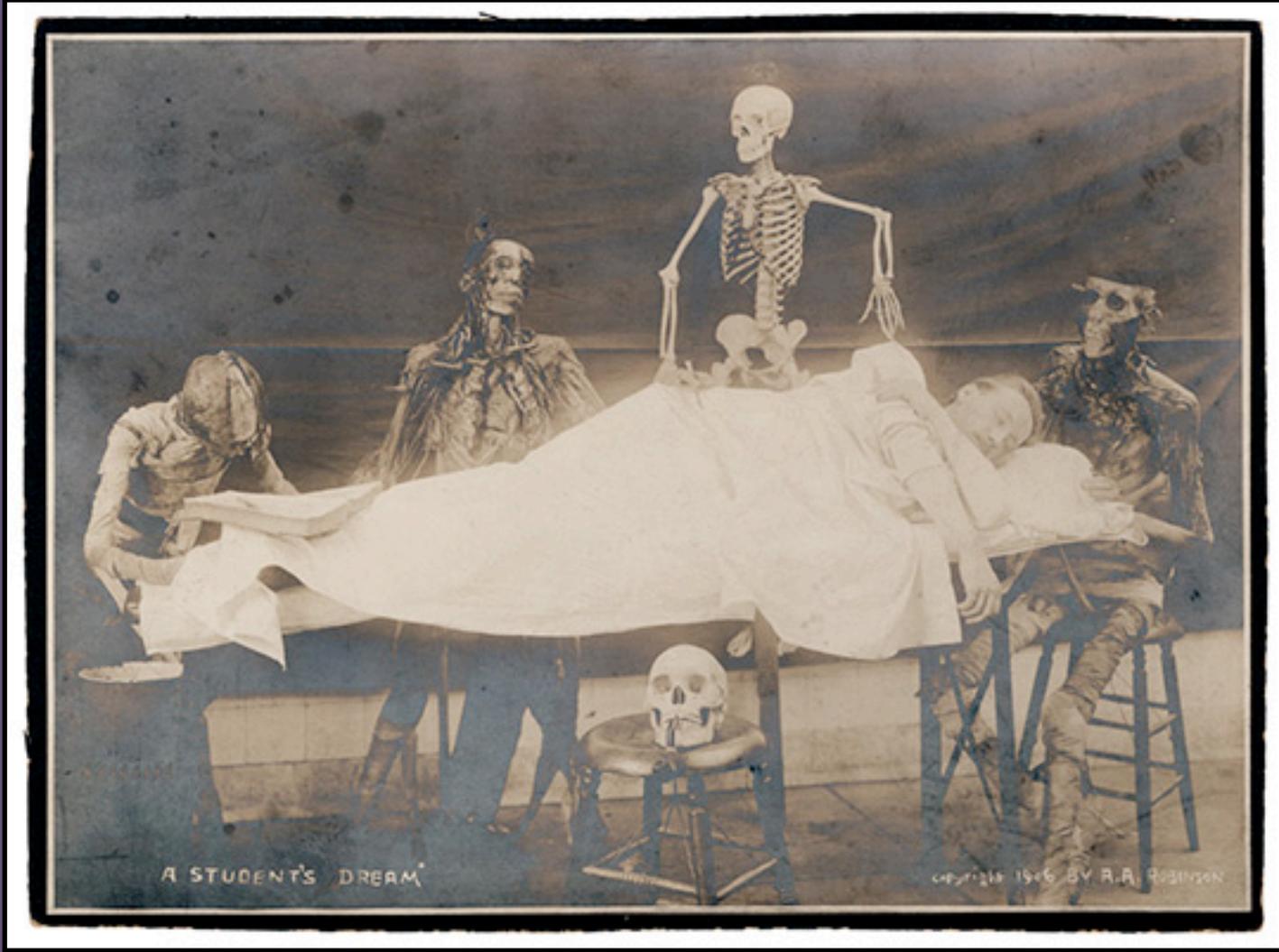
Prepared	By	Date
Brown, W.	Denkins, J. P.	
Brown, R. M.	McGinn, M. J.	
Scott, J. J.	Jones, C. B.	
Edwards, M. J.	Smith, S.	

Be happy while you live  
You are in King's Court

She lived for  
Others but died  
for us  
Gene's Hagan  
1908 Sunday 1908  
No removing  
of gloves to  
roll cigarettes  
and drop hand  
missiles.

Meet me in  
the Sweet Light  
"THE LORD  
GIVETH,  
WE TAKETH  
AWAY"

MILK  
CLEAN-COLD



A STUDENT'S DREAM

Copyright 1946 BY R.A. ROBINSON



I'm AWFUL  
BUSY !

My TALE will have to be SHORT and SNAPPY --  
MERRY CHRISTMAS !

Screenshot of the Harvard Anatomical Gift Program removed due to copyright restrictions.

See: <http://agp.hms.harvard.edu>

Images from Visible Body removed due to copyright restrictions.

See: <http://www.visiblebody.com>

# Anatomy in the 21st Century:

Visible Body  
Visible Human

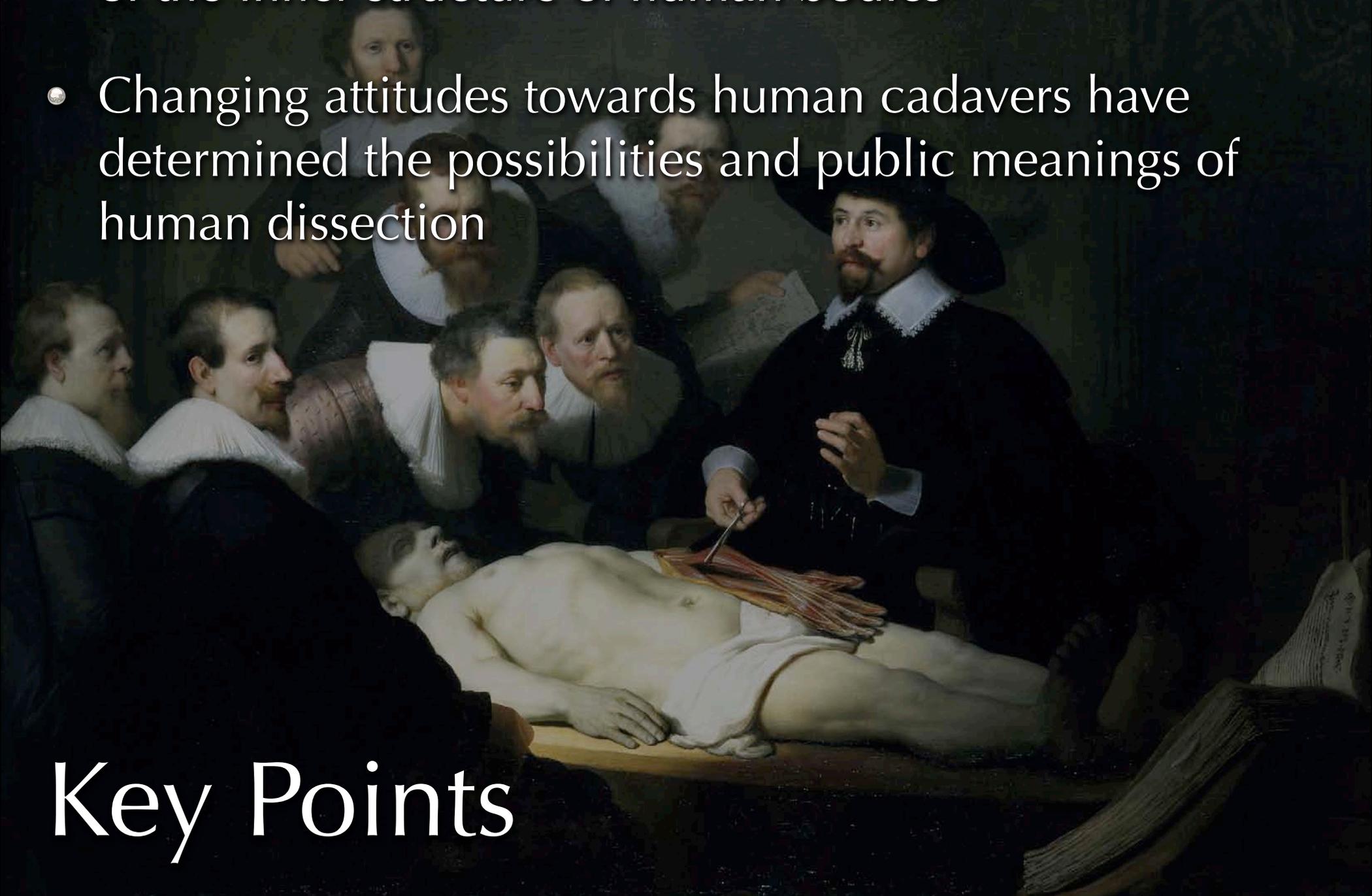
“blurs the line between art,  
science, and circus freak  
show” -- *Science*, 2003

Advertisements for Bodyworlds removed due to copyright restrictions.

See: <http://www.bodyworlds.com>

Anatomy as Public Spectacle

- Since ancient Greece, doctors have sought knowledge of the inner structure of human bodies
- Changing attitudes towards human cadavers have determined the possibilities and public meanings of human dissection



# Key Points

# Paper 2 Revise/Rewrite

STS.003

*The Rise of Modern Science*

Fall 2010

## Revise-Rewrite Assignment

**Due date:** Wednesday, 10 November 2010, in class. *No late papers will be accepted.*

**Length:** 1800 - 2100 words (6-7 double spaced pages) – same as for the original submission

**Grade:** The rewrite does not replace the existing Paper 2 grade: it is an independent grade. The initial submission and the rewrite are each worth 15% of your final grade. The standards are much higher for the rewrite than for the original paper. If you make only superficial revisions (e.g. fixing typos, adding occasional sentences in response to TA's comments), your grade will drop. If you dutifully respond to most comments, but show no initiative, your grade will likely stay the same. To get a better grade, you must use the feedback and time to produce something fundamentally better.

Revising -- even rewriting -- a paper, as part of the CI requirement, can be an enormously valuable exercise, but only if you invest the time needed to make it worthwhile. Revision means to see again, to take a fresh look at the overall product and to improve the work in a substantial way. You take the opportunity provided by this assignment -- you have as much time for the revision as you did for the original paper -- to re-think your paper from top to bottom. Any paper, no matter how good initially, can be improved dramatically with enough thought and effort. These guidelines should help.

How to proceed? Look again at the original assignment and how you answered it. Look at the comments from your TA and then speak with your TA about them. Brainstorm more about the topic in light of new material that has been presented in the course. Revisit the readings. Once you have done this, think about the best possible answer to this assignment. You might be able to work with your existing material, working it over into something much better. But you might also choose to do something entirely new: reconceived, restructured, making new and better arguments, with more complete and relevant data.

At the very least, follow this process:

1. What is the thesis? Clarify it. Avoid overgeneralization or a thesis that merely states the obvious. What can you say about this material that gives the reader new insight?
2. Is there a clear introduction? Does it state the thesis and give a sense of the structure of the paper? Delete any waffly, redundant, or unnecessary parts.
3. Can you, in a single line, identify how *each paragraph* contributes to the overall thesis? If any paragraph has two or more significant contributions, split it into multiple paragraphs. If a single point is pursued in several paragraphs, combine them. If any paragraph is merely additional, unnecessary material, delete it.
4. Organization: what is the argument of the paper? How is that argument structured? Is there a way to make the argument stronger? Consider rearranging

sections, paragraphs, or sentences to make the essay's argument more effective. *Identify additional points that need to be addressed, and points that can be deleted.*

5. Transitions: once the organization is settled, ensure that the flow of the paper is clear, and that each paragraph fits smoothly into the paper.

6. Evidence: are the points backed up with evidence? Is every key piece of evidence addressed, and every point at least illustrated? Are obvious counter-examples considered and managed appropriately? Is everything cited accurately? Note where additional evidence would strengthen the essay, or where the evidence given is not a good match for the point being made.

7. Logic and analysis: does the essay make the most of its evidence? Is it fully interpreted? Do the interpretations convince you, or is there illogic, an absence of analysis, or other problems?

8. Tone: is the tone appropriate? Is it too stiff? Too casual? What phrases or words would you change?

9. Sentence level check: are any sentences unclear? Mark them, and try to clarify. Remove weak phrases, chop out any extra words, reduce long sentences into more brief ones, and make sure there are no sentence fragments.

10. Conclusion: is it strong? Does it restate the thesis and make a stronger claim than the introduction does? Does it leave the reader thinking "wow, what an interesting way of thinking about the problem?" It should.

One of the best ways to ensure success with the rewrite is to force yourself to be ruthless in your revisions. How to do this? Do not simply revise your existing document. Instead, start from scratch with a blank document and do not cut or paste *anything*. This will force you to reconsider every idea, sentence, and phrase. Even if you want to use a similar sentence or paragraph, having to retype the material always leads to better prose. Since you have as much time to work on the rewrite as you did on the original, and since you will hopefully improve not just the writing but also the thinking behind the paper, similar sentences and paragraphs should be rare. This will produce a rewrite that is fundamentally different and improved.

As the paper approaches its final form, be sure to take the time needed to improve its production values: edit carefully, use citations correctly, etc. Anything else is unacceptable. For instance:

1. Check spelling and grammar (commas, semi-colons, ellipses, quotations, the works). Make sure each sentence has a subject, and that subjects and verbs agree with each other. Check the verb tenses of each sentence, and make sure they don't change randomly.
2. Read essay again to make sure everything makes sense and that no words are missing. One of the best ways to do this is to read the essay out loud. This will (1) slow you down, so that you detect errors, and (2) allow you to hear your prose and recognize awkward or confusing phrasings and constructions.
3. Check footnotes and bibliography – are they in the correct format?

We encourage everyone to meet one-on-one with their TA (and/or the professors) to make sure that expectations are clear and that you have a viable plan. Make good use of Stephen Brophy and the MIT Writing Center to produce the best possible paper.

# Paper 2 Feedback

- Did not analyze two primary sources
- Did not make use of Oreskes and Conway
- Judged who was right or wrong instead of analyzing the interests behind the positions (often accepted one source and condemned the other)
- Simplistic, e.g. Democrats vs. Republicans
- Argument and organization not clear

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STS.003 The Rise of Modern Science  
Fall 2010

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