

The History of the Physical Exam: A License to *Touch*!



Alberto Puig MD PhD
Massachusetts General Hospital
Harvard Medical School



PE:

Vitals: HR: 76 RR: 20 BP: 159/89 O2 sat: 98% RA

General - NAD, sitting up in bed, well groomed and in nightgown

HEENT - PERRLA, EOM intact, large swollen tongue, posterior oropharynx clear

Neck - Supple, No noticeable or palpable swelling, no goiter

Nodes - No LN

Cardiovascular - JVP 8cm, RRR no m/r/g, PMI not displaced, no carotid bruits

Lungs - CTA b/l, no use of accessory muscles, no crackles or wheezes.

Breast - firm, but lumpy b/l

Abdomen - Normal bowel sounds, abdomen soft and NT/ND

Genitourinary - not performed since complaints not related.

Rectal - deferred, see above

Extremities - No c/c/e

Musculoskeletal - normal range of motion, no swollen or erythematous joints.

Skin - No rashes: skin warm and dry

Neurological - Alert and oriented x 3, CN 2-12 grossly intact.

Psychiatric - cooperative, normal affect and mood

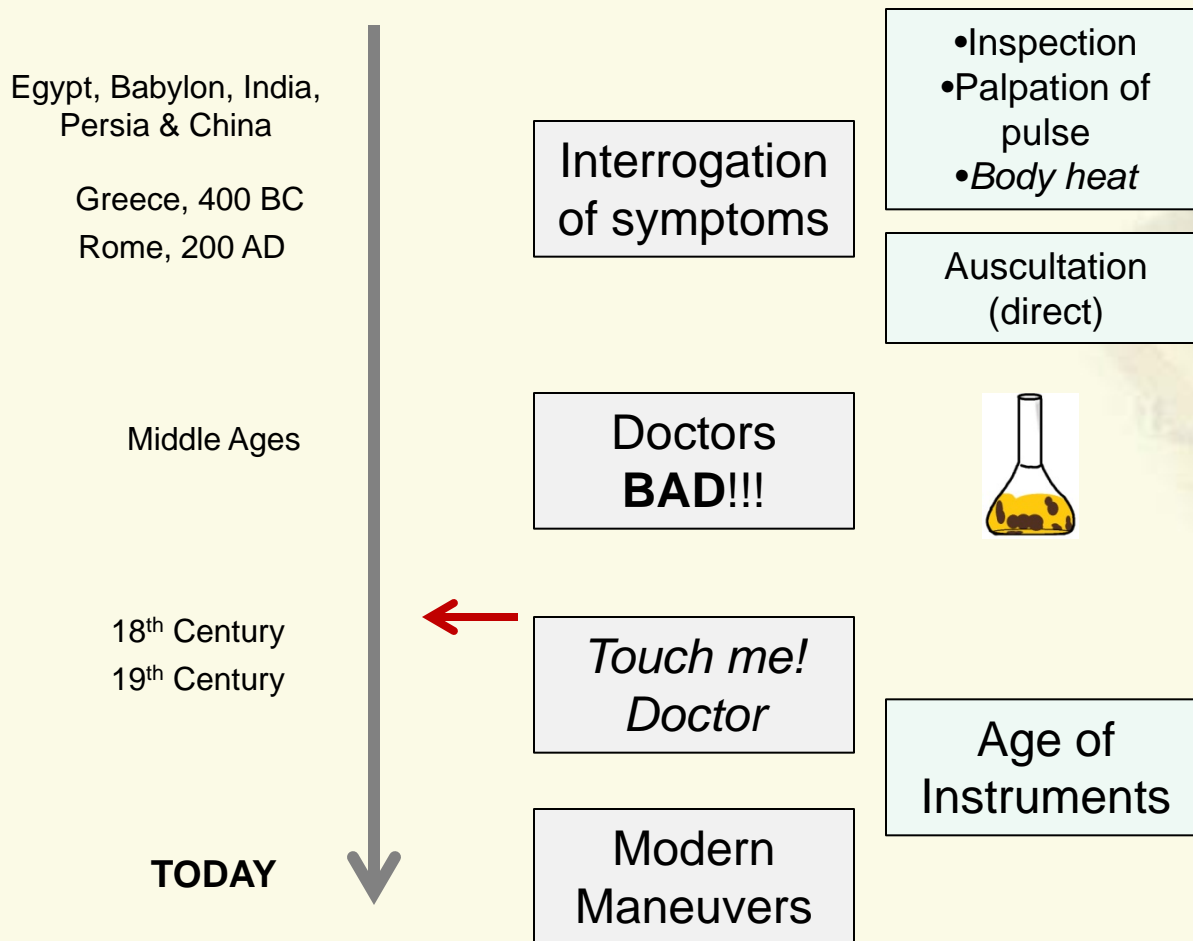
Oh dear!



“...these young doctors, they take such liberties (with their hands), you know my dear”

Sir Arthur Conan Doyle

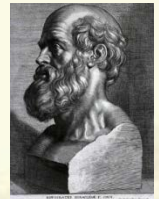
Evolution of a Ritual



Greece and Rome



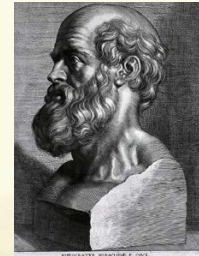
The Ancient Exam



Hippocrates
~400 BC
Aphorisms

1. Elicit account of illness from patient – Interrogate & listen to “the story”
 - All about the symptoms (No Signs!)
2. Appearance - Inspection/Observation
 - Minimal exam – direct auscultation
 - Keep your garments on!
3. Pulse and Body Heat
 - Disease entities not “vital signs”
4. Apply all senses
 - to secretions and excretions

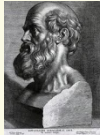
Aphorisms



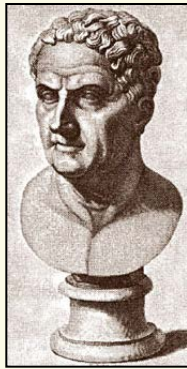
Hippocrates (~460 BC)

- *Primum non nocere*
- If erysipelas of the womb seizes a woman with child, it will probably prove fatal (**PUERPERAL FEVER**)
- When bubbles settle on the surface of urine, they indicate disease of the kidneys and that the complaint will be protracted (**NEPHROSIS**)
- Persons who are naturally fat are apt to die earlier than those who are slender (**SYNDROME X**)
- Drinking strong wine cures hunger (**GLUCOSE**)
- Eunuchs do not take the gout nor become bald (**STEROIDS**).
- Sleep and watchfulness, both of them when immoderate, constitute disease. (**BIPOLAR**)
- If you wish to stop the menses in a woman, apply as large a cupping instrument as possible to the breasts (**???**)

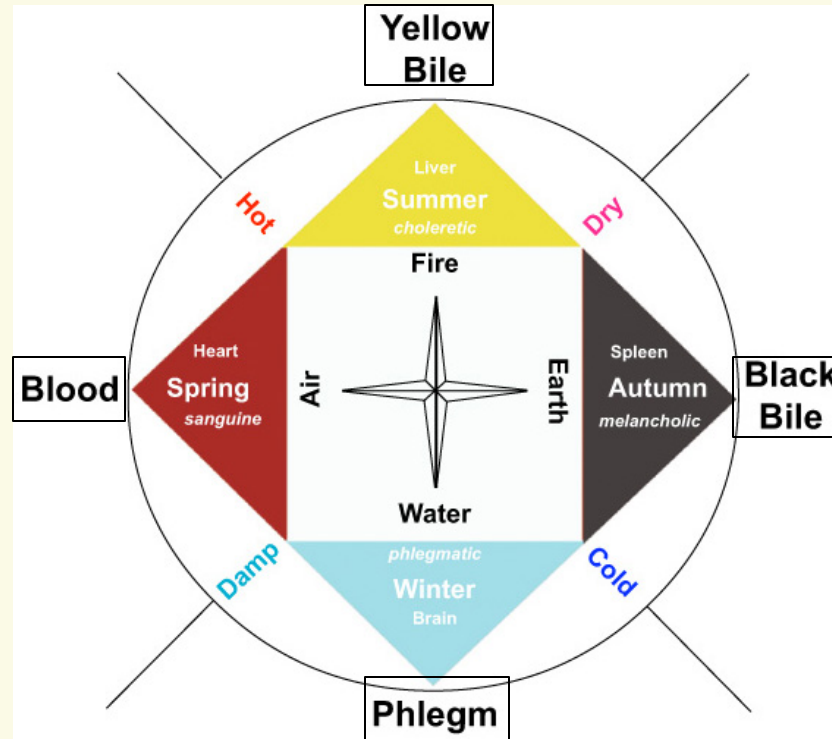
Early Christianity



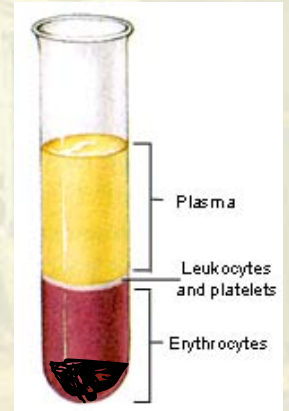
Hippocrates



Galen
~200 AD



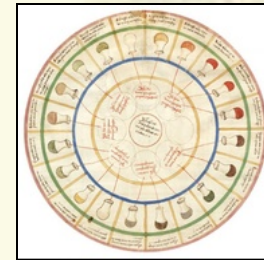
The Four Humours (fluids) of Ancient Greece
and their relationship with
the Four Elements
the Four Temperaments
the Four Personalities
the Four Organs
and
the Four Seasons



Middle Ages

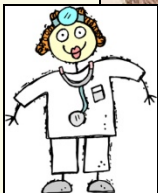


“... the *answer* is in the sewer”



Examining the **Golden** Trickle

14th and 15th Century



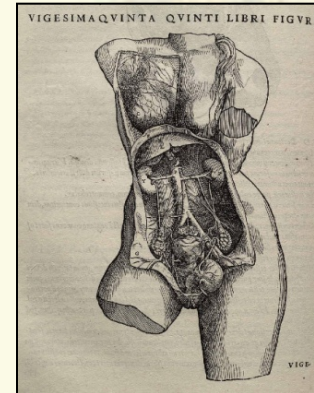
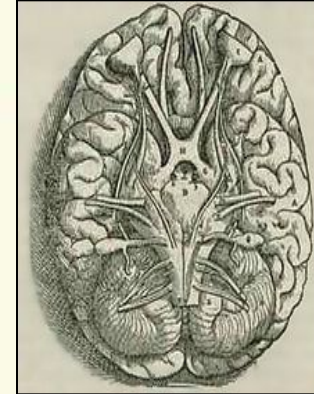
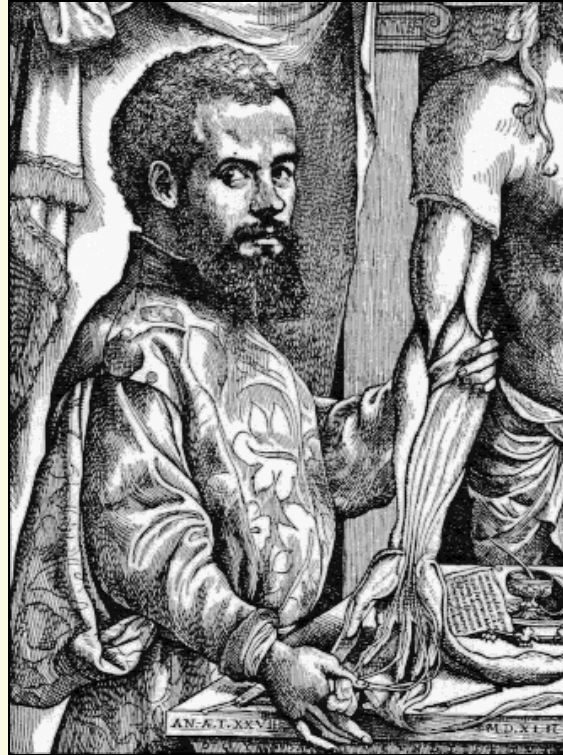
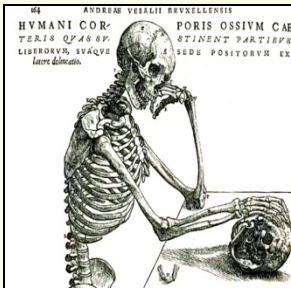
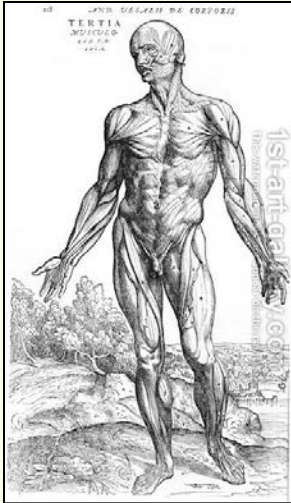
Physician



Barber- Surgeon



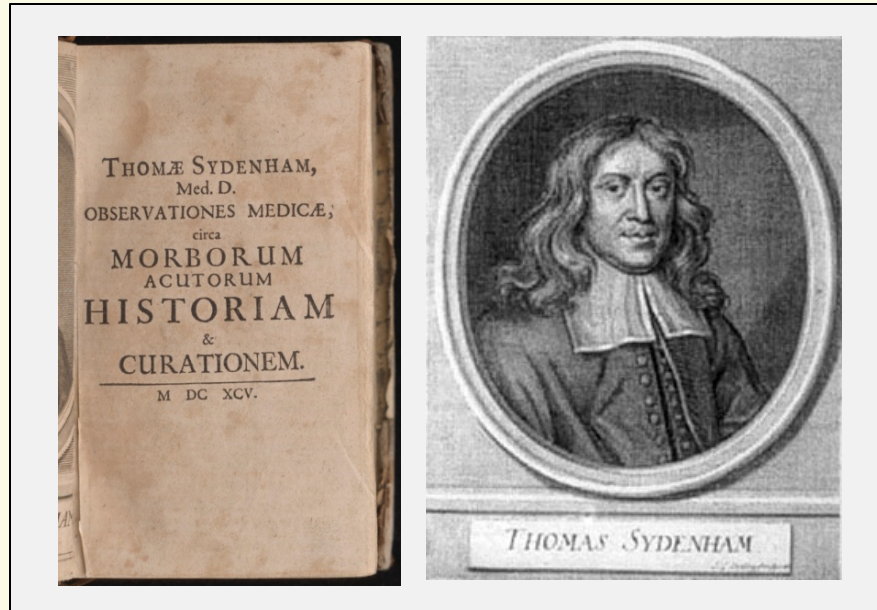
Andrea Vesalius, 1543



“De Humani Corporis Fabrica”

Nosology of Disease

17th Century



1. Diseases classified into species (like plants)
2. Described objectively (not philosophically)
3. Constant manifestations across patients
4. Seasons when disease occur documented

Pulse and Temperature

- **Pulse** recognized since antiquity
- Galen describes use as a sign of “imbalance” (variations in rhythm and strength)
- 1600s first record of *timing* the pulse with a clock
- 1770s description of pulse rate in disease (DM, thyrotoxicosis)
- 20th century first used as a “vital sign”

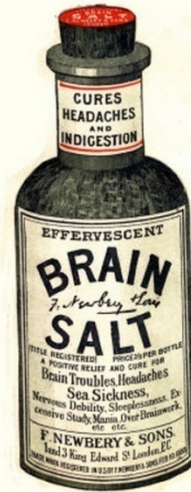
- **Fever** considered a disease entity, not a sign
- *Body Heat*, likely due to environment
- Fahrenheit and Boehaave (~1700) invent the first usable thermometer
- Thermometer not used in medicine until mid 18th century
- Recorded routinely late 19th century



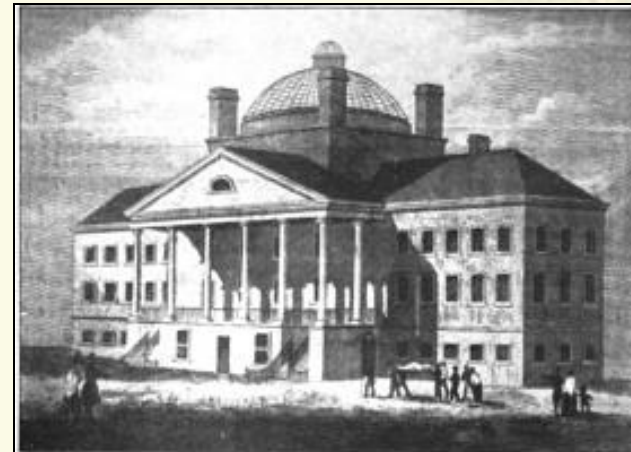
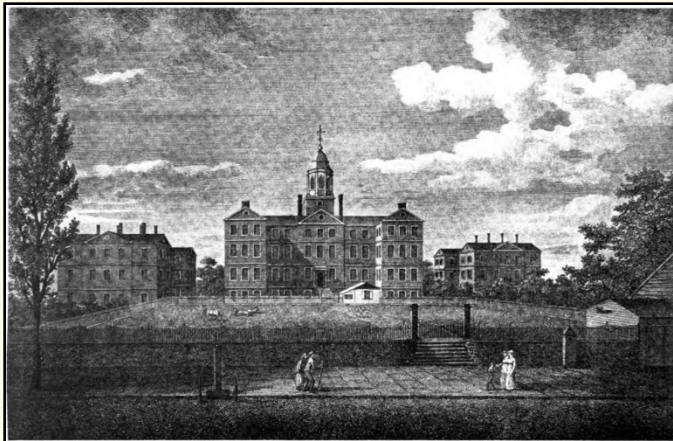
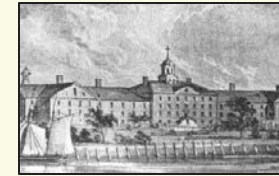
18th Century



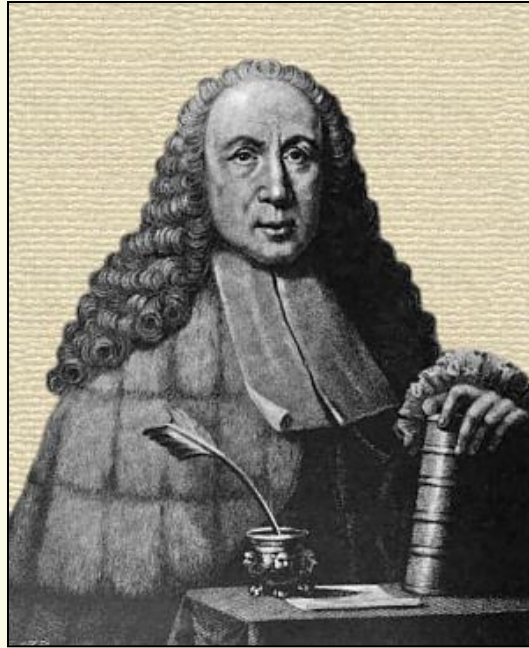
18th Century Tools



The Hospital

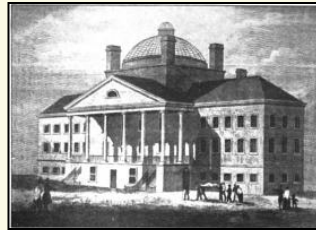


Giovanni Batiste Morgagni



“On the Sites and Origins of Disease”
1761

Middle of the 18th Century

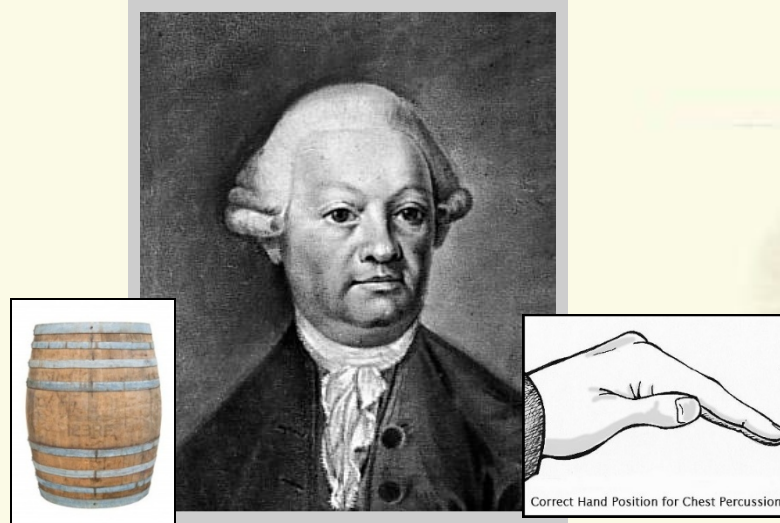


Vesalius
SYDENHAM
AM
Valsalva



Morgagni

“Inventium Novum”



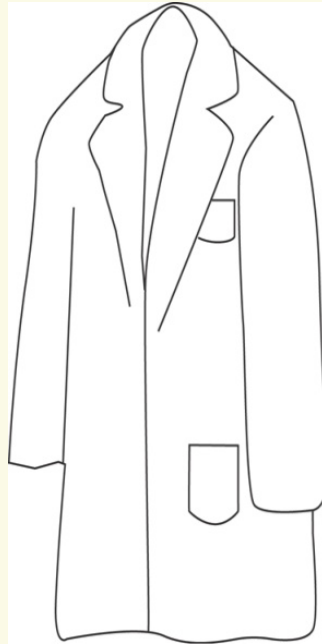
"I here present the reader with a new sign, which I have discovered for detecting diseases of the chest. This consists in percussion of the human thorax, whereby according to the character of the particular sounds thence elicited, an opinion is formed of the internal state of the cavity."

Dr. Leopold Auenbrugger, 1761

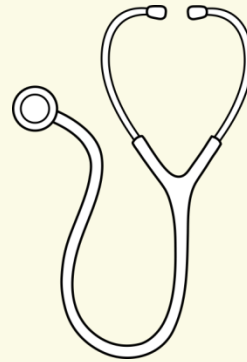
“Clinical observation, though never blind, had been deaf”



19th Century



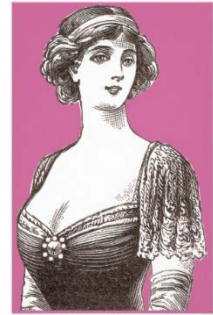
+



= TRUST



"I was consulted in 1816 by a young woman who presented with symptoms of disease of the heart...I took a quire of paper which I rolled together as closely as possible, and applied one end to the precordial region; by placing my ear at the other end, I was agreeably surprised at hearing the pulsation of the heart much more clearly and distinctly than I had ever been able to do by the immediate application of the ear."



Dr. Renee J.T. Laennec,
1821 "Mediate Auscultation"

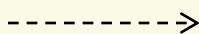


The Stethoscope

“Here is looking at your chest”



1820s



1850s

R. Laennec & Auscultation

Breath Sounds

- Vesicular (a.k.a. Alveolar):
- Tubular (a.k.a. Bronchial or Tracheal)
- Râles: a rattling sound (*fr*) ; “death rattle” of TB
 - Hippocrates (‘sound of boiling vinegar’)
 - Crackles: British translation
- Ronchi (*Gr*, snoring) for TB patients ONLY!
- Amphoric Breathing: pathognomonic for TB
- Pleural Rub (in TB)
- Auscultatory Percussion (Scratching)
- Egophony: E → A or E → goat-like sound
 - ‘a quavering and jerky sound, like the bleating of a goat’

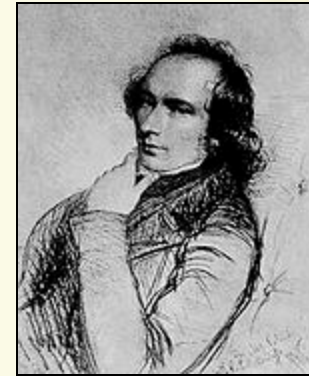


Austin Flint (1812-1886)

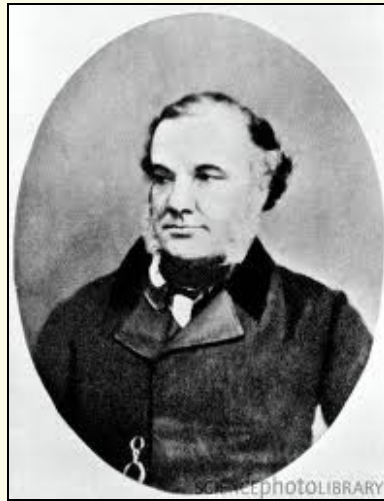


- Influenced by his teacher at Harvard, James Jackson (MGH founder), a follower of Laënnec.
- Coined broncho-vesicular breathing
- Founded 4 medical schools

William Stokes (1804-1878)



- First English book on the use of the Stethoscope
- Leader of the Dublin Diagnostic Exam movement



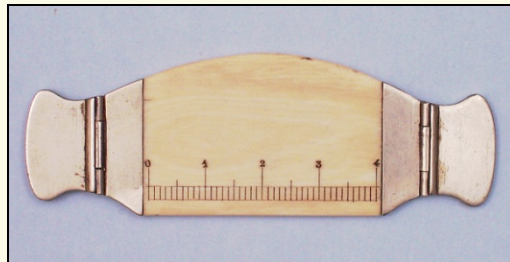
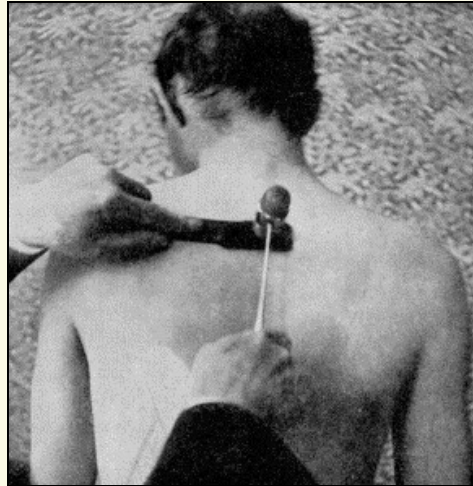
*“It is high time to strip the stethoscope
of the extravagant pretensions thrust
upon it”*

Thomas Addison, 1846

The Pleximeter





Pierre A Piorry
(1794-1879)





The Age of Instruments

- **1850** - first ophthalmoscope 
- **1871** - human normal temperature and temperature in diseases (patterns) described.
 - 3rd vital sign (pulse and respirations already timed)
- **1875** - first description of use of reflex hammer (previously used for percussion) 
- **1896** - Riva-Rocci invents the *usable (cuff) sphygmomanometer*.
 - 4th vital sign is added (brought to U.S. by Cushing)

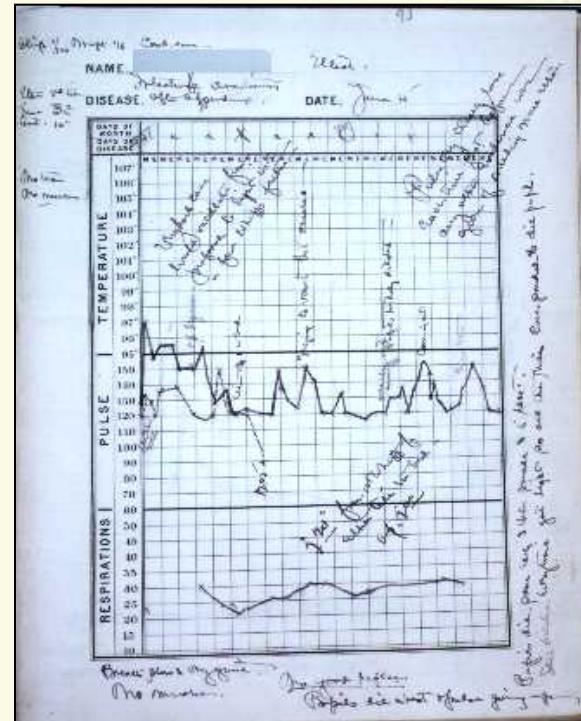
The Vital Signs Record

Harvey W. Cushing (1869-1939)



House Officers, 1896

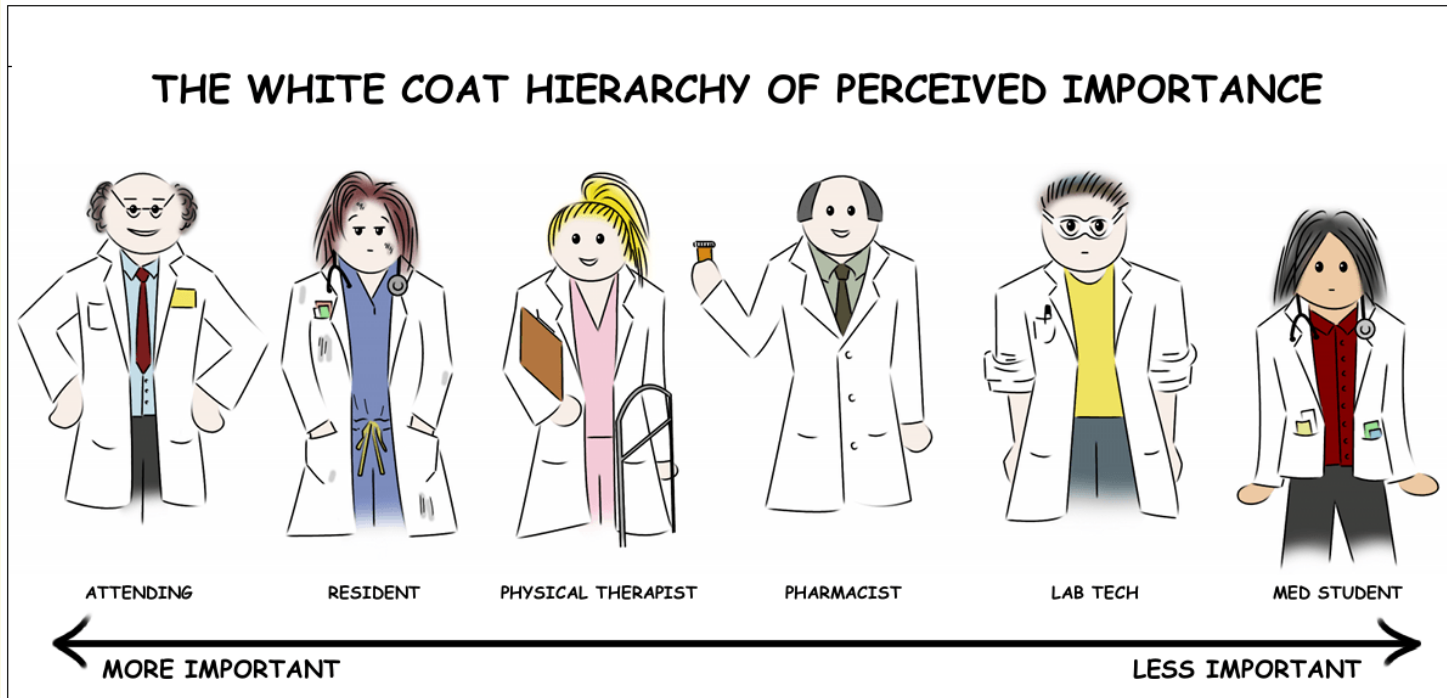
MGH



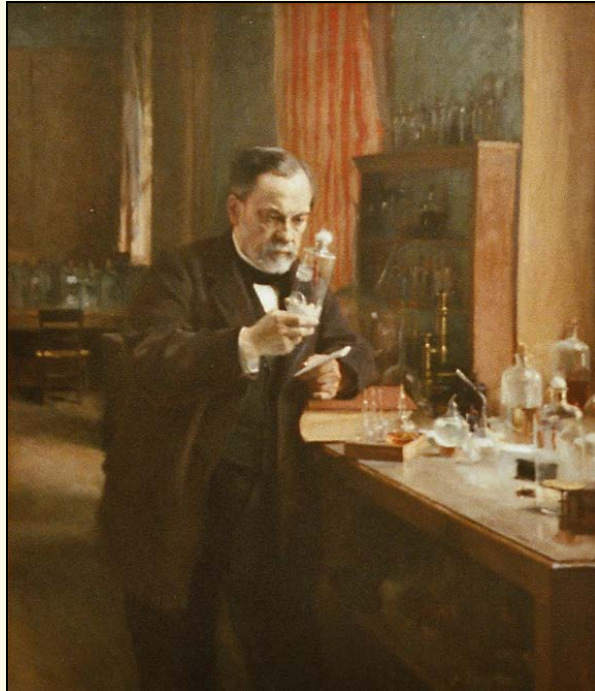
Ether Chart, 1896

MGH

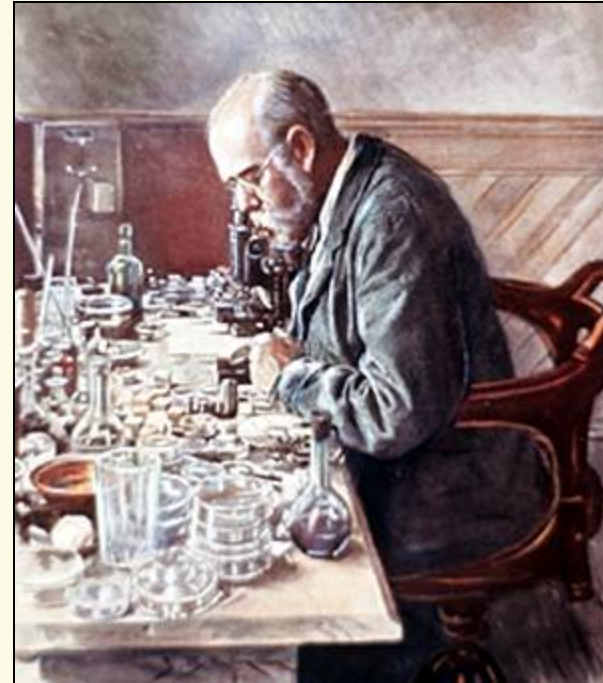
The White Coat



Prestige



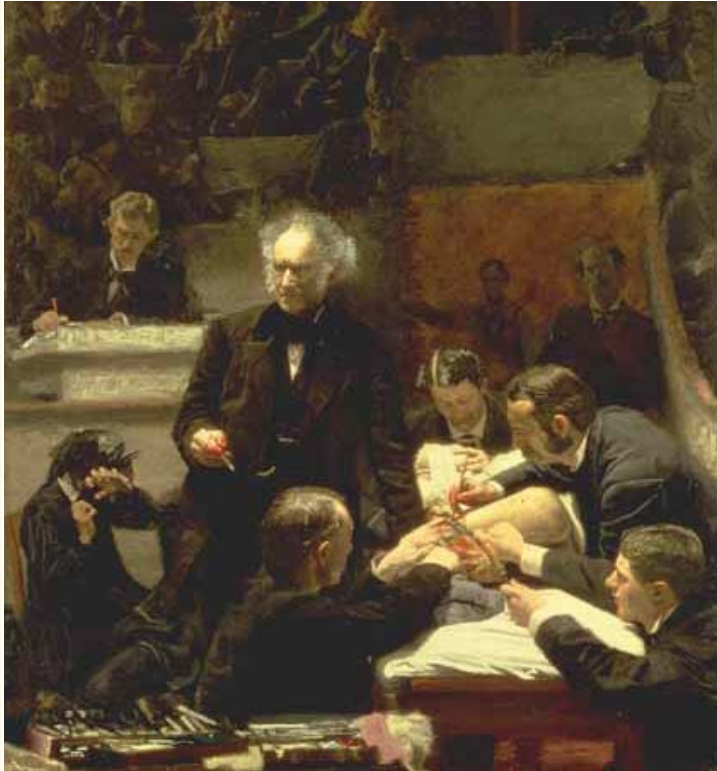
L. Pasteur



R. Koch



Asepsis



1875



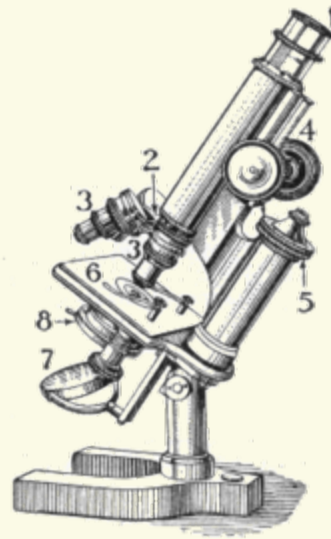
1889

End of 19th Century Exam

- History (*Martinet*, 1827): CC, HPI, PMH, SH
- Physical Exam: (*modesty aside*)
 - Appearance, Pulse, Temperature, BP
 - Organ based (Brain, Chest and Abdomen)
 - Inspection
 - Palpation
 - Percussion
 - Auscultation
 - Skin, Muscles, “Nerves” and Joints

"Turn of the Century"

20th, that is!



"...doctors have lost the ability to care for patients. Lacking in skills, they rely on their stethoscopes..."

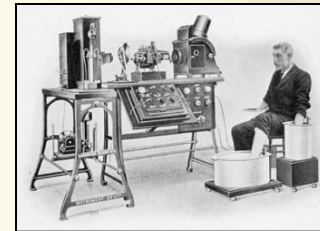
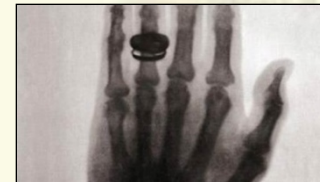
Antebellum Era,
Harvard Faculty



Return to Visual Inspection

*eventual abandonment of the exam

- **1880s** - Microscopy
- **1895** – *W. Rontgen*
 - “A new kind of rays”
(now we can see it all)
- **1900s** – *W. Einthoven*
Electrocardiography
- **Later 20th Century**
 - Spirometry
 - Ultrasound
 - PET-scan



A Plea for Bedside Exams



W. Osler



ROUNDS



GRAND ROUNDS

To-day





To cure sometimes, to relieve often, to comfort always."

Nobel Laureate



"The Stethoscope Song"

... Then out his stethoscope he took,
And on it placed his curious ear;
Mon Dieu! said he, with a knowing look,
Why, here is a sound that 's mighty queer.
... Now use your ears, all you that can,
But don't forget to mind your eyes,
Or you may be cheated, like this young man,
By a couple of silly, abnormal flies.

Thank You

Oliver Wendell Holmes, 1846

H&P

Admission Orders

No. 1
Thomas Swin.

On Sept 1st 1821. Thomas Swin, Esq. a native of Ireland, was admitted into the Mass Genl Hospital - laboring under symptoms of secondary Syphilis. It appears from his statement that the disease was first contracted at N York in Sept 1819 and manifested itself by a small chancre on the superior part of the tibiae bone. In the exhibition of mercury, and some local applications to the chancre, the chancre disappeared in the course of two or three weeks. In Nov following he went to Savannah. After being there a short time he suffered most severely from violent rums in his head, of nasal and night sweats. His attention was attracted to the appearance of a carcinoma ulcer on the forehead, and on this by the first of which was healed after his mouth had been affected by the use of mercury for several weeks. In Sept 1820 he left Savannah for Charleston (S.C.) Here he was again subjected for six weeks by the internal use of mercury and by the application of mercurial ointment to the glands of complete cure of the ulcers was effected, and the disease appeared to be quiescent to the extent of two or three months. When the advice of friends induced him to leave Charleston for Boston. During his passage to Boston an eruption took place on his right arm which proceeded rapidly to ulceration, after his arrival, suppurated some time in his limbs, commenced a course of mercury, and after under the influence of it five weeks by taking forty eight pills, the ulcer still retained all its virulence. In Sept he removed into the country, where by taking twelve pills his system became affected and the ulcer nearly healed. His health was now such as to permit him to attend to his usual business (being a Justice of Peace) and the approach of cold weather when he was again covered with rums in his extremities, and a venereal tumour of considerable magnitude appeared on the skin of the

Massachusetts General Hospital.
BOSTON, Sep 28 1821

I have seen *John Greenleaf* examined his case, and find him to be afflicted with *fungus* and that he is a proper patient for the HOSPITAL.

J. Greenleaf — ACTING PHYSICIAN,
ACTING SURGEON.

To the Visiting Committee,
M. G. Hospital.

Massachusetts General Hospital.
BOSTON, Nov 20 1821.

is admitted a patient
into the HOSPITAL, at *five* Dollars, Cents per week;
giving
an obligation for — board, &c. *Cost to be paid* —

} VISITING
COMMITTEE.

J. W. Smith

To the Superintendent.

Boston, 1823