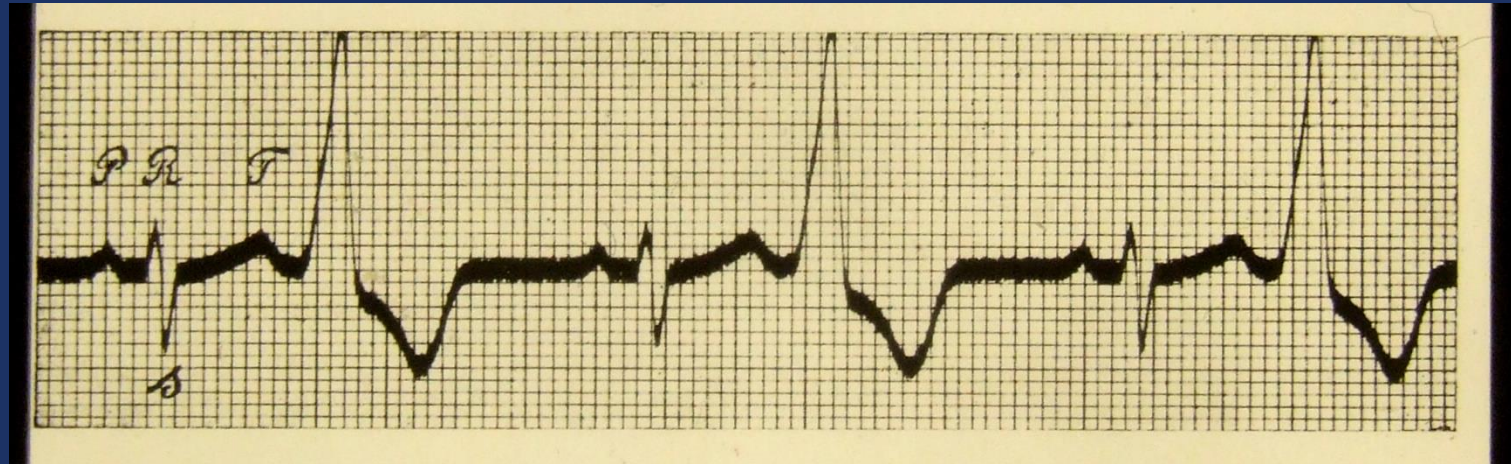


# The Heart in Medicine



Dr Caroline Coats

Consultant Cardiologist, QEUH Glasgow

Honorary Archivist, British Cardiovascular Society

[caroline.coats@glasgow.ac.uk](mailto:caroline.coats@glasgow.ac.uk)

@BCSMuseu

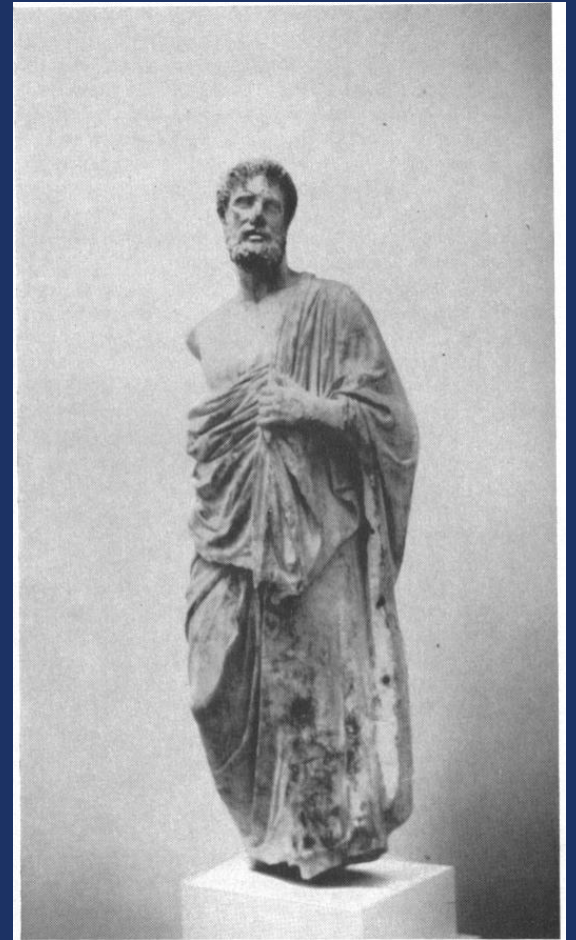


# In the beginning



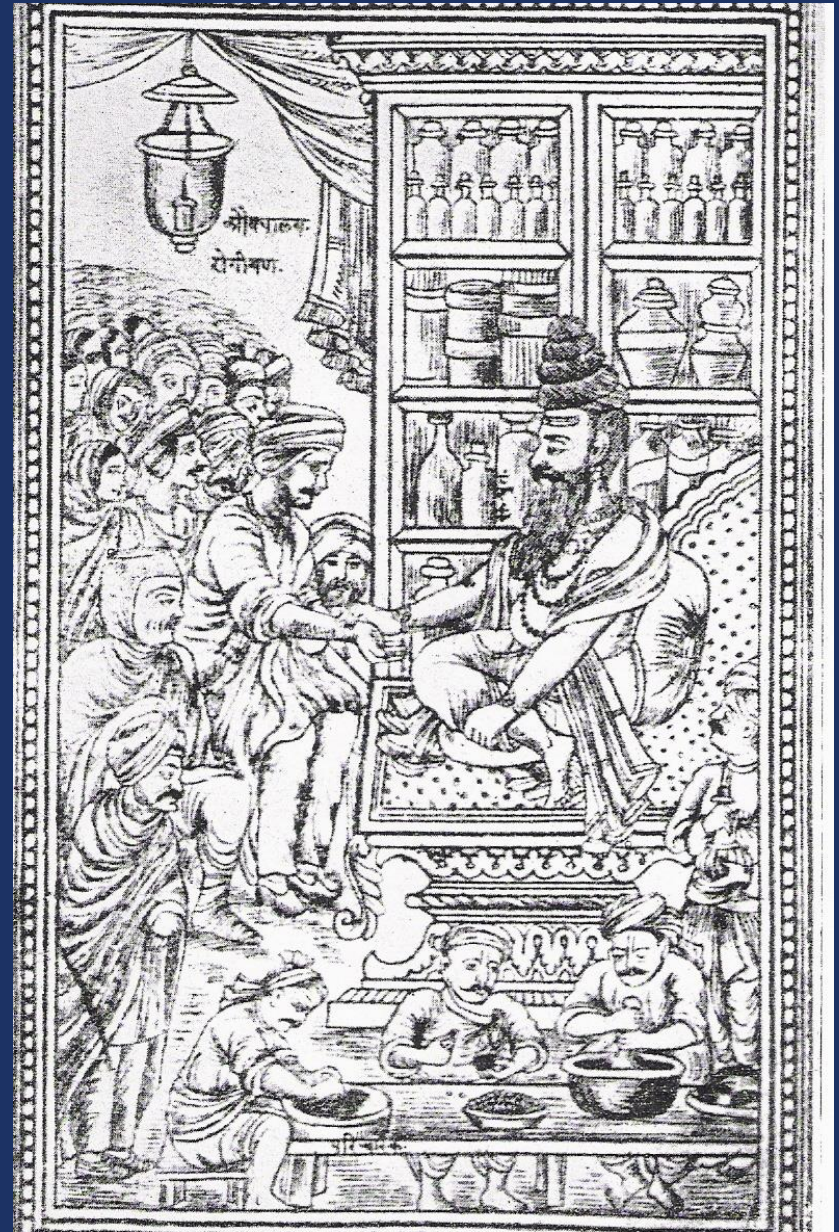
# Hippocrates

- Treatise, *On the Heart*





# The Pulse





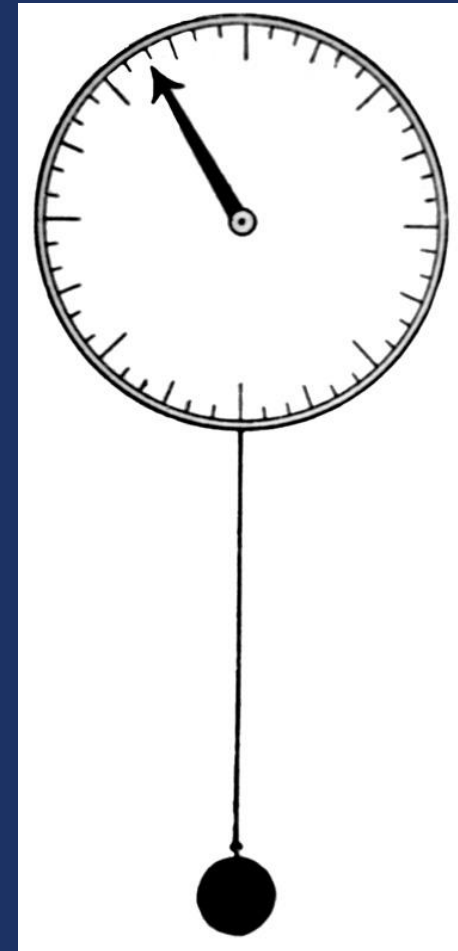


# The Pulse

- 5<sup>th</sup> C BC
  - Chinese physician Pein Ts Lo “pulse theory”
  - Separate pulses connected to various organs eg liver
- 3<sup>rd</sup> C BC
  - Herophilus of Alexandria
  - The pulse is “pneuma expressed from the heart”
- AD 131-201
  - Claudius Galen wrote 18 books on the pulse

# Counting the pulse

- In 1583 Galileo Galilei described the first device to measure the pulse rate
- ,
- The Pulsilogium
  - Sartorio Sartorio, Padua





T H E  
*Physician's Pulse-Watch;*  
O R, A N  
**E S S A Y**

To Explain the Old Art of FEELING the  
PULSE, and to Improve it by the help of  
a PULSE-WATCH.

In Three P A R T S.

- I. The Old *Galenic* Art of Feeling the Pulse is describ'd, and many of its Errors corrected : The true Use of the Pulses, and their Causes, Differences and Prognostications by them, are fully explain'd, and Directions given for Feeling the Pulse by the Pulse-Watch, or Minute-Glass.
- II. A New Mechanical Method is propos'd for preserving Health, and prolonging Life, and for curing Diseases by the help of the Pulse-Watch, which shews the Pulses when they exceed or are deficient from the natural.
- III. The *Chinese* Art of Feeling the Pulse is describ'd; and the Imitation of their Practice of Physick, which is grounded on the Observation of the Pulse, is recommended.

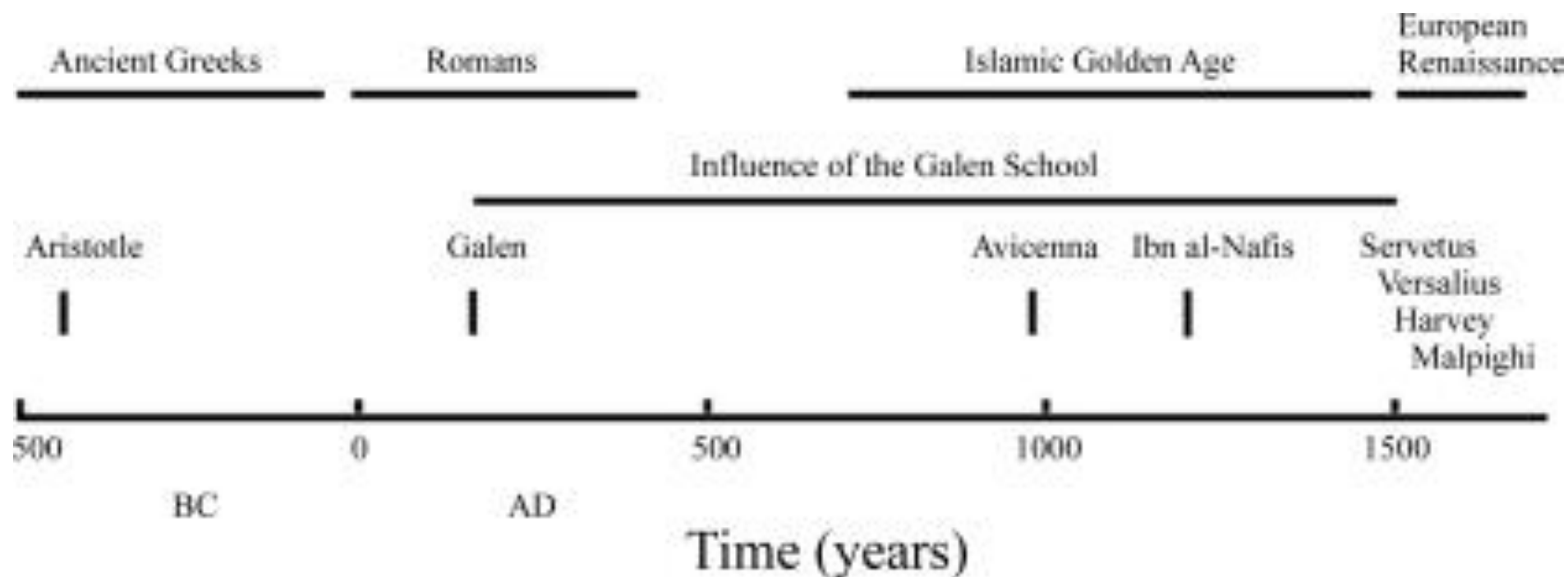
To which is added,

An Extract out of *Andrew Cleyer*, concerning  
the *Chinese* Art of Feeling the Pulse.

By SIR JOHN FLOYER, Knight.

LONDON, Printed for Sam. Smith and Benj. Walford, at  
the Prince's-Arms in St. Paul's Church-Yard, 1707.

# Discovery of the Circulation



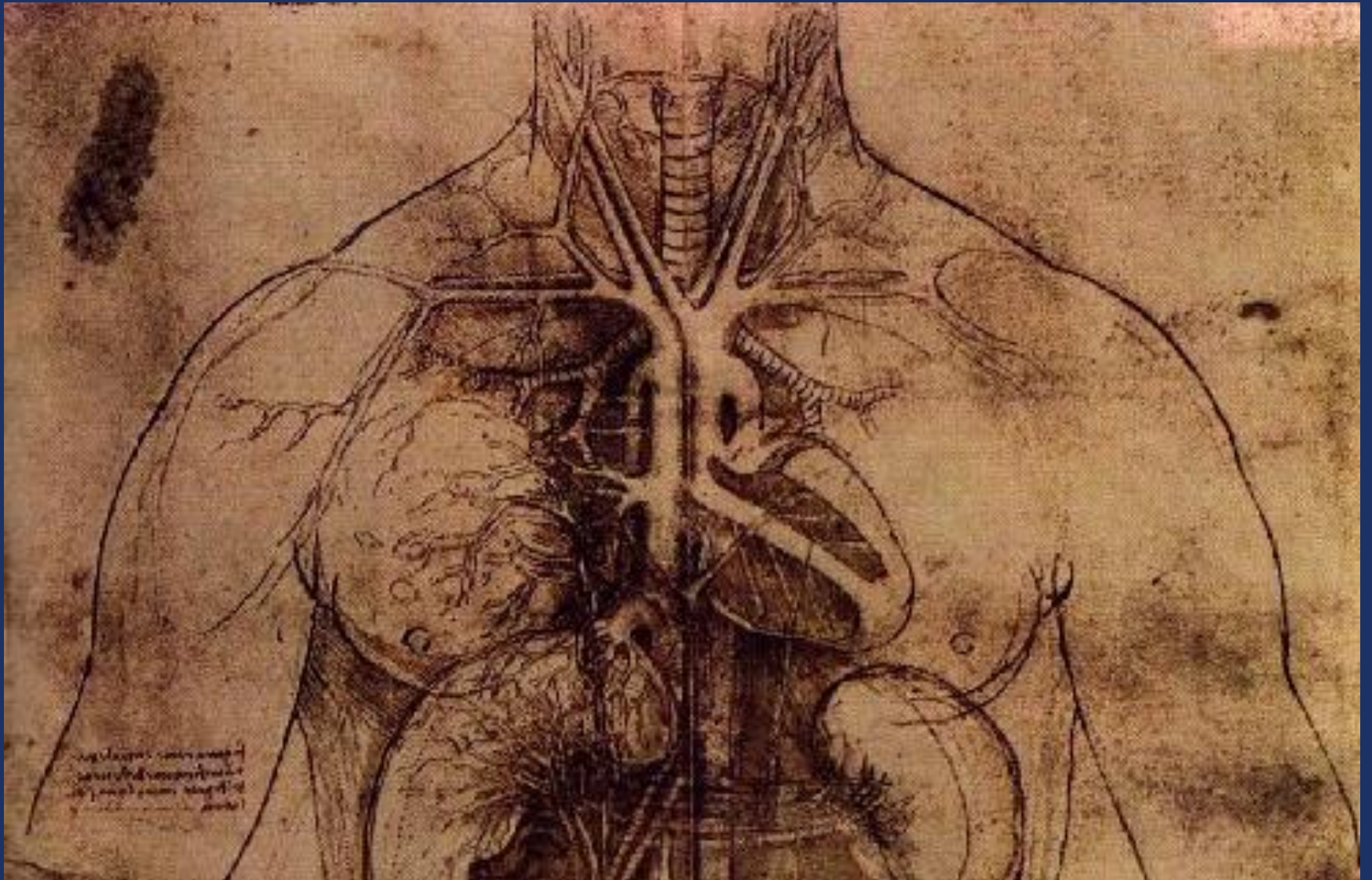
# Pulmonary Circulation



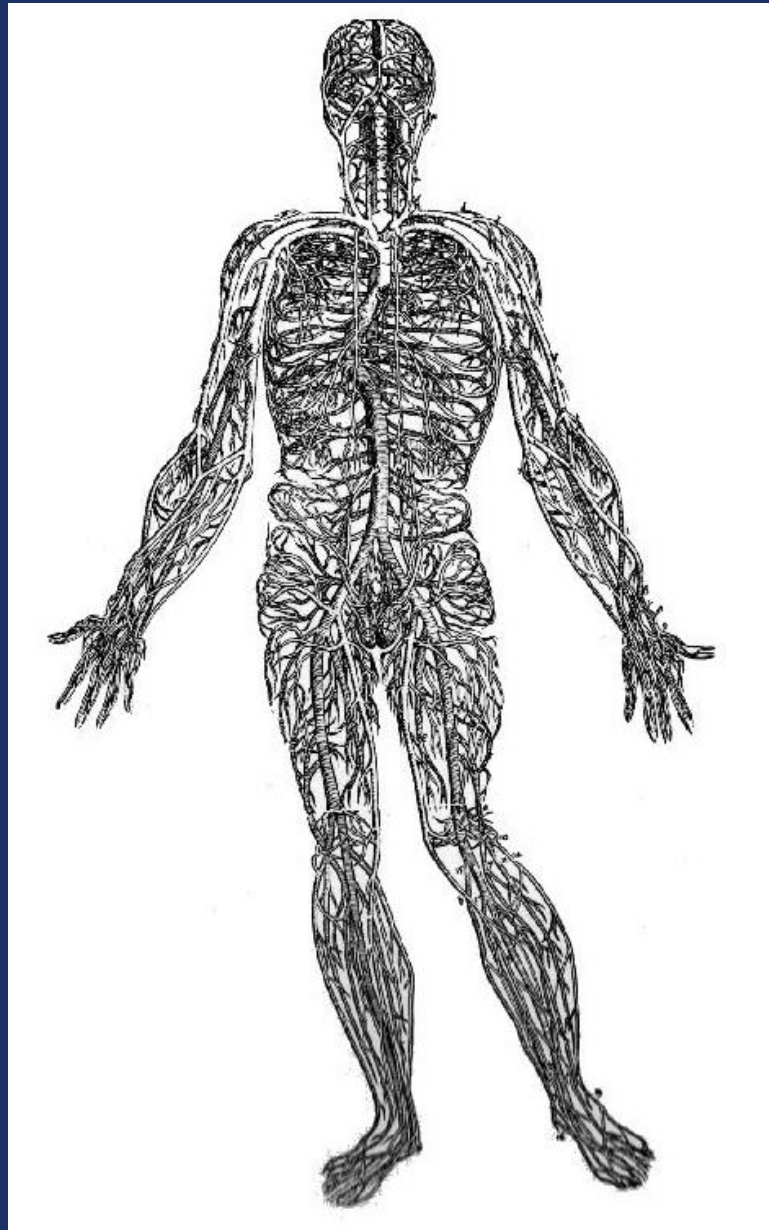
**Michael Servetus in prison**  
Statue by C. Roch.

Wellcome Collection  
Attribution 4.0 International (CC BY 4.0)



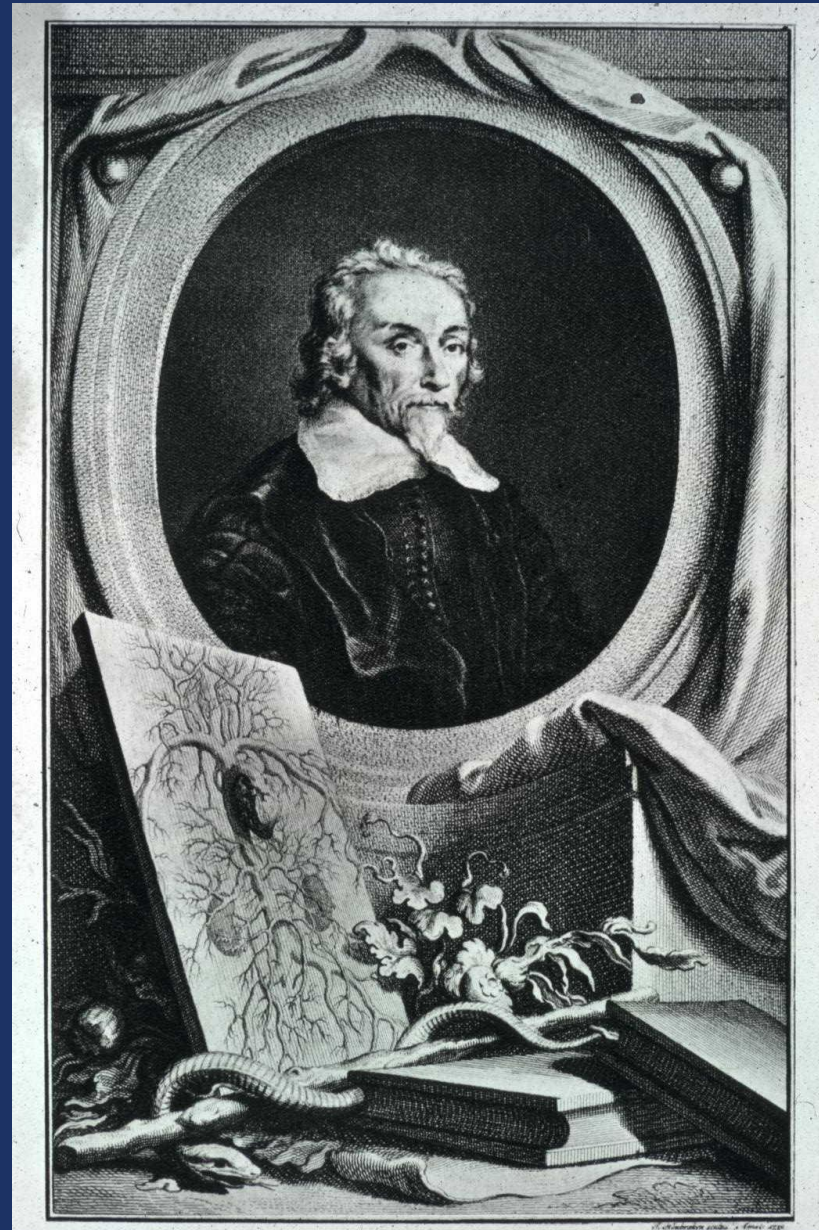


Leonardo da Vinci (1452-1519).



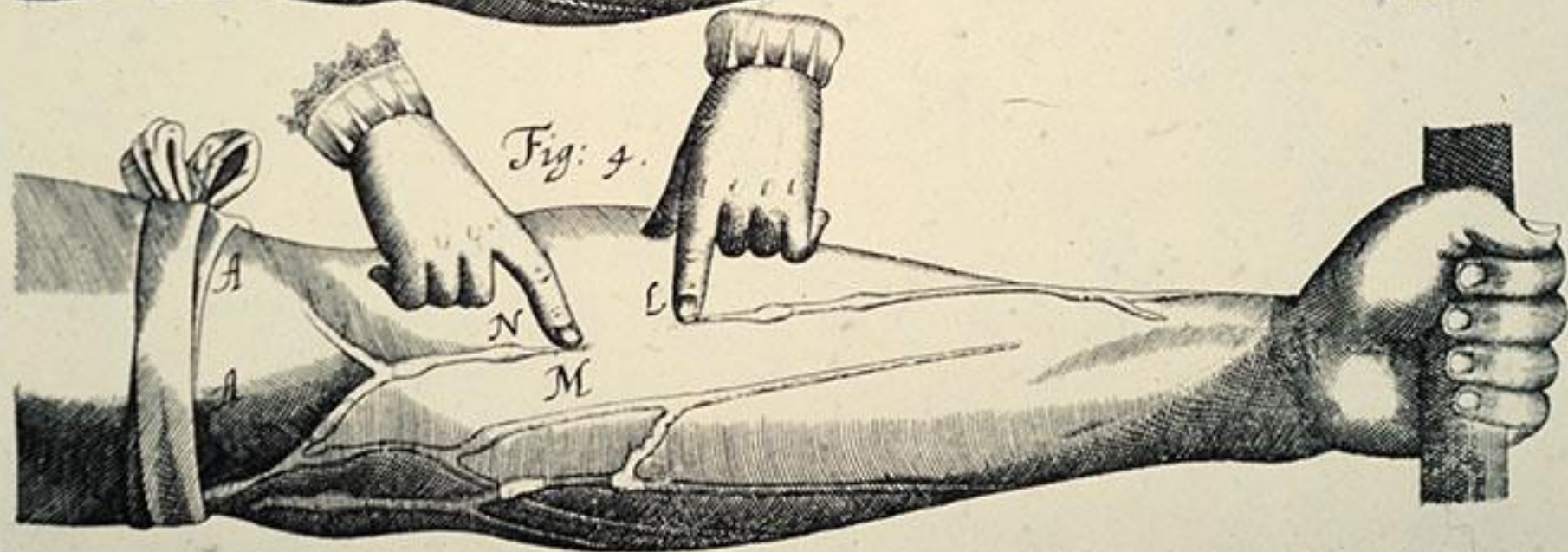
Andreas Vesalius (1514-1564)



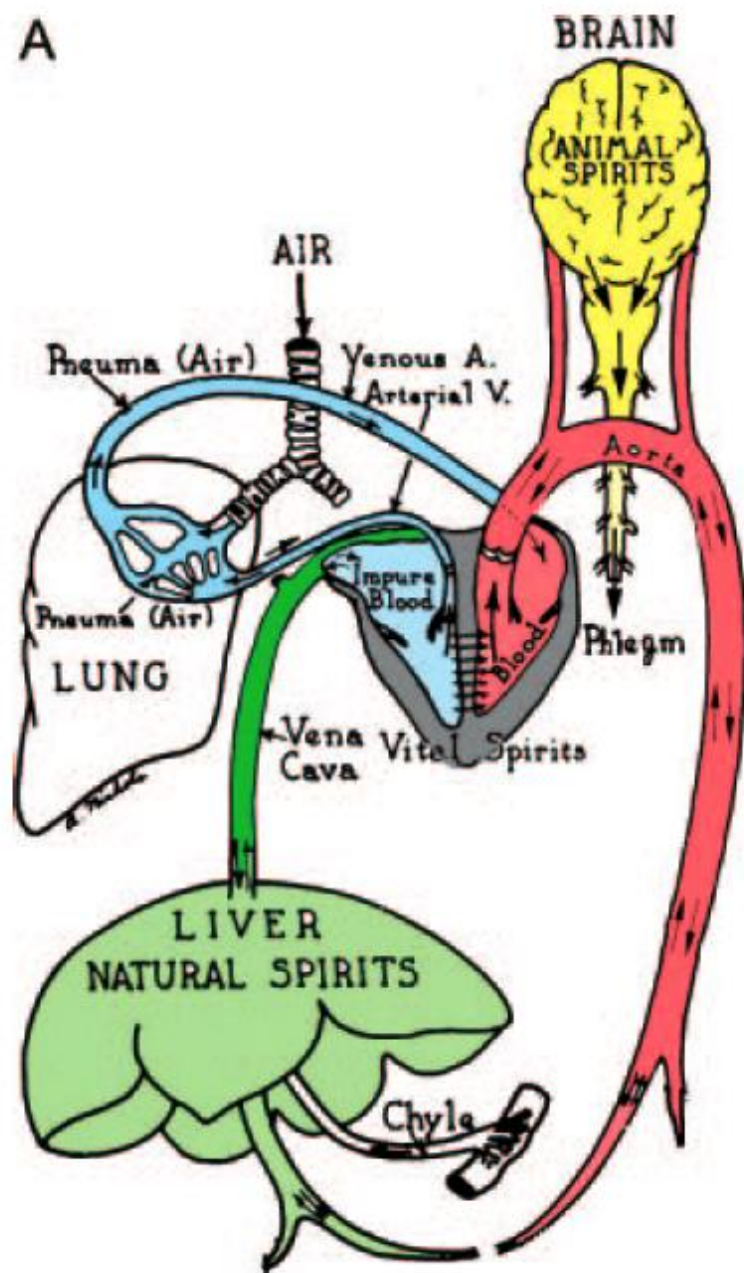


William Harvey (1578-1657)

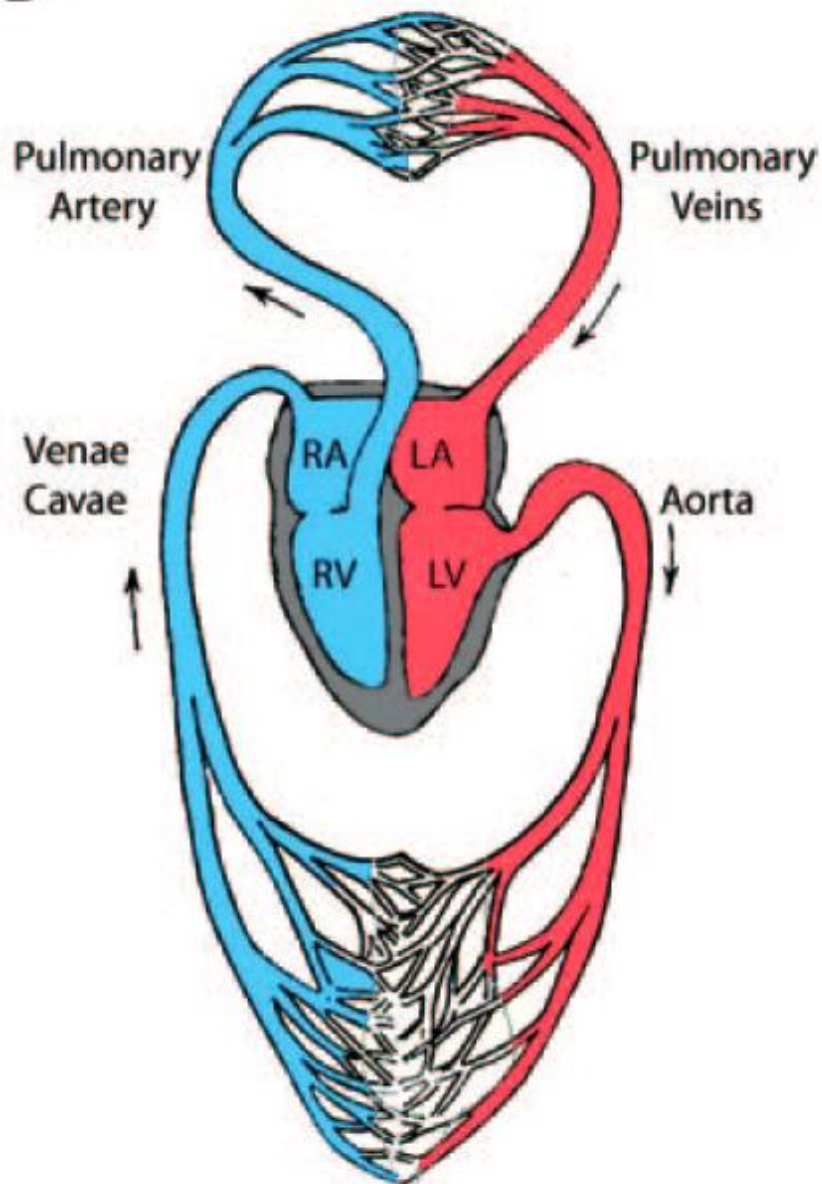




A

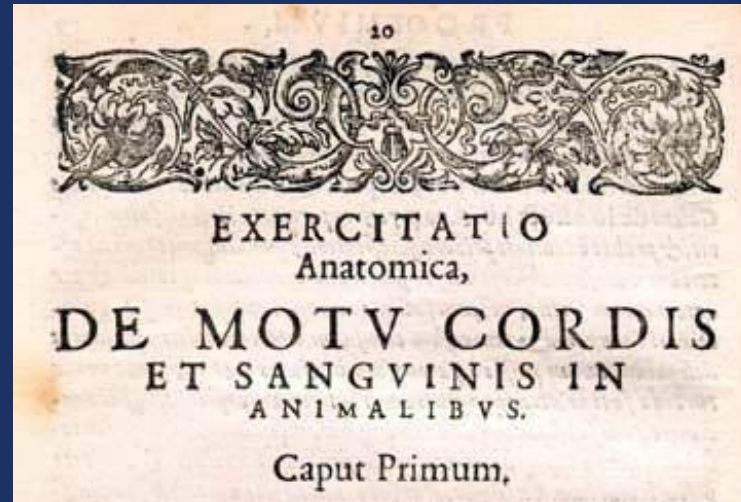


B





# William Harvey 1628



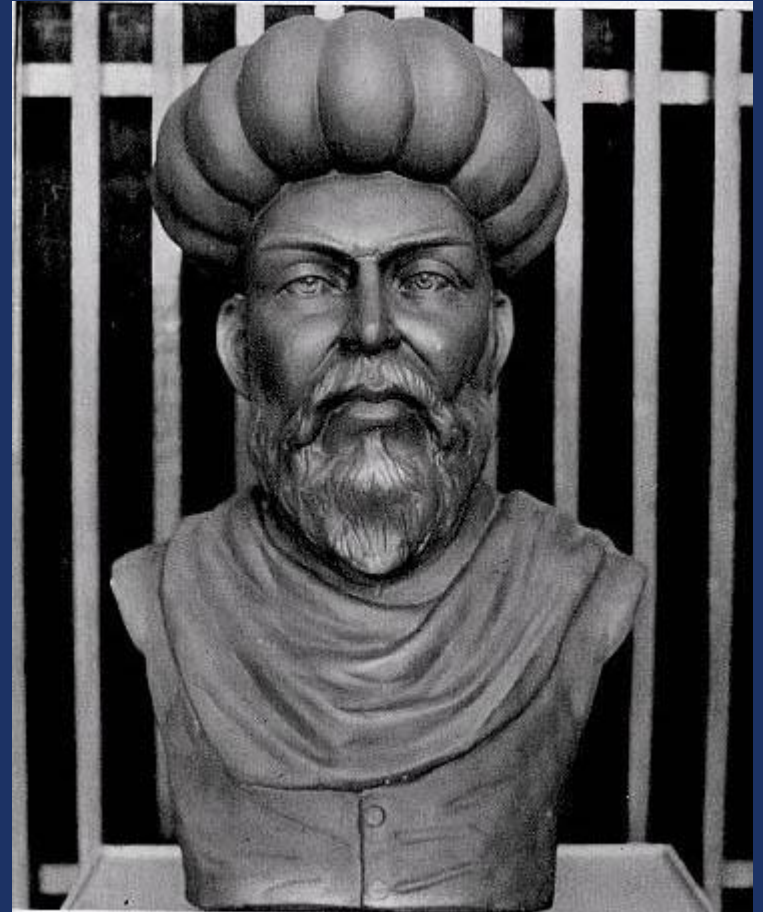
*“I am obliged to conclude that in animals the blood is driven round a circuit with an unceasing, circular sort of movement, that this is an activity or function of the heart which it carries out by virtue of its pulsation, and that in sum it constitutes the sole reason for the heart’s pulsatile movement”*

et Sanguinis in Animalibus



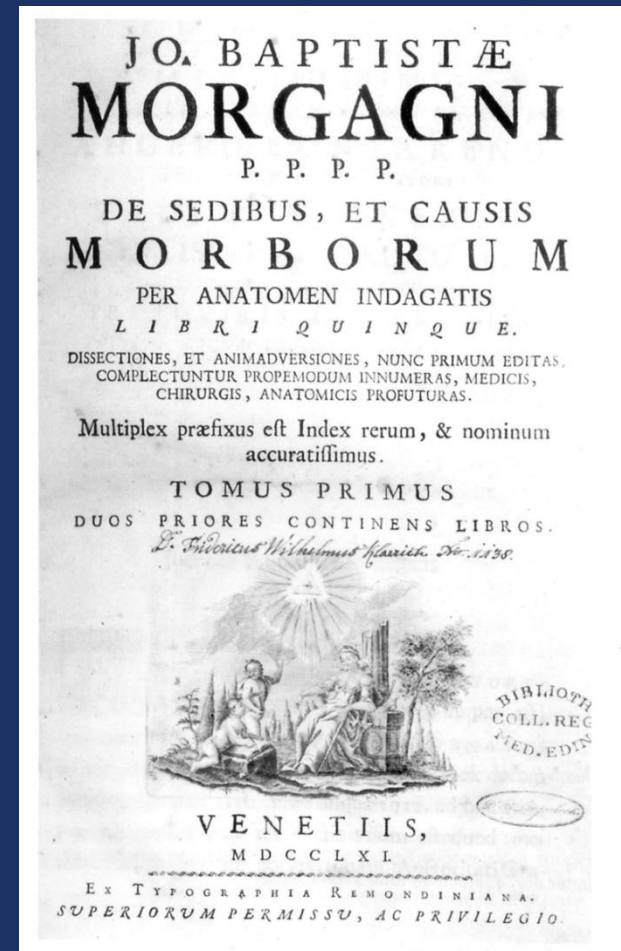
# Ibn al-Nafis (1213–1288)

- Sharah al Tashreeh al Qanoon (Commentary on the anatomy of Canon of Avicenna)



# Pathology of the Heart

- Gioavanni Battista Morgagni 1682-1771
- ***De sedibus et Causis Morborum per Anatomen***
- 3 volumes 1761
- Described valve lesions and calcified coronary artery.
- Completed at age 79.



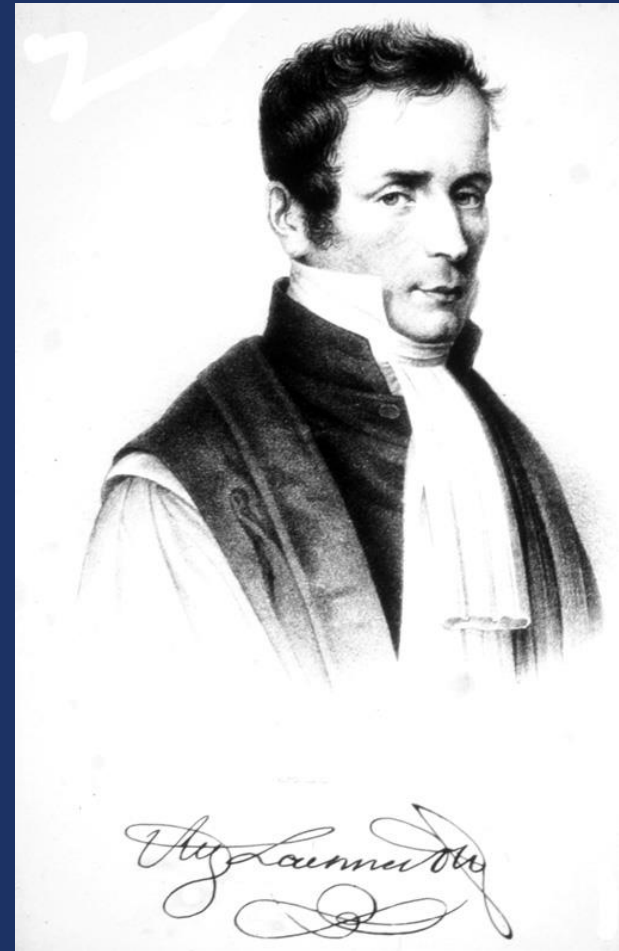
# Diagnostics



Laennec stethoscope 1819

# Invention of the stethoscope

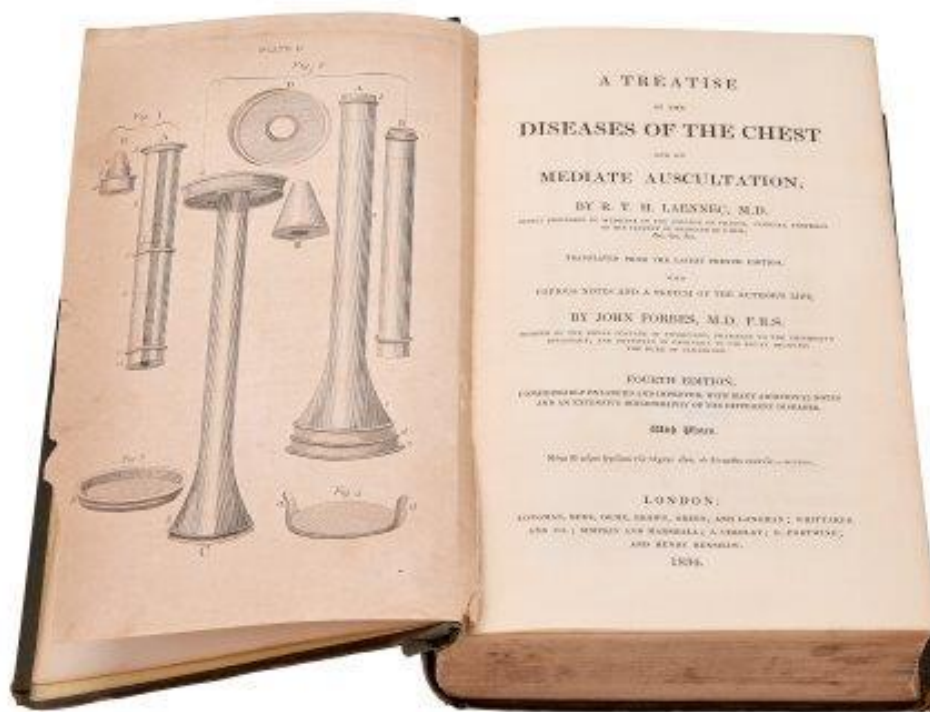
- *De l'auscultation mediate ou traite du diagnostic des maladies des poumons et du coeur*  
1819



René-Théophile-Hyacinthe Laënnec 1781-1836



# 1<sup>st</sup> edition of Laennec's book 1819





## A L'Hopital Necker, Ausculte Un Phtisique

Painting by Théobald Chartran  
(1849-1907)

US National Library of Medicine.

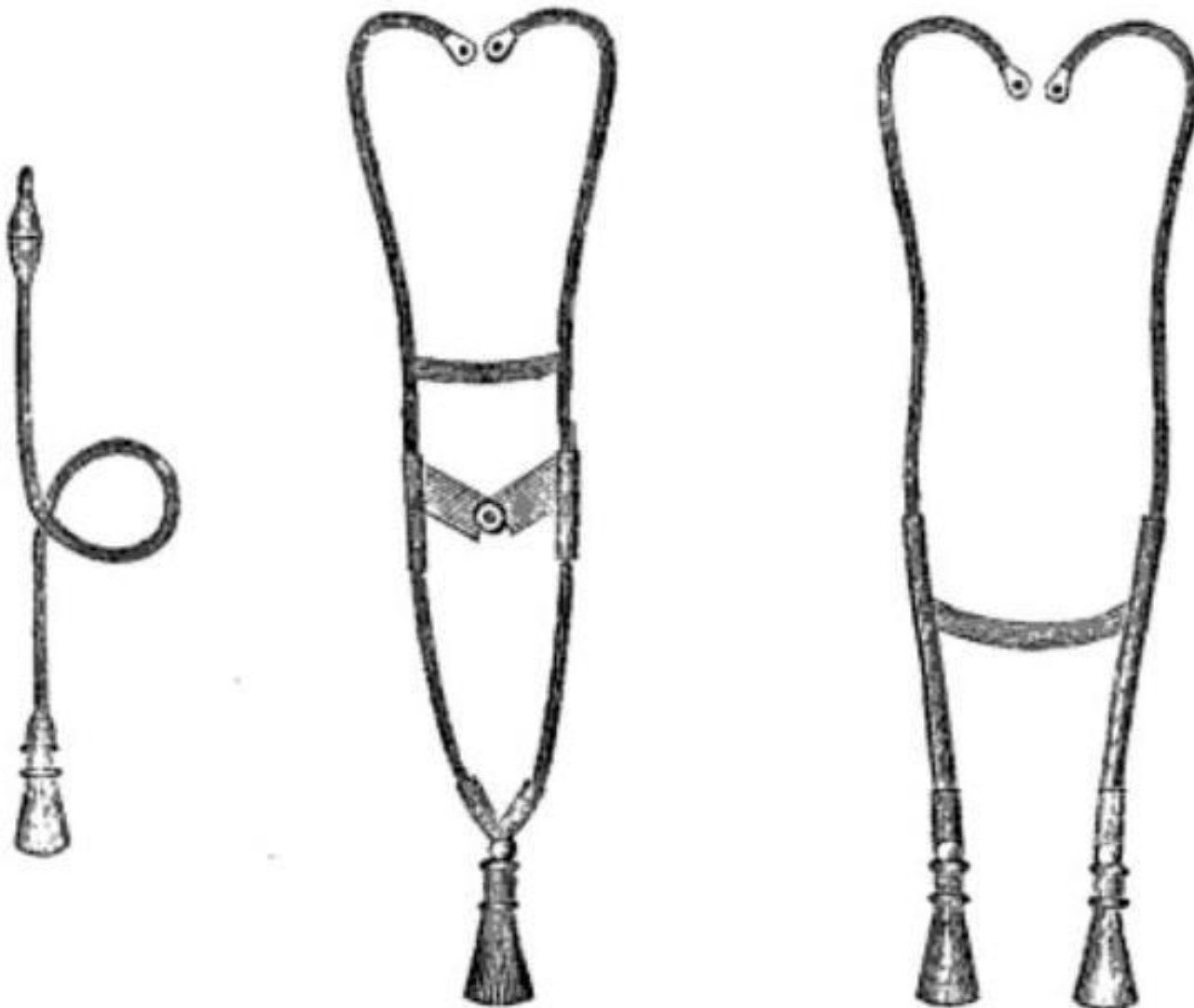
# Thomas Hodgkin's Stethoscope







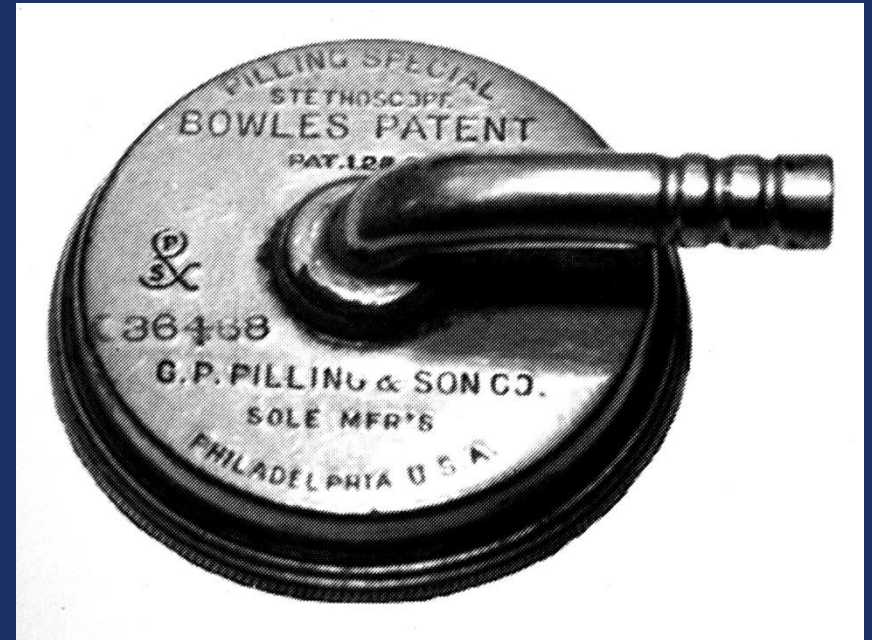




Evolution of the stethoscope, Popular Science, 1883; 22(28)

# The diaphragm chest piece

- Invented in 1894 by Robert Bowles of Massachusetts.
- For high pitched murmurs.



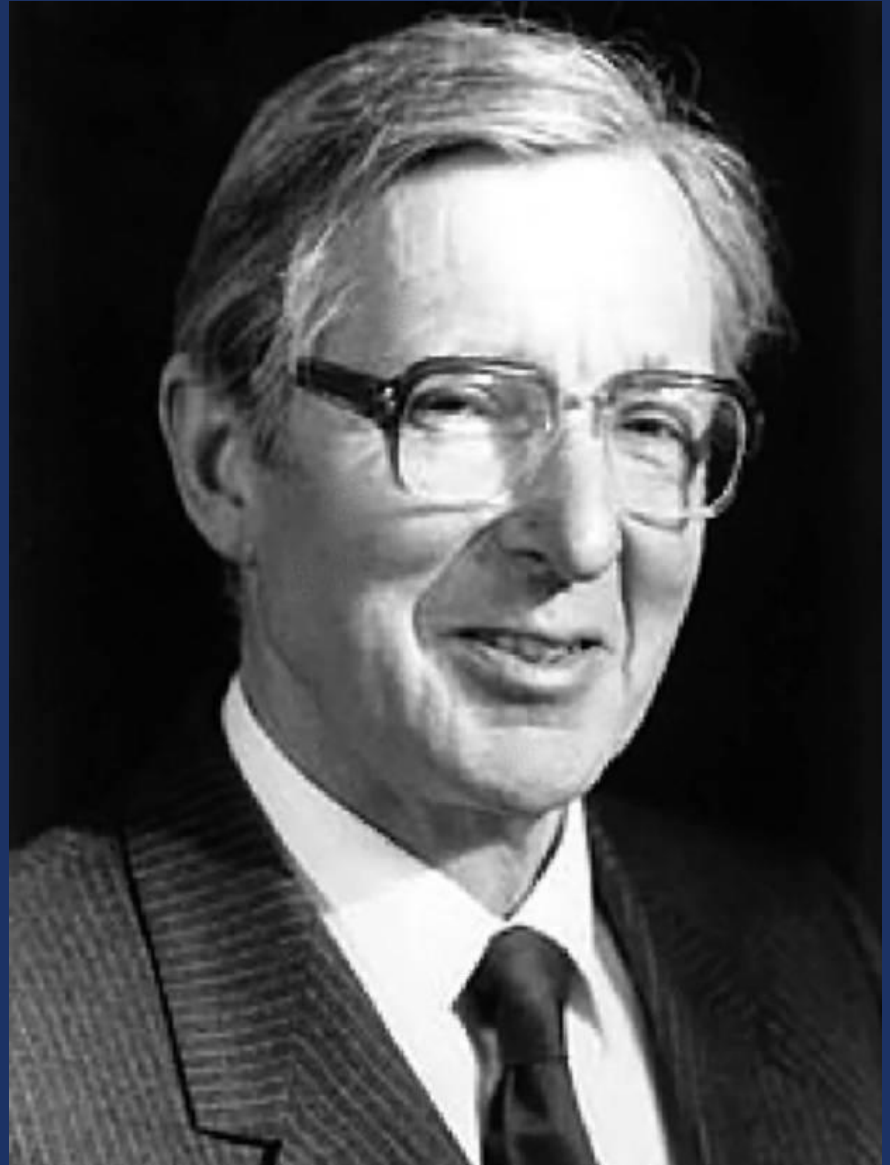
Dr. Robert C.M. Bowles 1894

# Sprague Bowles model 1926

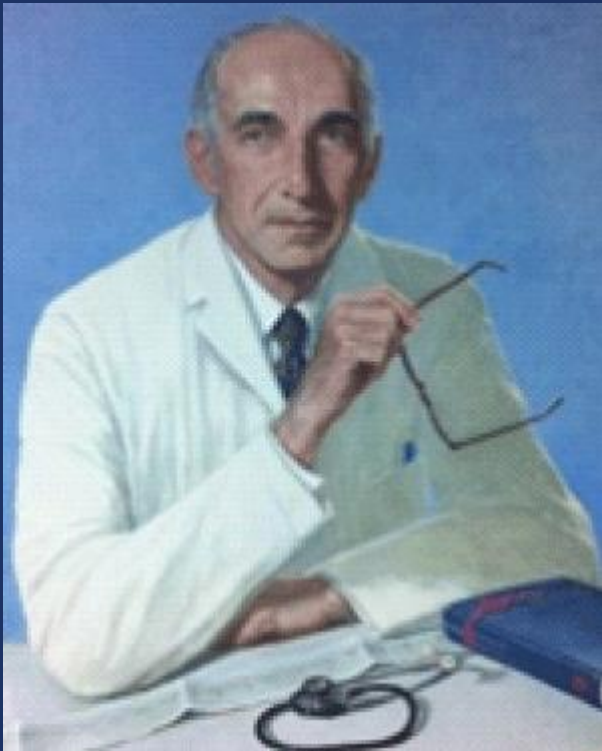




# Dr Aubrey Leatham (1920-2012)



# The Littman model



Painting by David Littmann (1906-81)  
with his stethoscope (3M, USA)

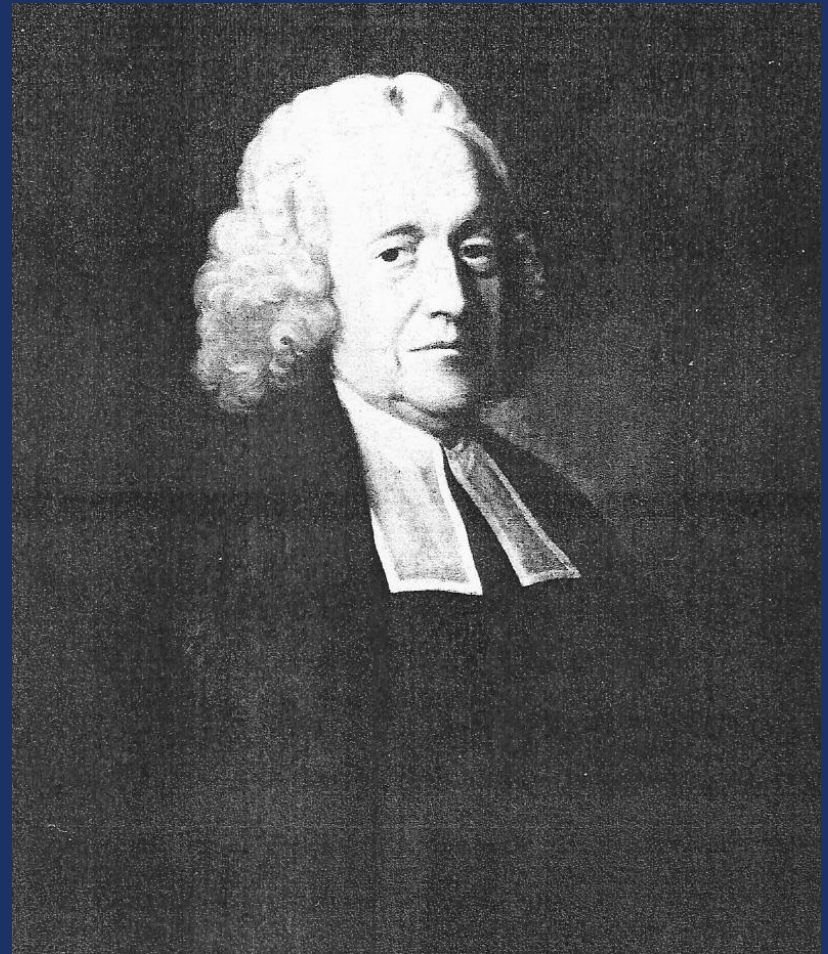
# Physiology

- Thomas Young invented the first rotating drum for recording in 1805
- J L M Poiseuille invented the mercury manometer in 1828.

# Blood pressure measurement



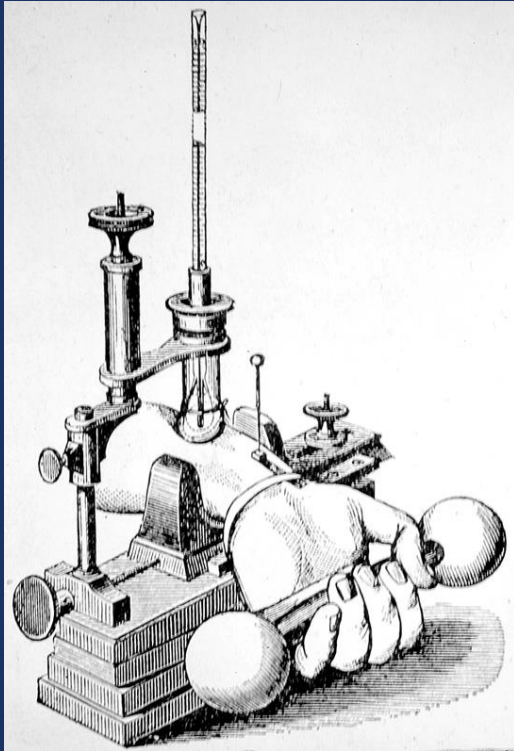
First blood pressure measurement 1733



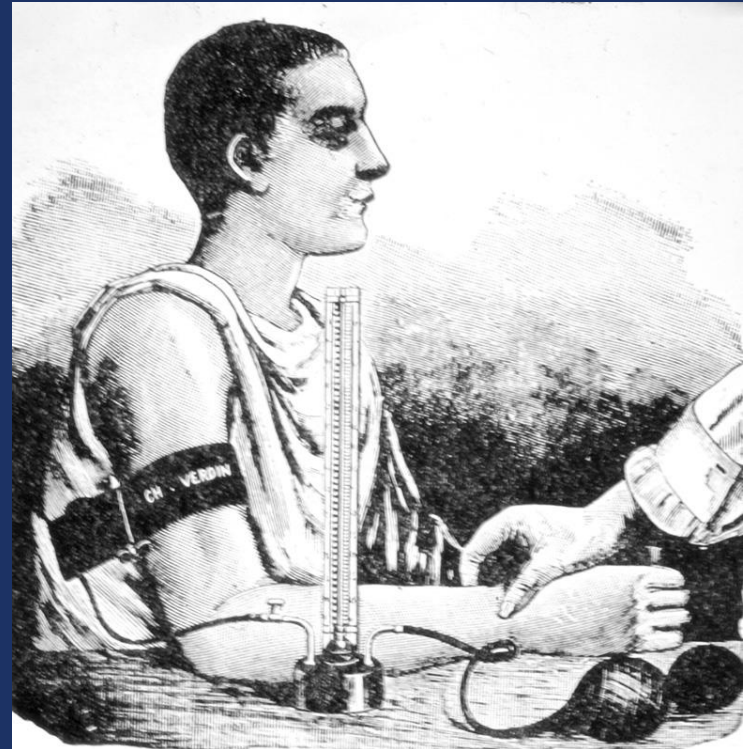
Reverend Stephen Hales 1677-1761



# Modern BP Measurement

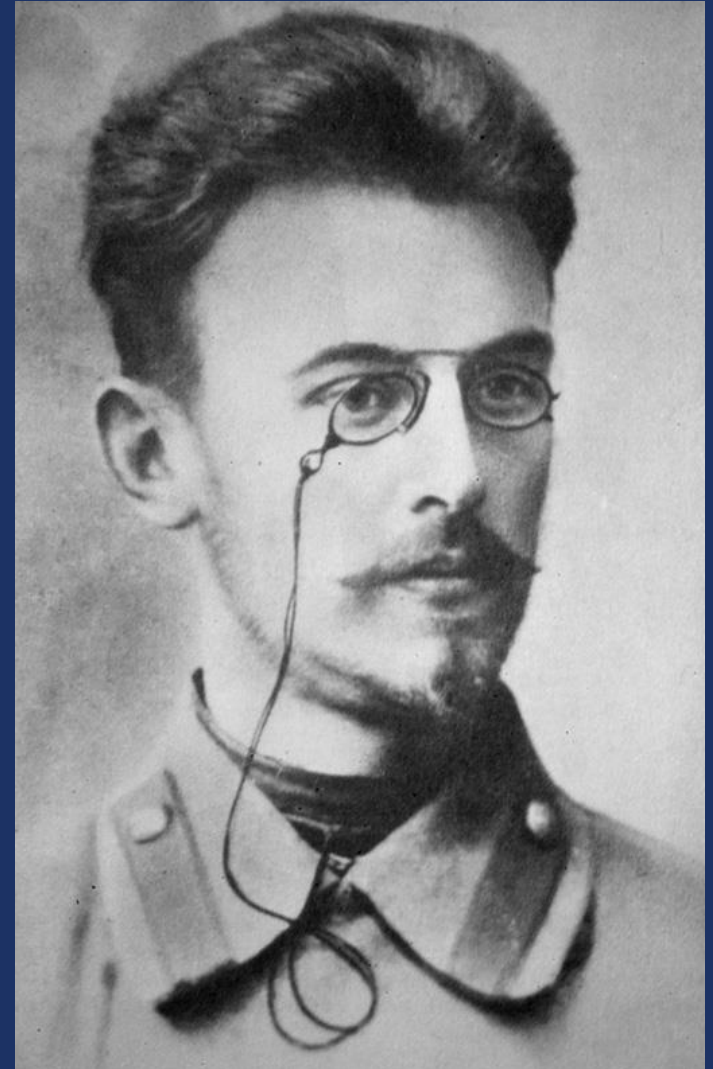
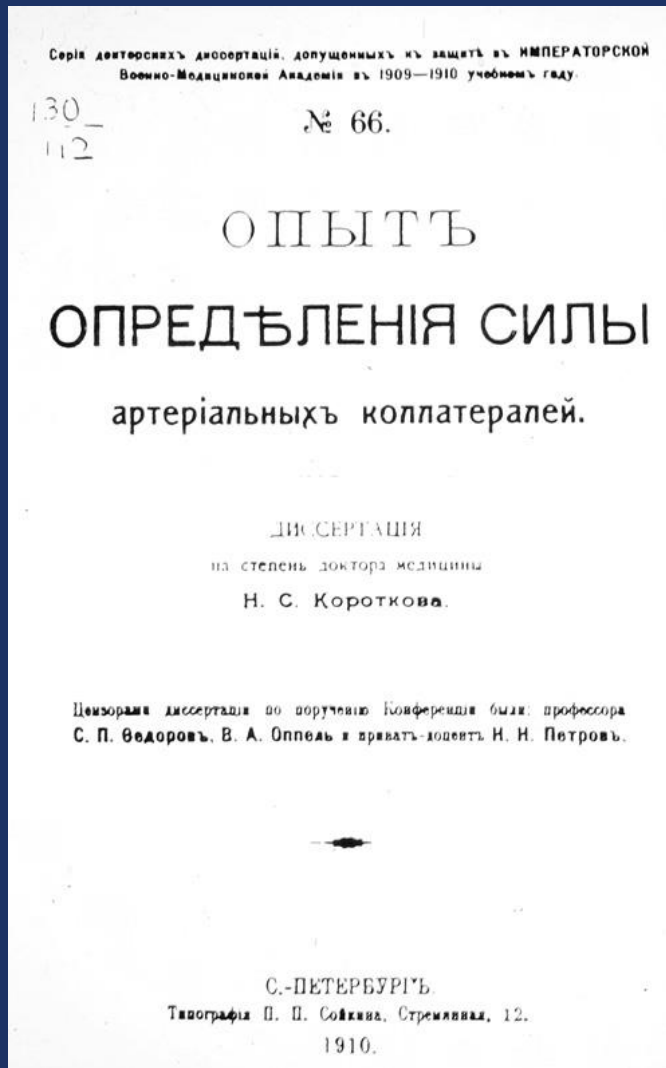


Samuel von Basch, 1881  
The sphygmomanometer



Scipione Riva-Rocci (1863 –  
1937) of Turin invented the  
pneumatic cuff in 1896.

# Diastolic blood pressure



# Measurement in mm Hg

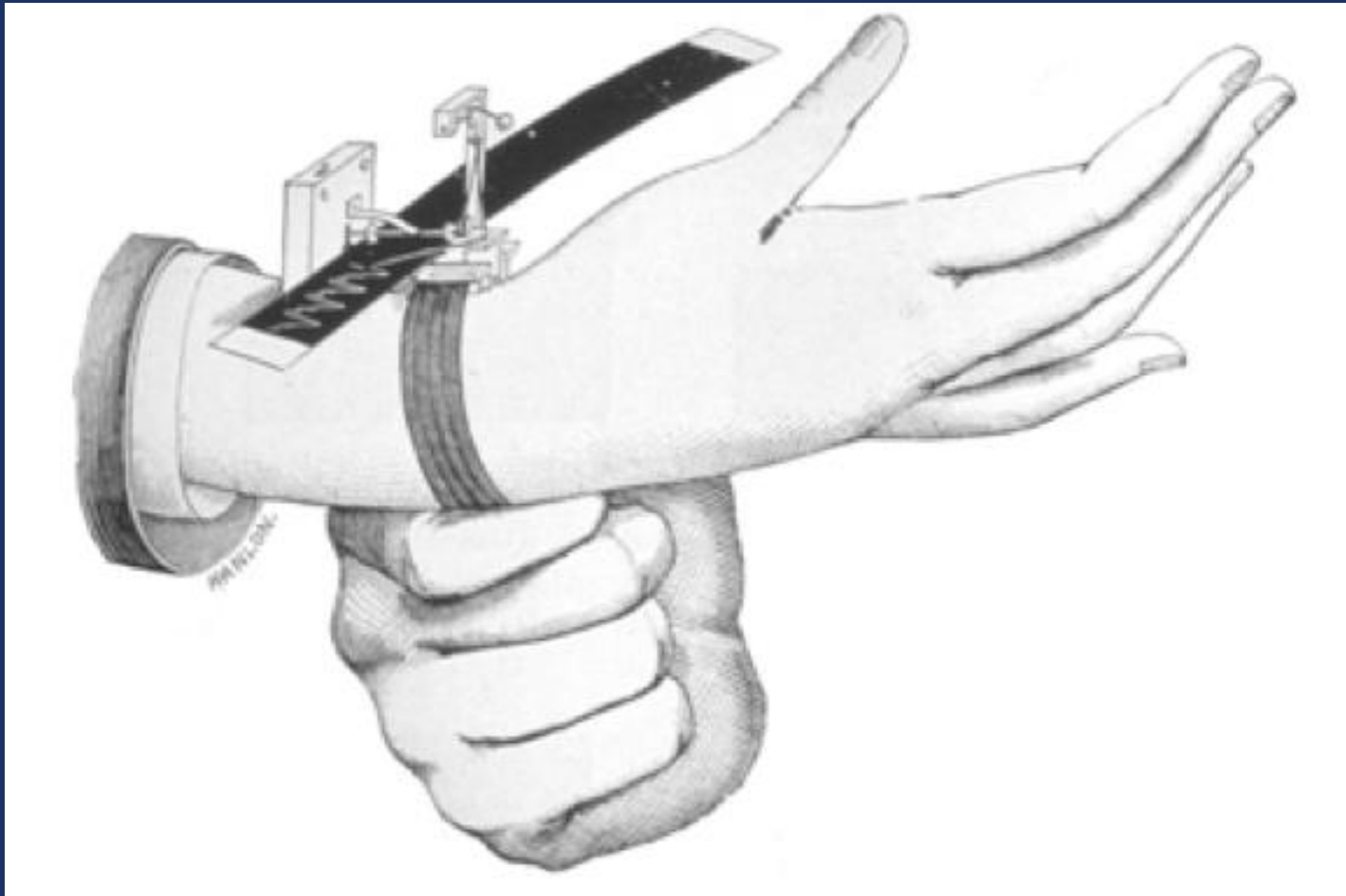
- In 1971 the EEC wanted to standardise units of measurement to SI units
- mmHg almost became “kilopascal”

*“This is a totally illogical change since mm is already an SI unit”*

Dr Arthur Hollman

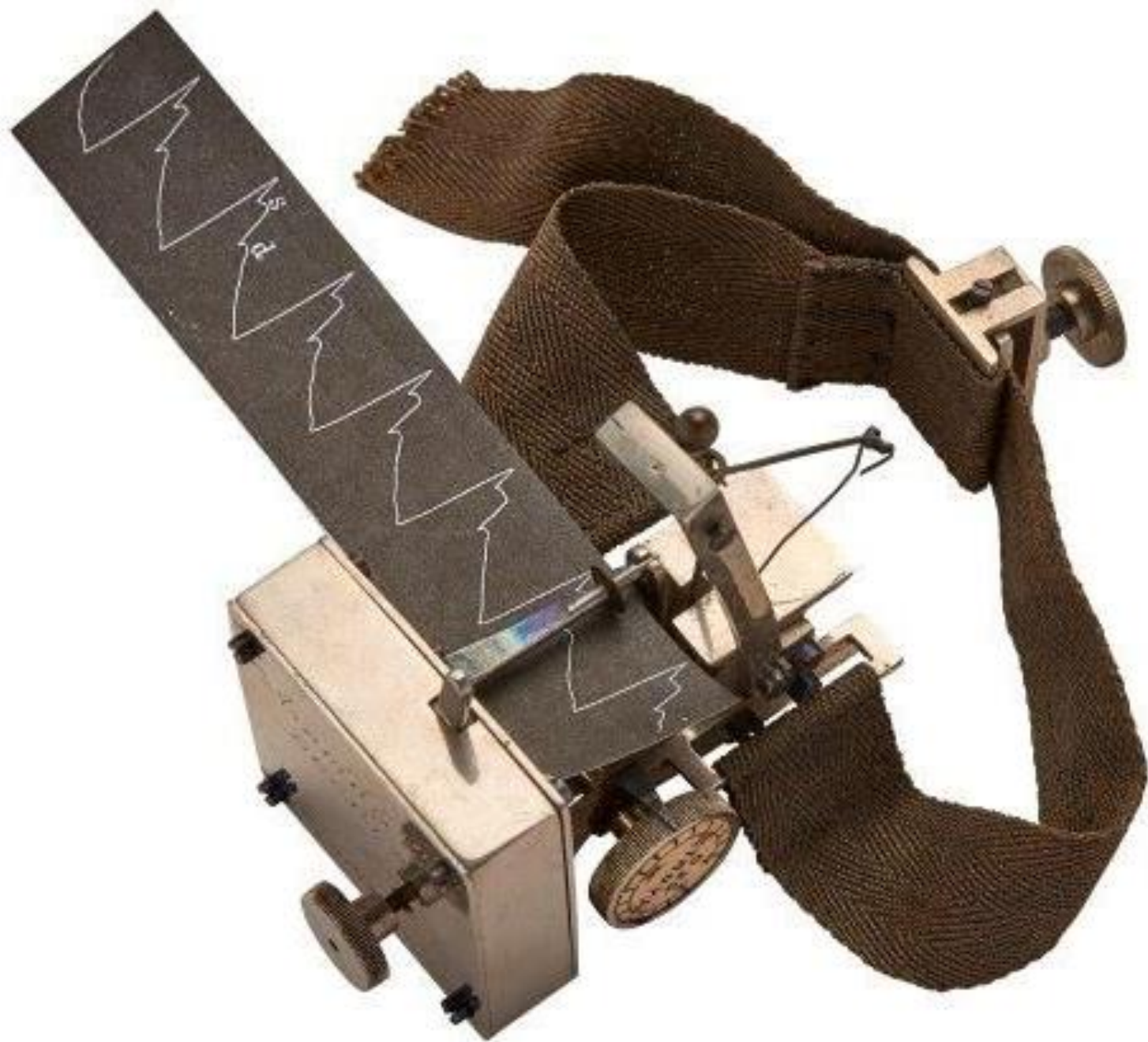


# The Sphygmograph



1876

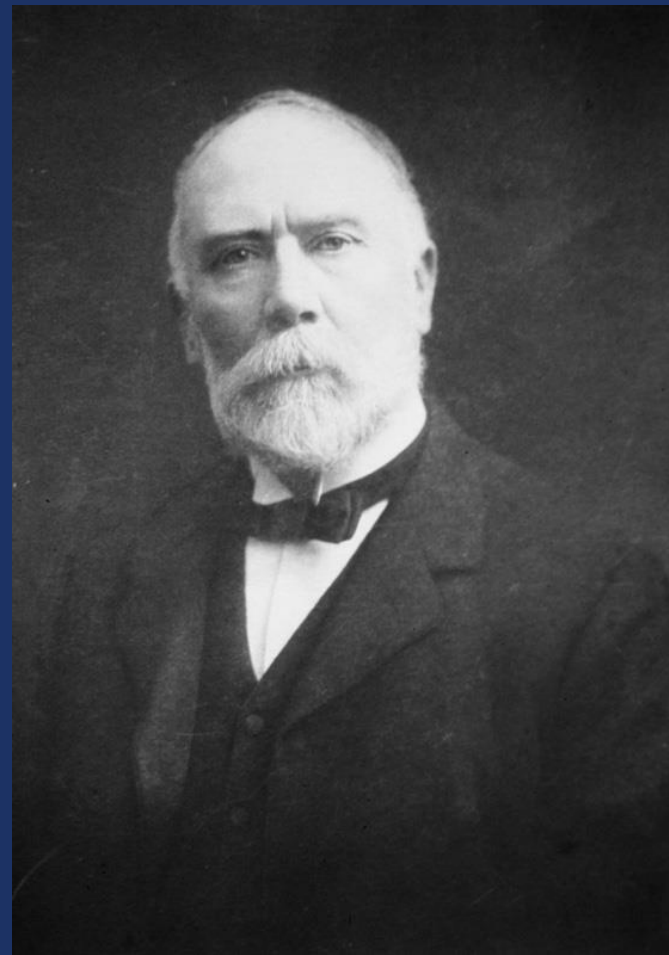




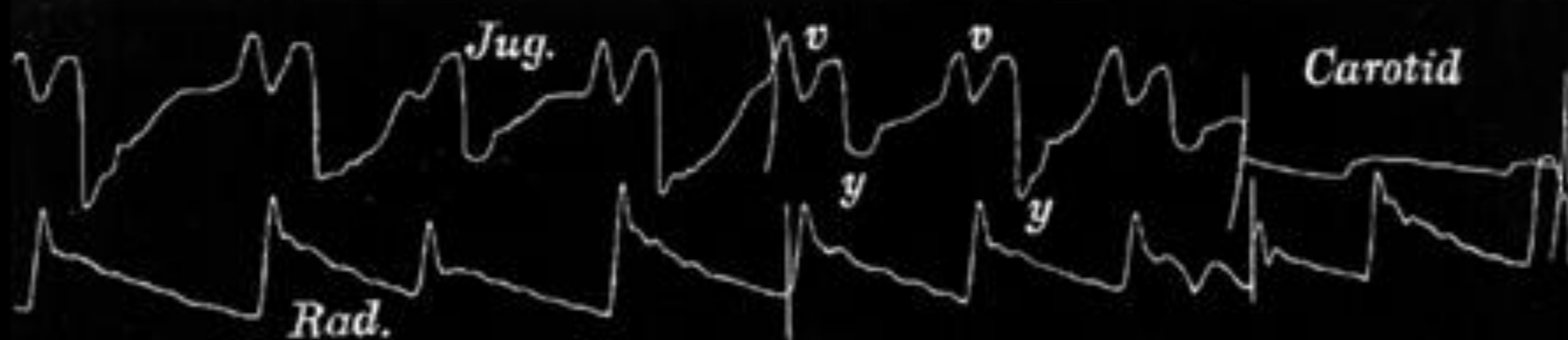
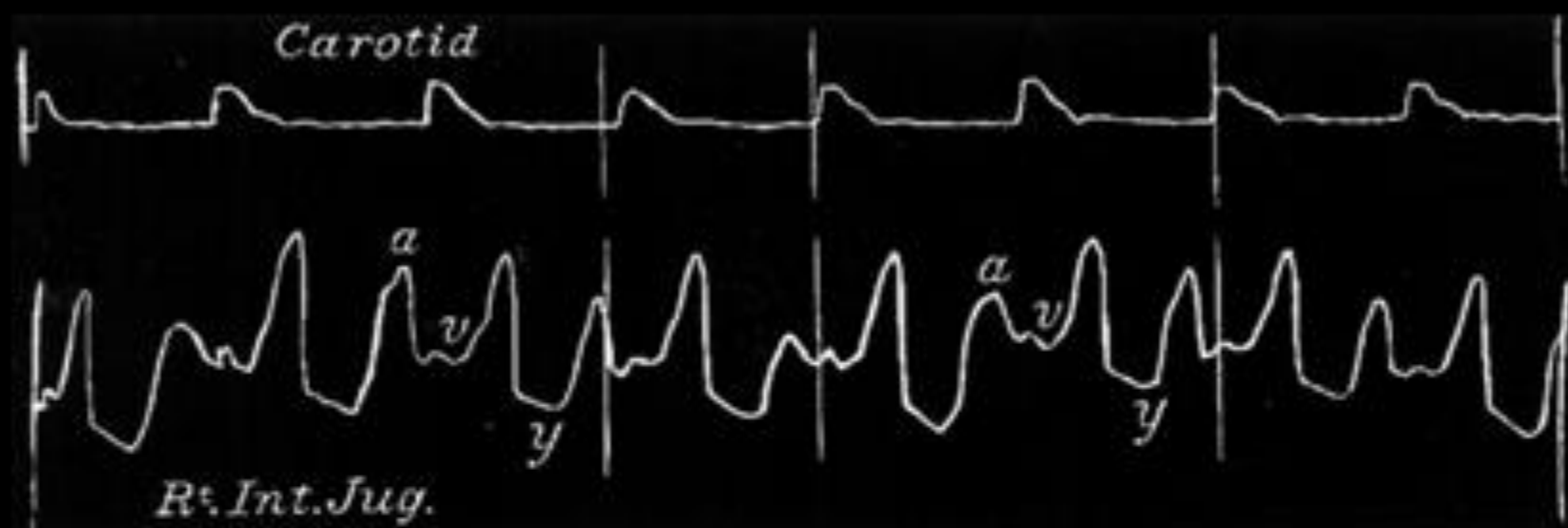
# James Mackenzie 1853-1925



General practitioner in Burnley



Founder of the Cardiac Club







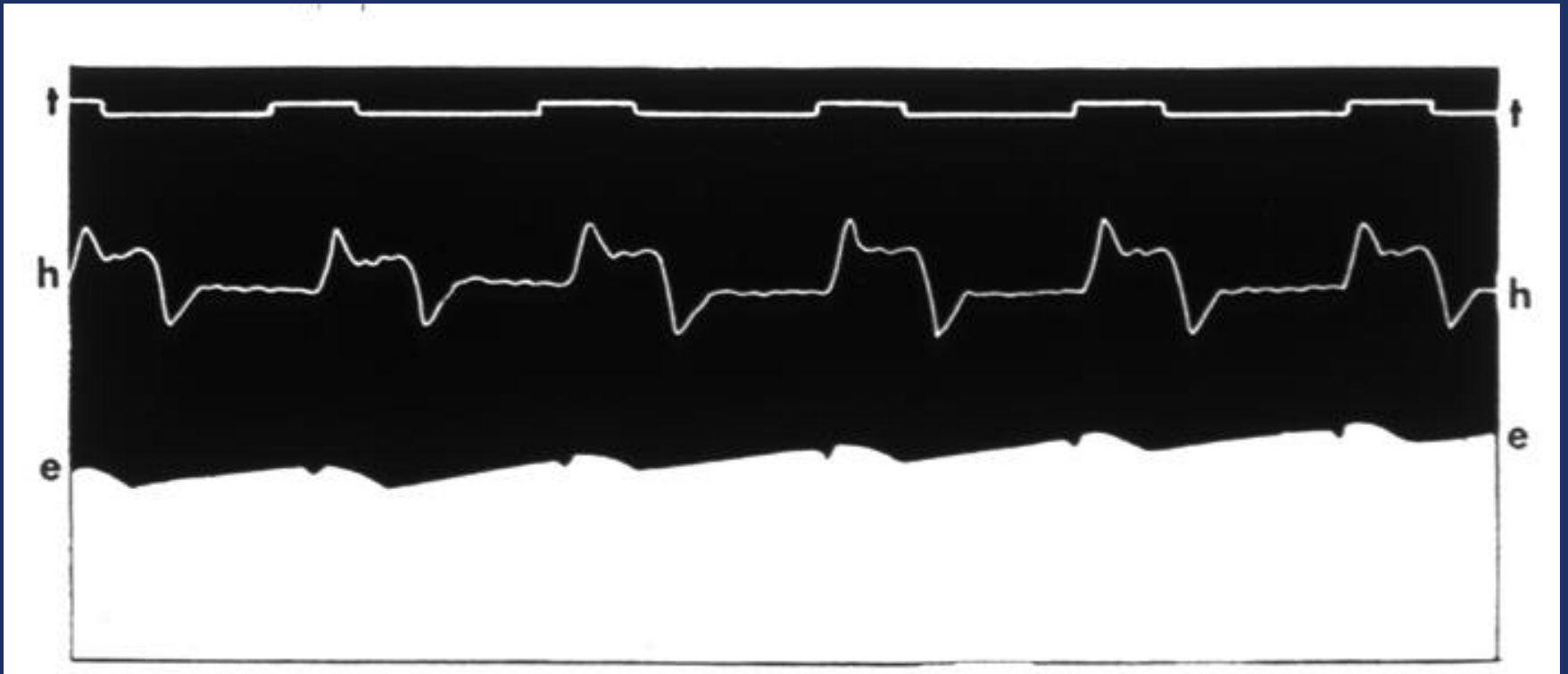
Mackenzie Ink Polygraph 1906, BCS Archives





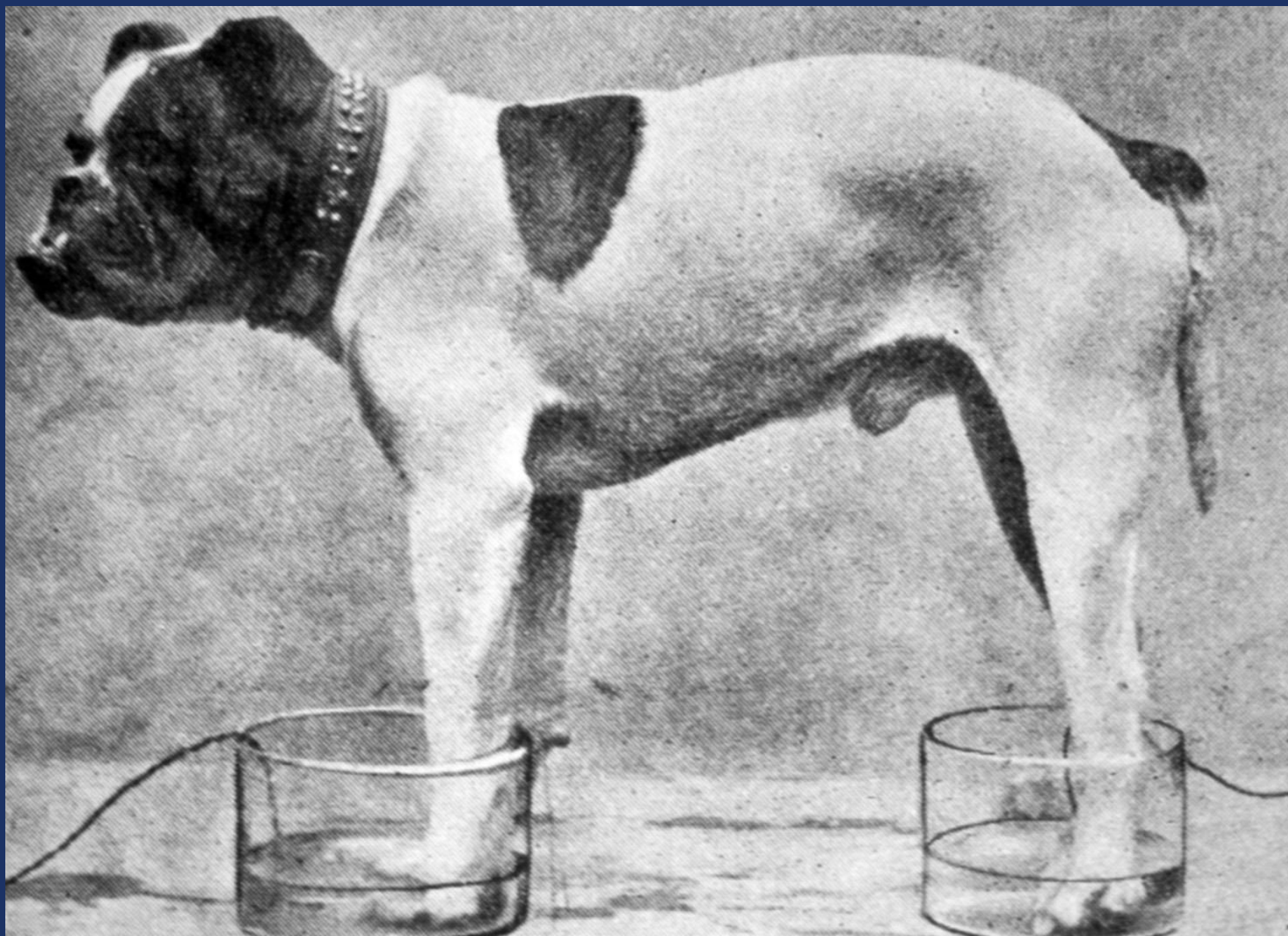
The Waller ECG Train 1887, BCS Archives

# The first human electrocardiogram 1887 Augustus Waller



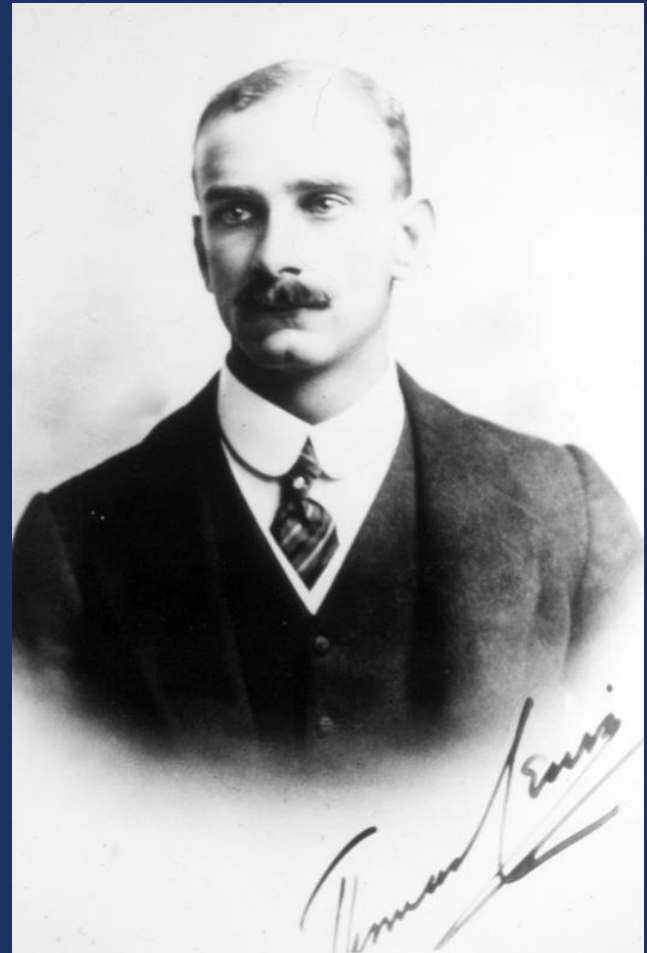
Journal of Physiology 1887





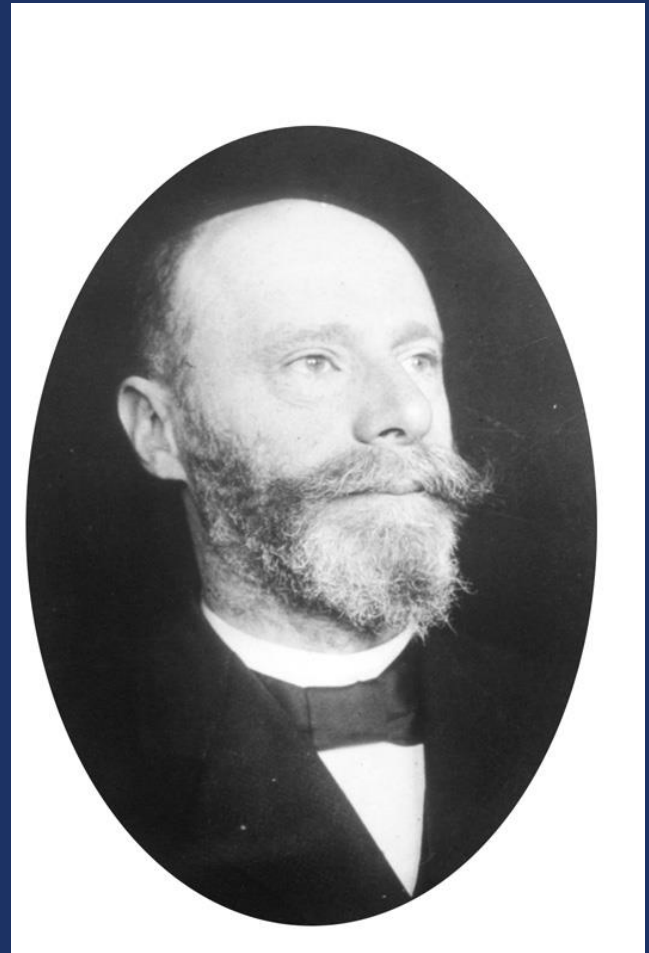
# Thomas Lewis 1881-1945

- Born in Cardiff.
- Physician at UCH
- Founded the Medical Research Society.



# The modern electrocardiogram

- Willem Einthoven  
1860-1927
- Professor of  
physiology Leiden.
- Invented the string  
galvanometer in  
1901.





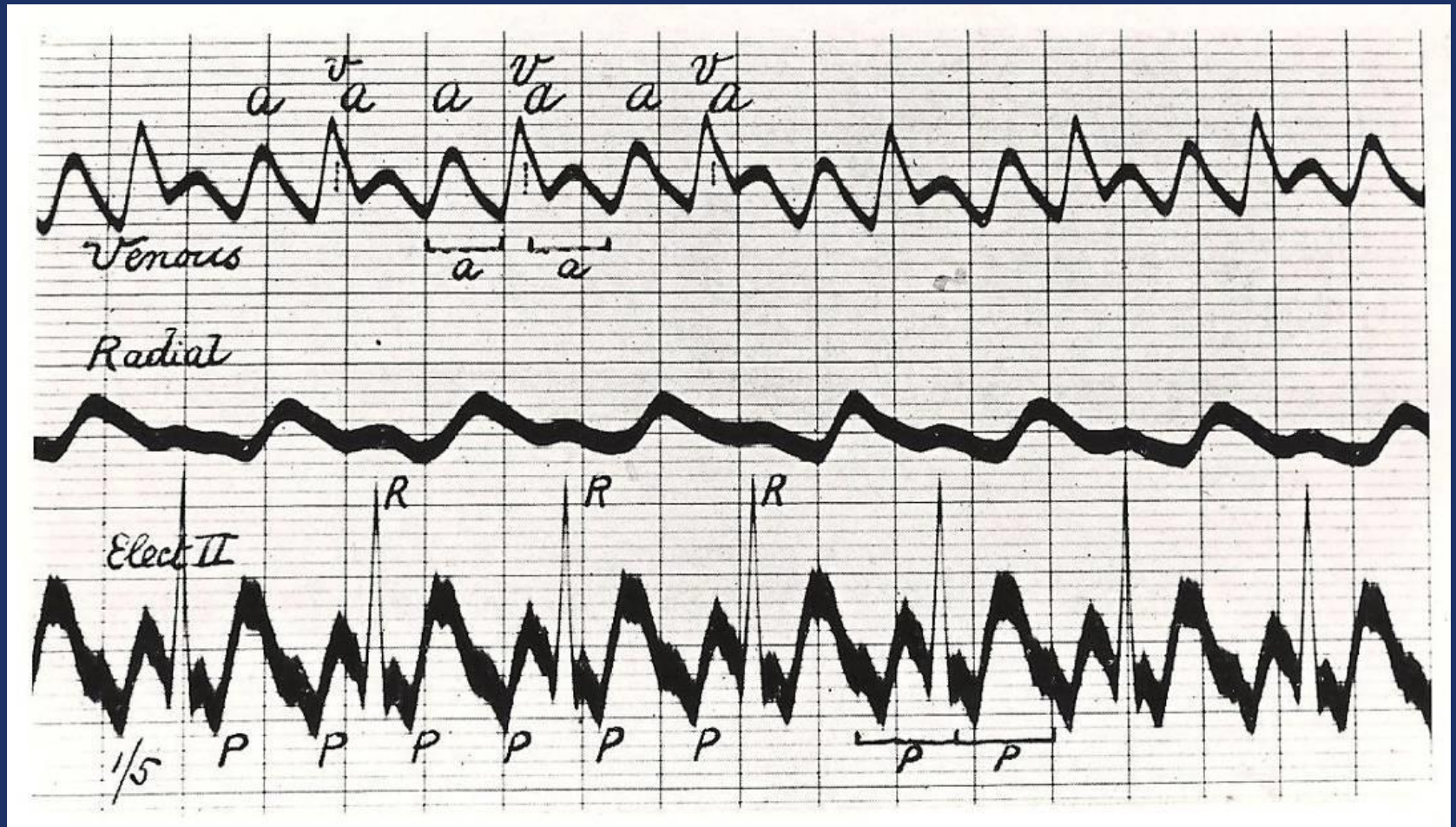


William Eindhoven and Thomas Lewis, Leiden





First ECG apparatus in Britain  
Lewis's laboratory at University College Hospital, 1911



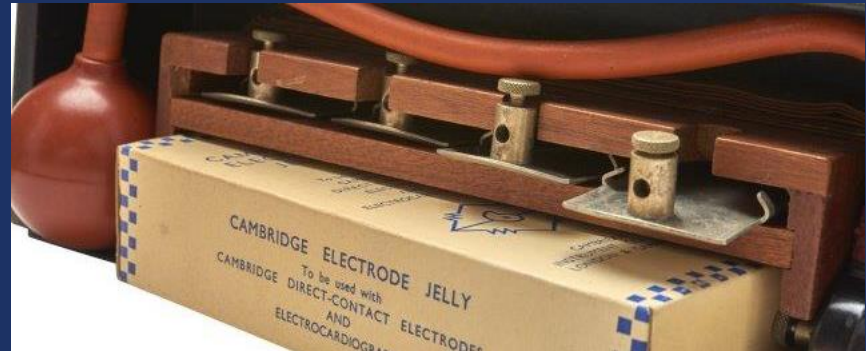
The Mechanism of the Heart Beat, 1911



# An era of electrocardiography



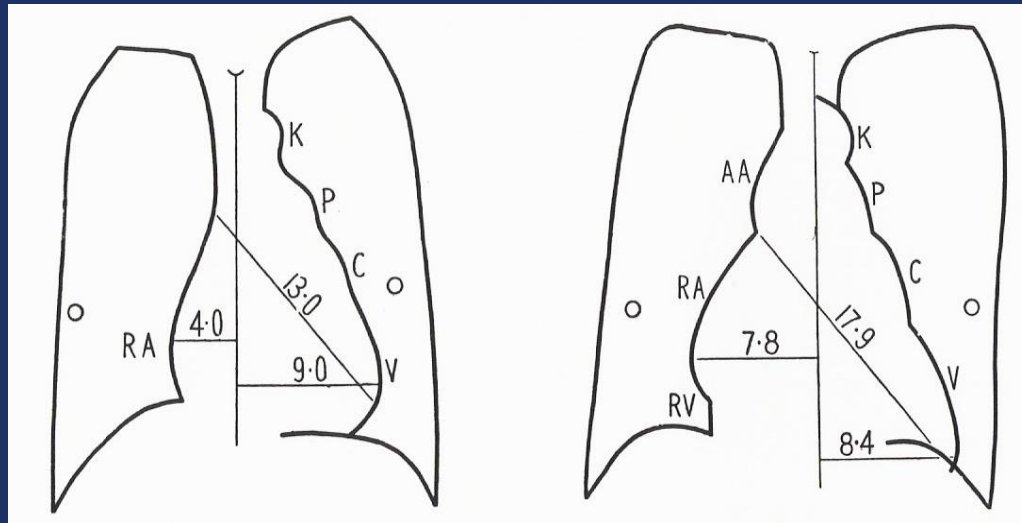
1929 Cambridge Instrument



1938 Portable Cambridge Instrument

# X-Rays

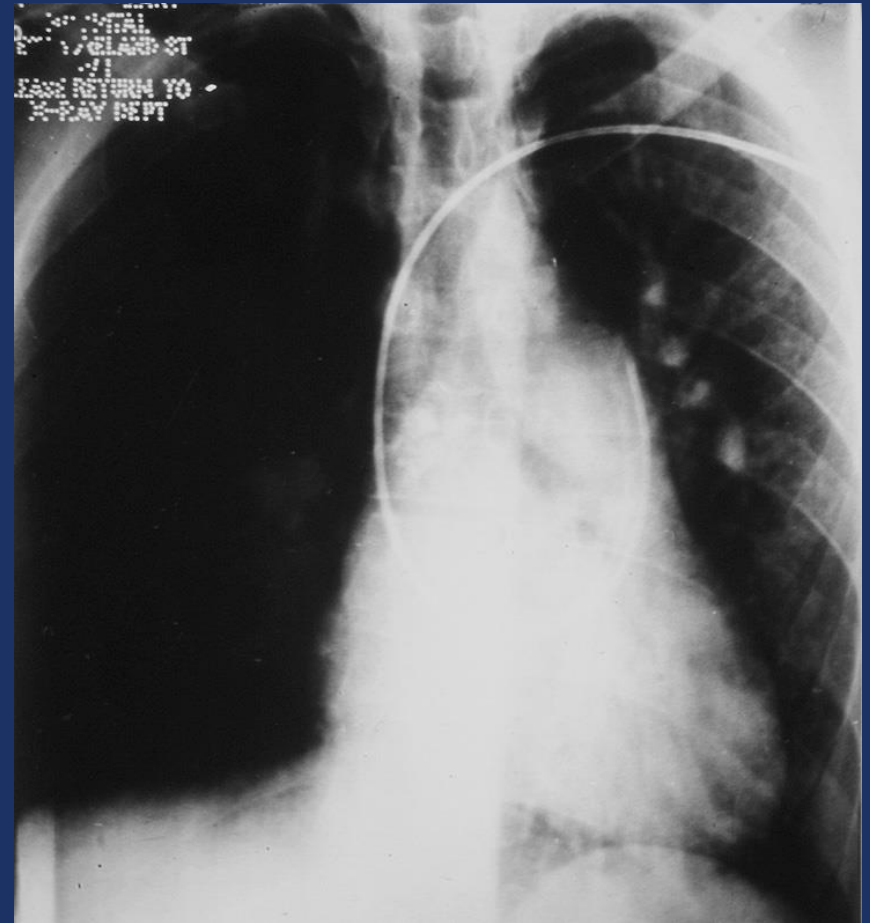
- 1895 Wilhelm Roentgen
  - Discovery of X-Rays
- 1896 EH Williams
  - Fluoroscopy





# Cardiac catheterisation

- First done by Werner Forssmann in 1928 (for drug delivery)
- Andre Cournand and Dickinson Richards New York 1941
- John McMichael and Peter Sharpey-Schafer 1943.



# ST. VINCENT & THE GRENADINES

WERNER FORSSMANN  
(1904-1979) GERMANY

NOBEL  
PRIZE  
1956



\$1

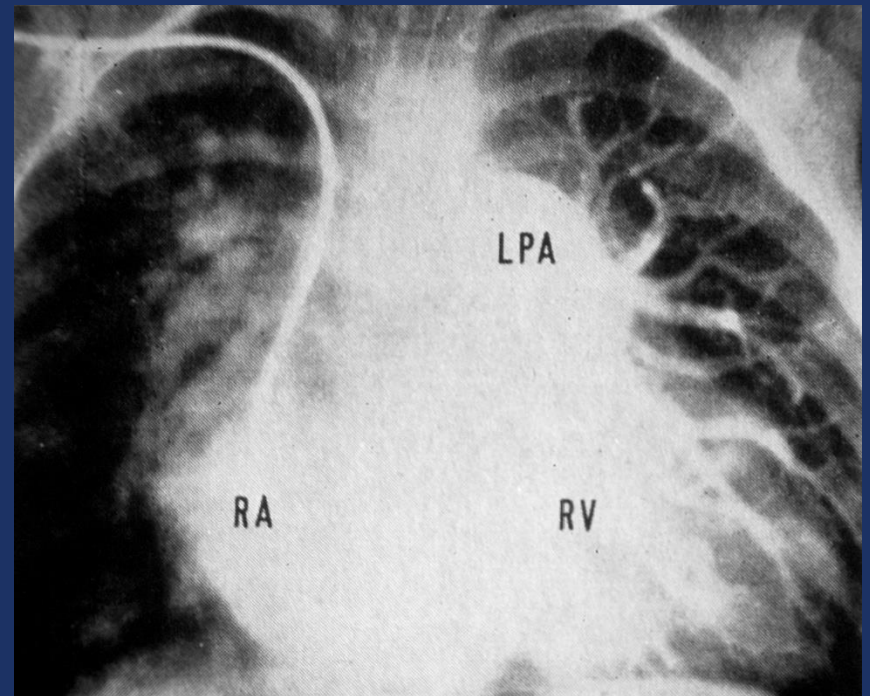
MEDICINE

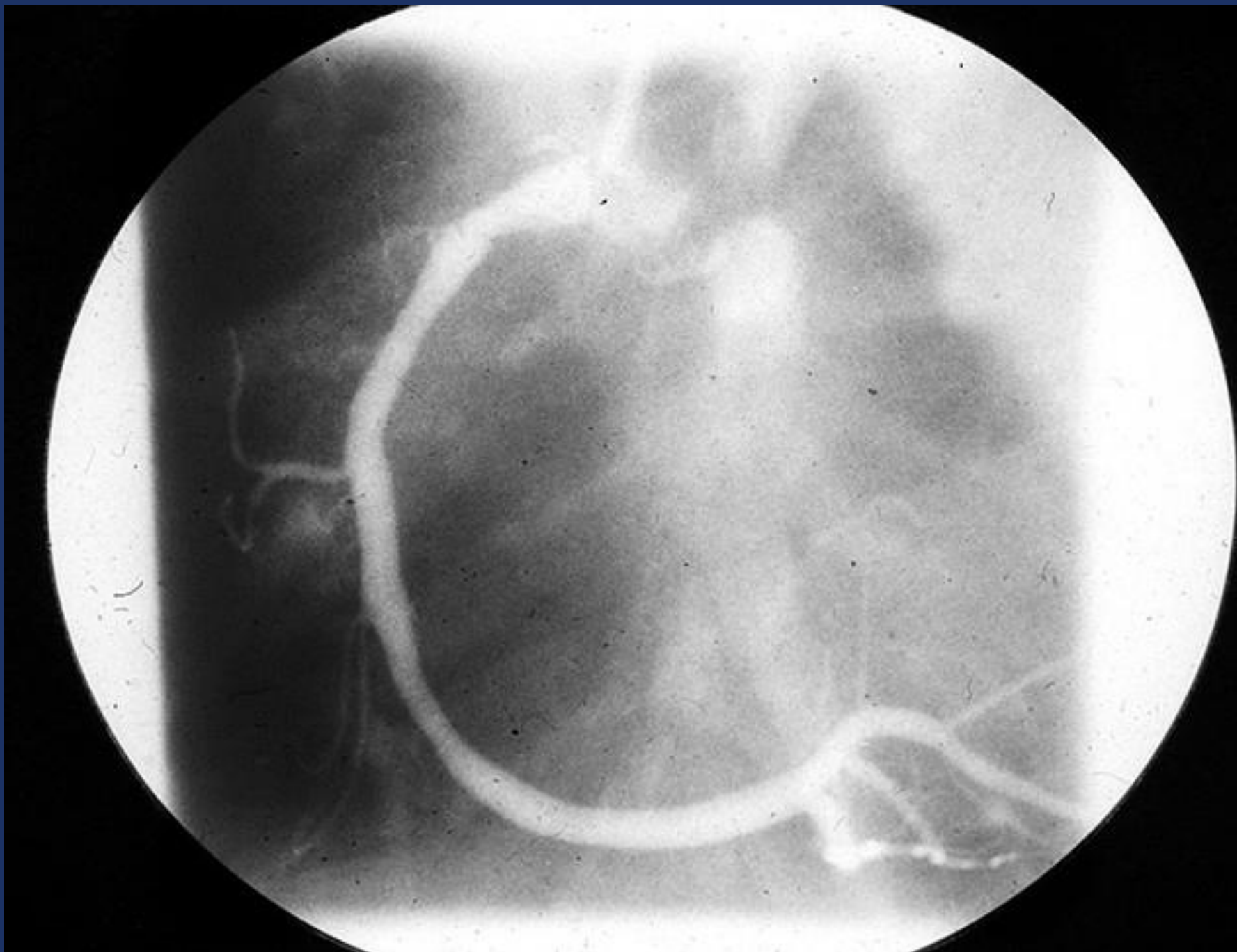




# Angiocardiography

- Egas Moniz Lisbon  
1931 pulmonary  
arteriogram
- Agustin Castellanos,  
Cuba, 1937, in  
congenital heart  
disease.
- Frances Gardner  
introduced to Britain







# Interventional cardiology

1929  
Forsmann

Catheterisation

1977  
Gruentzig

Angioplasty

2002  
Cribier

1<sup>st</sup> TAVI

1962  
Sones

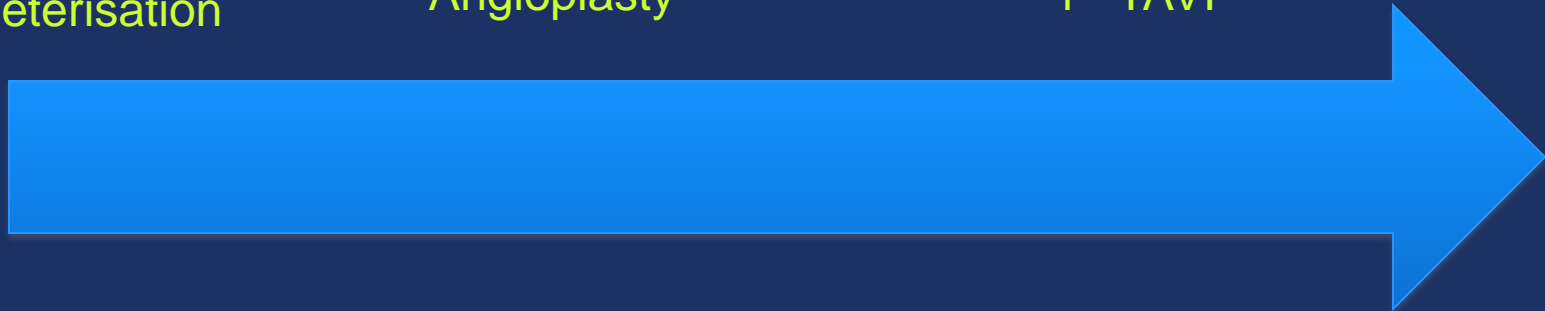
Coronary  
angiography

1986  
Puel and Sigwart

1<sup>st</sup> coronary stent

2003  
Industry

Drug eluting stents  
?dissolvable



# Cardiac surgery

*“Any surgeon who would attempt an operation on the heart should lose the respect of his colleagues”*

1893 TH Billroth

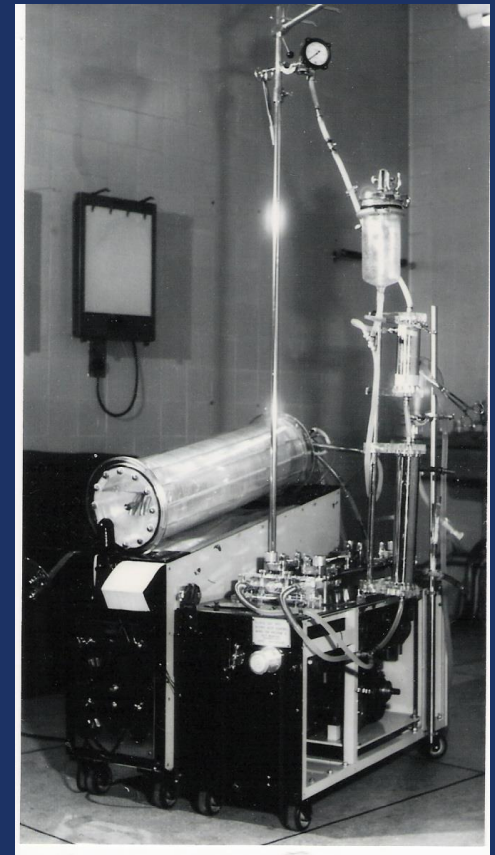






# Open heart surgery

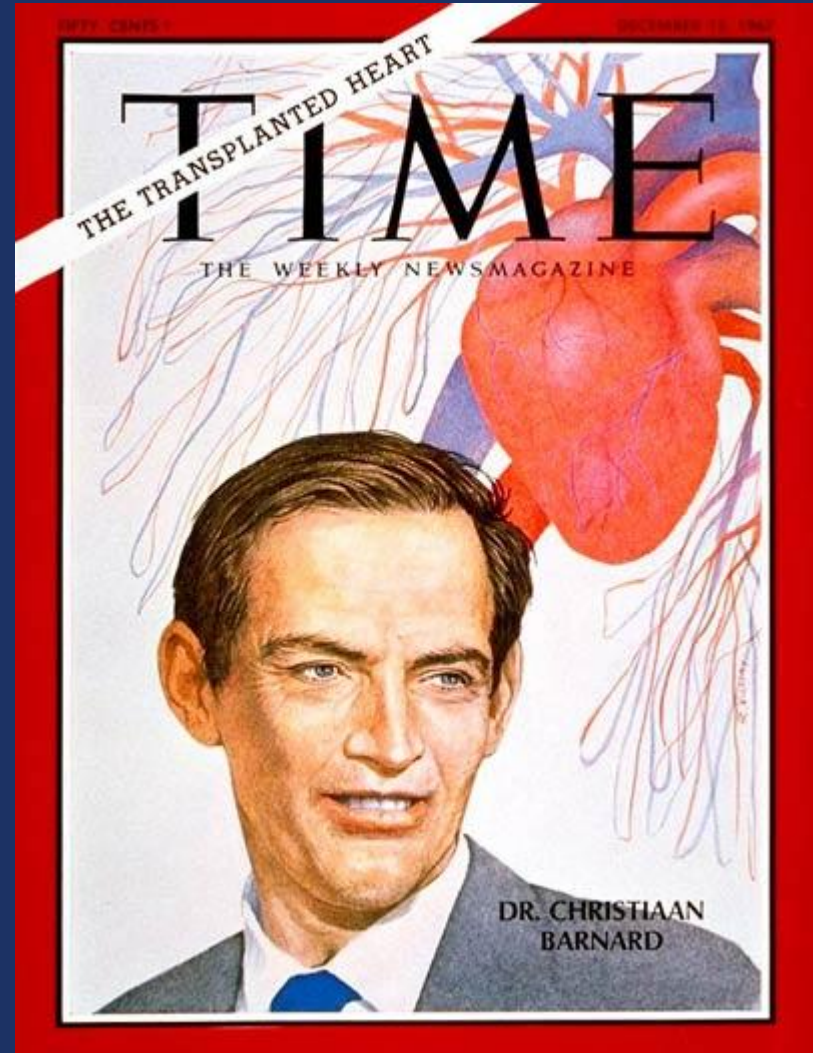
- Cardio-pulmonary by pass (heart lung machine)
  - Started in USA 1953 by John Gibbon
  - then the Mayo Clinic with John Kirklin
  - Denis Melrose, London (also K<sup>+</sup> arrest)
- Off-pump bypass 1990





# Heart Transplantation

- Cardiac transplantation 1967
  - World wide moratorium
  - Cyclosporine 1980 for rejection



itone series are of value; there is a choice between many. As

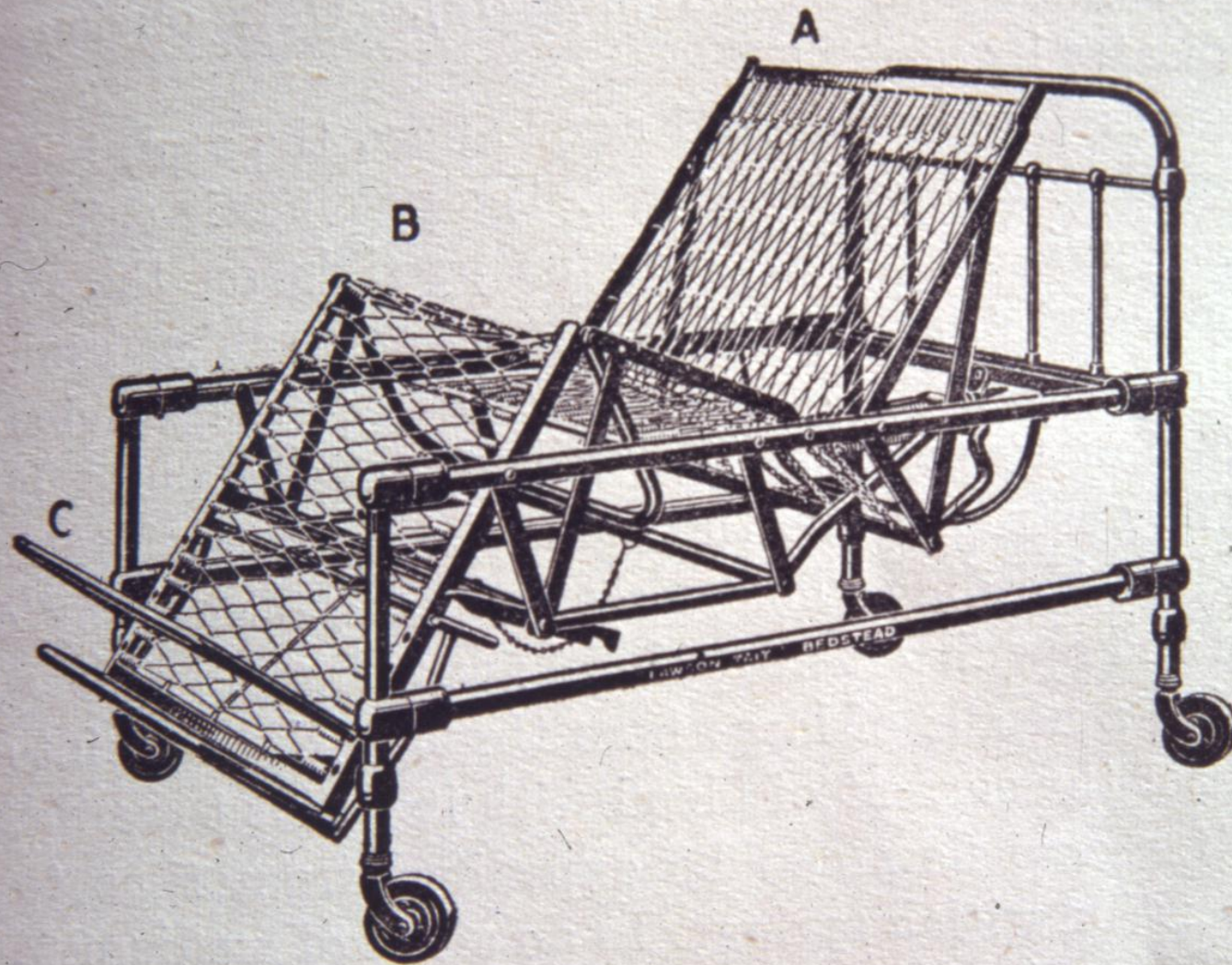
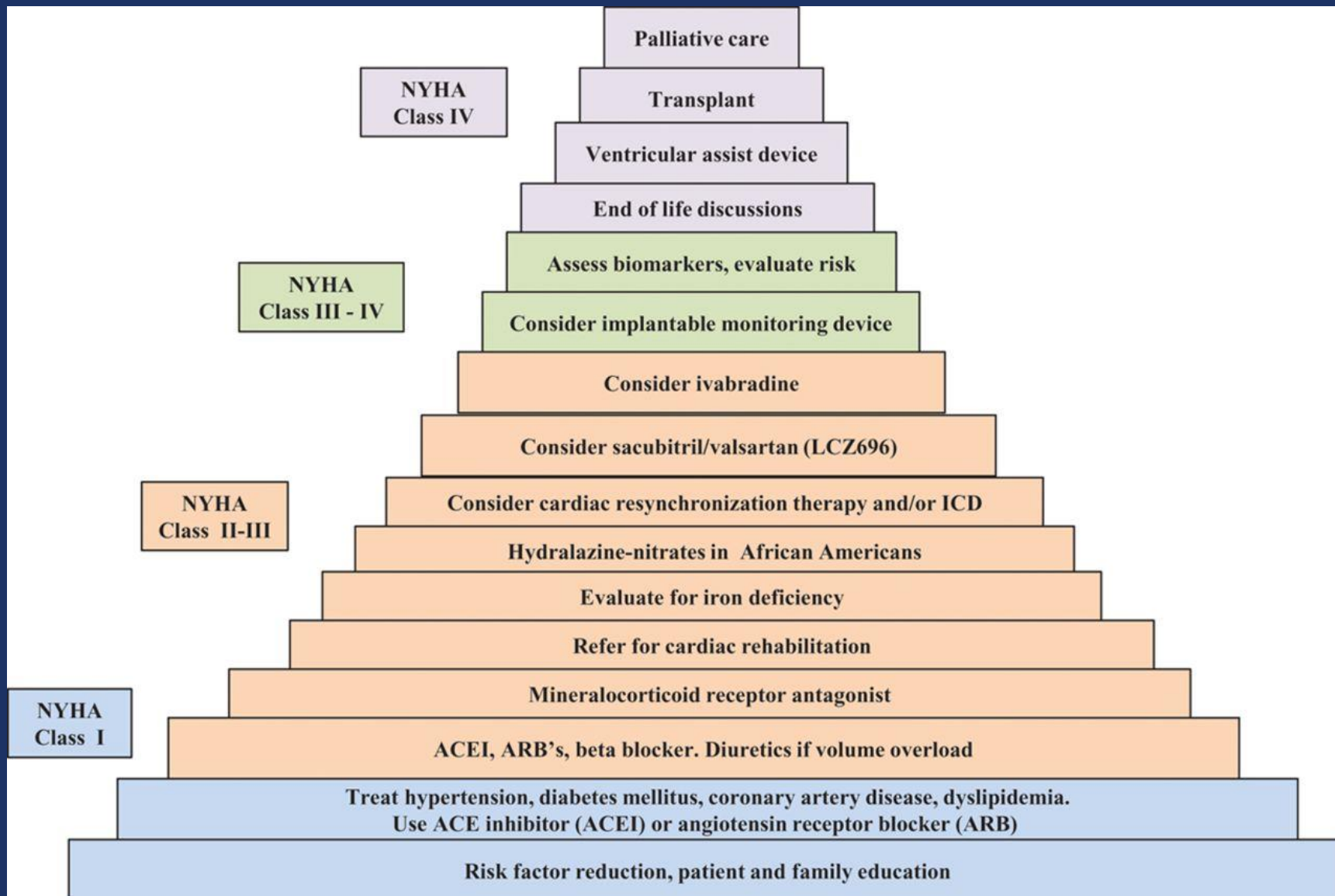


FIG. 5.—The cardiac bedstead. (See *British Medical Journal*, 1928, ii. p. 977.)



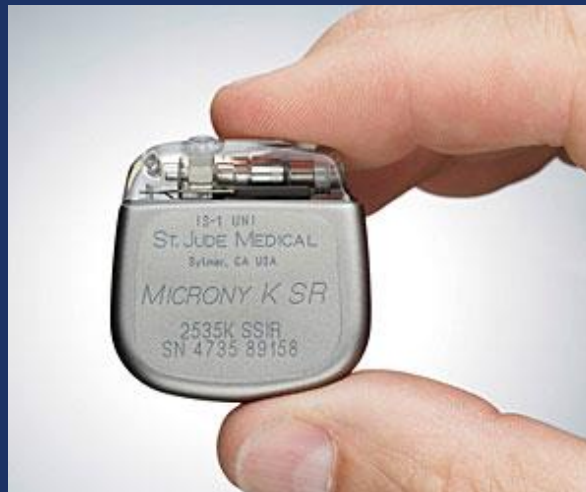






# Pacemakers

- 1932 Albert Hyman, engineer
- 1958 1<sup>st</sup> pacemaker implanted
- 1970 1<sup>st</sup> defibrillator implanted





**A**



**B**



**C**



**D**

# The rise of specialisation



Knowledge  
and  
Education

Textbooks,  
lectures and  
monographs

Journals  
and  
symposia

Professional  
societies  
and  
conferences

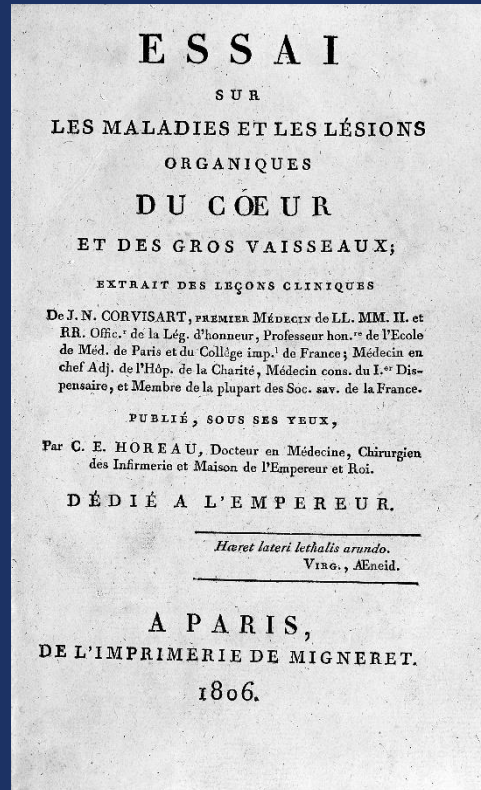


# Cardiology: when did it start?



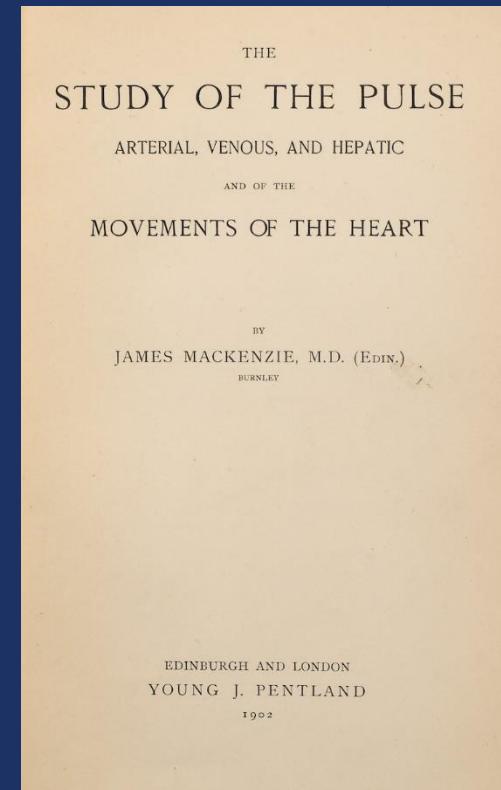
*De Motu Cordis*  
1628

William Harvey



*Les maladies du Coeur*  
1806

Jean Nicolas Corvisart



*Study of the Pulse*  
1902

James Mackenzie

# Cardiology Journals



1909: Heart



1908: Zentralblatt für  
Herzkrankheiten,



1908: Archives des  
Maladies du Cœur



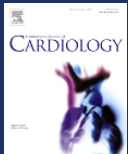
1916: Malatti del cuore



1925: American  
Heart Journal



1980: European Heart Journal



1981: International Journal of Cardiology



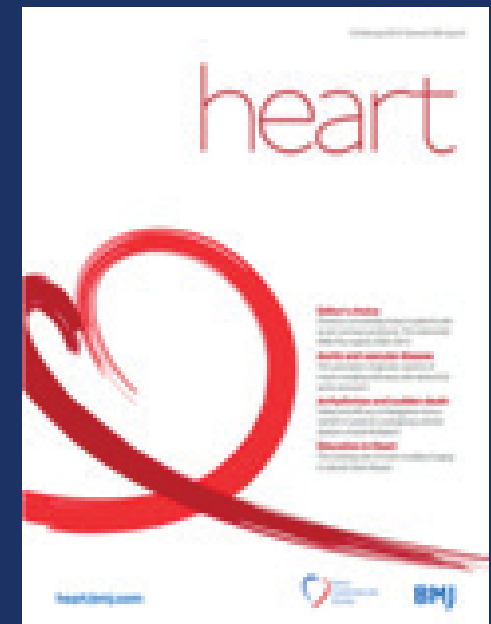
1909



1933



1939



1996

openheart



THE OPEN  
ACCESS  
COMPANION TO  
HEART



FROM ACCEPTANCE  
TO ONLINE  
PUBLICATION



DISCOUNT  
OFF THE APC FOR  
BCS MEMBERS



402 THOUSAND  
FULL ARTICLE  
ACCESSES

445 THOUSAND PAGE  
VIEWS



2014



Statistics measured 2015 to-date





# Professional Societies



1924: The American  
Heart Association



1949: The American  
College of Cardiology



1922: The Cardiac Club



1927: Deutsche Gesellschaft  
für Kreislaufforschung



1950: European  
Society of Cardiology



# The Cardiac Club



1. The Society shall be called "THE CARDIAC CLUB." Its objects shall be the advancement of cardiology, and the promotion of friendship among those interested in the diseases of the heart.

## RULES.

1. The Society shall be called "THE CARDIAC CLUB." Its objects shall be the advancement of cardiology, and the promotion of friendship among those interested in the diseases of the heart.

2. It shall consist of not more than twenty-five Members. Election to the Club shall be by ballot, but not more than two Members shall be elected annually. The names of candidates, accompanied by a statement of their professional status, their public appointments, and their published work, shall be sent to the Secretary of the Executive at least one month prior to the Annual Meeting of the Club. Any Member of the Club who fails to be present at two consecutive meetings of the Club, without an explanation which is considered to be satisfactory by the Executive, shall automatically cease to be a Member of the Club.

3. The business of the Club shall be conducted by an Executive of four Members, who shall arrange for one of their number to act as Secretary. The Executive shall be elected at the Annual Meeting of the Club.

4. The Chairman of each meeting of the Club shall be a *Local Member*.

5. The Secretary shall summon all meetings of the Club, and shall arrange, with the Executive, the scientific business of each meeting. The Executive shall be responsible for all the business and arrangements of the meetings of the Club.

6. Meetings of the Club shall be held at least once a year, or more often, at the discretion of the Executive.

7. The Secretary shall keep brief minutes of the proceedings of the Club. No reporters shall be permitted to be present, and no report of the meetings shall be sent to journals or newspapers.

8. Visitors may, by the permission of the Chairman, be introduced by Members. They may make contributions and take part in discussions, subject to the same rules as Members.

9. The Executive shall have power to exact such subscriptions as may be necessary for the conduct of the Club, not exceeding half a guinea a year.

10. The accounts of the Club shall be submitted, yearly, by the Executive to the Members.

11. The Rules of the Club shall not be altered without due notice of the suggested change, made in writing to the Secretary of the Executive at least one month prior to the Annual Meeting, and the consent of two-thirds of the Members.

## LIST OF MEMBERS.

### *Honorary Member.*

Sir JAMES MACKENZIE, New Park, St. Andrews.

### *Members.*

JOHN C. BRANWELL, Esq., M.B., Royal Infirmary, Manchester.

CAREY F. COOMBS, Esq., M.D., 3 Pembroke Road, Clifton, Bristol.

T. F. COTTON, Esq., M.D., 17 Upper Wimpole Street, London, W.1.

JOHN COWAN, Esq., M.D., 14 Woodside Crescent, Glasgow.

J. G. EMANUEL, Esq., M.D., 47 Newhall Street, Birmingham.

FRANCIS R. FRANK, Esq., M.B., 75 Finchley Road, St. John's Wood, London, N.W.8.

A. G. GIBSON, Esq., M.D., 27 Banbury Road, Oxford.

T. WARDROP GRIFFITH, Esq., C.M.G., M.D., 43 Park Square, Leeds.

JOHN HAY, Esq., M.D., 12 Rodney Street, Liverpool.

Sir THOMAS J. HORDER, M.D., 141 Harley Street, London, W.1.

W. E. HUMF, Esq., C.M.G., M.D., 4 Ellison Place, Newcastle-on-Tyne.

Sir THOMAS LEWIS, C.B.E., M.D., 10 Chesterfield Gardens, London, N.W.3.

J. E. MACILWAINE, Esq., M.D., 26 College Gardens, Belfast.

JOHN PARKINSON, Esq., M.D., 1 Devonshire Place, London, W.1.

W. T. RITCHIE, Esq., O.B.E., M.D., 14 Rothessy Place, Edinburgh.

H. J. STARLING, Esq., M.D., 45 All Saints Green, Norwich.

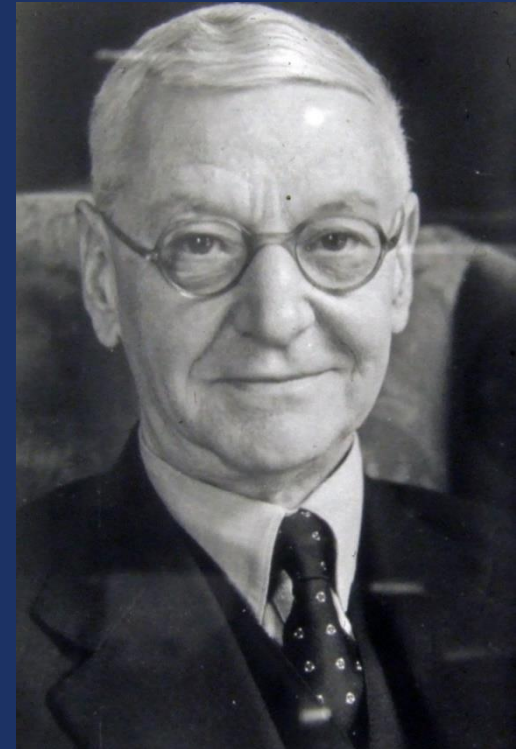
K. D. WILKINSON, Esq., O.B.E., M.D., 91 Cornwall Street, Birmingham.



# British Cardiac Society

- A new name in 1946
- A new logo
- 145 members

First President 1952



John Parkinson (1885-1976)

And finally.....

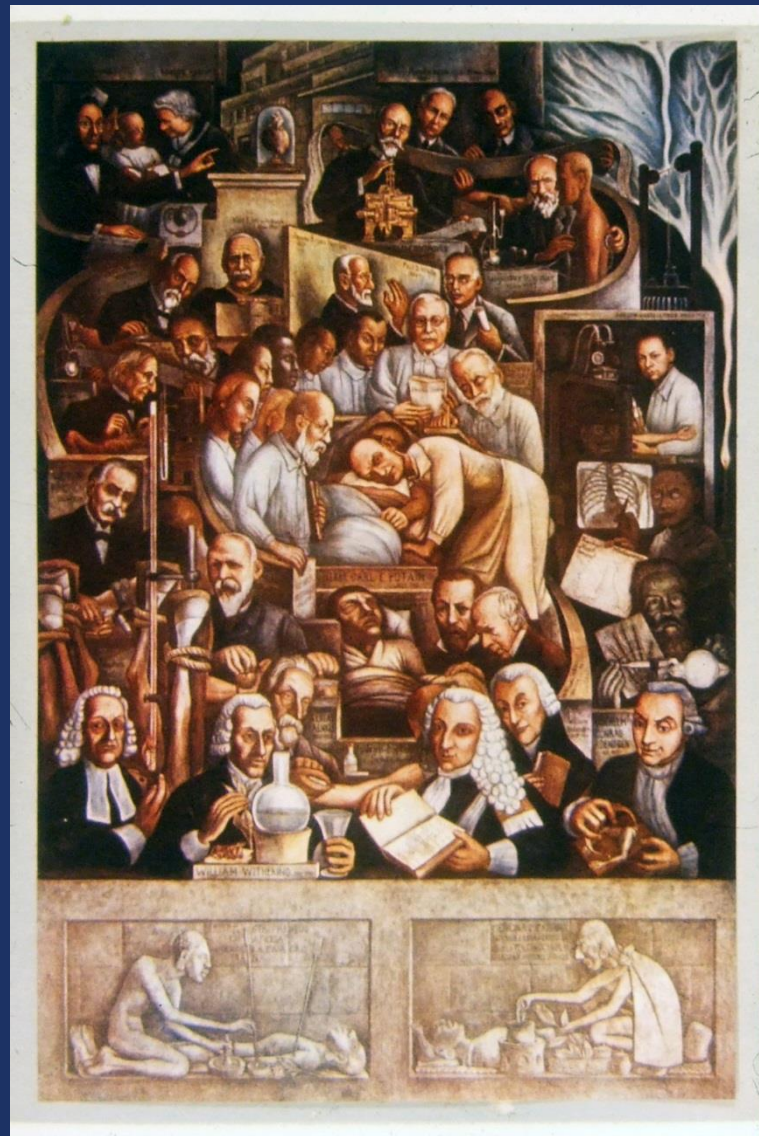






Diego Rivera Institute of Cardiology Mexico 1944



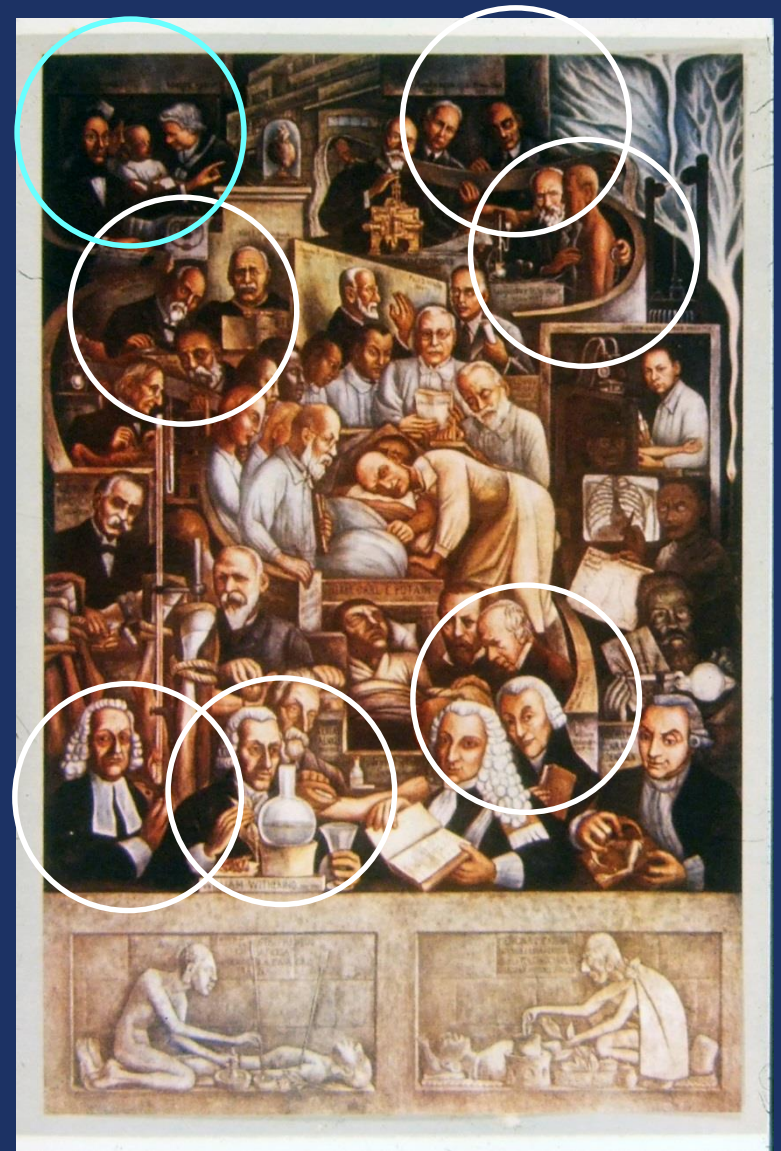




- William Harvey
- Arthur Keith



- Stephen Hales
- William Withering
- William Heberden
- Augustus Waller
- James Mackenzie
- Thomas Lewis
- Maude Abbott



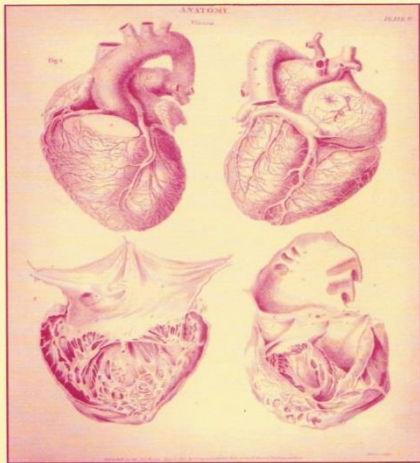


# What is progress in medicine?



CLIO  
MEDICA

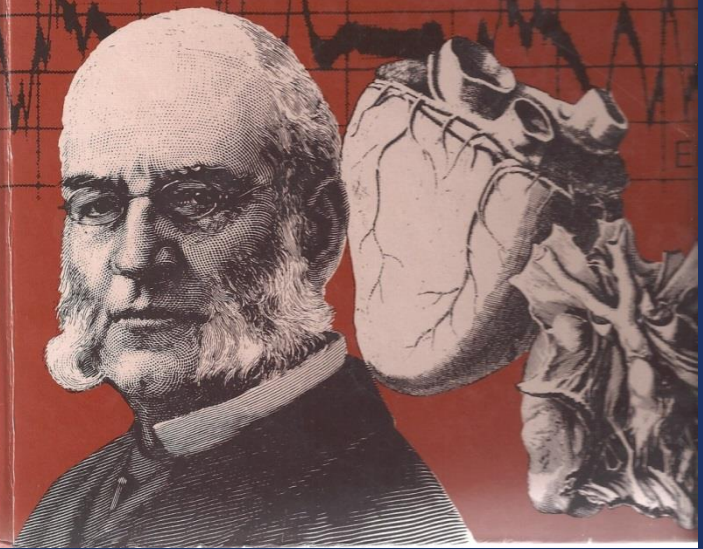
**A SHORT HISTORY OF  
CARDIOLOGY**



**PETER FLEMING**

**THE  
HISTORY OF  
CARDIOLOGY**

LOUIS J. ACIERNO, M.D.





Francis C. Wells

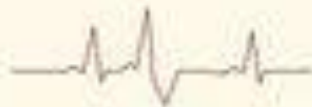
# The Heart of Leonardo

Foreword by  
HRH Prince Charles,  
The Prince of Wales

"This well-written and thoroughly researched book is very timely  
and deserves wide readership." —WALTER F. MONDRIE,  
past Vice President of the United States of America

# CARING *for the* HEART

MAYO CLINIC  
*and the* RISE of  
SPECIALIZATION



W. BRUCE FYE

"The heroic early days of cardiac surgery in Britain could not be  
more powerfully evoked than in this compulsively readable book."  
James Le Grosse, *The Telegraph*



*A history of London's heart surgery pioneers*

TOM TREASURE





