

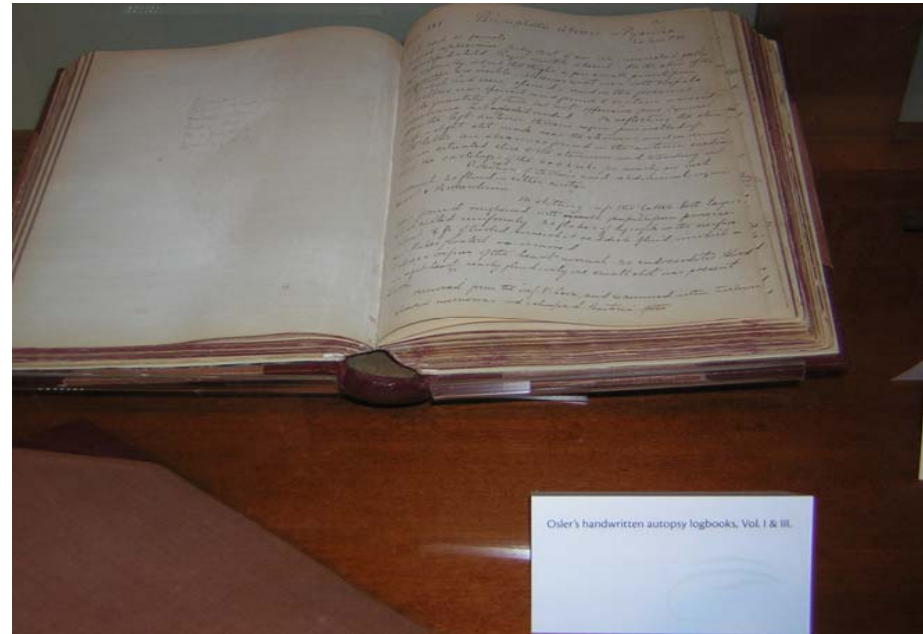
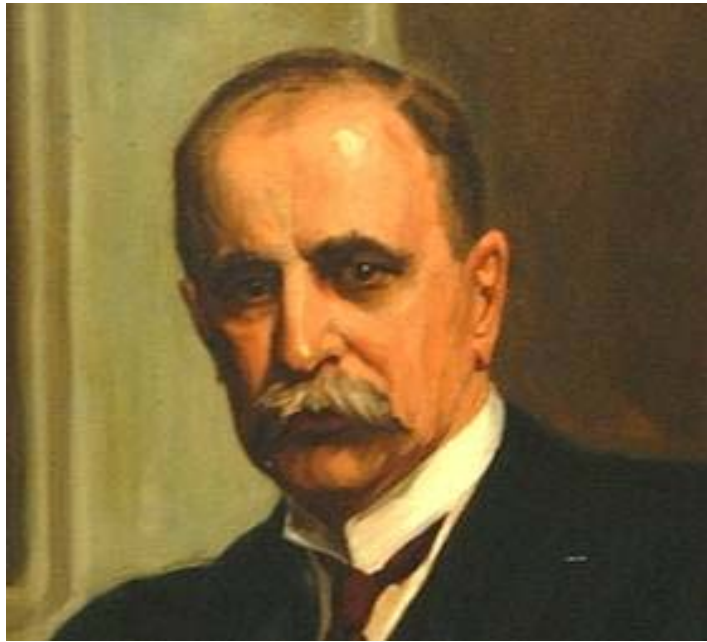
HM LECTURE-1/Ch 1/13

Introduction to Pathology

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Study of Diseases

- Definition: pathos+ logos
- Pathophysiology: pathos+ physiology
- Health and disease: dis+ease



Your practice of medicine is as good as is your knowledge and understanding of Pathology.

-Sir William Osler

Terminology

- Patient
- Lesions
- Pathologic changes or morphology
- GA and ME
- Etiology: *Why?*
- Pathogenesis: *How?*
- Signs and symptoms
- Diagnosis, prognosis, treatment, prevention:
What?

Evolution of Pathology

Religious beliefs and magic to rational approach (prehistoric time to AD1500)

Greeks:

- Asclepios, Apollo
- Socrates, Plato, Aristotle
- Hippocrates



Web Image 1.1: Hippocrates (460-370 BC). The great Greek clinical genius and regarded as 'the father of medicine'. He introduced ethical aspects to medicine.

Religious beliefs and magic to rational approach (prehistoric time to AD1500) contd..

- Romans: Celsus, Galen
- Indians: Dhanvantri, Charaka, Sushruta
- Theory of vitalism

Human Anatomy to Era of Gross Pathology
(AD1500-1800)

- Renaissance: Leonardo da Vinci (1452-1519)
- Vesalius (1514-1564)
- Fallopius (1523-1562)

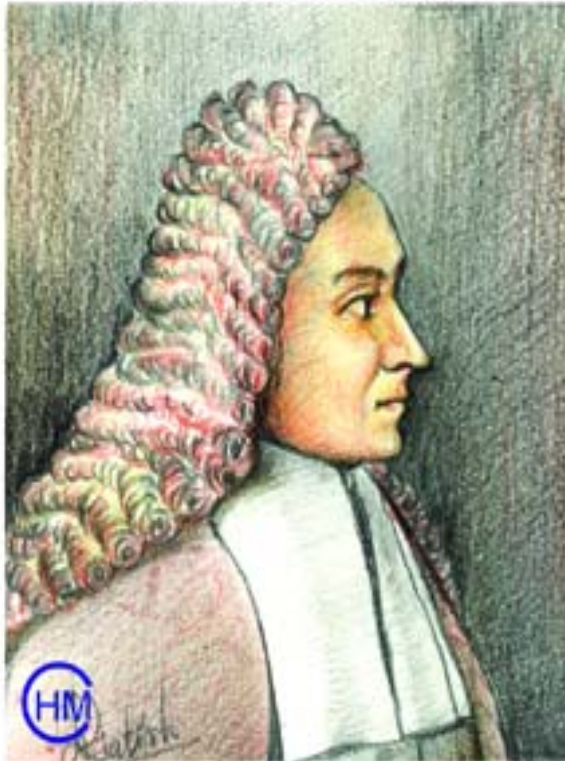


Web Image 1.2: In 16th Century, postmortem amphitheatre in Europe was a place of learning human anatomic dissection conducted and demonstrated by professors to eager learners and spectators.

*Human Anatomy to Era of Gross Pathology
(AD1500-1800) cond..*

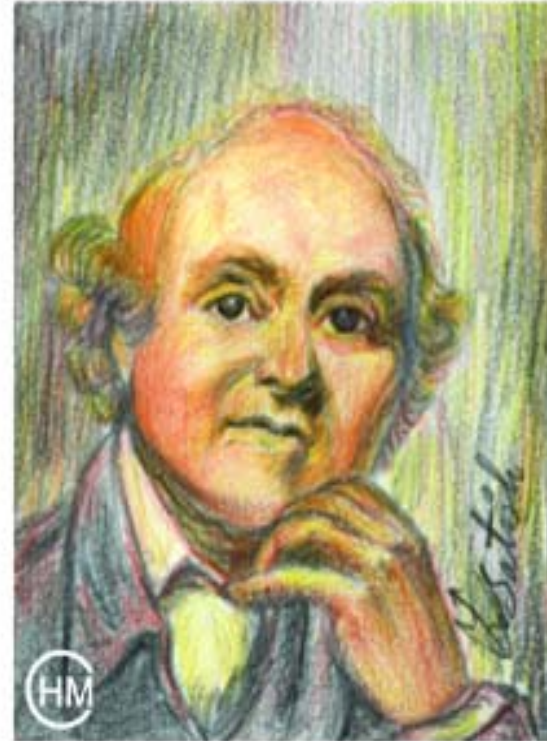
- Leeuwenhoek (1632-1723)
- Malpighi (1624-1694)
- Morgagni (1682-1771)
- Pott (1714-1788)
- Hunter brothers, Jenner, Matthew Baillie
- 3 Great guys of “Guys”: Bright, Addison, Hodgkin
- Xavier Bichat, RTH Laennaec
- Rokitansky

FATHER OF CPCs



Web Image 1.3: Giovanni B. Morgagni (1682–1771), an Italian physician-anatomist who introduced clinicopathologic methodology in the study of disease by correlation of clinical findings with findings at postmortem examination

FATHER OF MUSEUM IN PATHOLOGY



Web Image 1.4: John Hunter (1728-1793). Scottish surgeon, regarded as the greatest surgeon-anatomist of all times who established first ever unique collection of pathological specimens that later resulted in the Hunterian Museum of the Royal College of Surgeons, London.

Technology Development & Cellular Pathology

(1800-1950)

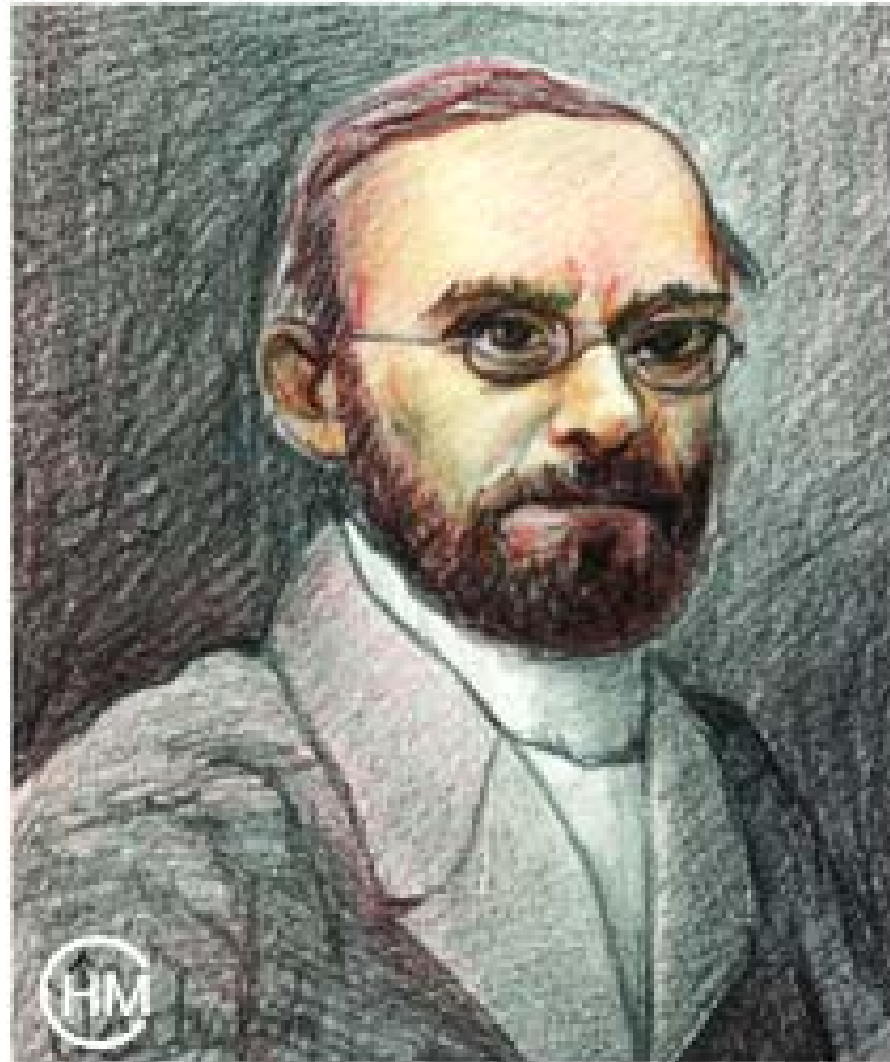
- Louis Pasteur
- Hansen
- Ehrlich
- Gram
- Romanowsky
- Koch
- May-Grunwald and Giemsa
- Leishman
- Feulgen

FATHER OF CLINICAL PATHOLOGY



Web Image 1.5: Paul Ehrlich (1854-1915). German physician, conferred Nobel prize for his work in immunology, described Ehrlich's test for urobilinogen, staining techniques of cells and bacteria, and laid the foundations of haematology and clinical pathology.

FATHER OF CELLULAR PATHOLOGY

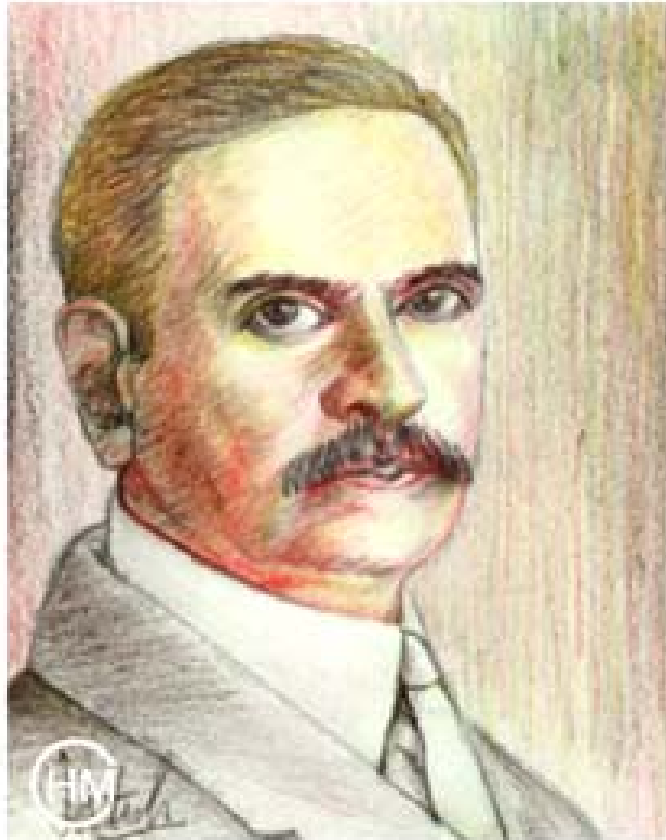


Web Image 1.6: Rudolf Virchow (1821-1905). German pathologist who proposed cellular theory of disease.

Surgeon-pathologists to Surgical Pathologists

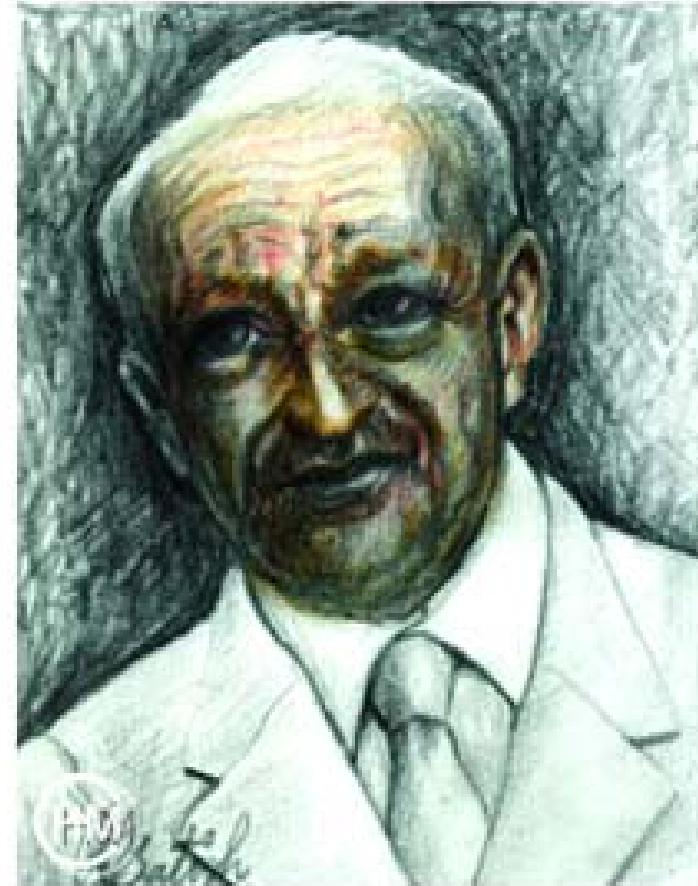
- Surgeon doubling up as pathologist from 19th century up to mid-20th century
- Famous surgeon pathologists during this era: James Ewing, Stout, Ackerman, Pierre Masson, Willis

FATHER OF BLOOD TRANSFUSION



Web Image 1.7: Carl Landsteiner (1863-1943). An Austrian pathologist who first discovered the existence of major human blood groups in 1900 and was recipient of Nobel prize in 1930.

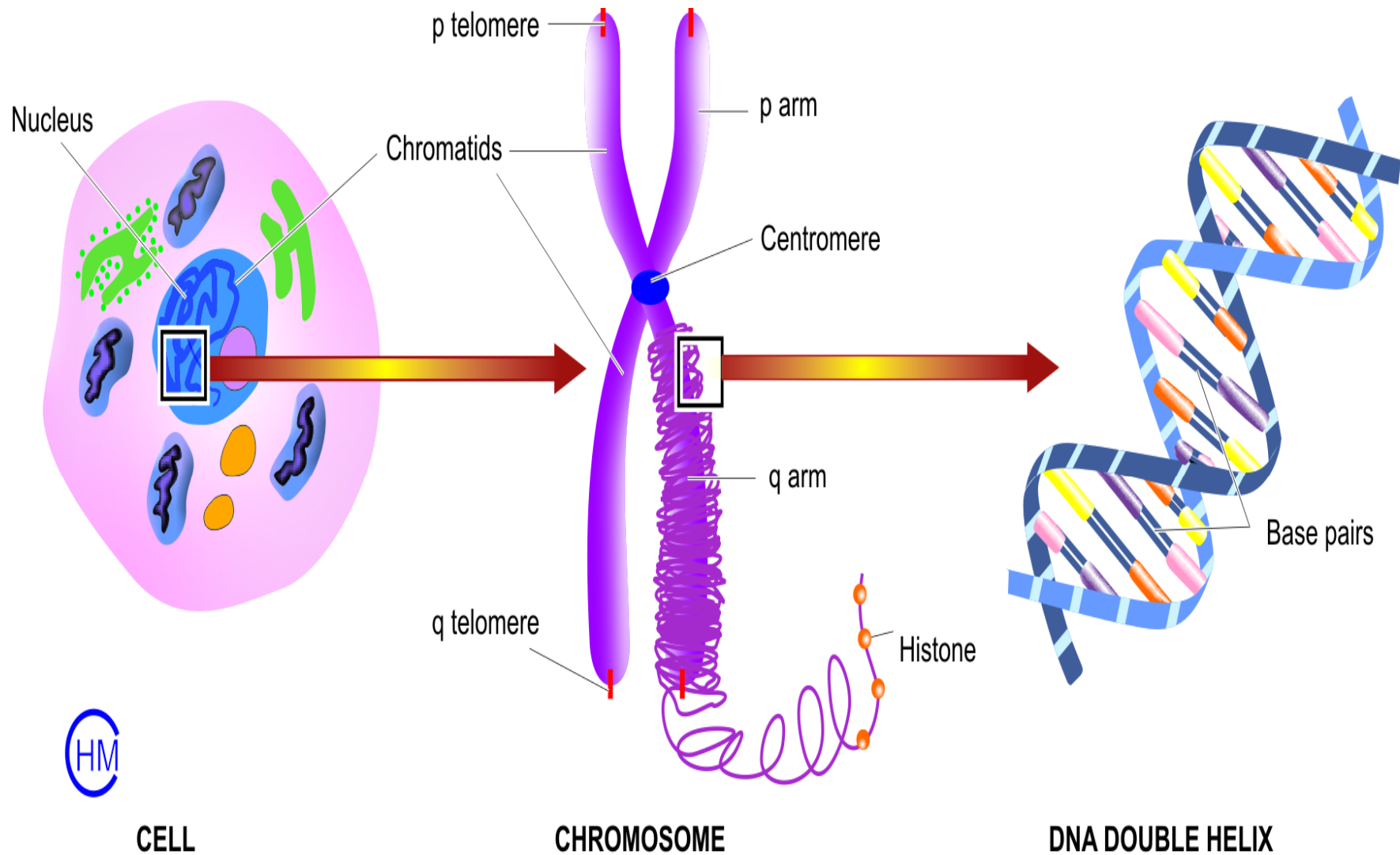
FATHER OF EXFOLIATIVE CYTOLOGY



Web Image 1.8: George N. Papanicolaou (1883-1962). American pathologist, who developed Pap test for diagnosis of cancer of uterine cervix.

Modern Pathology

- Structure of DNA (Watson & Crick, 1953)
- Number of chromosomes (1956)
- In situ hybridisation (1969)
- Recombinant DNA (1972)
- PCR i.e. xeroxing DNA fragments (1983)
- Flexibility and dynamism of DNA (1983)
- Mammalian cloning (1997)
- Stem cell research (1998)
- Human Genome Project (2003)
- cDNA microarrays, microdissection



Web Image 1-10: Molecular structure of human chromosome.

Subdivisions of Pathology

- General and systemic pathology
- Histopathology: *Surgical pathology, Forensic pathology and autopsy work, Cytology*
- Haematology
- Chemical pathology
- Immunology
- Experimental Pathology
- Medical genetics
- Molecular pathology

Basic Objectives of Teaching Pathology at UG Level

- Teaching students the mechanisms and scientific basis of disease from a gross level to microscopy and to molecular level.
- Teaching them how to use a medical laboratory?
- Teaching them how to request an investigation?