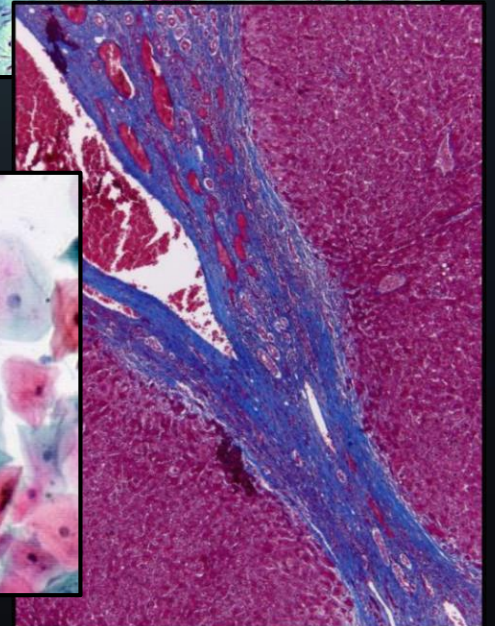
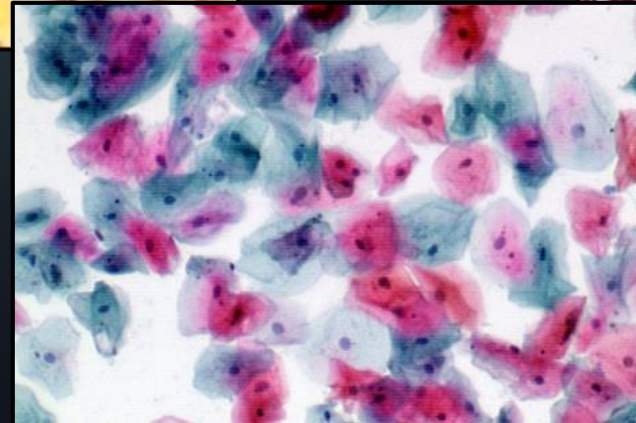
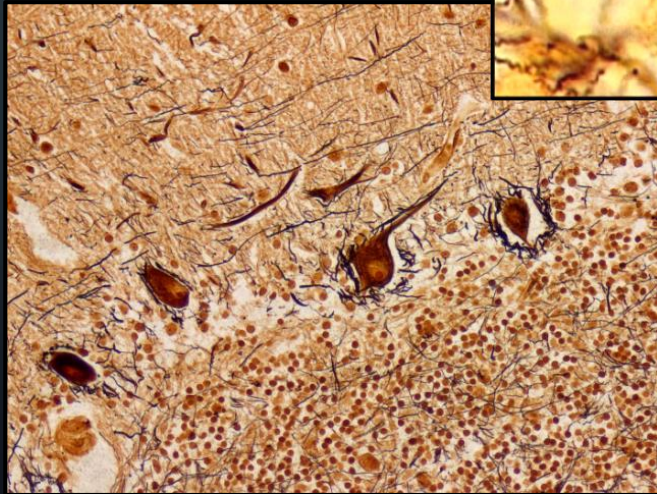
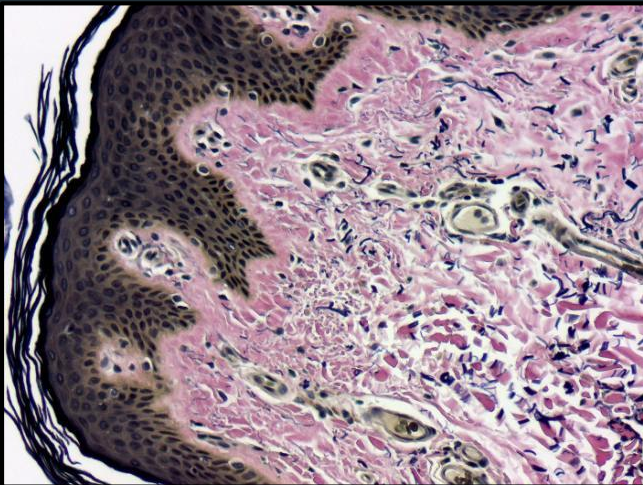
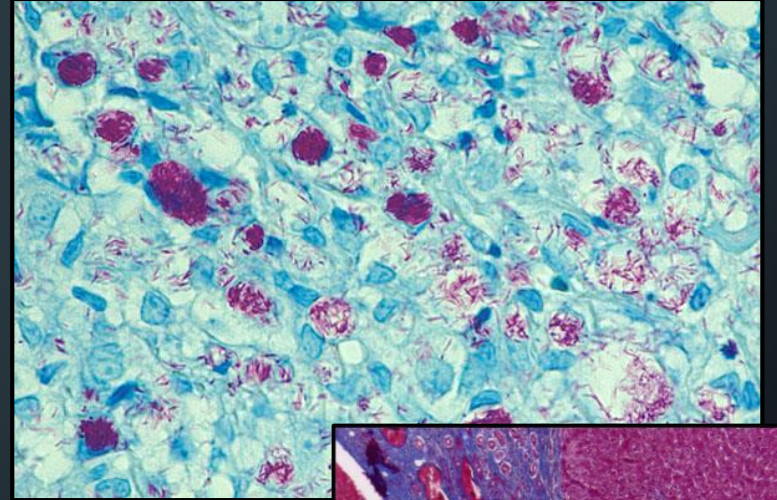
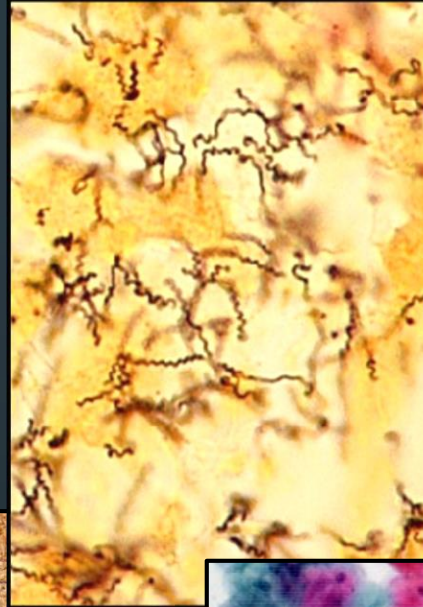
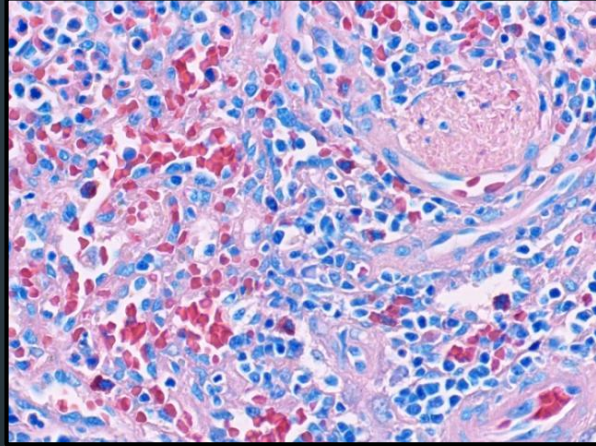
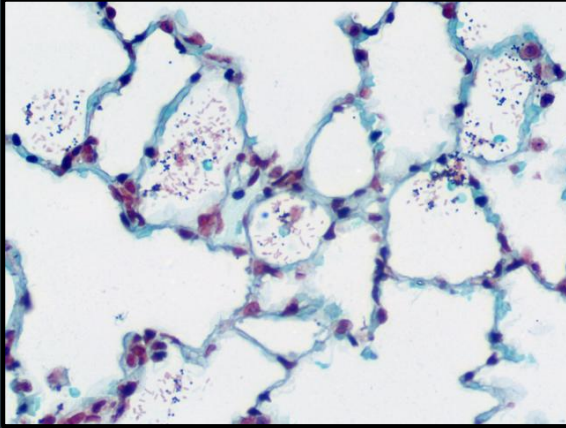


THE NAME OF THE STAINS: HISTOLOGY HISTORY PART 2

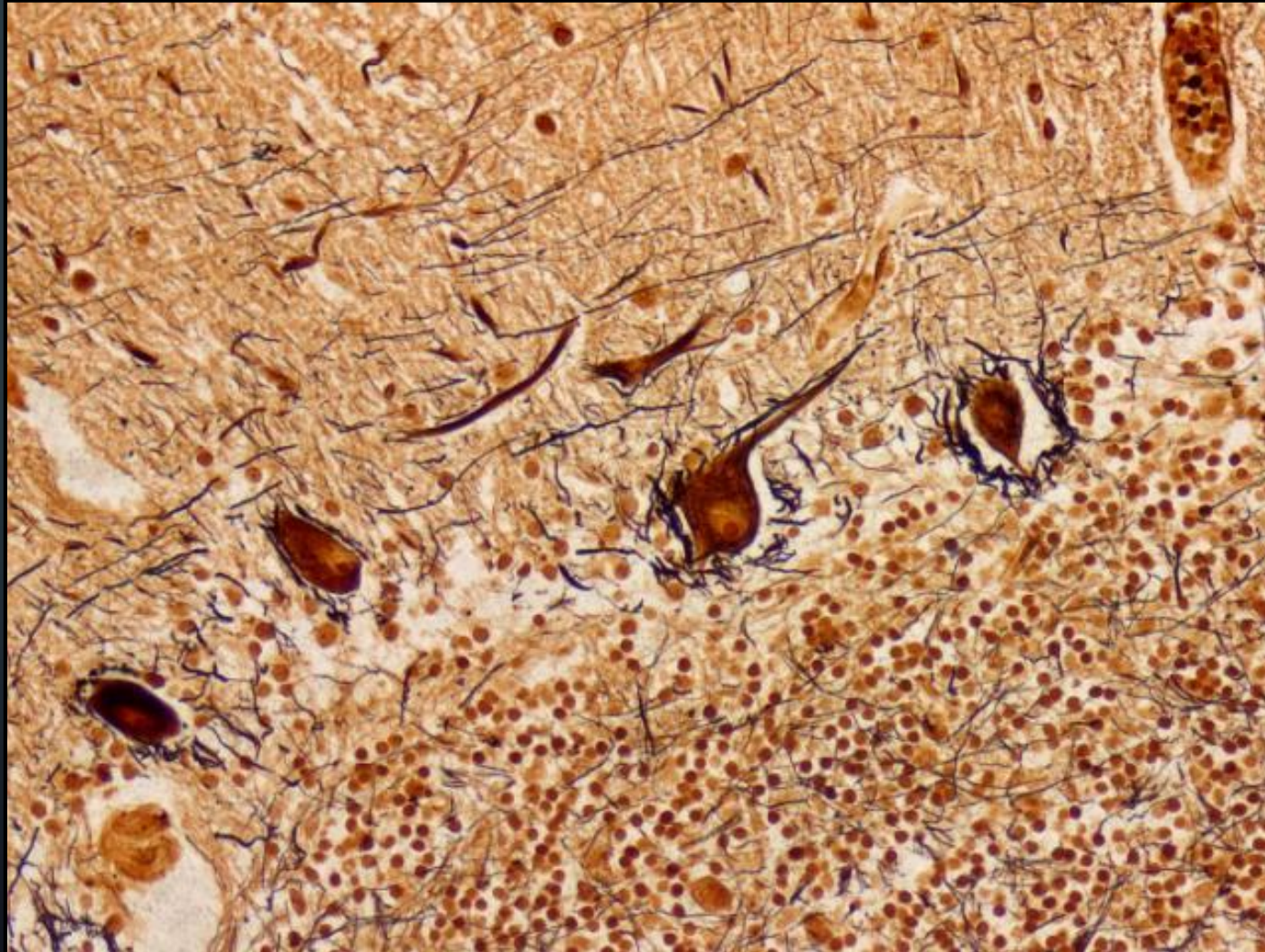
Jean Mitchell, BS, HT (ASCP)
Newcomer Supply – Middleton, Wisconsin
jmitchell@newcomersupply.com

Jane Parr, BS, HT (ASCP)
National Jewish Health & University of Colorado
Anschutz Medical Center – Denver, Colorado
jane.parr@ucdenver.edu

THE NAMES OF THE STAINS



WHAT'S MY NAME?



DR. ALOIS ALZHEIMER: 1864-1915



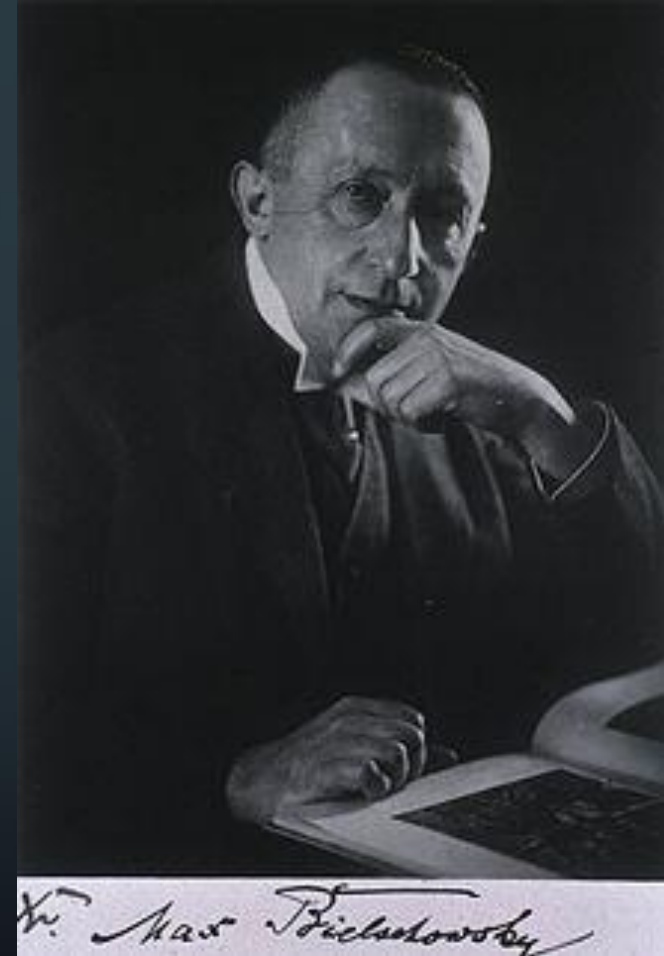
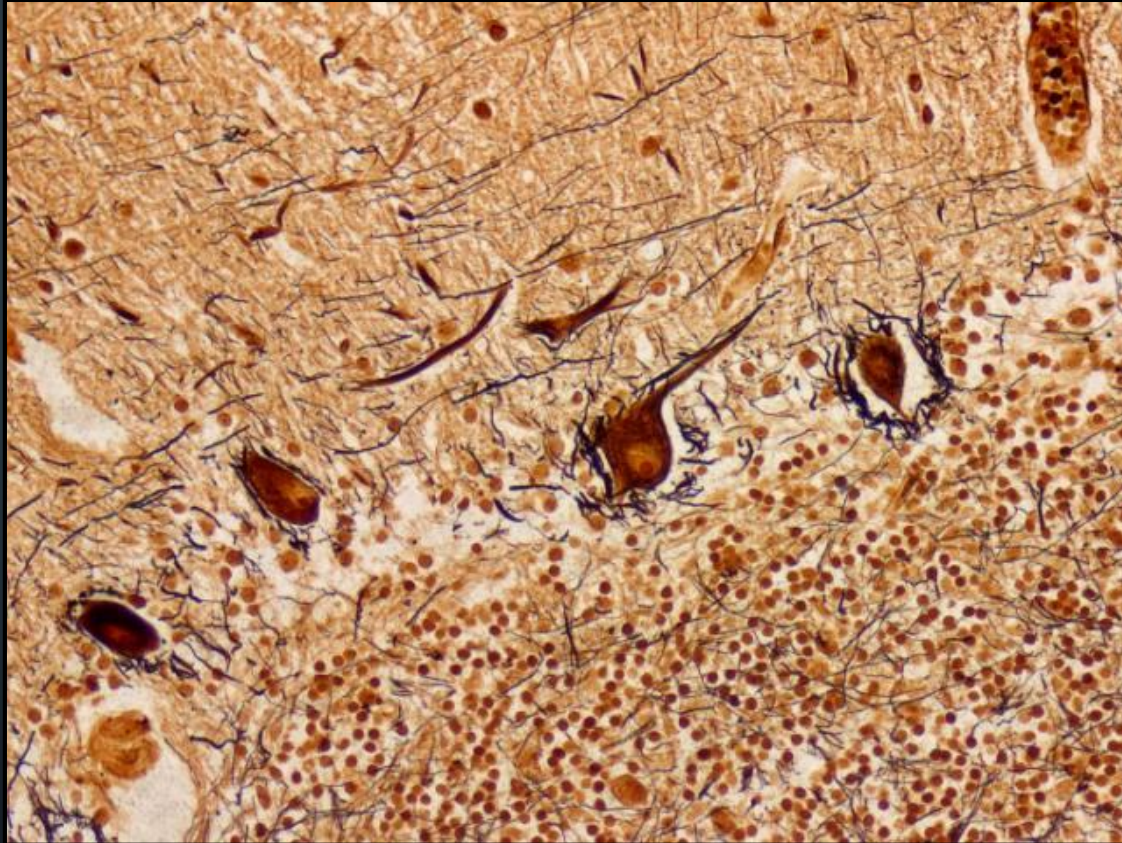
1. German Neurologist
2. 1901: 51 Year-Old Woman w/Psychological Problems – Dementia
3. 1906: Brain Displayed Extensive Atrophy
 - Sampled Thin Preps w/Silver Salts
 - 2 Types of Abnormal Nerve Cell Deposits
 - Plaques & Tangles
4. 1911: Published Article of Observations
 - “Particular Disease Process of the Cerebral Cortex”
5. Died from Heart & Kidney Problems

MAX BIELSCHOWSKY: 1869-1940



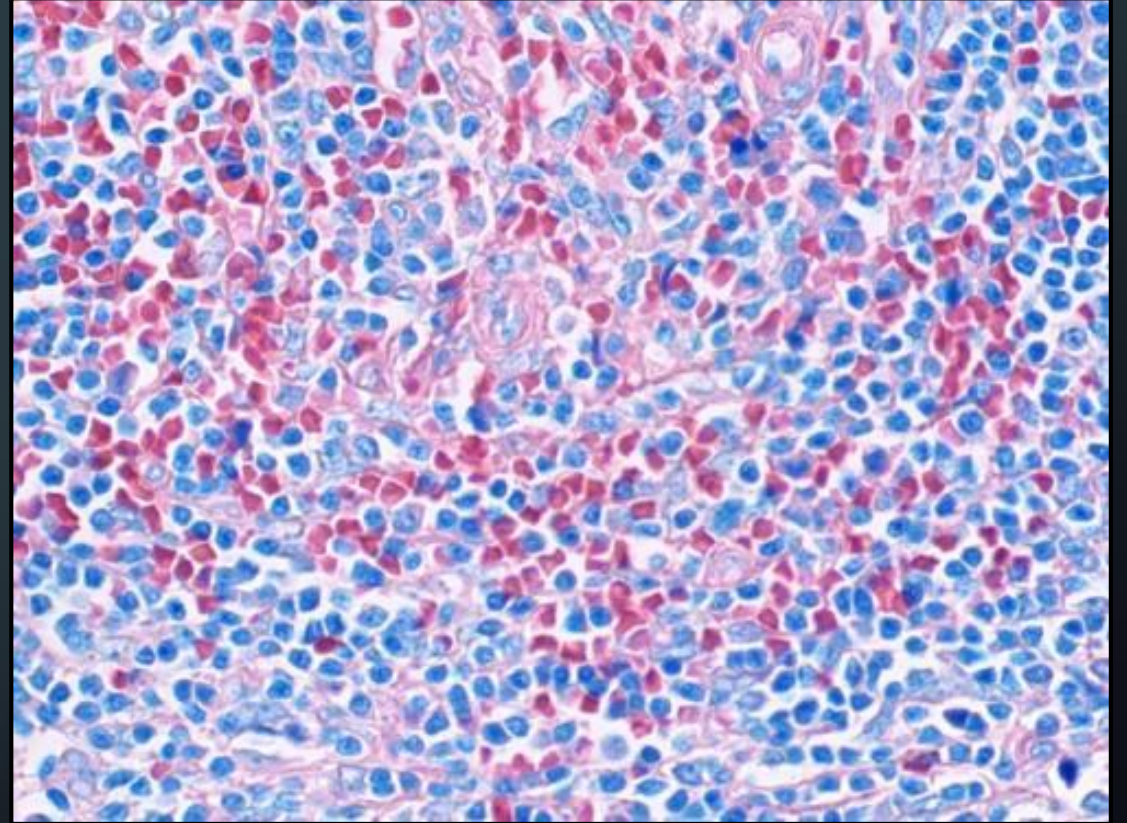
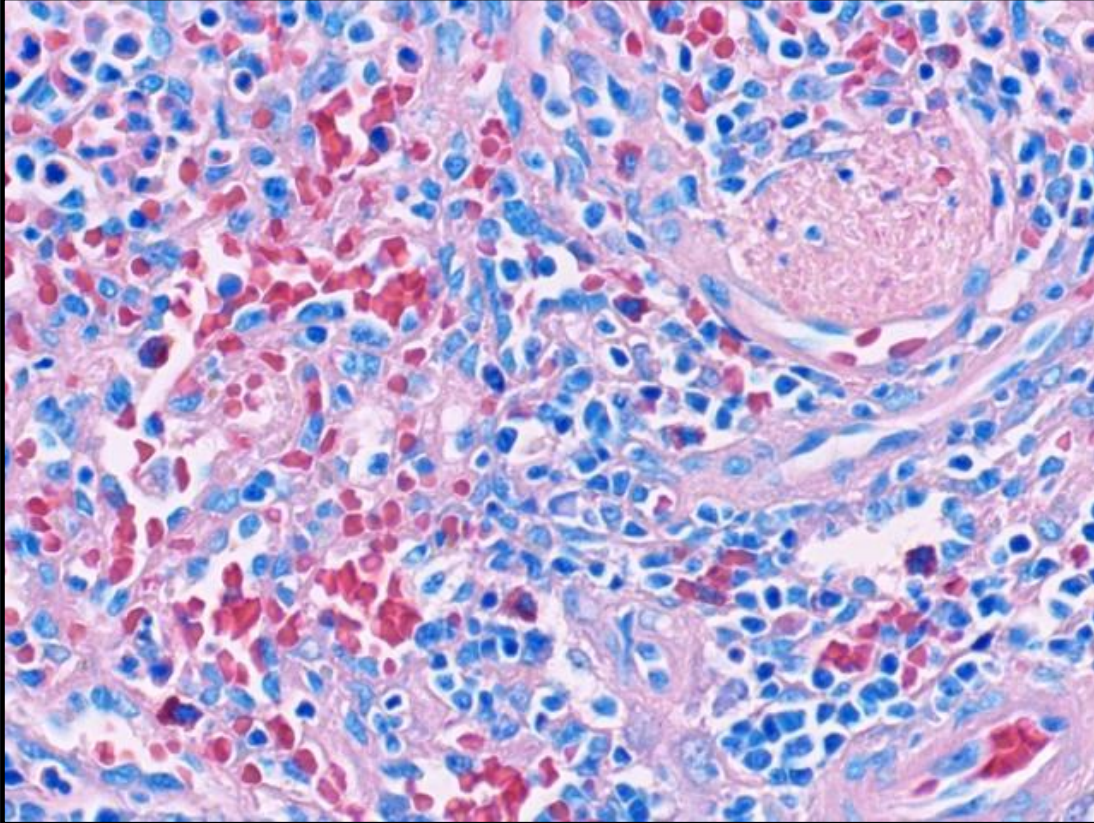
1. German Neuropathologist
2. 1896-1904: Senckenberg Path Institute
 - Carl Weigert, Alois Alzheimer, Franz Nissl
3. 1902: Published Silver Technique
 - Improvement on Cajal's Method
4. 1905-33: Kaiser Wilhelm Institute for Brain Research - Berlin
5. 1935: Escaped Nazi Germany
 - Son: Franz Bielschowsky, Director of Cancer Genetics in Dunedin, New Zealand

BIELSCHOWSKY STAIN

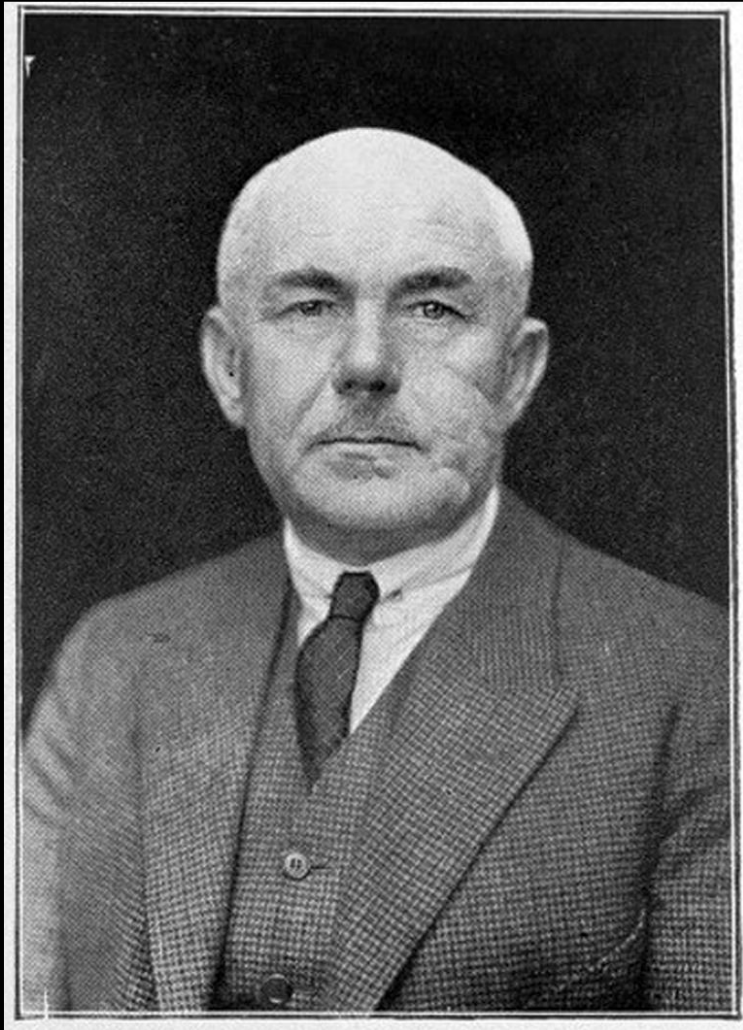


Dr. Max Bielschowsky

WHAT'S MY NAME?

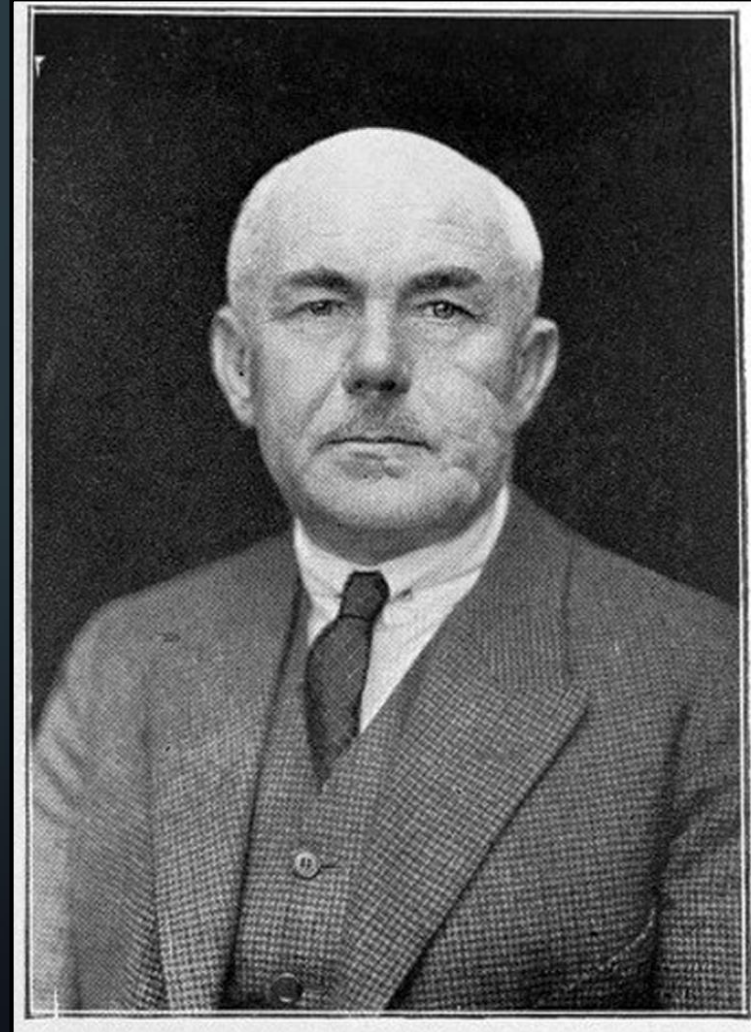
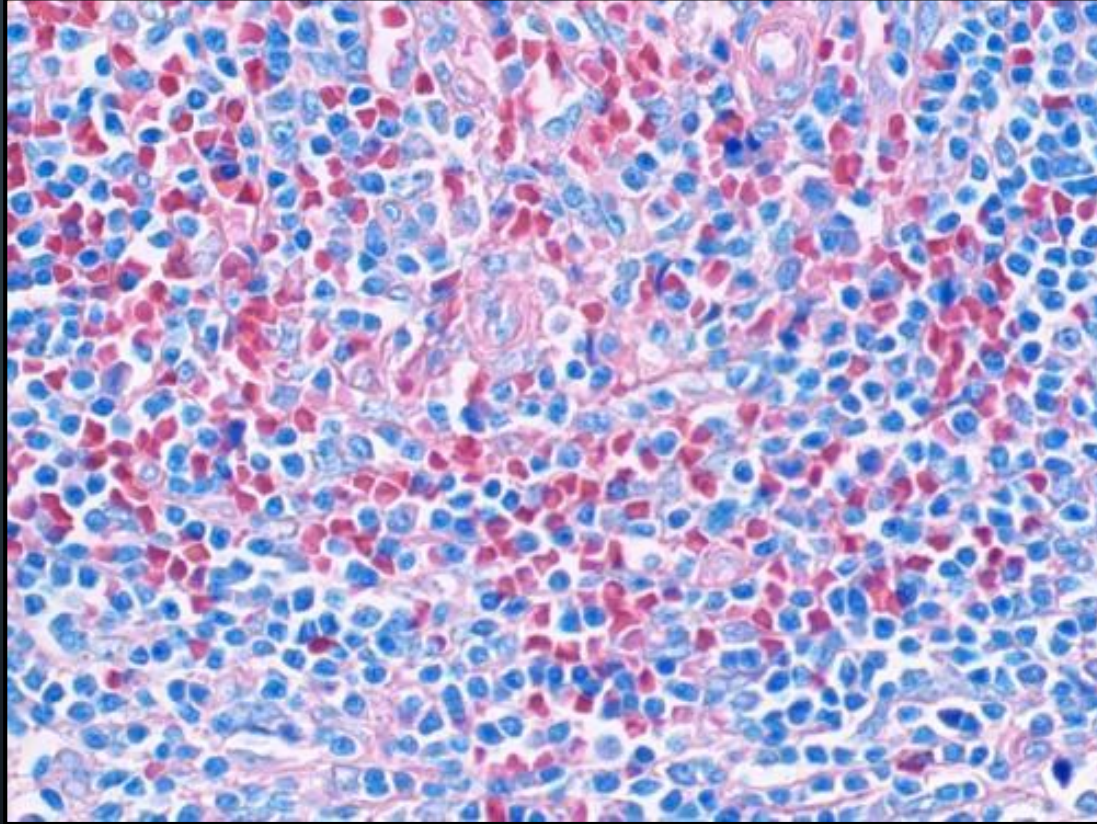


GUSTAV GIEMSA 1867-1948

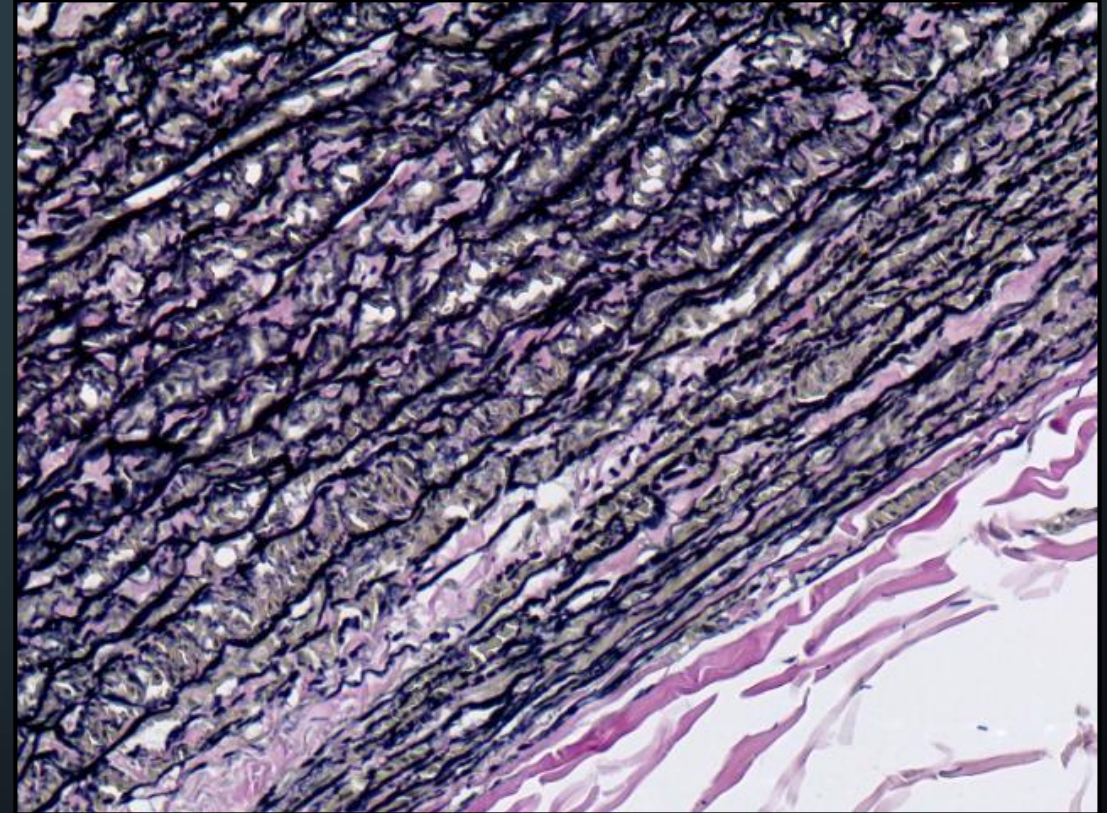
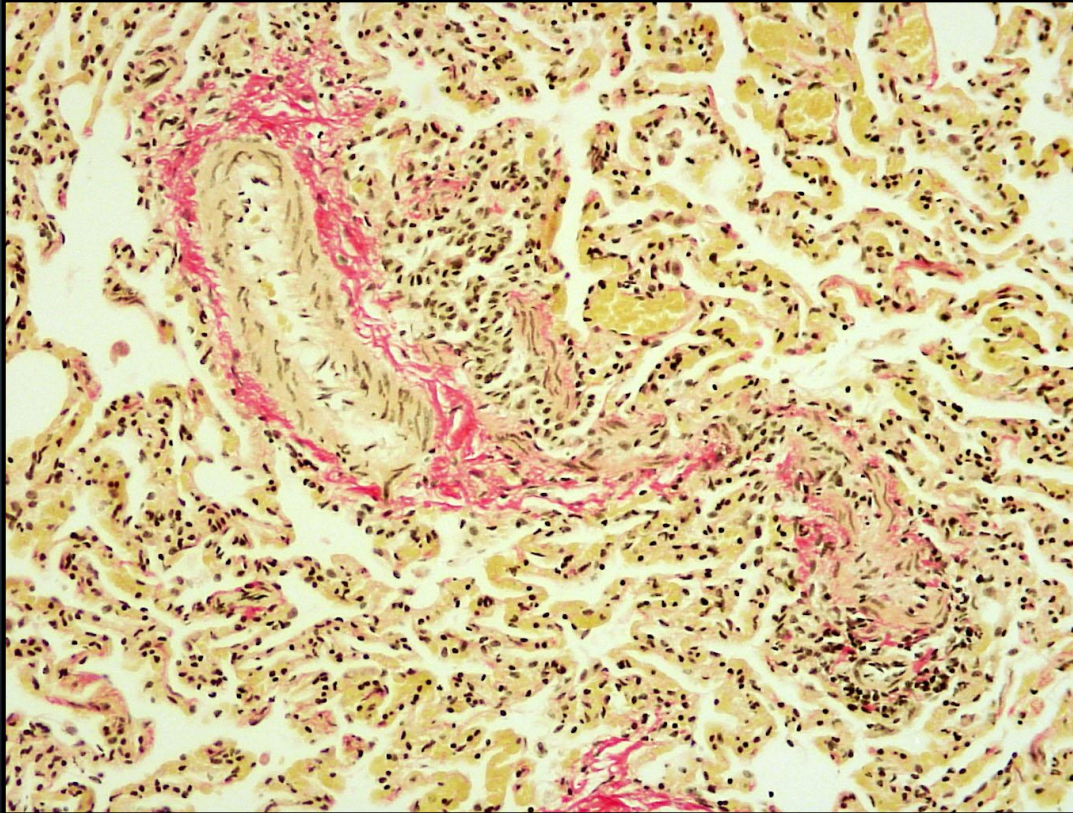


1. German Chemist and Bacteriologist
2. 1904: Published Essay on Staining Procedure for Flagellates, Blood Cells & Bacteria
 - Now Known as the Giemsa Stain
3. Designed for Demonstration of Parasites in Malaria
4. Oxidized Methylene Blue to Azure I

GIEMSA STAIN



WHAT'S MY COUNTERSTAIN NAME ?



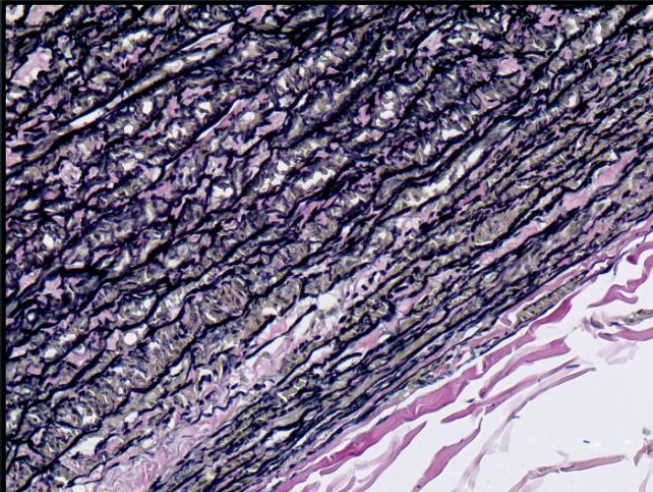
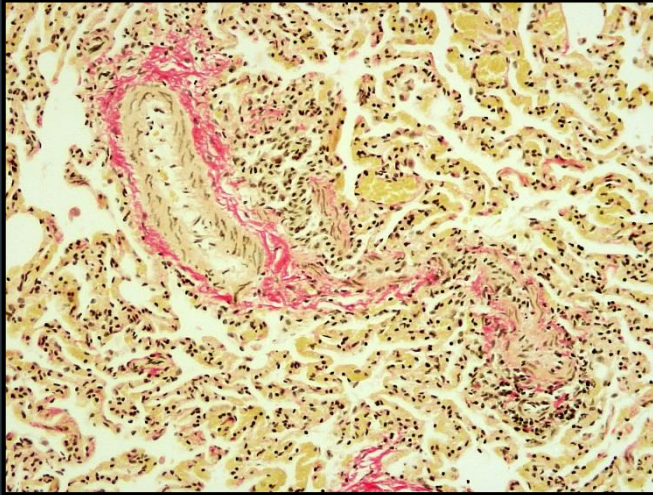
IRA THOMPSON VAN GIESON: 1866-1913



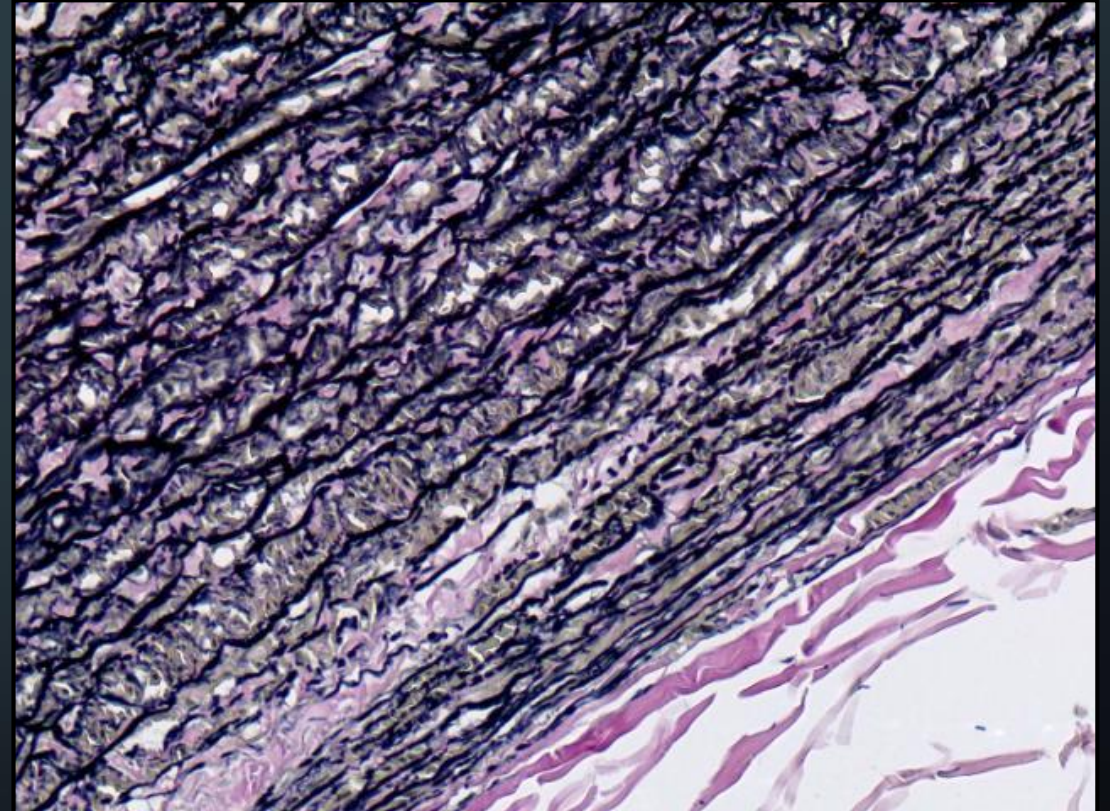
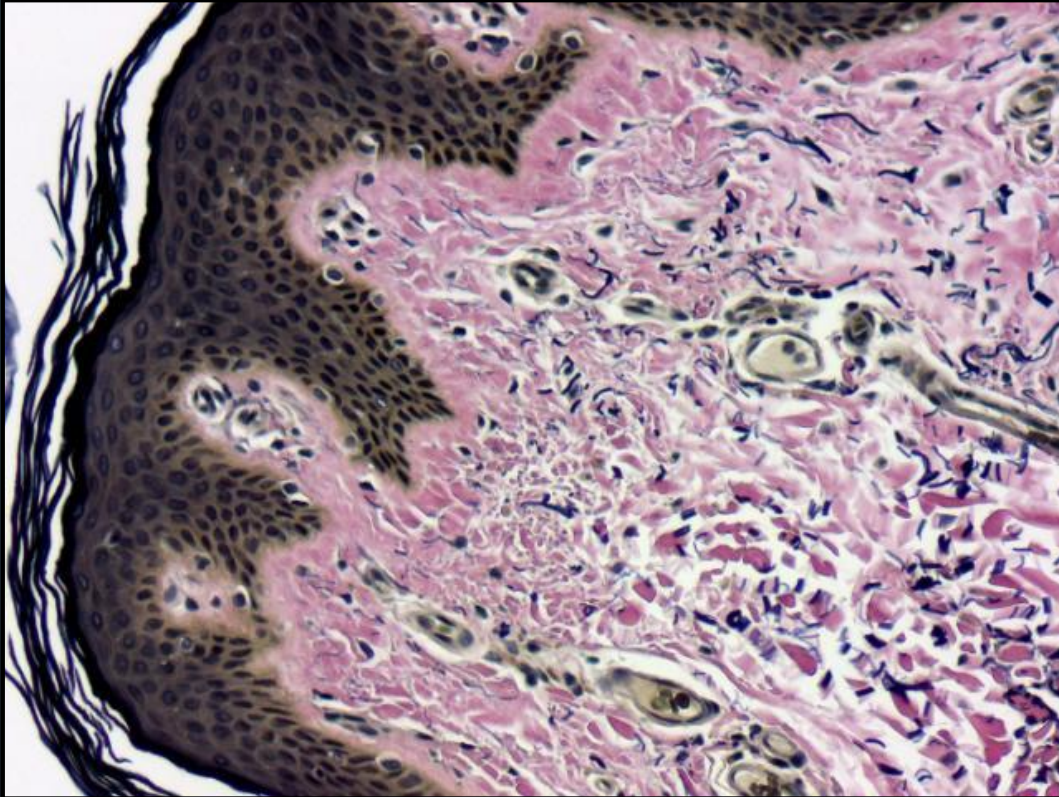
1. American Neurologist, Psychiatrist, Bacteriologist & Neuropathologist
2. 1885: Columbia Medical Degree
 - Pathology Instructor of Nervous System
 - 1889: Introduced the “Picric Acid Stain”
3. 1896: 1st Director of Path Institute
NY State Hospitals for the Insane
4. 1903: NY State Health Department
5. Practiced Hypnosis
6. Described as “A Genius”



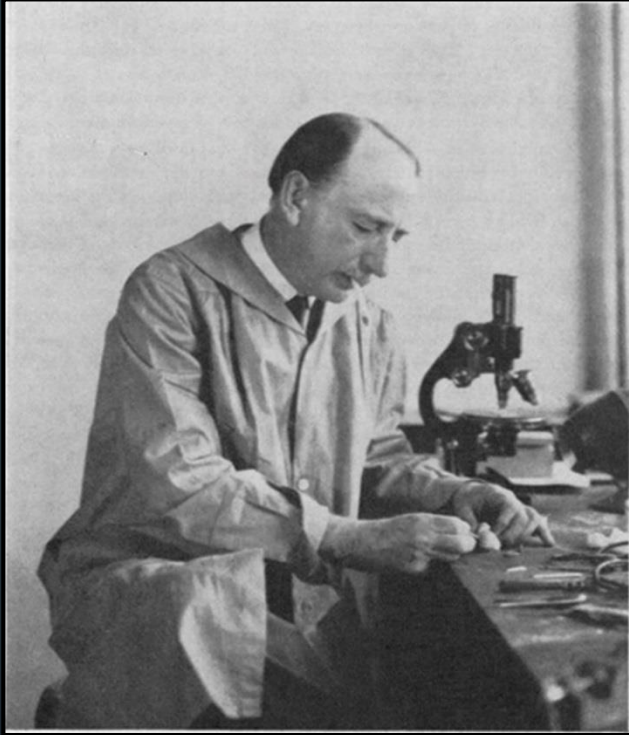
VAN GIESON COUNTERSTAIN



WHAT'S MY NAME?

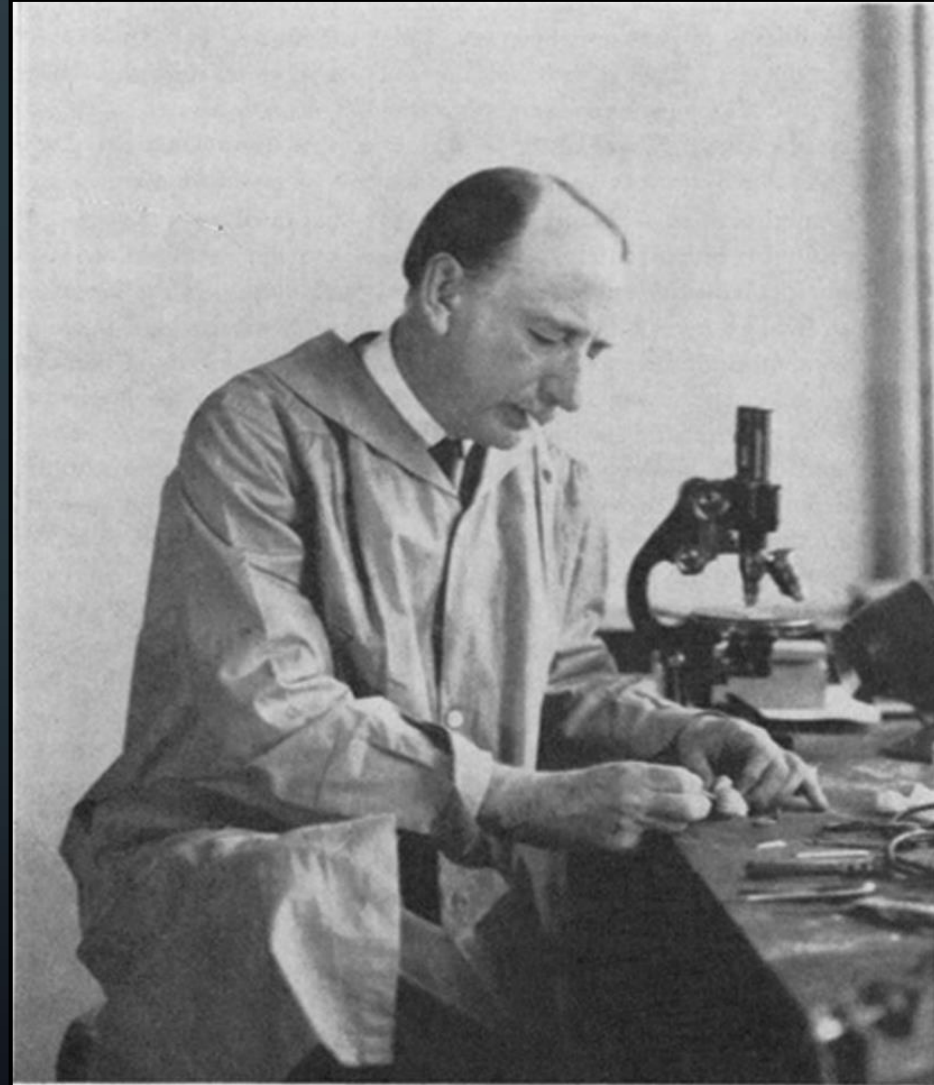
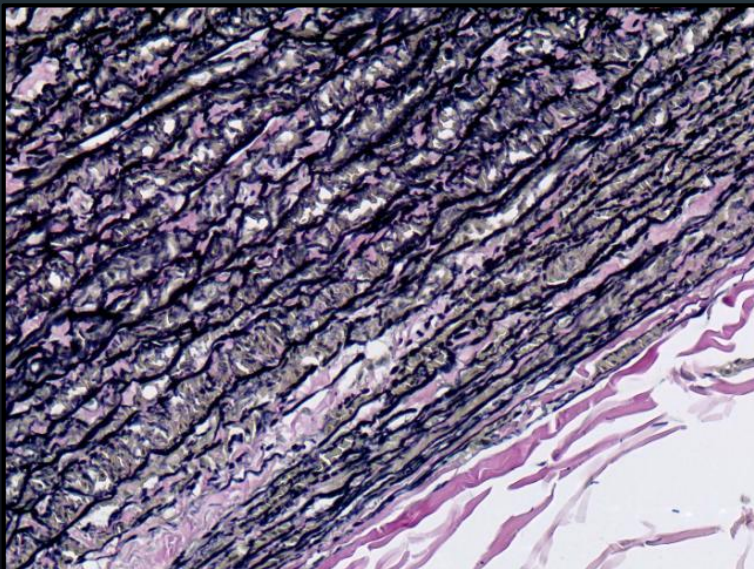
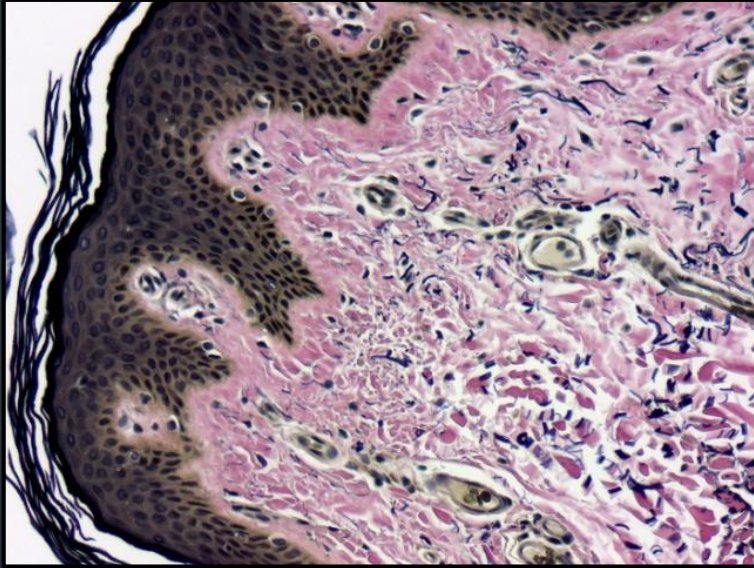


FREDERICK HERMAN VERHOEFF: 1874-1968

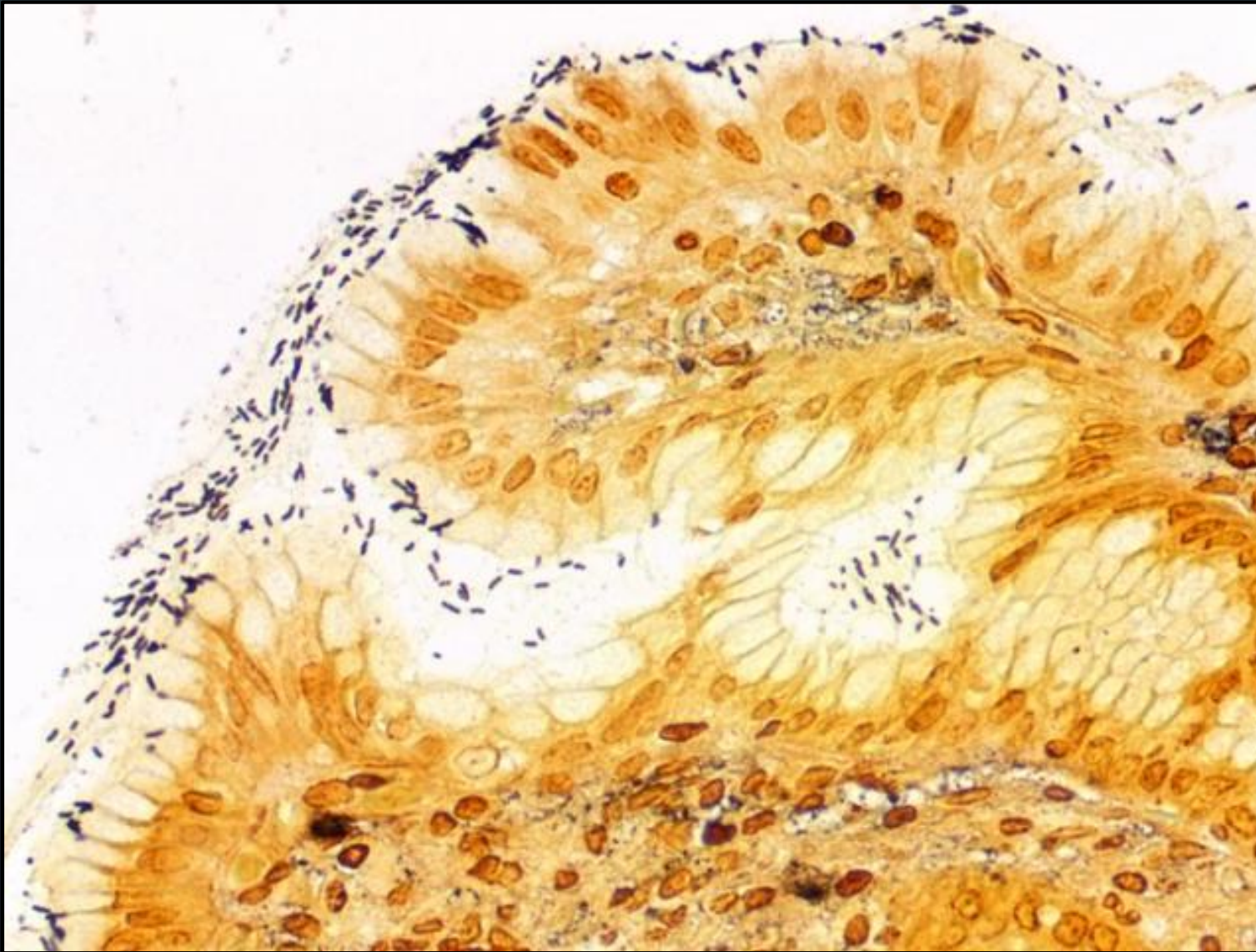


1. Eye Pathologist & Bacteriologist (from Louisville, KY)
2. 1899: Johns Hopkins Medical Degree
3. 1905-1932: Mass Eye/Ear Institute
 - Eye Surgeon, Consulting Chief, Professor
4. 1932-39: Howe Lab of Ophthalmology
5. 1907-41: Harvard
 - Professor Ophthalmic Research & Pathology
 - Published 100's of Journal Articles
6. 1918-19: WWI – Rank of Major

VERHOEFF ELASTIC STAIN



WHAT'S MY NAME?

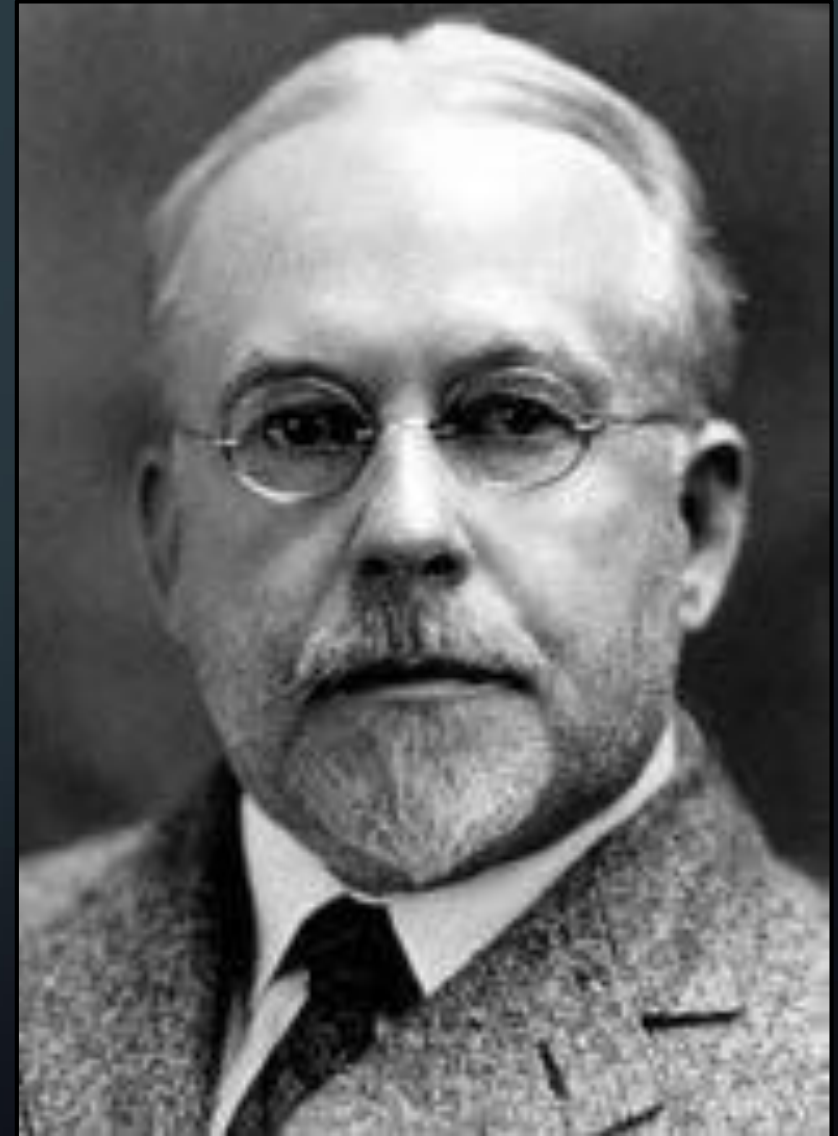
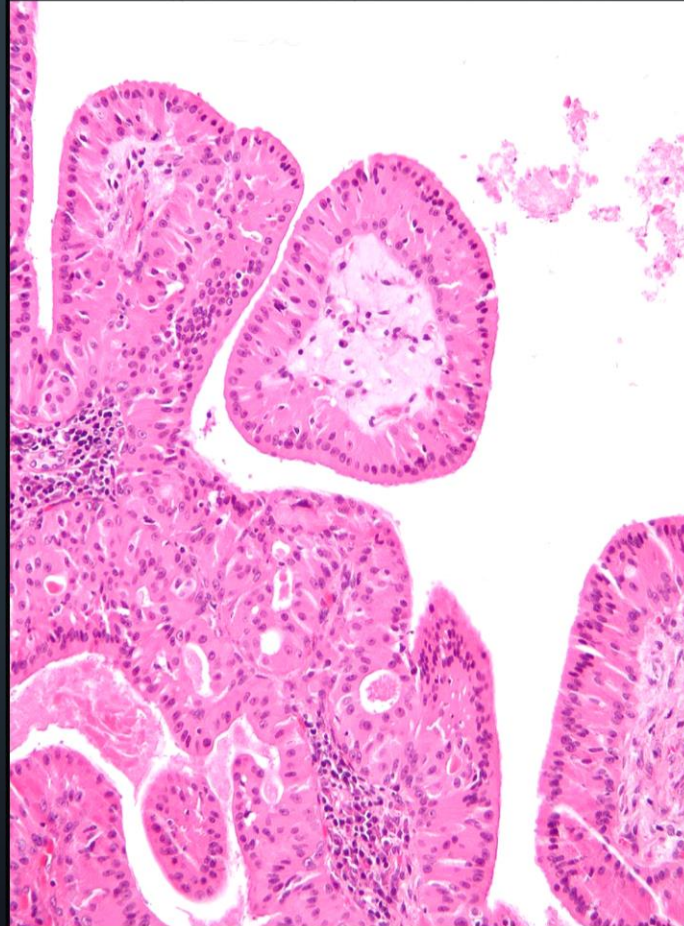
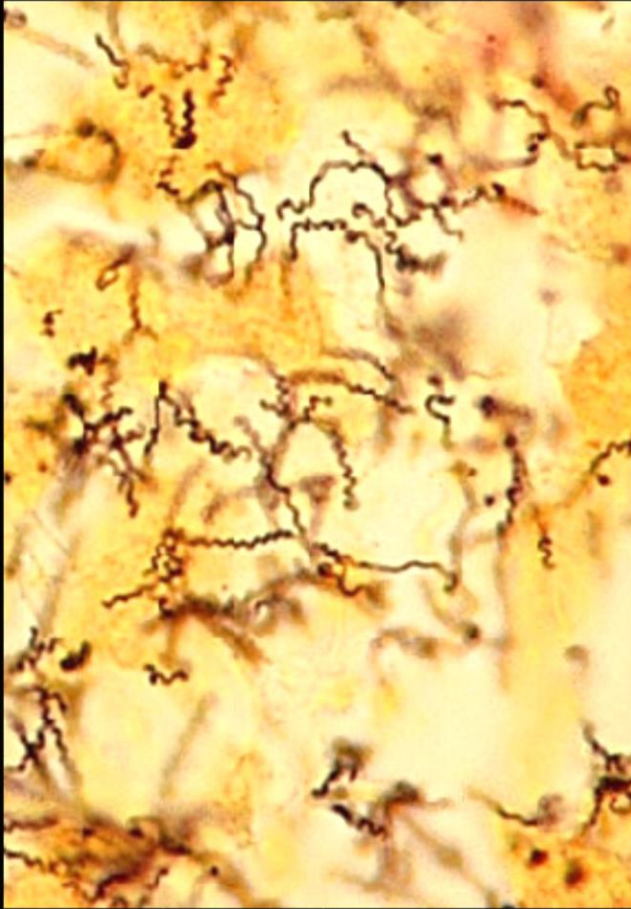


ALDRED SCOTT WARTHIN: 1866-1931



1. Born in Indiana – U of Michigan Med School
2. Director of Pathology U of Michigan
 - Professor of Dieterlie & Starry
3. Studied Pathology of Syphilis (20 Years)
4. 1920: With Allen Starry (1890-1973)
 - Silver Nitrate Staining for Spirochetes
5. Father of Cancer Genetics
6. Author of Several Pathology Textbooks
7. *Welleria aftonensis* Warthin

WARTHIN-STARRY STAIN & WARTHIN TUMOR



ROBERT RICHARD DIETERLE: 1896-1969



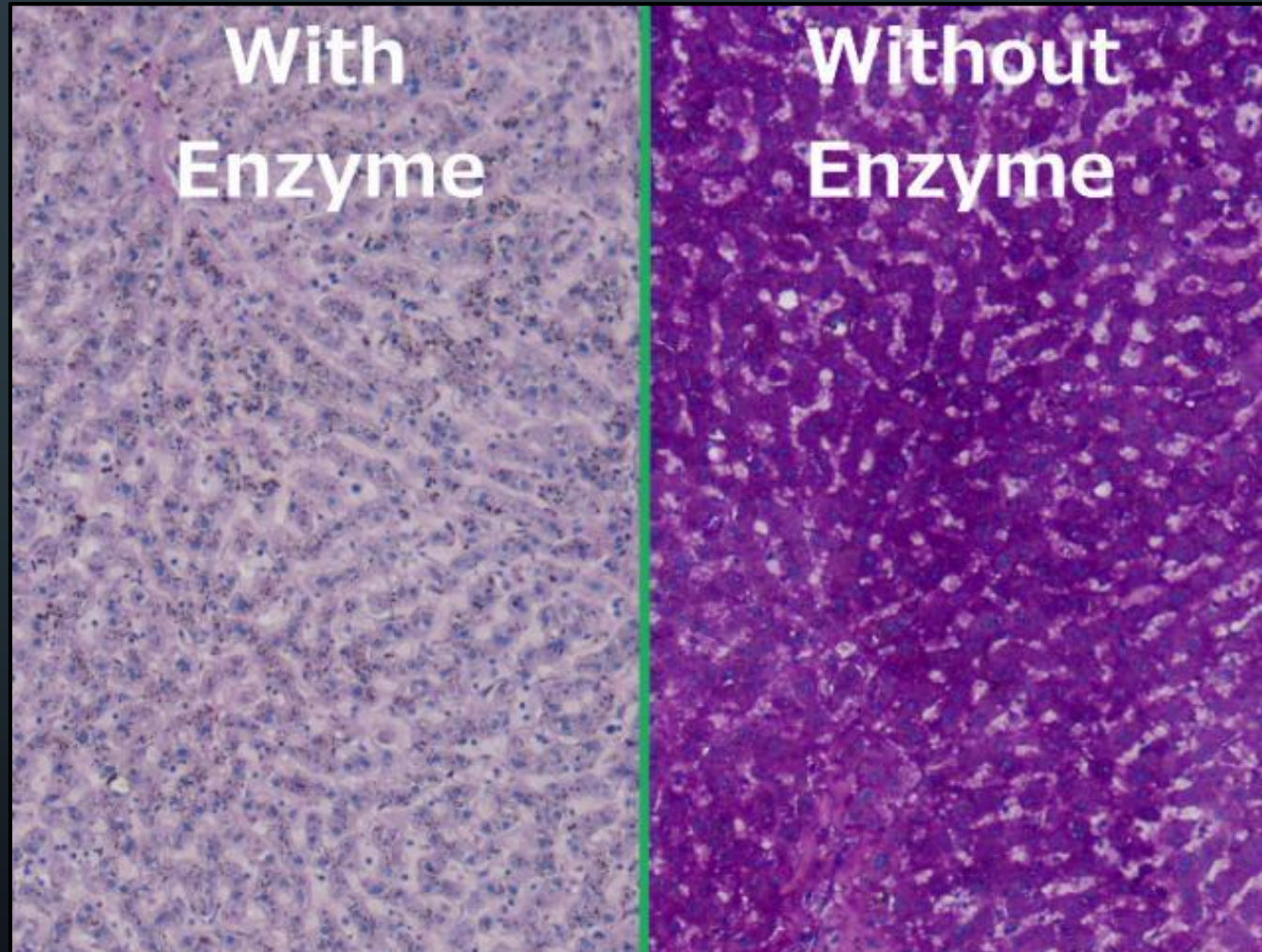
1. From Ann Arbor, Michigan
2. Neuro-Pathologist for U of Michigan,
Department of Psychiatry
3. Guggenheim Fellow
4. Modified w/Uranyl Nitrate
 - Technique for Legionnaires Disease

GABRIEL STEINER: 1883-1965
GRETE STEINER: 1887-196?



1. German/American Neurologist: Known for Multiple Sclerosis Research
2. Studied Syphilis & Spirochetes
3. 1919: Discovered Spirochetes in Brains of MS Patients
4. 1936: Immigrated to U.S. from Germany
5. 1937-54: Professor of Neurology/Neuropathology, Wayne State in Detroit
6. 1954-58: Director of Michigan Multiple Sclerosis Center
7. 1981: Relationship of Spirochetes → Lyme Disease → MS

WHAT'S MY NAME?

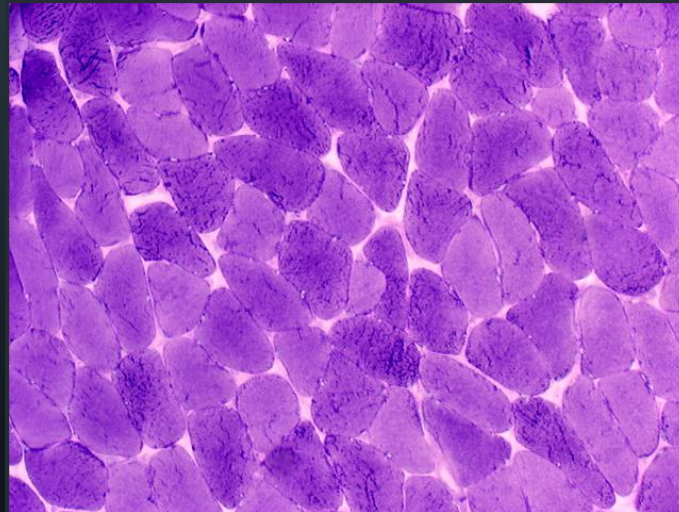


HUGO SCHIFF: 1834-1915

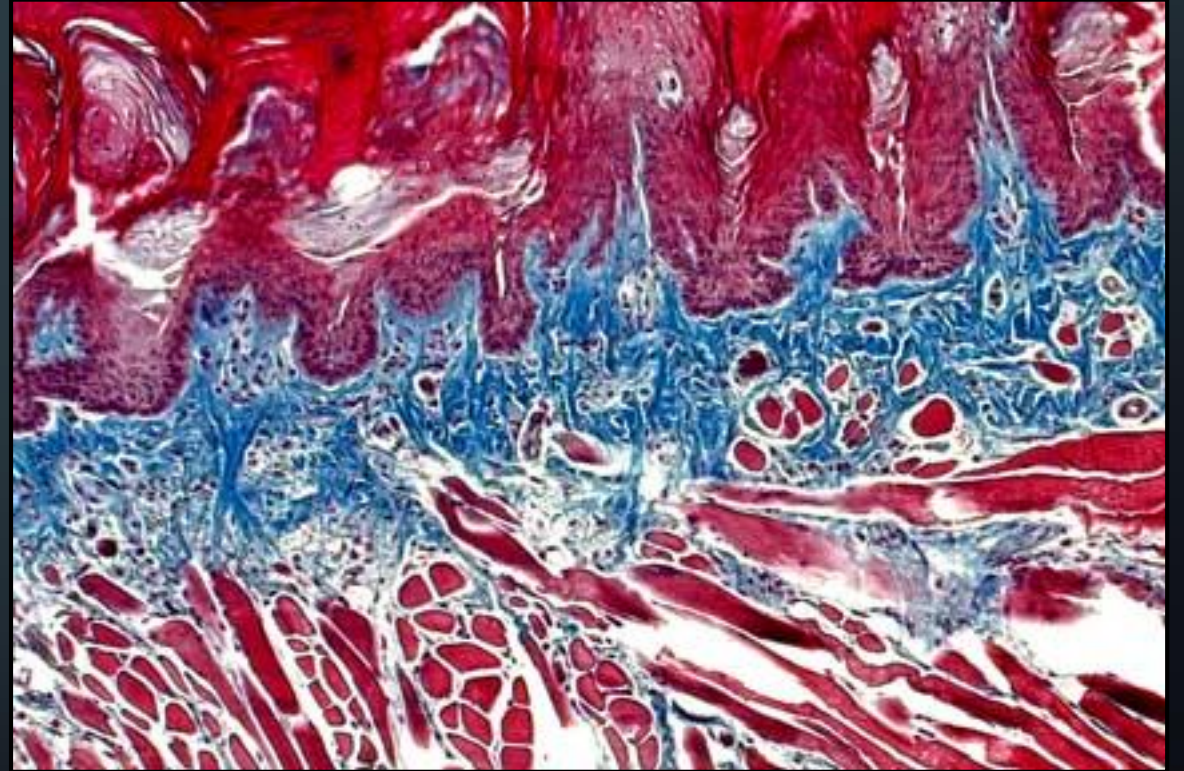
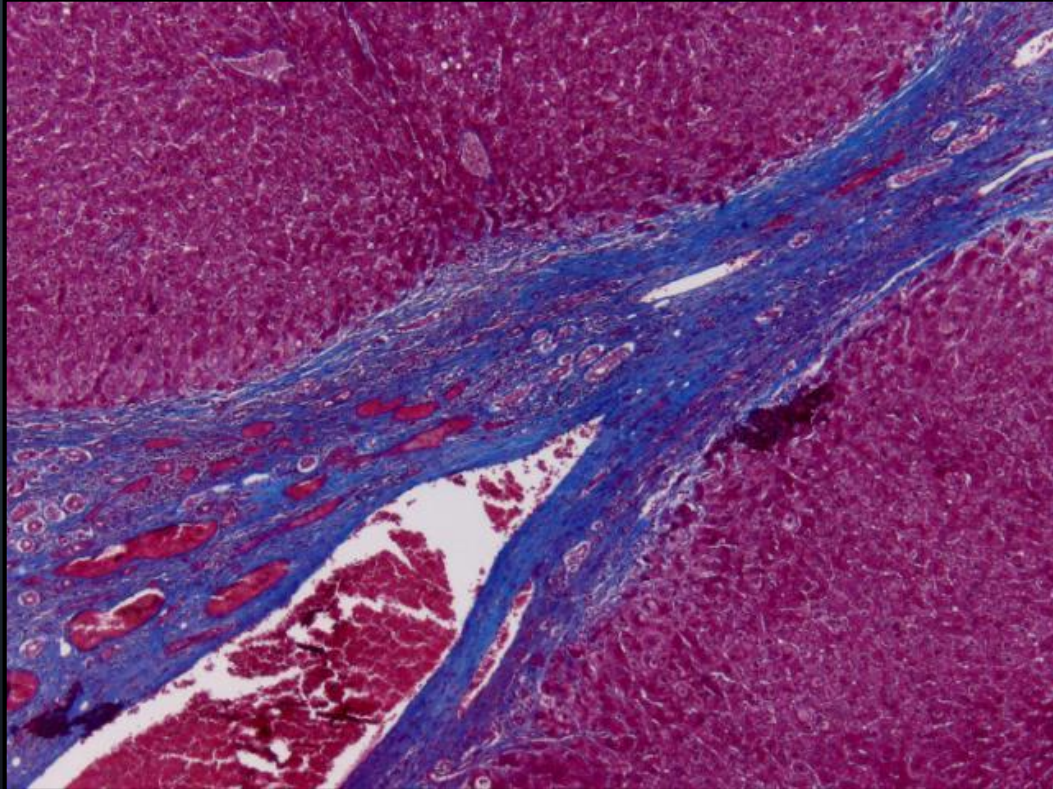


1. Born In Frankfurt Germany
2. Supporter of Socialism (Karl Marx)
 - 1857: Bern, Switzerland
 - 1863: Italy – Pisa & Florence
3. Professor of General Chemistry
 - Founder of Chemical Institute of Florence
 - Hugo Schiff International Store House
4. Schiff Bases & Other Imines
5. Prolific Investigator: 300+ Publications

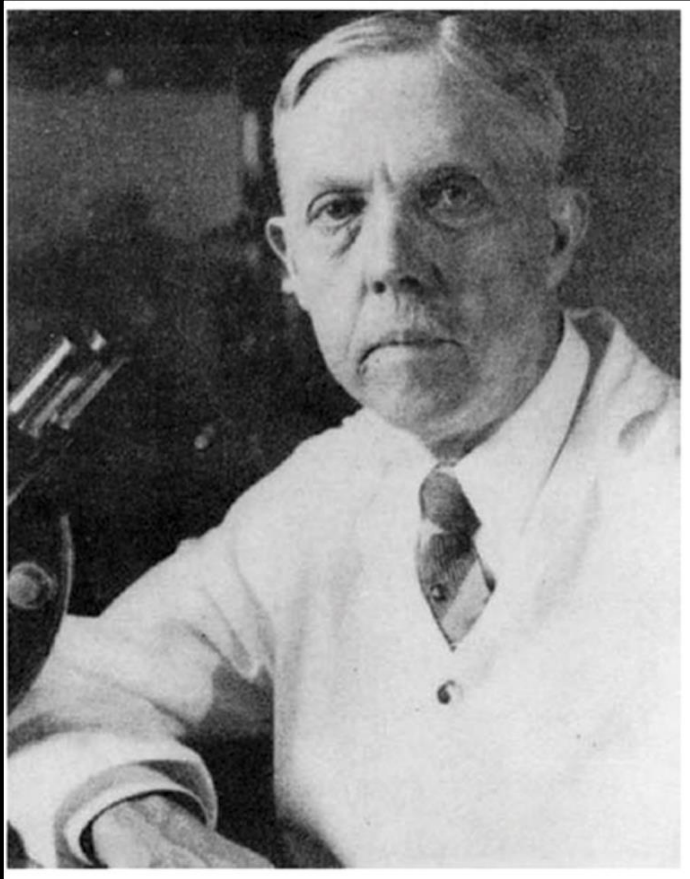
PERIODIC ACID SCHIFF (PAS) STAIN



WHAT'S MY NAME?

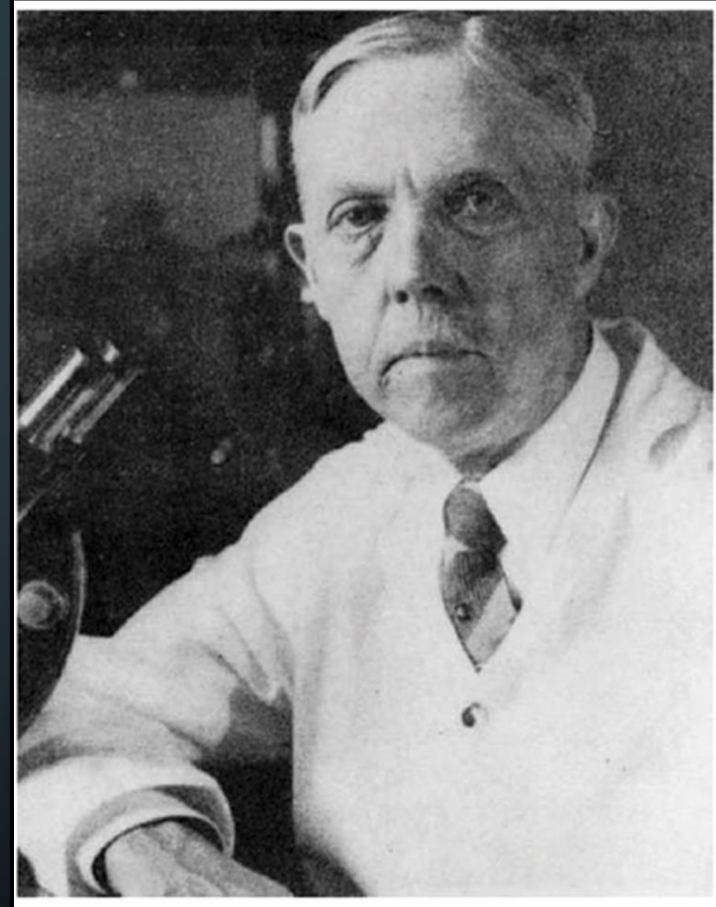
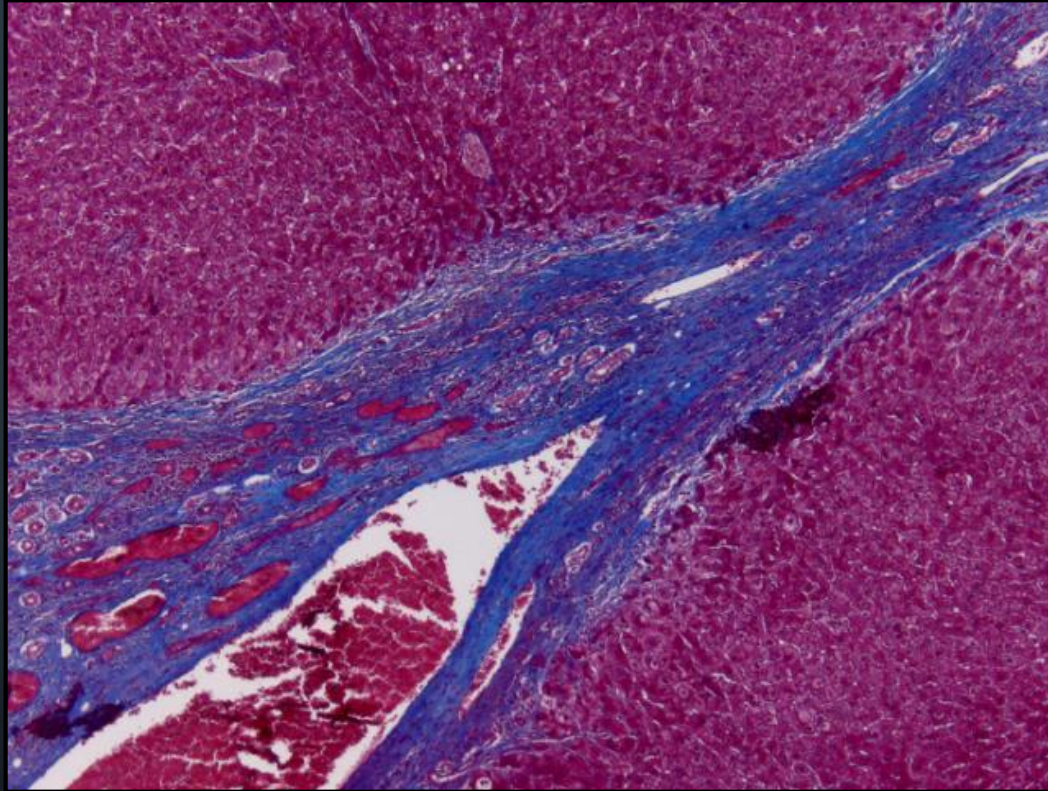


CLAUDE PIERRE MASSON: 1880-1959

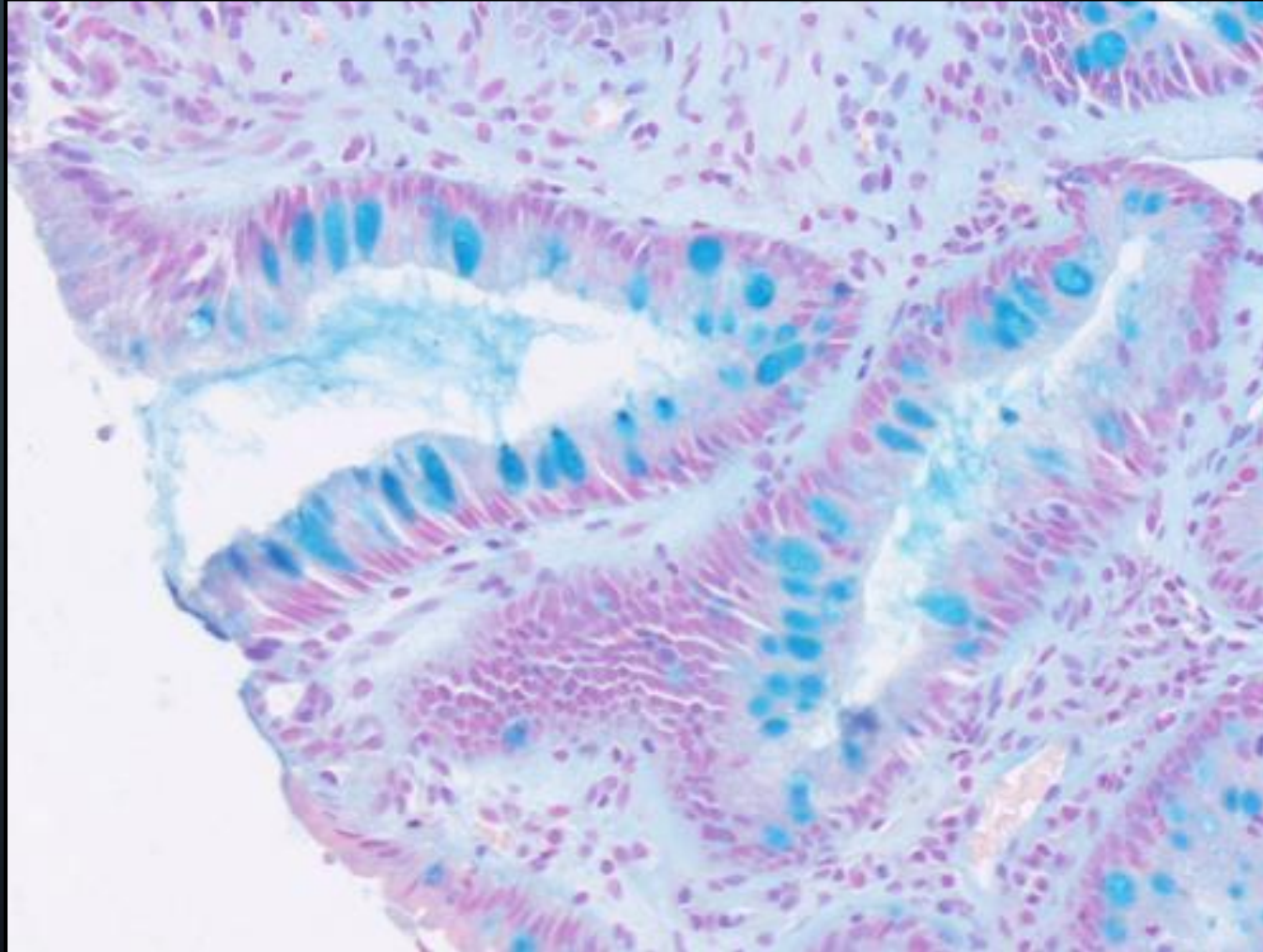


1. Born in Dijon
2. 1909-14: Univ Paris & Pasteur Institute
3. Chair of Pathology: U of Strasbourg
4. 1927-54: U of Montreal
 - One of the Best 20th Century Path Schools
5. 1929: “Some Histological Methods, Trichrome Staining & Their Preliminary Technique”
 - 1900: Mallory Introduced Trichrome
6. 1st to Describe Neurocrine Secretion
7. Brain Tumor & Neurological Research

MASSON TRICHRROME STAIN



WHAT'S MY NAME?

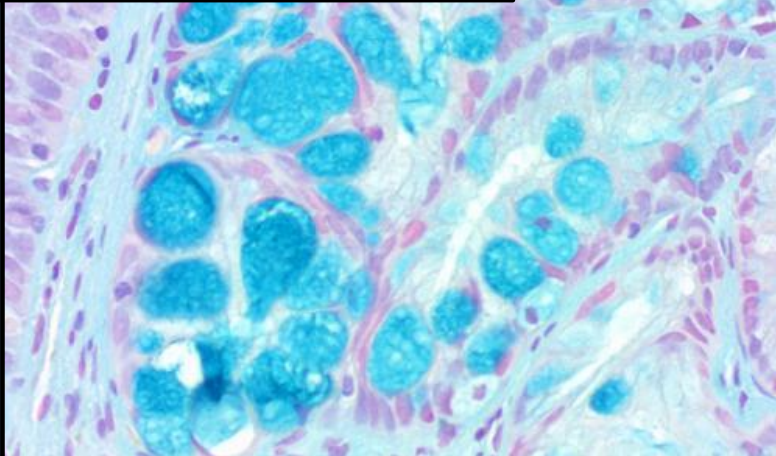
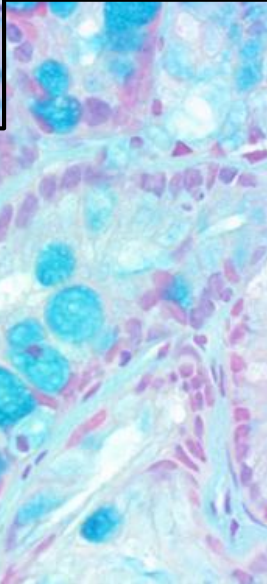
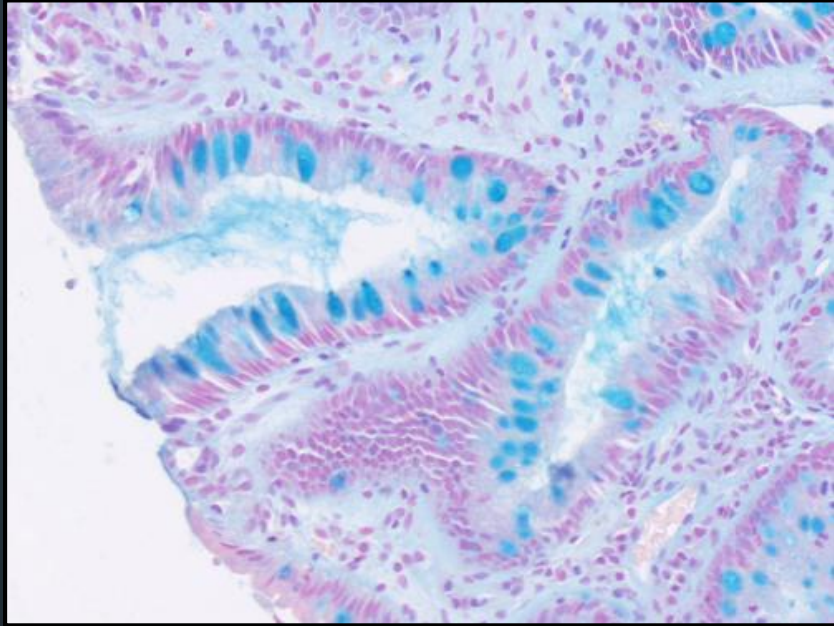


NORMAN BARRETT: 1903-1979

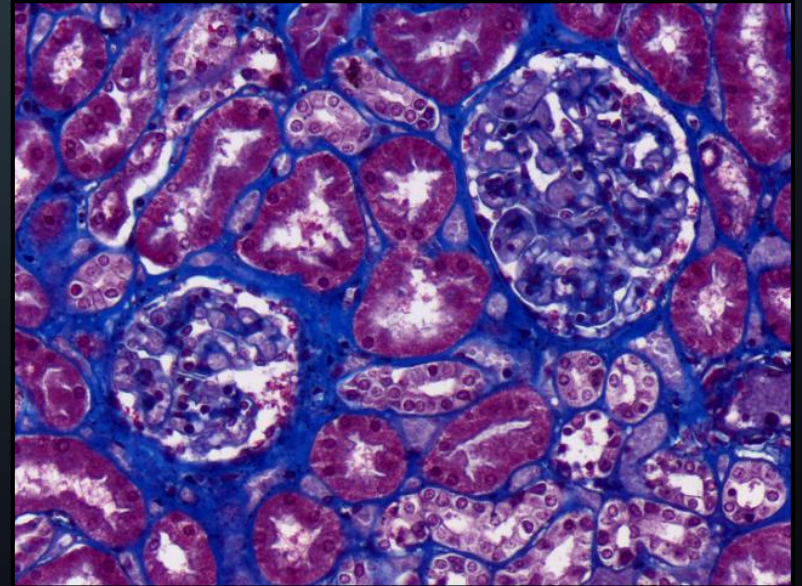
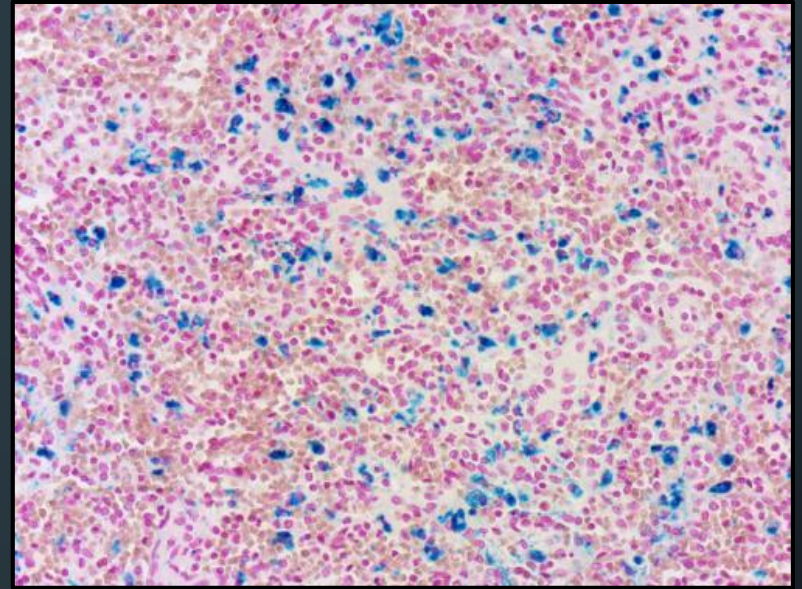
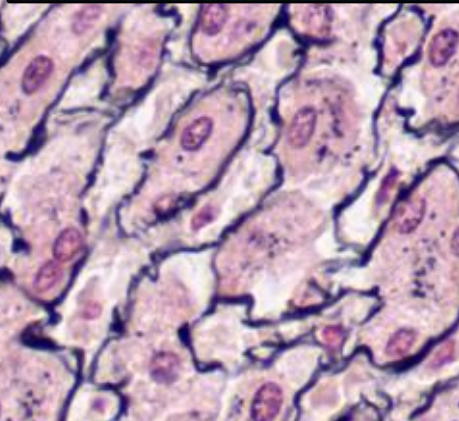
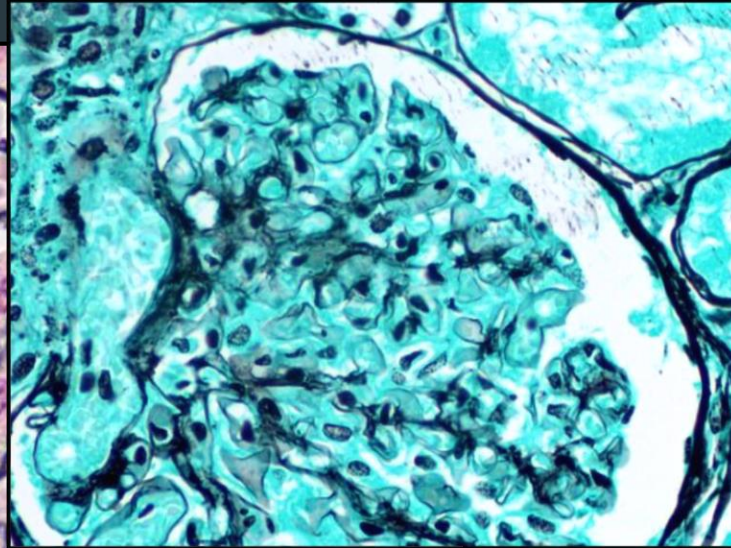
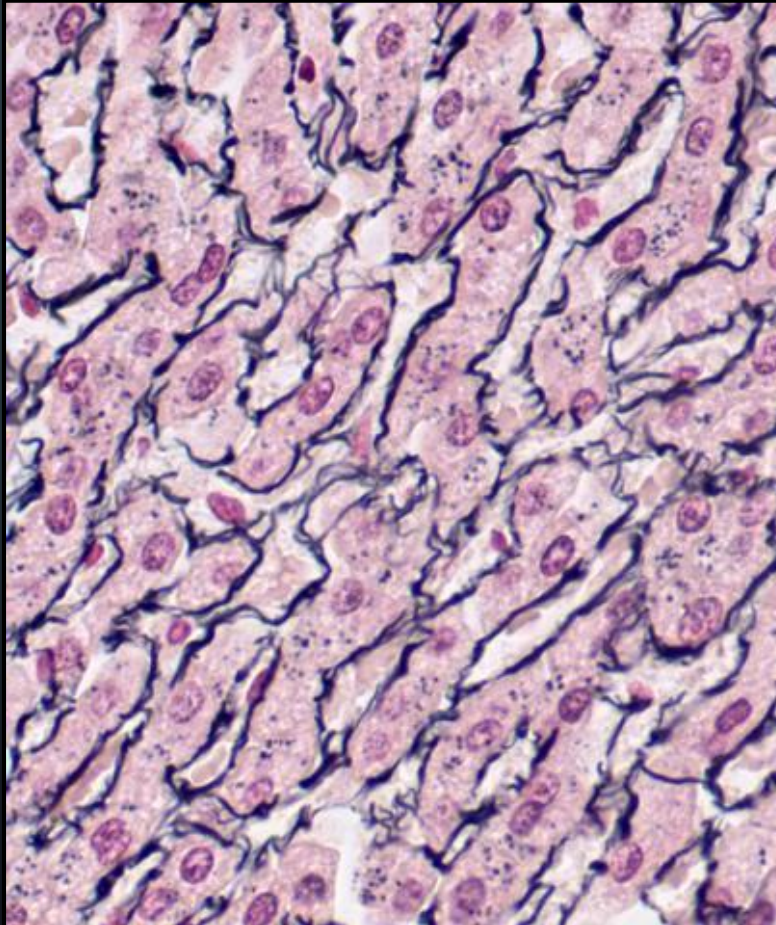


1. Australian Born – British Thoracic Surgeon
2. Educated at Cambridge
3. 1935-36: Mayo Clinic on Rockefeller Fellowship
 - Decision to Focus on Thoracic Surgery
4. 1947: Performed 1st Successful Ruptured Esophagus Repair
5. 1950: Paper on Columnar vs Squamous Epithelium in the Esophagus
 - Introduced “Reflux Esophagious”
 - Columnar Epithelium Ascending Esophagus = Barrett’s Esophagus

ALCIAN BLUE STAIN FOR BARRETT'S ESOPHAGUS



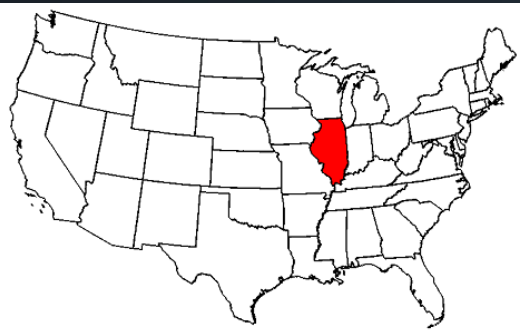
WHAT'S MY NAME?



GEORGE GOMORI: 1904-1957



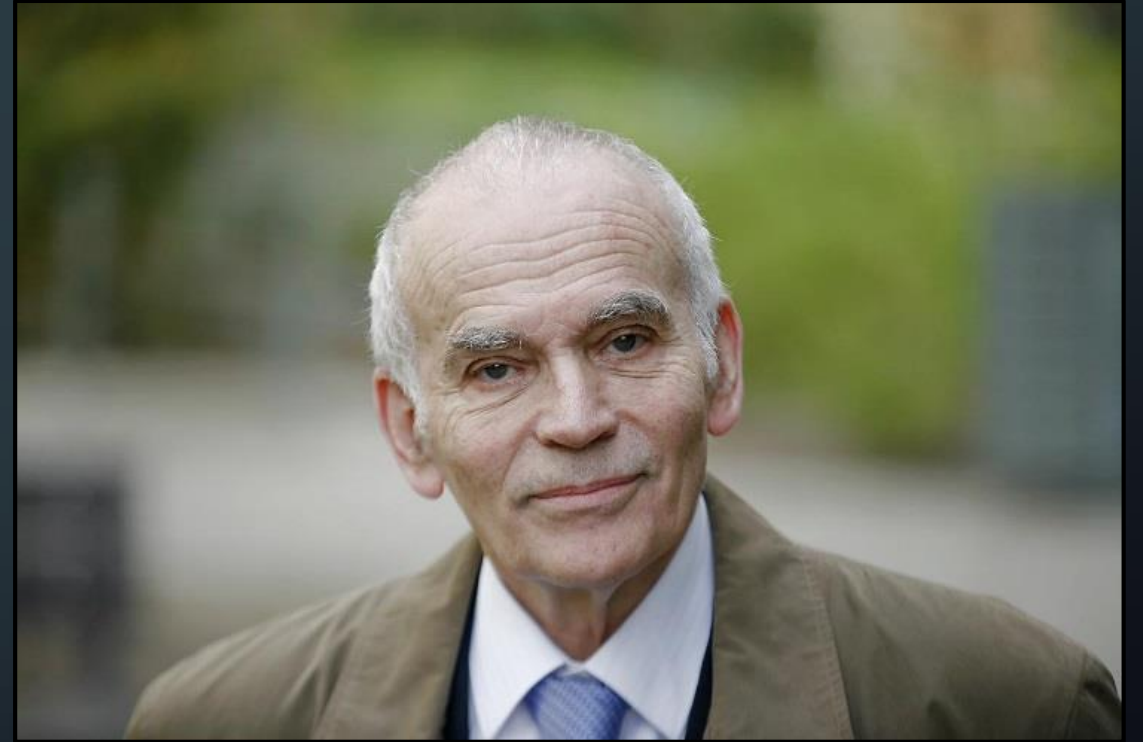
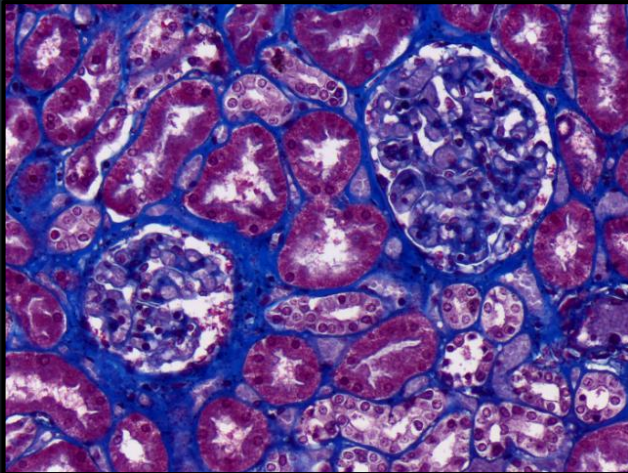
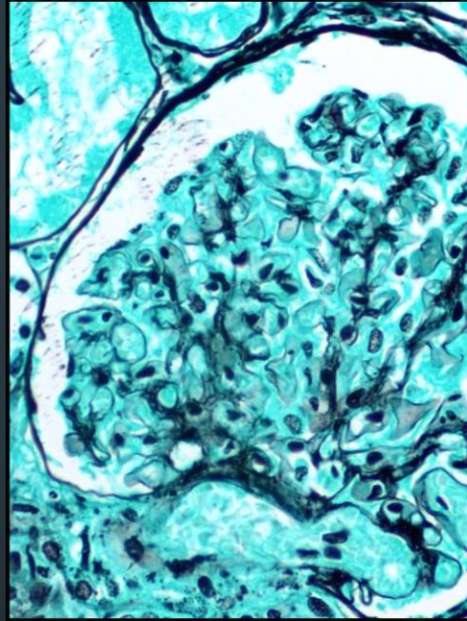
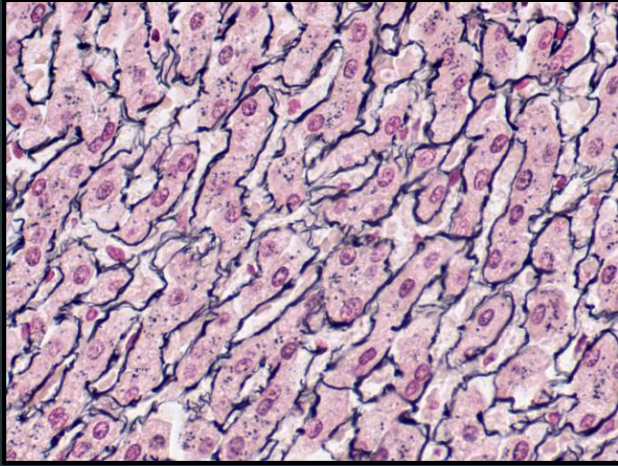
1. Hungarian-American Pathologist (Greek heritage)
2. University of Budapest: Pathology & Surgery
3. 1938: Immigrated to USA
4. 1938-56: U of Chicago, Pathologist & Professor
5. 1950: Founding Member of Histochemical Society
6. 1952: “Microscopic Histochemistry: Principles & Practice”
7. Phenomenal Intellect & Integrity
8. Died from Cardiac Arrest



STAINS DEVELOPED BY DR. GOMORI

- Gomori Silver Impregnation of Reticulin/Reticular Fibers
- Gomori One-Step Trichrome
- Gomori Prussian Blue Stain for Iron
- Gomori Methenamine Silver Stain
- Gomori Non-Specific Alkaline Phosphatase Stain
- Gomori-Wheatley Trichrome Stain: for Intestinal Protozoa

GOMORI STAINS

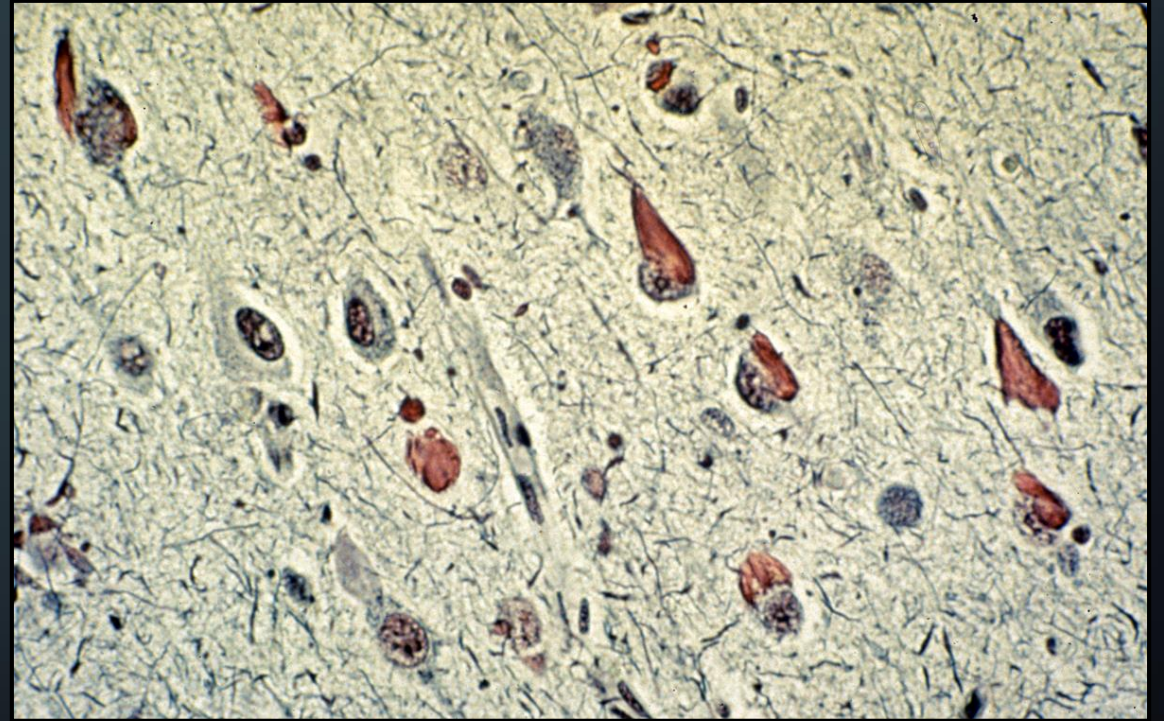
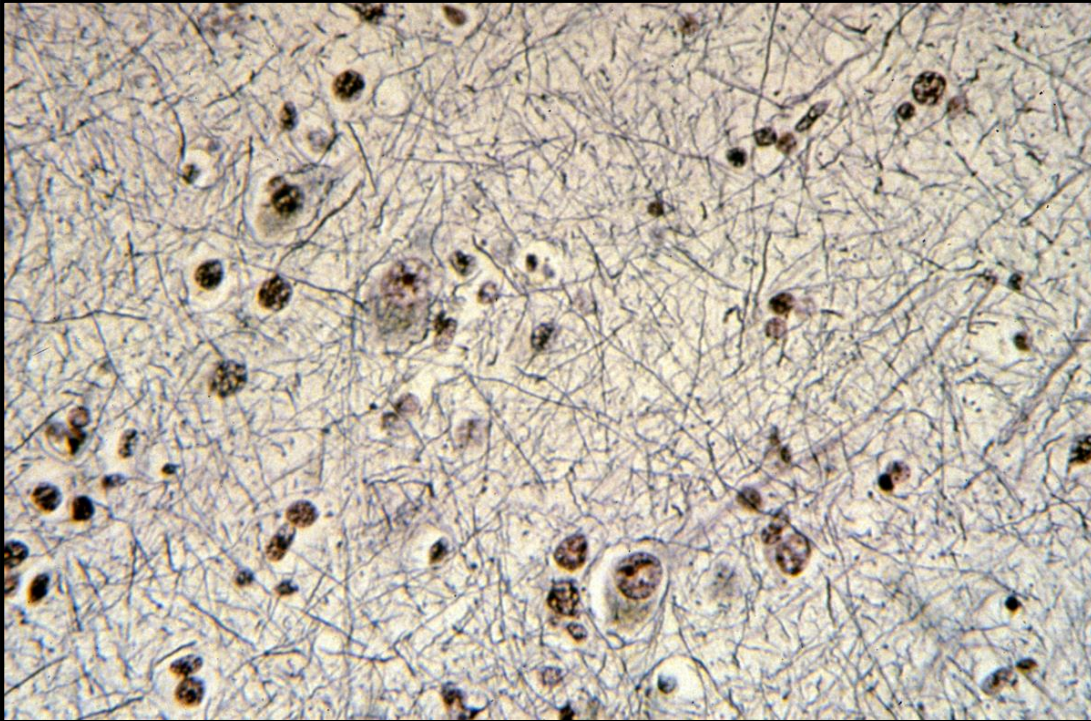


ROBERT G. GROCOTT: 1913-2001

1. American Med Tech and Histologist (born in Beaver Falls, PA)
 - Trained & Certified Histotechnologist
2. 1941-1979: Chief of Histopathology
 - Gorgas Hospital for Tropical Diseases
 - U.S. Army Hospital in Panama Canal Zone
3. 1955: “A Stain for Fungi in Tissue Sections and Smears”
 - Modification of Gomori’s Stain (GMS Stain)
4. Book on Poisonous Snakes of Panama



WHAT'S MY NAME?

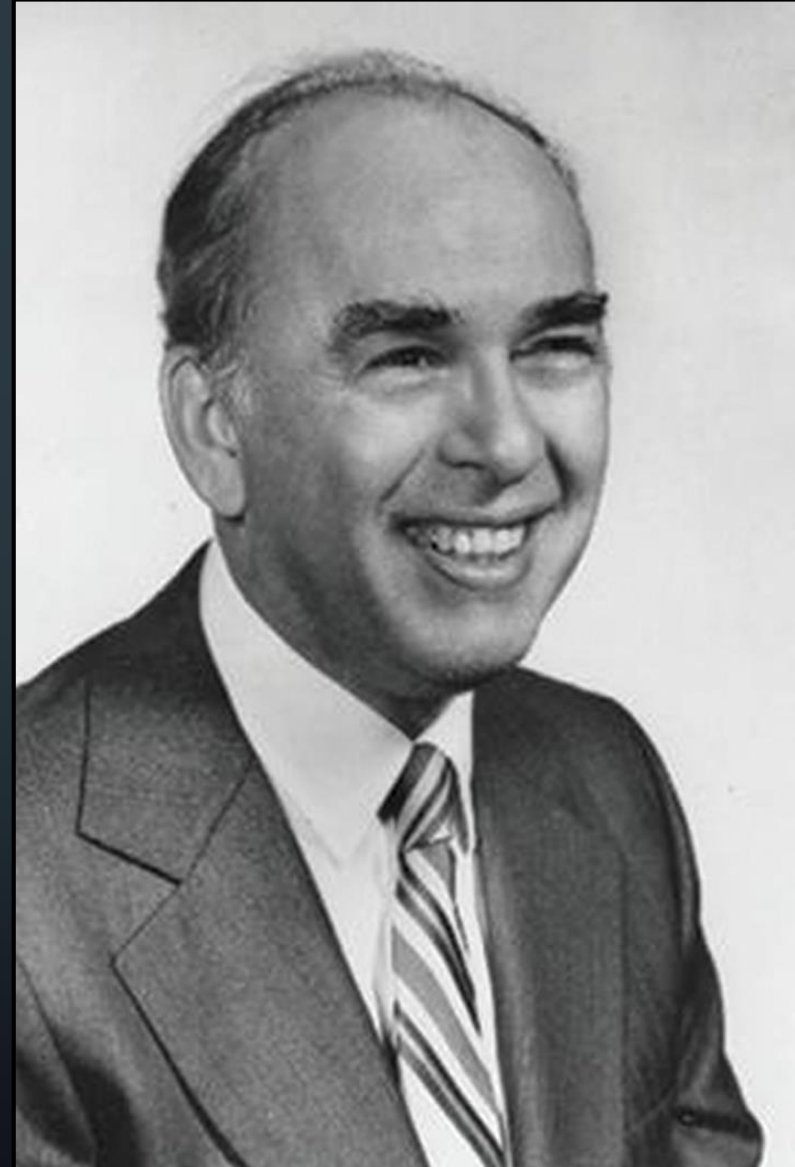
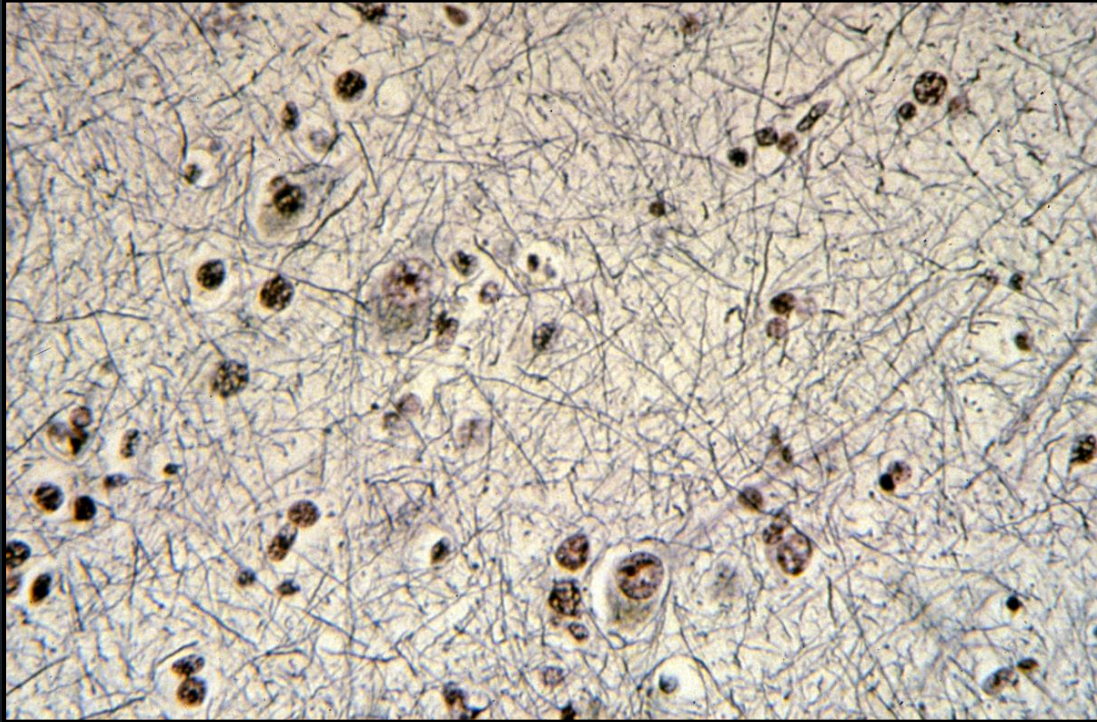


DAVID BODIAN: 1910-1992

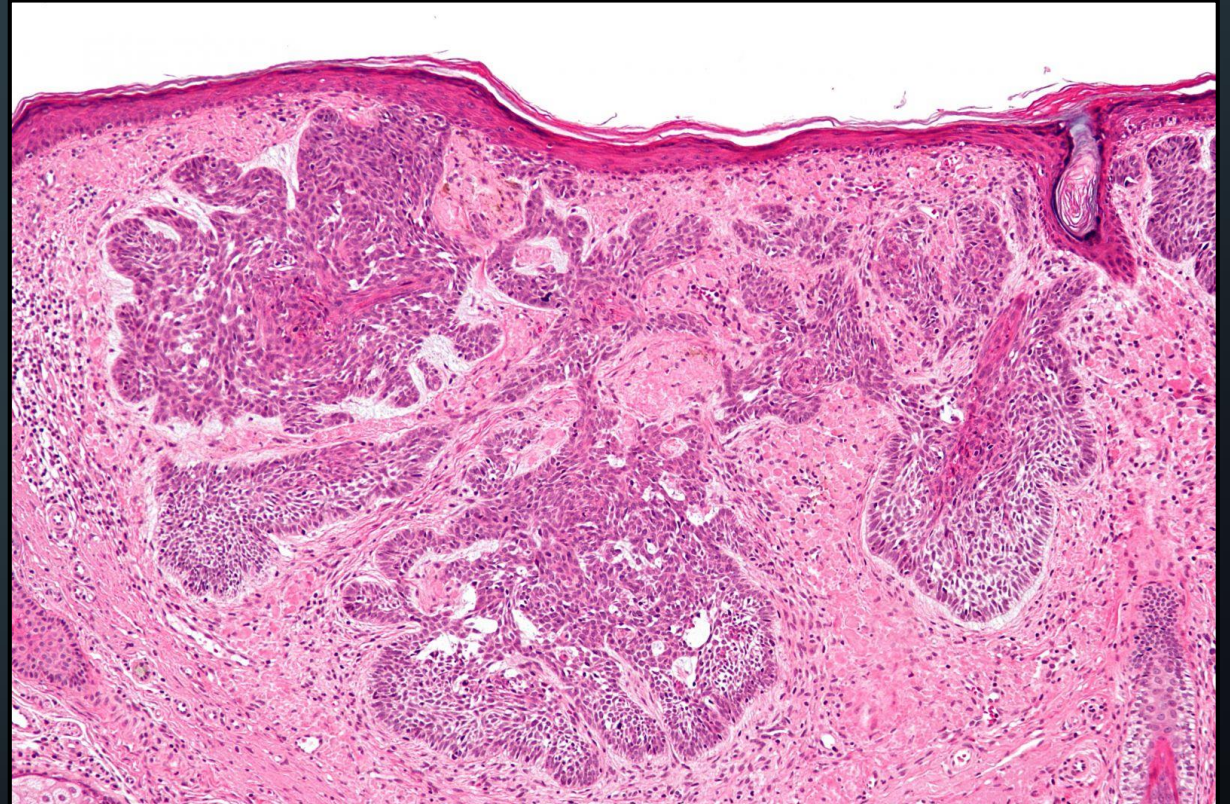


1. American Medical Scientist (born in St. Louis)
2. 1939-77: Johns Hopkins University
 - Worked in Polio & Neurological Research
 - Structure & Action of Nerve Cells
 - Ran an EM Lab
3. 1940s: Led the Groundwork for Polio Vaccine Development (Salk & Sabin)
 - Polio Caused by 3 Distinct Viruses
4. Died from Parkinson's Disease

BODIAN STAIN FOR NERVE TISSUE



WHAT'S MY PROCEDURAL NAME?



FREDERIC MOHS: 1910-2002



1. Born in Wisconsin
2. 1930's: U of Wisconsin/Madison Med School
3. 1933: Research w/Cancerous Rat Tissue
4. 1936: "Chemosurgery" on Human Skin

- Chemo Referred to Zinc Chloride Paste
- Paste "Fixed" the Skin (hours/day)
- Excise Tissue w/out Bleeding
- Mapped & Painted Edges → Frozen Sections

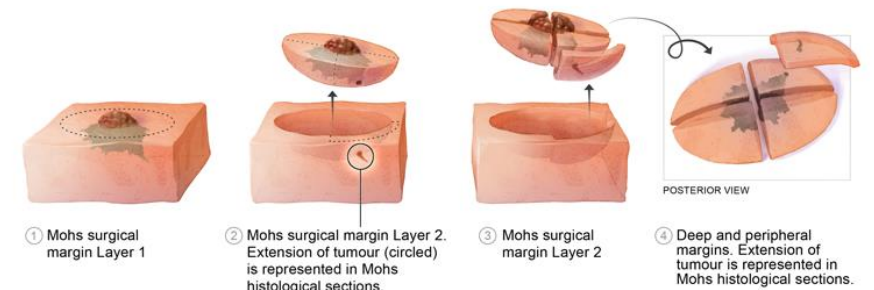
5. 1960's: Procedure Skeptically Caught On
6. 1970's: Modified w/Fresh Skin Tissue



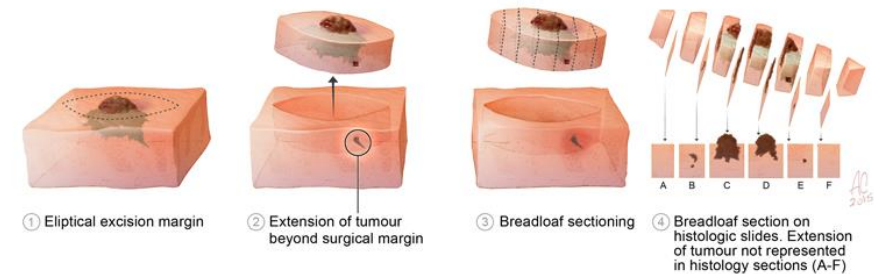
MOHS PROCEDURE FOR SKIN CANCER



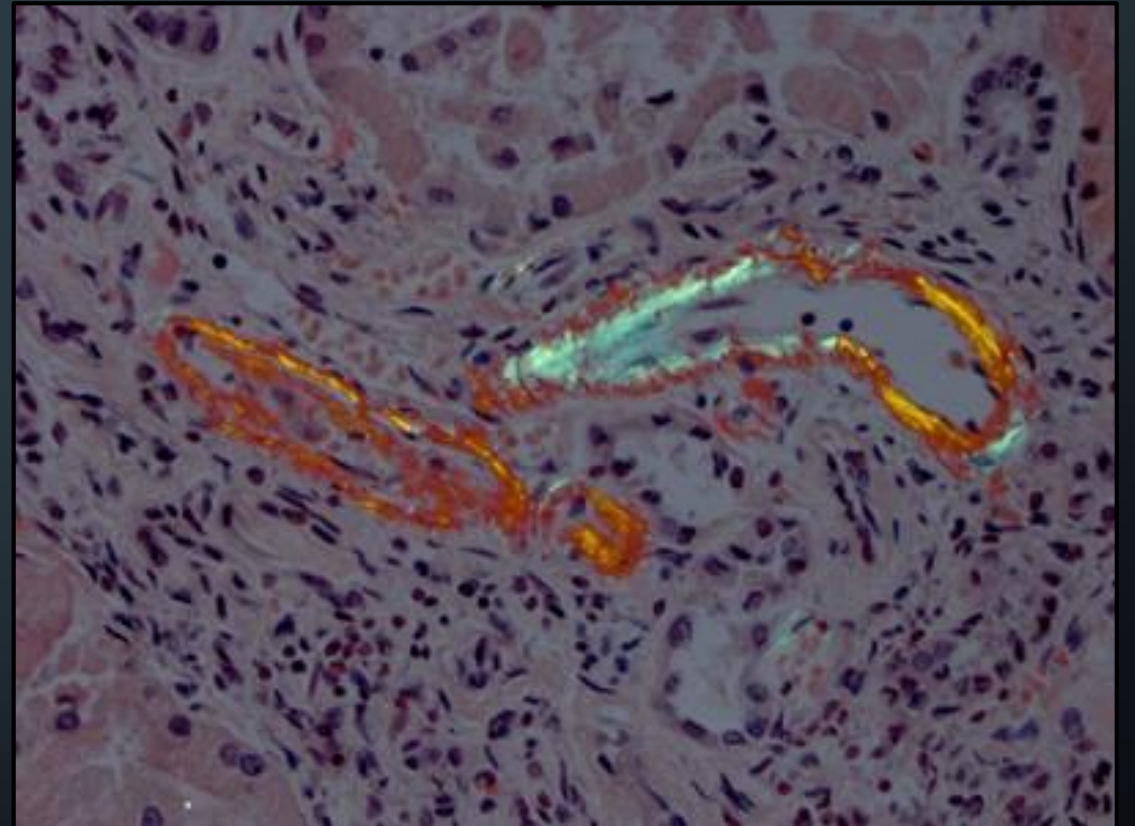
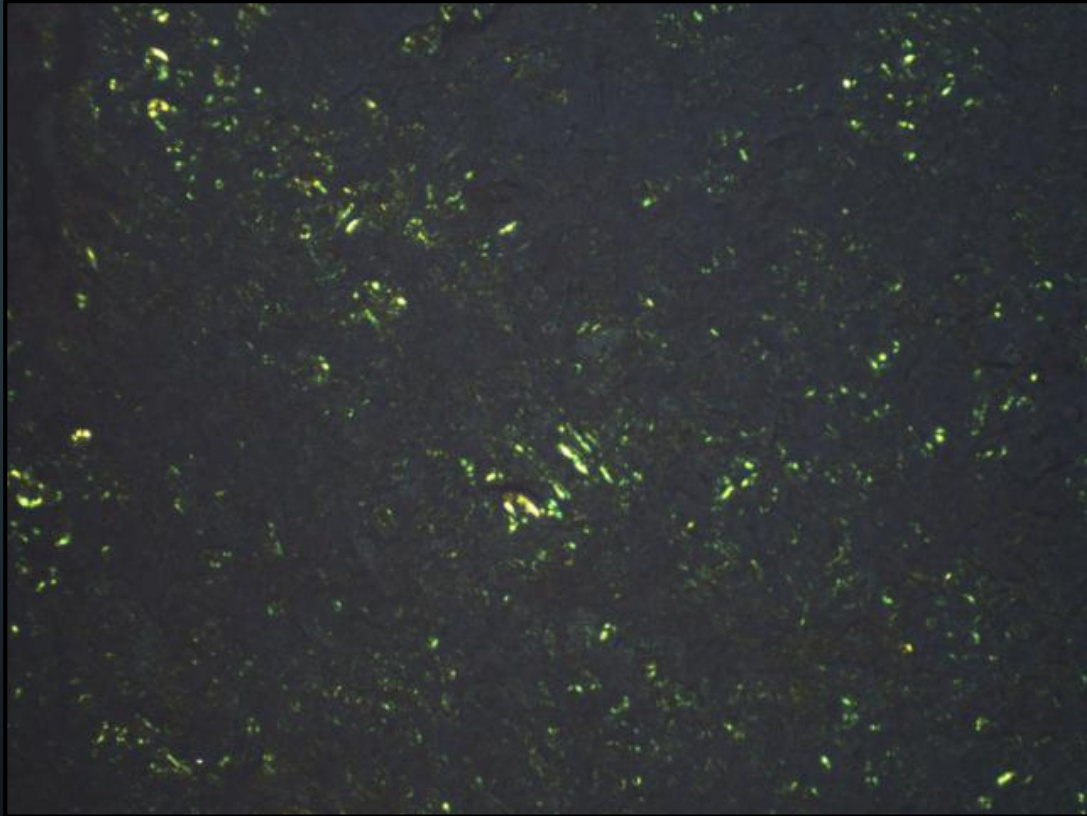
EXCISION FOR MOHS MICROGRAPHIC SURGERY



CONVENTIONAL EXCISION



WHAT'S MY NAME?



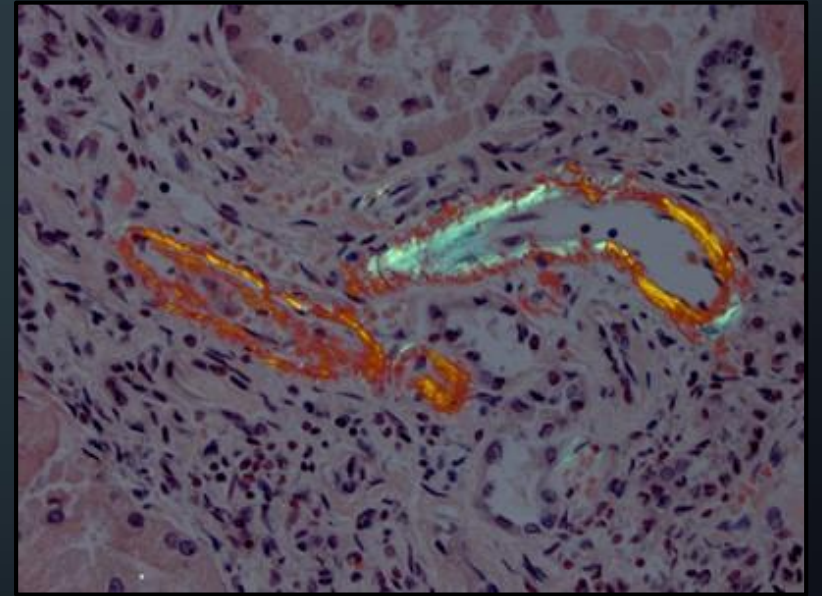
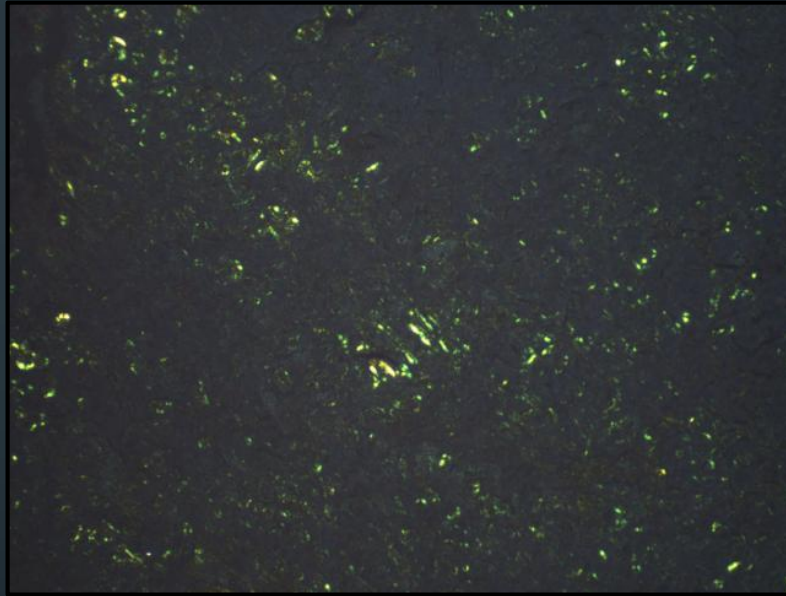
HOLDE PUCHTLER: 1920-2006



1. Born in Germany
2. 1951: MD University of Koln
 - 1955: Research Fellow - Montreal
3. 1959-80: U of Georgia Med School
4. 1960: 1st International Congress of Histo/Cytochemistry – Paris
 - Histochemistry of Connective Tissue Fibers
5. 1962: On the Binding of CR by Amyloid
6. Bilingually Deaf: Lip Reading & Writing
 - Assisted by Susan Meloan & Faye Sweat-Waldrop



PUCHTLER CONGO RED STAIN



Our Heartfelt Thanks To:

- Australian National Histology Conference
- NSH & Lee G Luna Foreign Travel Award



References Include:

- 1. Newcomer Supply for Stain Photo's: www.newcomersupply.com**
- 2. www.findagrave.com**
- 3. www.medscape.com**
- 4. American Society of Microbiology: www.asm.org**
- 5. American Journal of Clinical Pathology: <http://ajcp.oxfordjournals.org>**
- 6. Royal Society of Chemistry: www.rsc.org**
- 7. Thomas Jefferson University: www.Jefferson.edu**
- 8. Johns Hopkins University: www.pathology.jhu.edu**
- 9. Journal of Histotechnology: Reference Articles**
 - “A Short Histology of Histopathology Technique”, Michael Titford, Vol 29, No 2, 2006.**
 - “Alois Alzheimer”, Venita Jay, Vol 25, No 2, 2002**
 - “Harris Hematoxylin, What Harris Really Wrote and the Mechanism of Hemalum Stain”, Susan Meloan and Holde Puchtler, Vol 10, No 4, 1987.**