

Ode to Pathologists of Yester Years !

Dear Fellow Pathologists,

“Earth has nothing more fair to show,
Dull would he be of soul who could pass by a sight so touching in its Majesty!”

Beautiful words by the famous poet, William Wordsworth, my all time favourite ! when he stood on Westminster bridge to admire nature around him; drawing attention to the fact that people are too busy with their lives, to do the same-

Likewise, do we have time to dwell on the achievements of the renowned Pathologists! I'm sure the answer is “NO”. Have they become history? Whom we owe our knowledge of Pathology to ?

Well I take this opportunity to draw your attention, to spare a thought for some of the wonderful people who have contributed to the “World of Pathology”. In the noise, bustle and Din of advances in technology, let us not forget paying homage to the ‘stepping stones’ of the great Doyens on which the fabric of what we call Pathology exists:

Rudolf Ludwig Carl Virchow: (13 October 1821 – 5 September 1902) was a German physician, anthropologist, pathologist, prehistorian, biologist, writer, editor, and politician. He is known as "the father of modern pathology". Those days qualifications were awarded in multiple fields of life. Academically brilliant, he always topped his classes and was fluent in German, Latin, Greek, Hebrew, English, Arabic, French, Italian and Dutch.

He had wanted to become a pastor when a young boy, but instead decided to study medicine. In 1843 he graduated from medical college and in 1845 he published his first paper on leukemia! Virchow was the first to recognise that diseases arise from alterations within cells. A prolific writer, he produced more than 2000 scientific papers. *Cellular Pathology* (1858), (*Die Cellularpathologie in ihrer Begründung auf physiologische und pathologische Gewebelehre*) regarded as the root of modern pathology, introduced the dictum in cell theory: *Omnis cellula e cellula* ("All cells come from cells").

Virchow's contributions lead to the identification of disease at the microscopic level and therefore form the backbone to the development of biopsy and cytology as diagnostic procedures. Though we now talk of molecular levels and markers in cells; identification and diagnosis of most diseases are based on the developments that flow from Virchow's works. His interest in cellular pathology resulted in his coining of terms such as ‘thrombosis’ and ‘embolism’, theory of pulmonary thromboembolism. Virchow was the first to link the origin of cancers from otherwise normal cells. He was also the first to attribute the enlargement of left supraclavicular nodes to cancer from the gastrointestinal tract. This is now known as Virchow's node and simultaneously as Troisier's sign.

Virchow met with an accident, jumping off a running tram. His fractured femur never healed. His health gradually deteriorated and he died of heart failure after eight months after this episode, on 5th September 1902, in Berlin.

Carl Rokitansky : epitome of “*Mortui vivos docent : The dead teach the living*”

(19 February 1804 – 23 July 1878),

A Bohemian physician, pathologist, humanist, philosopher and liberal politician.

Carl von Rokitansky studied at the Charles University in Prague (1821–1824) and attained a doctorate in medicine at the University of Vienna. In 1830, he became assistant to Johann Wagner, the professor of pathologic anatomy, and succeeded him in 1834 as prosecutor.

As a young professor Rokitansky recognized that the discipline of pathological anatomy could be of great service to clinical work in the hospital, because it could offer new diagnostic and therapeutic possibilities to the bed-side physician. Thereby his interest in autopsies began.

Ludwig Freiherr Baron von Türkheim at that time established the Second Vienna Medical School in 1836. Carl Von Rokitansky established himself as a recognised member of the triad, with chief of medical clinic Josef Skoda and the renowned dermatologist Ferdinand Von Hebra, and was responsible for revival of the great Neo-Vienna Medical Centre in the 19th century. Around Rokitansky's autopsies the school began "one of the most fruitful and brilliant epochs of Viennese medicine". A paradigm shift occurred, led by Rokitansky from viewing medicine as a branch of natural philosophy, to the more modern view of it as a science.

Rokitansky did extensive pathology examining 1500 and 1800 cadavers annually. He was responsible for more than 60,000 autopsies, of which at least 33,000 were performed by him on his own. No one before him and probably even later, had such a vast experience in the autopsy room. It is a curious coincidence that his first autopsy was on a cirrhotic music composer, none other than the legendary Ludwig Von Beethoven.

He was elected as a member of the American Philosophical Society in 1862. His name is associated with - Rokitansky's diverticulum; Rokitansky's triad (pulmonary stenosis); Rokitansky-Aschoff sinuses; Rokitansky-Cushing ulcer; Rokitansky-Maude Abbott syndrome; Von Rokitansky's syndrome; Rokitansky nodule in teratomas, etc

Antonie van Leeuwenhoek : (24 October 1632 – 26 August 1723) was a Dutch businessman and scientist. Born into a middle-class family, van Leeuwenhoek was not a well-educated man. Over several years he worked as a merchant, after which he engaged himself in making and refining lenses with high magnifications. It started as a hobby and turned into a passion, up to the point that he made a large number of single lensed microscopes, so exact that the best of them could magnify 266 times over!

He was the first to describe micro-organisms in the tartar of his own teeth as ‘animalcules’. He observed everything that he could find: animal heads, eyes, skins, the plaque on his teeth, lake water, and even his own skin. In those observations, he discovered many interesting facts. For example, by examining the plaque on his teeth, he said that the microorganisms in his mouth outnumbered the people in Netherlands! That’s why he always cleaned his teeth, so as to have healthy, strong teeth at his old age. He was viewed as an eccentric magician who was always talking about imaginary creatures.

By the time van Leeuwenhoek died in 1723, he had written about 500 letters to the Royal Society, detailing his findings in a wide variety of fields, centered on his work in microscopy. Van Leeuwenhoek's work became recognised by the scientists who came after him. He died due to a rare disease which was finally named after him.

Antonie van Leeuwenhoek *changed the world* by introducing the science of microscopy and microbiology. He discovered microbes as the smallest living things that had great impact on human life.

Besides Leewenhoek, single lenses for magnification were also used by Galileo, Pliny and Robert Hooke. The enormous potential of the **compound microscope** was discovered when accidentally the children of 2 Dutch spectacle makers Johan and Zacharias Jansen while playing viewed the church spires through 2 lenses – a convex and concave. The Jansens then made the first ever telescope and presented it to the prince Maurice of Nassau.

Heinrich Hermann Robert Koch (born 26 February 1843) : was a German physician and microbiologist. Though a microbiologist, the pathologists owe to him the discovery of specific causative organisms of deadly infectious diseases including tuberculosis, cholera, and anthrax; he is regarded as one of the main founders of modern bacteriology and popularly nicknamed the ‘father of microbiology’ (with Louis Pasteur).

The Robert Koch Institute is a *German federal government agency and research institute responsible for disease control and prevention*. It is located in Berlin and Wernigerode. It was founded in 1891 and is named after its founding director, the founder of modern bacteriology and Nobel laureate Robert Koch. Robert Koch died at the young age of 35 years.

Paul Langerhans (1847-1888) : was a famous German pathologist and biologist. “Islets of Langerhans” are named after him. Langerhans discovered these cells during his studies for his doctorate at the Berlin Pathological Institute in 1869. Cells in the dermis are also named by his name - Langerhans cells which contain Langerhans granules.

Lauren V. Ackerman: 12th March 1905 -2th July 1993 :

“If you don’t like to read, you haven’t found the right book.” – J.K. Rowling

‘If you do not like pathology; you haven’t found Rosai & Ackerman’!

An American pathologist, who championed the cause of Surgical Pathology in the middle 20th century. In 1948 he took the position of the Chief Surgical Pathologist and Associate Professor of Surgery at Barnes Hospital under the chairmanship of Dr Evarts Ambrose Graham (it was then common practise for surgical pathologists to be part of surgical faculty).

His great experience as a surgical pathologist culminated in the textbook of surgical pathology in 1953, which I call the “the wonder book”, together with his ward Juan Rosai; a source of learning to innumerable pathologists.

Ackerman developed colonic carcinoma in 1993 and died in July of the same year at 88 years of age, leaving a treasure in his wonder book!

Juan Rosai : (August 20, 1940 – July 7, 2020) was an Italian-born American physician who contributed immensely to clinical research and education in the specialty of surgical pathology. His original first name – *Giovanni* was changed to Juan after his family migrated to Argentina after world war II.

While serving as a house officer in pathology at the Regional Hospital of Mar del Plata, Rosai was introduced to Dr. Lauren Ackerman at a medical conference in Argentina. Ackerman invited Rosai to train with him in St. Louis, Missouri in the United States. Rosai completed his residency and fellowship in anatomic pathology at Washington University School of Medicine and Barnes Hospital under Lauren Ackerman's mentoring.

He is the first author and editor of the “wonder book” in pathology referred to above with Ackerman being the other great contributor. He is responsible for coining the disease which goes by his name - Rosai-Dorfman disease. The “desmoplastic small round cell tumour” as an entity was also discovered by him. Rosai is also well-known for his excellent teaching, a mentor for his students and consultant to many American and International Surgical Pathology Institutions.

Dr. Rosai developed Parkinson's disease in his late 60s. Complications of this eventually led to his death July, 2020. He was 79 years old.

William Byod: “Writing is an art which few people excel in”

William Boyd was born in Scotland, was the sixth child of a clergyman, educated at the University of Edinburgh, and graduated in 1911; went on to become a trained and accredited neurologist, psychiatrist, and pathologist.

In 1968, he was awarded Canada's highest civilian Honor, "for his services as a pathologist and as a founding member of the National Cancer Institute". Boyd died of pneumonia at the age of 93 in Toronto.

I remember his book “Text book of Pathology” from my UG and PG days, (released first in 1932) for its excellent narrative, it’s unique style of writing; full of anecdotes, holding the reader’s interest. I would never have known carcinoma of the stomach well had he not added that Napoleon Bonaparte’s sister Caroline died of it!

Lives of great men all remind us, We can make our lives sublime, and departing leave behind us, foot prints on the sands of time..... (H W Longfellow)

Dr Shameem Shariff, MD, PhD

Former, Prof & Head,

Dept of Pathology, MVJ Medical College & Research Hospital, Bengaluru, &

St John’s Medical College & Hospital, Bengaluru

(Website: shameempathology.com)