



LADIES &  
GENTLEMEN ...  
START YOUR  
ENGINES!

*Exploring the History of Medicine,  
Or, five thousand years of medical  
history in five weeks ...*

**PART THE FIFTH**

**[BY RON SIMS, SPECIAL COLLECTIONS LIBRARIAN]**



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# KARL ERNST VON BÄER

## (1792-1876)



*De ovi mammalium et hominis genesi.*

Leipzig: Sumptibus L. Vossii, 1827.

Early pioneer of modern embryology who, through painstaking and patient effort, investigated germ cell lineage of a variety of species, firmly establishing embryology as a comparative science.

His most significant work, described *for the first time* the mammalian ovum. In this epoch-making book Baer also made reference to the germ layer theory, suggested the similarity of the early stages of embryonic development in related species, and observed the first rudiment of the dorsal spine, later called the notochord.

He broadened and confirmed his findings and observations in *Über Entwicklungsgeschichte der Thiere*. (1828-1837). He is also considered to be one of the founders of modern morphology as a result of his work in comparative embryology.



*Ex ovo omnia.* All out of the egg.  
William Harvey 1651

# Charles Darwin (1809-1882)

GALERIE HERRVORRAGENDER ÄRZTE UND NATURFORSCHER.

CHARLES DARWIN.



*Charles Darwin*

Beilage zur Münchener medizinischen Wochenschrift. Blatt 239. 1909.  
Verlag von J. F. LEHMANN in München.

*On the origin of species by means of natural selection, or, The preservation of favoured races in the struggle for life.* London: J. Murray, 1859.

[2<sup>nd</sup> ed.] called: 5th thousand.  
London : J. Murray, Date: 1860.

What the dropping of the first atomic bomb was to the twentieth century, the publication of Darwin's *On the origin of species* was to the nineteenth century. Battle lines were drawn on both religious and scientific grounds and the world-wide criticism and controversy attendant upon its publication lasted well into the present century.



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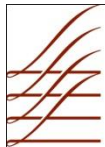
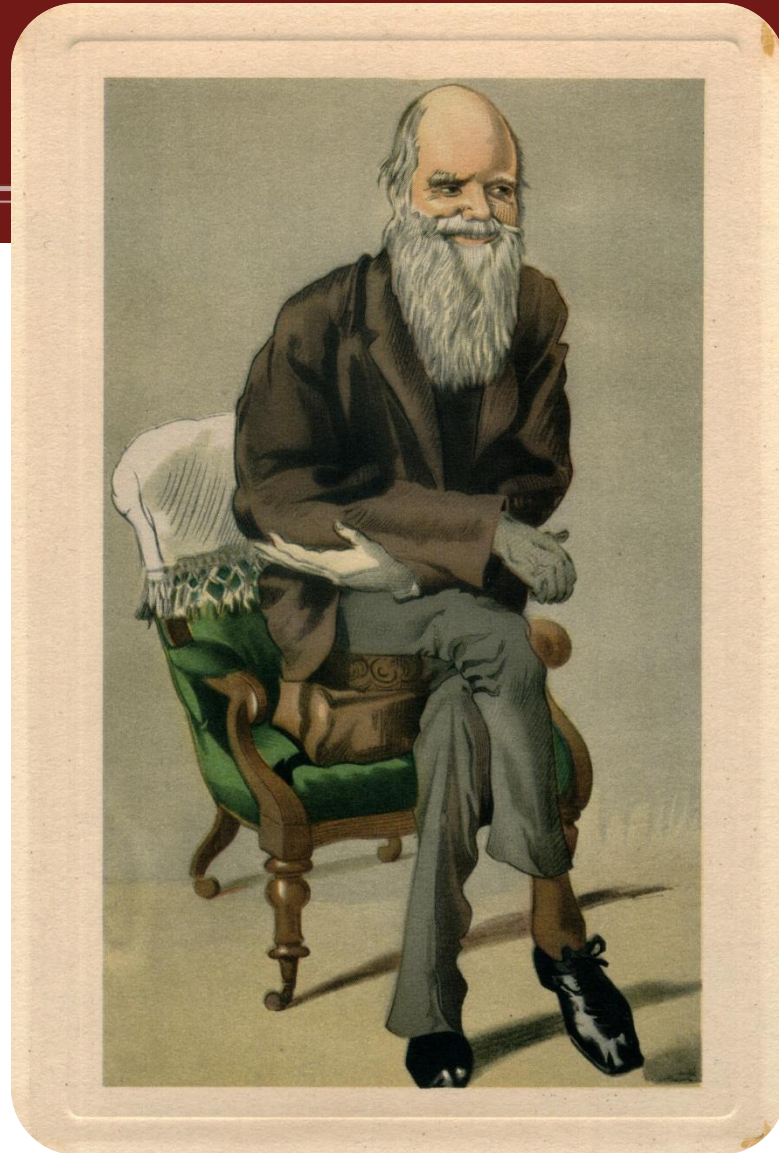
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# Darwin

## Caricature by 'Spy'



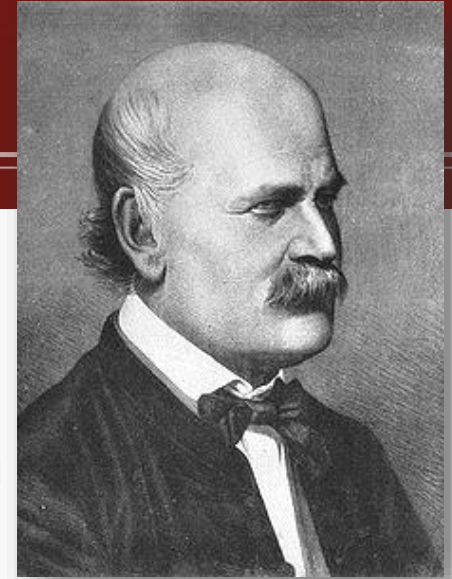
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# Ignaz Philipp Semmelweis (1818-1865)



*Die Aetiologie, der Begriff und die Prophylaxis des Kindbettfiebers.*  
Pest, Vienna, and Leipzig: C. A. Hartleben's Verlags-Expedition, 1861.

As obstetrician at the Vienna Krankenhaus, Semmelweis noted the high rate of deadly puerperal fever among obstetrical patients and in particular those attended by medical students who moved freely from the dissecting morgue to the wards.

After instituting a strict handwashing policy, he saw a dramatic drop in the incidence of the disease which prompted him to notify the Vienna Medical Society of his findings. In spite of his having marshaled overwhelming evidence to support his contention that the disease could be spread by attending physicians, his ideas were vehemently opposed by nearly every prominent physician of his day.

A notable exception was Oliver Wendell Holmes who had earlier published a paper on the contagiousness of puerperal fever.

By the time that Semmelweis' ideas finally gained acceptance it was twenty years after his definitive analysis of 1861 and he was dead, having succumbed to septicemia while a patient in a lunatic asylum.

# Northwestern University Woman's Medical School



Julia Cole Blackman, MD  
Class of 1871—the first graduate



1896 Alumni Banquet "Asclepia"



Marie J. Mergler, MD  
1896 Professor of Surgery  
1899-1901 Dean



Class of 1898 <?>

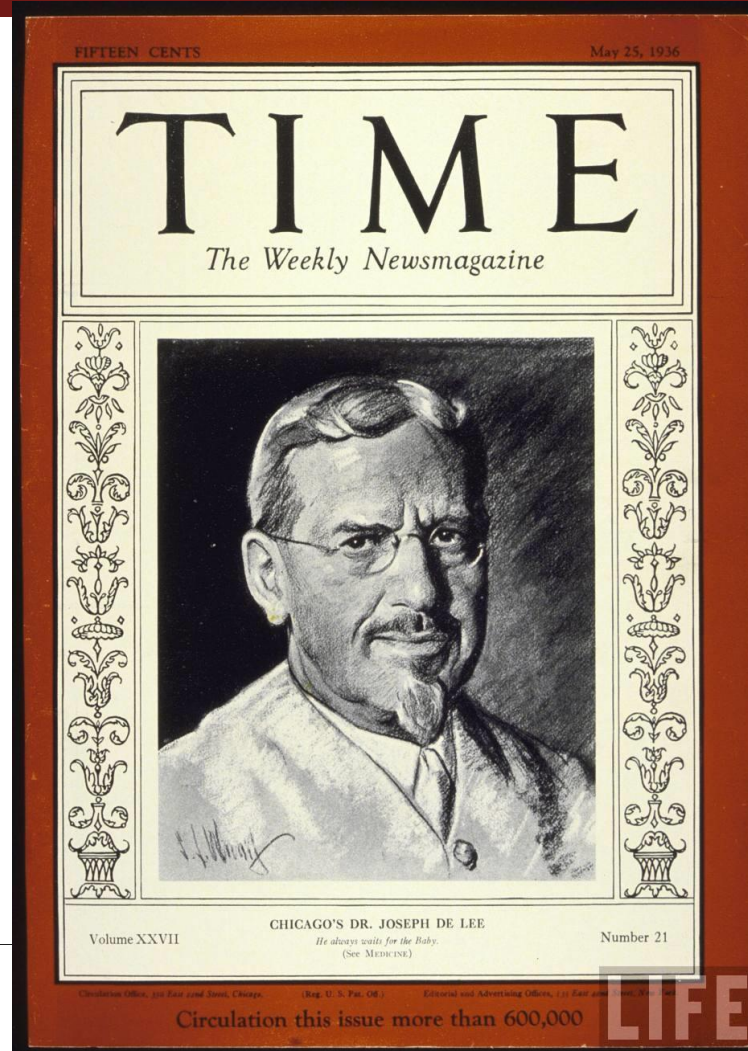


Surgical instruction, 1898



# Time honors Dr. De Lee

## 1936



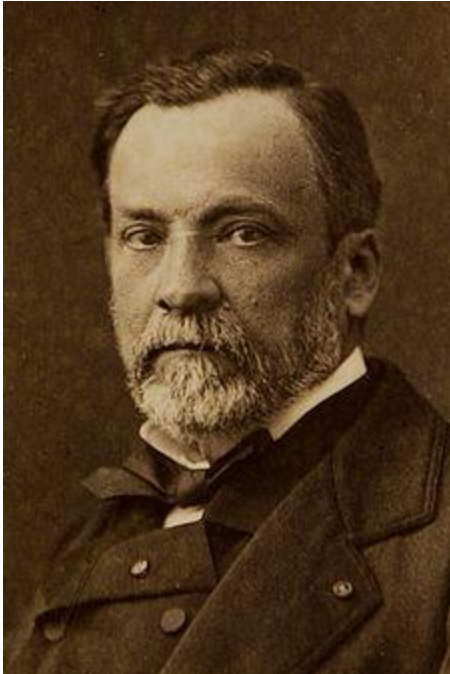
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# Louis Pasteur (1822-1895)



French chemist and microbiologist remembered for his remarkable breakthroughs in the causes and preventions of diseases.

His discoveries reduced mortality from puerperal fever, and he created the first vaccine for rabies and anthrax and he saved the silk industry.

His experiments supported the germ theory of disease.

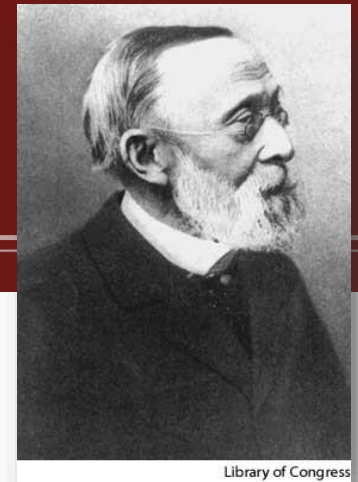
He was best known to the general public for a process that is called pasteurization. He is regarded as one of the three main founders of microbiology, together with Ferdinand Cohn and Robert Koch.

Pasteur also made many discoveries in the field of chemistry, most notably the molecular basis for the asymmetry of certain crystals



# Rudolf Ludwig Karl Virchow

## (1821-1902)



Library of Congress

*Cellularpathologie in ihrer Begründung auf physiologische und pathologische Gewebelehre.* Berlin: A. Hirschwald, 1858.

Virchow is one of the most representative figures in the history of medicine of the nineteenth century; according to Arturo Castiglioni the greatest pathologist of all time.

The importance of this work can scarcely be overstated; it is not only the cornerstone but the very foundation of cellular pathology and "one of the most important books in the history of medicine". Virchow's theory that the seat of disease as well as any developed tissue could be traced back to the cell prompted his dictum "Omnis cellula e cellula" ("Every cell from a cell") noting Harvey's "Omne vivum ex ovo" ("Every living thing from an egg") and although after later research the concept had to be somewhat modified, cellular pathology is a term which belongs to Virchow alone.

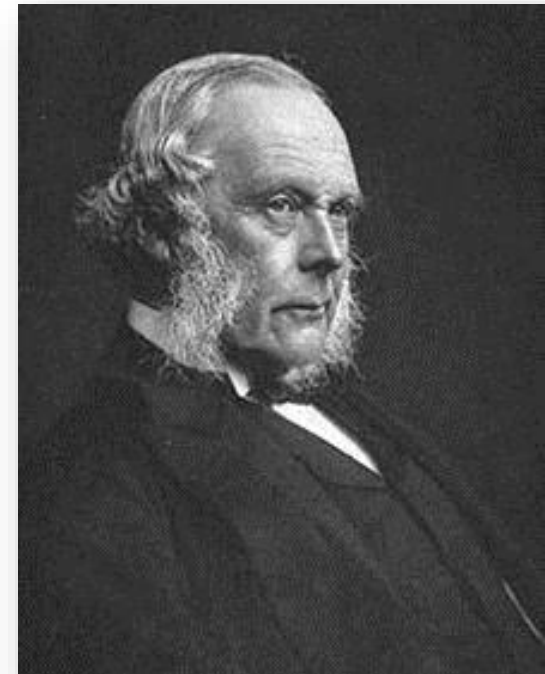
**Virchow's angle**, the angle between the nasobasilar line and the nasosubnasal line. **Virchow's cell**, a macrophage in Hansen's disease.

**Virchow's concept of pathology**, comparison of diseases common to humans and animals. **Virchow's disease**, leontiasis ossea, now recognized as a symptom rather than a disease. **Virchow's gland**, Virchow's node. **Virchow's Law**, during craniosynotosis, skull growth is restricted to a plane perpendicular to the affected, prematurely fused suture and is enhanced in a plane parallel to it. **Virchow's line**, a line from the root of the nose to the lambda. **Virchow's metamorphosis**, lipomatosis in the heart and salivary glands. **Virchow's method of autopsy**, a method of autopsy where each organ is taken out one by one. **Virchow's node**, the presence of metastatic cancer in a lymph-node in the supraclavicular fossa (root of the neck left of the midline). Also known as Troisier's sign. **Virchow's psammoma**, psammoma bodies in meningiomas. **Virchow-Robin spaces**, enlarged perivascular spaces (EPVS) (often only potential) that surround blood vessels for a short distance as they enter the brain. **Virchow-Seckel syndrome**, a very rare disease also known as "bird-headed dwarfism". **Virchow's triad**, the classic factors which precipitate coagulation

# Joseph Lister (1827-1912)

While he was a professor of surgery at the University of Glasgow, Lister became aware of a paper published by Louis Pasteur, showing that rotting and fermentation could occur under anaerobic conditions if micro-organisms were present. Pasteur suggested three methods to eliminate the micro-organisms responsible for gangrene: filtration, exposure to heat, or exposure to chemical solutions.

Lister confirmed Pasteur's conclusions with his own experiments and decided to use his findings to develop antiseptic techniques for wounds. As the first two methods suggested by Pasteur were inappropriate for the treatment of human tissue, Lister experimented with the third.



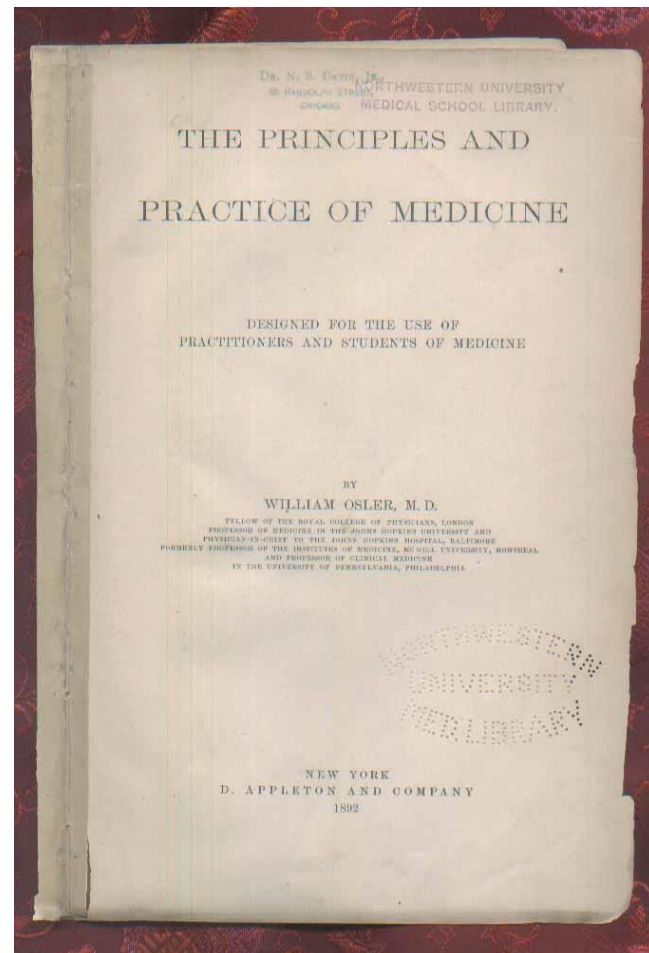
# William Osler (1849-1919)



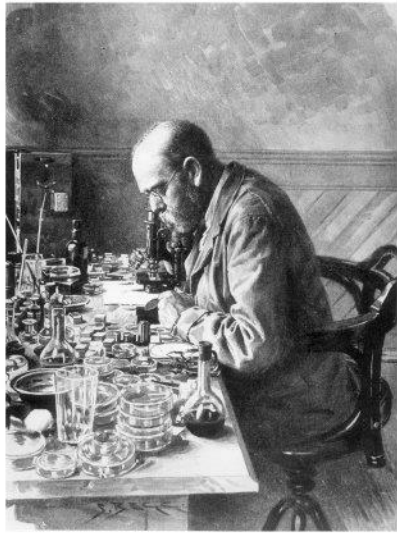
*The principles and practice of medicine* London, 1892.  
Galter copy, New York, 1892.

William Osler was the greatest physician of his time. Specialists reading his textbooks agreed that in their own specialties he was accurate and illuminating.

He was one of those giants who, in the early days of specialization, took **all** of medicine for their own.







# Robert Koch (1843-1910)

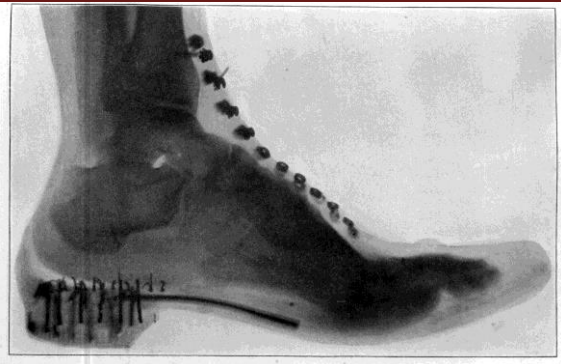
## *Die Aetiologie der Tuberkulose*

(In Berliner klinische Wochenschrift. Vol. 19 (1882), pp. 221-230.)

This brief journal article, in which Koch first states the actual cause of tuberculosis to be the tubercle bacillus and not nutritional deficiencies (as was widely believed), is a medical classic. His discovery helped enormously in the control of widespread affliction. For his work on tuberculosis, Koch received the 1905 Nobel prize.

Koch was responsible for bringing the young science of microbiology to fruition. In spite of the heavy demands of his practice, he continued to work actively with his microscope, having been deeply influenced by Jakob Henle during his student years. His work in culturing, staining, and microscopy provided the basis for a variety of tests and procedures which are now standard practice in clinical diagnosis; his identification and isolation of specific bacteria led to new treatment modes for a number of diseases, including anthrax and cholera. Koch was undoubtedly the greatest contributor during the nineteenth century to the understanding of bacterial action. Using techniques he developed himself, Koch described six different bacteria found in wound infections and was able to carry the infections through several generations of animals. As a result of his work he was able to determine the role of bacteria in wound infections and to show the specificity of infection for the first time.

# Wilhelm Conrad Roentgen (1845-1923)



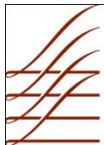
*Ueber eine neue Art von Strahlen. 1895-1897*



The first report of Röntgen's discovery of the X-ray did not appear until 1895 in the *Sitzungsberichte der Physikalisch -Medizinischen Gesellschaft*. Röntgen published a second report of his research and experimentation in the same Journal in 1896, and a third and final report in the *Sitzungsberichte der Koeniglichen Preussischen Akademie der Wissenschaften zu Berlin* in 1897.

These three short papers, published much earlier and collected here for the first time, represent one of the most important advances in the history of scientific development. The importance of Röntgen's work and the resulting development of the field of radiology does not need further elaboration.

Röntgen was awarded the **first** Nobel prize in physics in 1901.



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# Santiago Ramon y Cajal (1852-1934)



*Textura del sistema nervioso del hombre y de los vertebrados.*  
Madrid 1899-1901

Ramón y Cajal is recognized as one of the great histologists of all time, particularly for his fundamental studies on the cellular structure of the nervous system.

Together with Golgi, Ramón y Cajal was awarded the Nobel prize in 1906 for their many contributions into man's understanding of the structure and function of the nervous system. Making his own improvements on Camillo Golgi's stain techniques, Ramón y Cajal discovered cells and structures in the nervous system that had never before been seen.

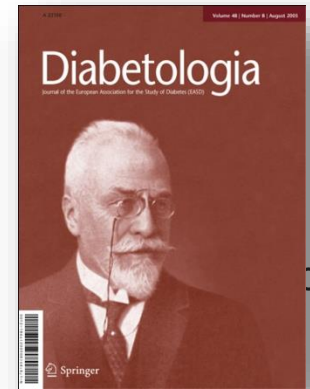
He chronicled the life history, structure, and working mechanism of the neuron and, in so doing, created an histological approach to the study of the central nervous system. His work and ideas were expressed in over two hundred papers and close to fifteen books.



# Oscar Minkowski 1858-1931

# Eugene Lindsay Opie 1873-1971

German pathologist Oskar Minkowski determined that diabetes is caused by suppression of pancreatic substances, which were subsequently found and identified as the hormone insulin. For this, the first major breakthrough against the disease, he is the namesake of the Oskar Minkowski Award, annually by the European Association for the Study of Diabetes.



Opie was an American physician and pathologist. His paper published in 1900, “The relation of diabetes mellitus to lesions of the pancreas” in the *Journal of experimental medicine* further advanced the association between failure of the islets of Langerhans and the occurrence of diabetes. He served as professor of pathology at several U.S. medical schools, as well as Dean of the Washington University School of Medicine (St. Louis) and was in the first graduating class of the Johns Hopkins Medical School (1894)

# Paul Ehrlich 1865-1915

# Sahachiro Hata 1873-1938

- Die experimentelle Chemotherapie der Spirillosen (Syphilis, Rückfallfieber, Hühnerspirillose, Frambösie) von Paul Ehrlich und S. Hata; mit Beiträgen von H.J. Nichols, J. Iversen, Bitter, und Dreyer, mit 27 Textfiguren und 5 Tafeln. Berlin, Springer, 1910.



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# Exploring the History of Medicine



Only the beginning ...

Good luck and best wishes,

Ron &  
Mr. Truman



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