

Two portraits of Joseph Leidy (by Gilbert Studios [1870 ca] and by Gutekunst, Frederick [1880 ca])

## Joseph Leidy (Philadelphia, 1823 – Philadelphia, 1891), an American palaeontologist

A handwritten signature of Joseph Leidy in blue ink.

Joseph Leidy was born in Philadelphia (Pennsylvania, USA) on September 9, 1823 in a family of German origins. Because of his passion for plants, animals and minerals he spent much of his youth exploring Bartram's Gardens and the banks of the Schuylkill River and Wissahickon Creek.

In 1840 Leidy began his study of medicine. In 1841, he received instruction in the use of the microscope from Paul B. Goddard (the Leidy's preceptor after McClintock) at the University of Pennsylvania. In 1844, Leidy submitted his thesis on "***The Comparative Anatomy of the Eye of Vertebrated Animals***" to the Penn's Medical School.

Immediately after his graduation, he began the practice of medicine. However, that same year he also found opportunity to further his interest in medical investigative procedures, in particular that of microscopy, first as an assistant to Goddard and then as dissecting assistant to William Horner, the current professor of anatomy at Penn. He also worked briefly in Professor Robert Hare's chemistry laboratory and with Dr. James B. Rogers at the Franklin Institute. The following year (1845), he became involved with the dissection and drawing of snails for a book on **North American mollusks** written by Amos Binney and edited by Augustus A. Gould. The 1851 publication of this book brought Leidy immediate recognition, along with membership in **Boston Society of Natural History** and **Philadelphia's Academy of Natural Sciences**. The Academy appointed Leidy as its librarian in 1845 and then as its curator in 1846, a position he would hold for the rest of his life. Just three years after earning his M.D., Leidy entirely abandoned his medical practice to devote his professional life to the study of living organisms.

His rise was rapid and his output prodigious, quickly establishing Leidy as **the foremost microscopist in America and the founder of American vertebrate paleontology**. During his lifetime, he published **over eight hundred scientific articles**. His research included descriptive work on the evidence of fossils **that proved horses has existed and become extinct in America long before they were reintroduced by the Spanish**.

He examined many fossils found in the American West to discover many extinct species, and also assembled the first fairly complete dinosaur skeleton from bones found in New Jersey.

**Even before Darwin's writing, Leidy described the disappearance of old species and the appearance of new species as well as of variations within a species.** When Darwin published his theory of evolution and natural selection in 1859, Leidy quickly became a supporter. He saw the relationships between fossil skeletons, but did not publish the taxonomy of these animals as it related to evolutionary thinking; that would be done by younger men, Othniel Charles Marsh and **Edward Drinker Cope**, a **Leidy's student** as well as another famous American palaeontologist and anatomist.

Much of Leidy's work had direct bearing on medical practice. These studies focused not just on descriptive human anatomy but also on such varied subjects as the transplantation of fragments of human cancer to a frog, the identification of *Trichina spiralis* larvae (the cause of trichinosis) in pork and the necessity of further cooking of meat, the existence of small plant and animal organisms on many animal species (even humans).

As a parasitologist, he described fungi and protozoa and discovered and described more than 100 new species of intestinal parasites.

Leidy may even have been **the first to use the microscope in forensic medicine** when he examined blood on the shirt of an accused murderer to demonstrate that, since the red blood cells were not nucleated, the blood was definitely not that of a chicken as claimed but instead possible that of a human.

In 1853, upon the retirement of William Horner, Leidy became **professor of anatomy in the University of Pennsylvania** where he did teach for 38 years. His 1861 **anatomy textbook became the standard anatomical text for medical students for decades.**

He was involved with such medical institutions as Franklin Medical College, St. Joseph's Hospital, and during the Civil War, Satterlee Military Hospital.

In 1871 Leidy **established the Department of Natural History at Swarthmore College**, teaching there until 1885 when **he founded the Department of Biology at the University of Pennsylvania.**

In 1885, Leidy was elected **President of the Wagner Free Institute of Science of Philadelphia.** For the last six years of his life, he was not only the curator of the Academy of Natural Sciences, he was also responsible for the expansion and maintenance of the natural history exhibits at both the Wagner Institute and the University of Pennsylvania.

Leidy became **the first president of the American Association of Anatomists in 1888 and 1889.**

He was a member of more than fifty societies, including the **American Philosophical Society** and the **College of Philadelphia**, and the recipient of many medals and honors, including the medal of the Royal Microscopical Society and the Cuvier Medal from the Academy of Sciences in Paris.

However, he rarely attended meetings away from Philadelphia.

Joseph Leidy died on April 30, 1891.

(after *Archives of the Pennsylvania University*, partially modified)

During his lifetime, Joseph Leidy was dealing with rhinoceroses as well, erecting the species of *Hyracodon nebraskensis* (Leidy, 1850) and publishing several papers on rhinoceroses. Among others:

Leidy J., 1850. Descriptions of *Rhinoceros nebrascensis*, *Agriochoerus antiquus*, *Palaeotherium prouti*, and *P. bairdii*. Proceedings of the Academy of Natural Sciences of Philadelphia, 5: 121-122.

Leidy J., 1850-51a. Remarks on *Rhinoceros nebraskensis*. Proceedings of the Academy of Natural Sciences of Philadelphia, 5: 119-122 [<http://www.biodiversitylibrary.org/item/84765>].

Leidy J., 1850-51b. Remarks on two species of *Rhinoceros* from Nebraska. Proceedings of the Academy of Natural Sciences of Philadelphia, 5: 331 [<http://www.biodiversitylibrary.org/item/17633>].

Leidy J., 1851. Remarks on *Oreodon priscus* and *Rhinoceros occidentalis*. Proceedings of the Academy of Natural Sciences of Philadelphia, 5: 276.

Leidy J., 1852. The Ancient Fauna of Nebraska (A description of the remains of extinct Mammalia and Chelonia from the Mauves Terres of Nebraska). Smithsonian Contributions to Knowledge, pp 79-94, Pls 12-15.

Leidy J., 1852-53. Remarks on *Rhinoceros americanus*. Proceedings of the Academy of Natural Sciences of Philadelphia, 6: 2 [<http://www.biodiversitylibrary.org/item/84780>].

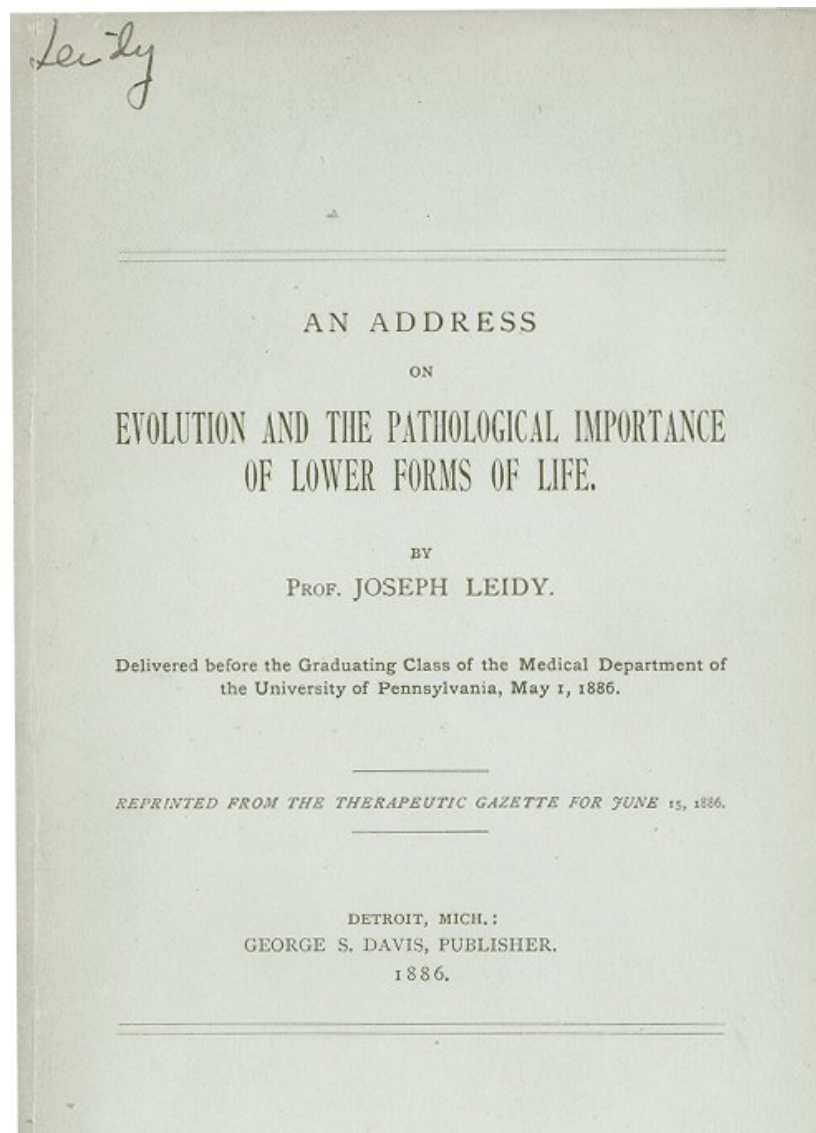
Leidy J., 1854-55. Synopsis of extinct Mammalia which have been discovered in the Eocene formations of Nebraska. Proceedings of the Academy of Natural Sciences of Philadelphia, 7: 156-157 [<http://www.biodiversitylibrary.org/item/84761>].

Leidy J., 1856. Notices of several genera of extinct Mammalia, previously less perfectly characterized. Proceedings of the Academy of Natural Sciences of Philadelphia, 8: 91-92 [<http://www.biodiversitylibrary.org/item/18246>].

Leidy J., 1857. List of extinct vertebrata, the remains of which have been discovered in the region of the Missouri River with remarks on their Geologic Age. Proceedings of the Academy of Natural Sciences of Philadelphia, 9: 89-91 [<http://www.biodiversitylibrary.org/item/84745>].

- Leidy J., 1865. Some fossil remains of *Rhinoceros* from Texas and California. Proceedings of the Academy of Natural Sciences of Philadelphia, XVII: 176-177.
- Leidy J., 1869. The extinct mammalian fauna of Dakota and Nebraska. Journal of the Philadelphia Academy of Natural Sciences, VII: 1-472.
- Leidy J., 1871. Report on the vertebrate fossils of the Tertiary formations of the West. Annals and Reports of the United States Geological and Geographic Survey, 2: 340-370, Hayden.
- Leidy J., 1884. Vertebrate fossils from Florida. Proceedings of the Academy of Natural Sciences of Philadelphia, 36: 118-119 [<http://www.biodiversitylibrary.org/item/84723>].
- Leidy J., 1885. *Rhinoceros* and *Hippotherium* from Florida. Proceedings of the Academy of Natural Sciences of Philadelphia, 37: 32-33 [<http://www.biodiversitylibrary.org/item/84768>].
- Leidy J., 1890. Fossil Vertebrates from Florida, *Hippotherium* and *Rhinoceros* from Florida. Proceedings of the Academy of Natural Sciences of Philadelphia, 42: 64-65+182-183 [<http://www.biodiversitylibrary.org/item/84858>].
- Leidy J. & Lucas F., 1896. Fossil Vertebrates from the Alachua Clays of Florida (*Rhinoceros*). Transactions of Wagner Free Institute of Science, IV: 41-48, 8 Pls [<http://www.biodiversitylibrary.org/item/98202>].

Leidy was also the author of the following books: *On the Fossil Horses of America* (1848), *Flora and Fauna within Living Animals* (1853), *An Elementary Treatise on Human Anatomy* (1861), *Cretaceous Reptiles of the United States* (1865), *Fresh-Water Rhizopods of North America* (1879), *Evolution and the Pathological Importance of Lower Forms of Life* (1886) (herewith, the cover reproduction)



The 1886 Joseph Leidy address on  
*"Evolution and the Pathological Importance of Lower Forms of Life"* cover