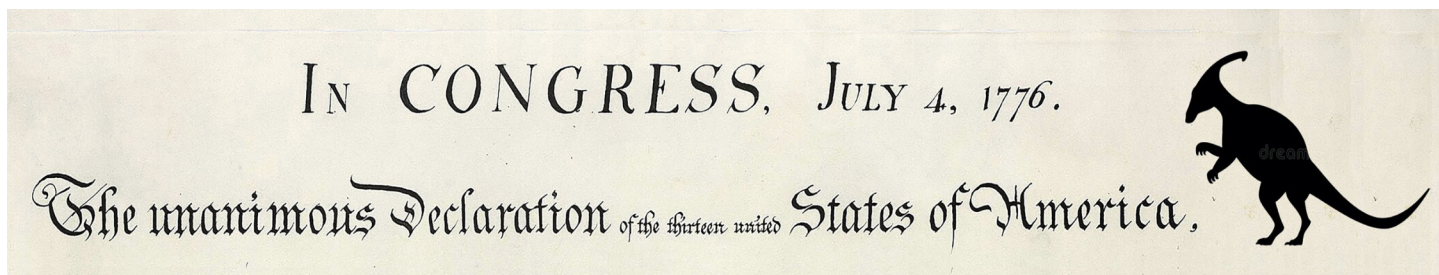


THE DECLARATION OF INDEPENDENCE AND THE FIRST REPORTED DESCRIPTION OF A DINOSAUR IN THE USA, HOW THESE TWO SUBJECTS CAN BE RELATED?

JHONNY E. CASAS

Escuela de Petróleo y Escuela de Geología, Minas & Geofísica, Universidad Central de Venezuela



For the American citizens, the 4th of July or, semantically, the Declaration of Independence is the foundational document that defines the fundamentals, principles and ideals of American identity, freedom, and governance. However, for the earth scientist's community, curiously, it holds extra relevance due to its connection with the first recorded description of a dinosaur in the US territory.

THE FIRST ENGLISH DINOSAURS

The first ever description of a dinosaur fossil had been assigned to Robert Plot (1640-1696) who was an English naturalist and antiquarian, the first professor of chemistry at the University of Oxford, and who also was the first director and keeper of the Ashmolean Museum at Oxford in 1683. In 1677 he published *The Natural History of Oxfordshire*, and in this work, he described the first known illustration of a dinosaur bone. The fossil was the distal end of a femur, found in the village of Cornwell in Oxfordshire, but Plot identified it as the thigh bone of a human giant (later recognized as the femur of *Megalosaurus*).

In 1824 William Buckland (1784-1856) as a president of the Geological Society of London, described a suite of fossils bones from the village of Stonesfield (Oxfordshire), giving Plot's creature the name of *Megalosaurus* (meaning Great Lizard), and wrote the first full account of what would later be called a dinosaur. Enough fossil material was preserved to show that *Megalosaurus* was a flesh-eating giant reptile. Buckland's publication was the first modern description of dinosaur remains in a scientific journal, even though he thought it was just a giant lizard.



Portrait painting of Robert Plot (1640–1696) by an unknown artist. Source:

https://en.wikipedia.org/wiki/Robert_Plot#/media/File:ROBERT_PLOT.webp

The second non-avian dinosaur genus was accomplished by paleontologist Gideon Mantell (1790-1852) who by 1819, collected fossils with his wife Mary Ann, in the Tilgate Forest region of Sussex, and mentioned his findings in his book *Fossils of the South Downs*, first published in 1822, as the teeth, vertebrae and bones of "an animal of the Lizard Tribe of enormous magnitude". Mantell identified the animal as a plant-eating reptile and named it *Iguanodon anglicus* (because of the resemblance of its teeth to those of a living iguana).



Silhouette of Prof. William Buckland, his wife and his son, collecting fossils - Artist Mary Buckland. Source: https://en.wikipedia.org/wiki/William_Buckland#/media/File:Buckland_family_silhouette.jpg

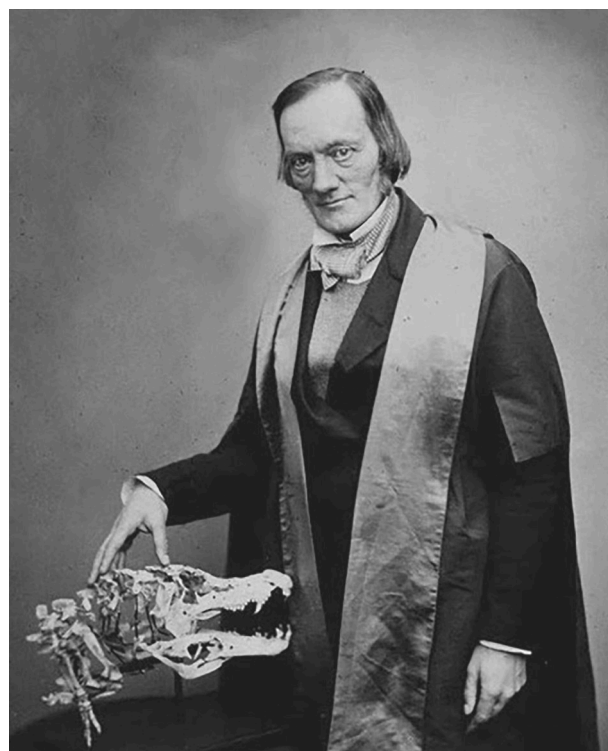


Gideon Mantell (detail of an engraving). The Mansell Collection, N.Y. Source:

<https://www.britannica.com/biography/Gideon-Algernon-Mantell>

The study of these "great fossil lizards" soon became of great interest to European and American scientists, and in 1842 the English paleontologist Sir Richard Owen (1804-1892), first director of the Natural History Museum in London, coined the term "dinosaur", using it to refer to the saurian reptiles that were then being

recognized in England and around the world. The term is derived from Ancient Greek δεινός (deinos) "terrible" and σαῦρος (sauros) "lizard or reptile". Owen used three genera to define the dinosaurs: the carnivorous *Megalosaurus*, the herbivorous *Iguanodon* and armoured *Hylaeosaurus*, specimens uncovered in southern England.



Portrait of English anatomist and paleontologist Richard Owen with the skull of a crocodile (1856). Source:

https://en.wikipedia.org/wiki/Richard_Owen#/media/File:Richard_Owen_1856.jpg

THE FIRST AMERICAN DINOSAURS

In 1853 Joseph Mellick Leidy (1823-1891) an American paleontologist and anatomist, studied some fossils discovered initially by paleontologist Ferdinand Vandiveer Hayden (1829-1887) in the Badlands of the Judith River (Nebraska Territory at that time). As soon as Joseph Leidy received the Judith River fossils, he compared them directly with the already known European forms.

The description by Leidy of the new *Deinodon horridus* (today *Albertosaurus*), a carnivorous form, was based on nine specimens of teeth. For Leidy, *Deinodon* resembled the teeth of *Megalosaurus*. Leidy also described a herbivore: *Trachodon mirabilis*, with leaf-shaped teeth, pointing out the similarity to the *Iguanodon* (today *Trachodon* teeth compared with the

dinosaur genus *Corytosaurus* but also with *Prosaurolophus*. *Troodon formosus* was interpreted and named by Leidy as a lizard in his publication, but re-classified as dinosaur in 1901. His descriptions and interpretations from Judith River were finally published in 1856 with the title: Notices of remains of extinct reptiles and fishes, discovered by Dr. F. V. Hayden in the Bad Lands of the Judith River, Nebraska Territory.



Portrait of Joseph M. Leidy (1860). Source: <https://archives.upenn.edu/exhibits/penn-people/biography/joseph-mellick-leidy/>

Also, in 1856 Joseph Leidy studied some fossils found initially by John E. Hopkins and William Parker Foulke (1816-1865) on a small tributary of the Cooper River in Haddonfield, New Jersey. Foulke and Leidy studied the fossils together. In 1858 Leidy formally described and named *Hadrosaurus foulkii* in honor of his collaborator, but because the American Civil War (1861-1865), the publication was delayed until 1865. Leidy recognized that the bones were from a dinosaur because of their similarity to those of *Iguanodon*, discovered in England some decades before but, at the time, the skeleton of *Hadrosaurus* was one of the most complete dinosaur skeletons known at that time.

Leidy reconstructed *Hadrosaurus* as a biped, in contrast to the view at the time that such dinosaurs were quadrupedal. The entire skeleton was completely assembled by a team, including English sculptor and naturalist Benjamin Waterhouse Hawkins (1807-1894), in 1868, and was put on display at Philadelphia's

Academy of Natural Sciences. It was the first-ever mounted dinosaur skeleton. In 1879 a copy of the *Hadrosaurus foulkii* mounted skeleton was constructed and shipped to the Royal Scottish Museum in Edinburgh, Scotland, where it became the first dinosaur mount ever displayed in Europe.

Notices of remains of extinct Reptiles and Fishes, discovered by Dr. F. V. Hayden in the Bad Lands of the Judith River, Nebraska Territory.
By JOSEPH LEIDY, M. D.

4. *DEINODON HORRIDUS*, Leidy.

This genus and species are founded on a number of specimens, consisting of fragments of teeth of a saurian reptile, discovered by Dr. Hayden.

Nine of the specimens referred to consist of crowns of teeth or of their summits, which resemble those of *Megalosaurus*, being compressed conical and curved, and having trenchant, dentated borders. They are generally thicker in relation to their breadth than in *Megalosaurus*, which might only be a specific distinction, were it not that there are several other teeth in the same collection apparently of the same animal, but quite peculiar in form.

Extract from Leidy's original publication (1856), describing *Deinodon horridus*. Source: Proceedings of the Academy of Natural Sciences 8:72-73.



Mounted *Hadrosaurus* skeleton (by Benjamin W. Hawkins, who stands beside it), the first ever mounted dinosaur, Source:

https://es.m.wikipedia.org/wiki/Archivo:Hadrosaurus_foulkii.jpg

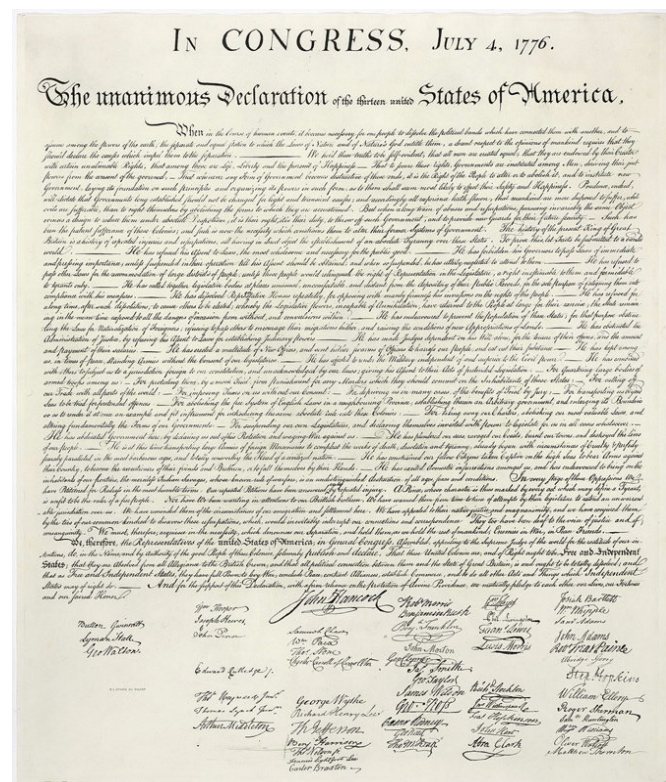
THE DECLARATION OF INDEPENDENCE

Back in time, on July 4th, 1776, the independence of the thirteen United Colonies was adopted unanimously by the 56 delegates to the Second Continental Congress, who convened at Pennsylvania State House, in the colonial capital of Philadelphia. The delegates who signed the Declaration of Independence came to be known as the nation's Founding Fathers. Some of the most notables names signing the Declaration were: John Hancock, Thomas Jefferson, John Adams, Benjamin Franklin and Robert R. Livingstone, among others. The best-known version of the Declaration is the signed copy displayed at the National Archives Building in Washington, D.C., which is popularly regarded as the official document. This copy was ordered by Congress on July 19, and signed primarily on August 2, 1776.

leader and a military officer (colonel), in the American Revolutionary War. Matlack, served as a clerk to the Second Continental Congress, and was known for his excellent penmanship. Matlack's handwriting can be also recognized in the George Washington's commission as Commander-in-Chief of the Continental Army of the United Colonies.



Thomas Jefferson portrait in a postal stamp. Source: https://postalmuseum.si.edu/object/npm_1980.2493.5540



Declaration of Independence. Second Continental Congress; reproduction: William Stone. Source: <https://commons.wikimedia.org/w/index.php?curid=621811>

Thomas Jefferson (1743-1826) largely wrote the Declaration of Independence in isolation between June 11 and 28, 1776, but that's not his handwriting on the vellum page above John Hancock's signature and the other 55 Founding Fathers. The neat, elegant script of the Declaration signed by Congress, belongs to Timothy Matlack (1736-1829), a brewer and beer bottler established in Pennsylvania, who emerged as a popular

THE AMERICAN PHILOSOPHICAL SOCIETY

Matlack was named a trustee of the University of the State of Pennsylvania in 1779, and in 1780, was elected a member of the American Philosophical Society, serving as its secretary from 1781 to 1783. The American Philosophical Society was founded in Philadelphia in 1743 for the promotion of useful knowledge and growth of the American society.

But Timothy Matlack should be better known for a totally different subject to the Declaration of Independence, because he co-authored with physician Caspar Wistar (1761-1818), the first written report of a dinosaur fossil finding in the US, presented formally to the American Philosophical Society, during a meeting, on October, 5th, 1787.



Portrait of Timothy Matlack. Painting By Charles Peale - Museum of Fine Arts, Boston. Source:

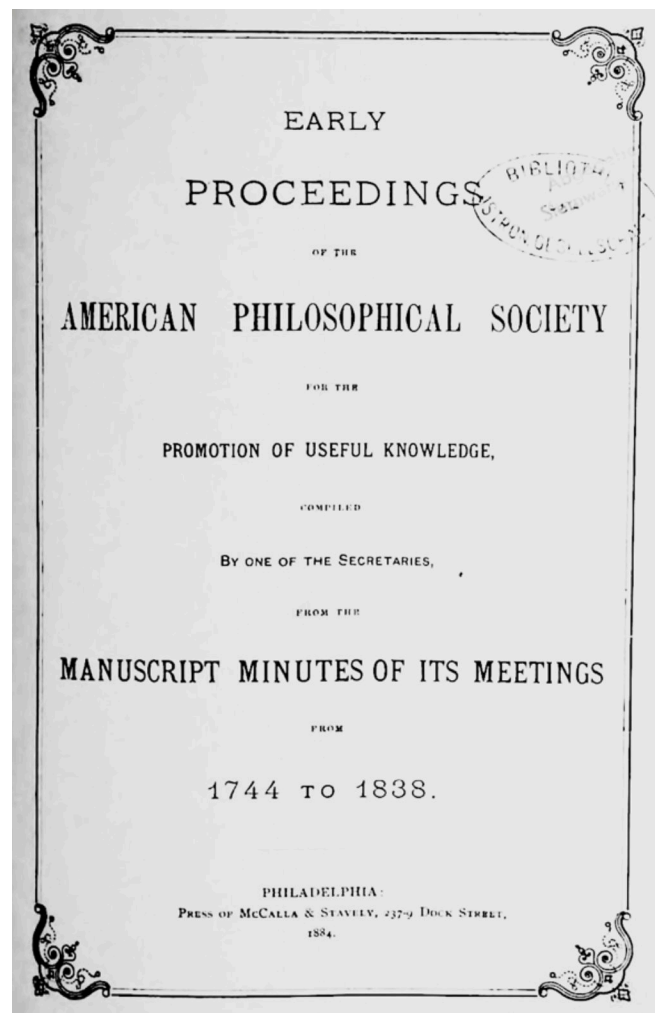
<https://commons.wikimedia.org/w/index.php?curid=4023540>

His co-author, Caspar Wistar was a physician and educator, that corresponded frequently with Thomas Jefferson, the third US president (1801-1809), on scientific and other subjects from 1791 until Wistar death. He received medical degrees from the University of the State of Pennsylvania in 1782 and Edinburgh University in 1786. Wistar was elected to the American Philosophical Society in 1787, eventually succeeding Thomas Jefferson as its president in January 1815. He was one of the scientists charged with preparing Meriwether Lewis for the famous Lewis and Clark Expedition (1804-1806).

WAS REALLY LEIDY'S PUBLICATION IN 1856 THE FIRST SCIENTIFIC REPORT FOR DINOSAUR REMAINS IN THE US?

Joseph Leidy's is still the first publication only by default, because as mentioned previously, back to 1787, Timothy Matlack and Caspar Wistar found a fossilized bone near Woodbury Creek in Gloucester County, New Jersey. They wrote up a proper scientific report and presented it to the American Philosophical Society in Philadelphia, along with the bone itself. The minute of the October 5th, 1787 meeting at the Society, which

recorded only the subject of the presentation stated: "A large thigh bone found near Woodbury creek in Gloucester (sic) county, N.J. was described in a paper by Mr. Matlack and Dr. Wistar; who, with Dr. Rodgers, were requested to search for the missing part of the skeleton". The American Philosophical Society meeting of that day was presided by Benjamin Franklin (1706-1790), along with the presence of 15 members.



Cover of the Proceedings of the American Philosophical Society. Manuscript Minutes of Its Meetings from 1743 to 1838. Source:

https://books.google.co.ve/books?id=ZUXajS_1pI0C&printsec=frontcover#v=onepage&q&f=fal

According to modern paleontologists who have read the report, it seems more likely that they would actually found a metatarsal (one of the bones of the mid-foot). The creek where Matlack and Casper found the bone runs not far from where, 70 years later, the first associated remains of a dinosaur were excavated and described by Joseph Leidy as *Hadrosaurus* an herbivore like *Iguanodon*.

Unfortunately, there is no way to confirm exactly if Matlack and Caspar found a bone from *Hadrosaurus* near Woodbury Creek, because the bone itself has been missing for a long time. Their report is all we have today, which means we are lucky that they thought to write it down (and in such impressive handwriting, as in the Declaration of Independence). Because of this, it can be reasonably assumed that this metatarsal bone was the first reported discovery of an American dinosaur. It would be nice to think that the bone still exists in a box, storage in some museum and appear in the future.

So, when you look at the Unanimous Declaration of the Thirteen United States of America, you can also be thinking about dinosaurs.

1787. Oct. 5. (15 present; Franklin presiding.)

Three French medical papers by Dr. Gashlier, referred to Drs. Jones, Foulke and Griffith.

A large thigh bone found near Woodbury creek in Gloucester [sic] county, N. J. [perhaps a *Hadrosaurus*], was described in a paper by Mr. Matlack and Dr. Wistar; who, with Dr. Rodgers, were requested to search for the missing part of the skeleton.

Record of the meeting held on October 5, 1787 at the American Philosophical Society. Source: Early Proceedings of the American Philosophical Society. Manuscript Minutes of Its Meetings from 1743 to 1838. Source:

https://books.google.co.ve/books?id=ZUXajS_1pIOC&printsec=frontcover#v=onepage&q&f=false

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Timothy Matlack died in Holmesburg, Pennsylvania, on April 14, 1829, and was interred in the Free Quaker Burial Ground on South Fifth Street in Philadelphia. In 1905, his remains were removed and reinterred in Wetherill Cemetery opposite Valley Forge. Source:

<https://benedictarnold.smugmug.com/Enemies-of-Benedict-Arnold/Timothy-Matlacks-Grave/i-9nZrKvc>



jcasas@geologist.com

Jhonny E. Casas es Ingeniero Geólogo graduado de la Universidad Central de Venezuela, y con una maestría en Sedimentología, obtenida en McMaster University, Canadá. Tiene 38 años de experiencia en geología de producción y exploración, modelos estratigráficos y secuenciales, caracterización de yacimientos y estudios integrados para diferentes cuencas en Canadá, Venezuela, Colombia, Bolivia, Ecuador y Perú.

Autor/Co-autor en 61 publicaciones para diferentes boletines y revistas técnicas, como: Bulletin of Canadian Petroleum Geology, Geophysics, The Leading Edge, Asociación Paleontológica Argentina, Paleontology, Journal of Petroleum Geology, Academia de Ciencias, Academia de Ingeniería y Caribbean Journal of Earth Sciences; incluyendo presentaciones en eventos técnicos: AAPG, SPE, CSPG-SEPM y Congresos Geológicos en Venezuela y Colombia, así como artículos históricos en el boletín AAPG Explorer. Autor de mas de 49 artículos de divulgación científica.

Profesor de Geología del Petróleo (1996-2004). Profesor de materias de postgrado tales como: Estratigrafía Secuencial, Modelos de Facies y Análogos de afloramiento para la caracterización de yacimientos (2003-2025), en la Universidad Central de Venezuela. Mentor en 12 tesis de maestría. Representante regional para la International Association of Sedimentologist (2020-2026) y ExDirector de Educación en la American Association of Petroleum Geologists (AAPG) para la región de Latinoamérica y del Caribe (2021-2023). Advisory Counselor para AAPG LACR (2023-2026).