200 years of dinosaur science

Oxford University Museum of Natural History celebrates iconic fossils used in first scientific description of a dinosaur

- 200 years ago, Oxford University geologist William Buckland published the first ever scientific description of a dinosaur, presenting his paper to the Geological Society of London on 20 February 1824
- The type fossils used in this scientific description – including the iconic toothy lower jawbone – were found in Oxfordshire and are now held in the collections of Oxford University Museum of Natural History
- Buckland named the fossil species *Megalosaurus,* meaning "Great Lizard"
- *Megalosaurus* was the first dinosaur ever named, and one of three upon which the term "Dinosauria" was coined.

2024: A Landmark Anniversary

2024 marks 200 years since *Megalosaurus* became the first dinosaur to receive a scientific name and description. The author of the description, Professor William Buckland, presented his "Notice on the *Megalosaurus*" during his inaugural meeting as President of the Geological Society of London on 20 February 1824. His description of *Megalosaurus* featured several fossils, with all ten surviving specimens currently housed in the collections at Oxford University Museum of Natural History (OUMNH). Among these specimens is part of a lower-right jawbone including teeth, which has since been designated the lectotype specimen for *Megalosaurus bucklandii*.

When *Megalosaurus* was described in 1824, the concept of a dinosaur did not yet exist. The 168 million-year-old fossils were originally interpreted as belonging to a huge monitor-like animal, hence the name *Megalosaurus*, meaning "great lizard". Over the next two decades, more Jurassic reptiles would be scientifically described. In 1842, the anatomist Richard Owen coined the term "Dinosauria" to denote a newly identified taxon that included *Megalosaurus*, *Hylaeosaurus*, and *Iguanodon.*

Dr Emma Nicholls FGS, Vertebrate Collections Manager at OUMNH, said:

> *"The description of Megalosaurus was a pivotal moment in the history of science, introducing us to a new group of organisms and inevitably reframing our understanding of the history of life on Earth. Our understanding of dinosaurs has changed significantly since the nineteenth century, and we now know that these beloved reptiles were not clumsy, overgrown lizards, but a hugely diverse and highly successful group of animals that persisted for at least 220 million years and ruled the globe throughout the Mesozoic Era."*

Oxford: Home of the dinosaur

The fossils figured in the 1824 description of *Megalosaurus* were collected from Stonesfield, just twelve miles from OUMNH. The fossils were acquired by Oxford University from the late-17th century onwards, attracting the attention of university scholars. It is possible that the first *Megalosaurus* fossil discovered at Stonesfield was a partial femur, which is now sadly lost. The femur was acquired by Oxford's Ashmolean Museum and is illustrated in Robert Plot's *Natural History of Oxfordshire* (1677). Plot originally speculated that the femur had come from an elephant brought to Britain during the Roman Era, but later suggested that it had come from a giant human.

The Stonesfield fossils were re-examined in the 19th century by William Buckland, Oxford University's first Reader in Geology. Buckland worked extensively with the Oxfordshire-based illustrator and naturalist Mary Morland to prepare his "Notice on the *Megalosaurus*", with the pair subsequently marrying in 1825.

The limestone at Stonesfield is home to the world's most diverse assemblage of Middle Jurassic vertebrates, including turtles, crocodilians, pterosaurs, dinosaurs, pliosaurs, ichthyosaurs, and cynodonts (Benton and Spencer 1995). In 1997, a series of fossilised dinosaur footprints were found in the village of Ardley, less than 15 miles away from Stonesfield. The footprints are 168 million years old and are believed to have belonged to *Megalosaurus*, allowing us to understand more about how the dinosaur moved and interacted with its environment. Other important fossil sites in Oxfordshire include Chipping Norton, which produced the type specimens for *Cetiosaurus oxoniensis*, also currently housed at Oxford University Museum of Natural History.

Professor Paul Smith, Director of Oxford University Museum of Natural History said:

> *"Oxfordshire boasts a number of historically- and geologically-important fossil sites, which have captured the interests of academics for centuries. During the 1800s, Oxford University established itself as a leading centre for the study of the natural world, thanks in no small part to the Megalosaurus fossils found at Stonesfield."*

Celebrate with us

OUMNH is excited to announce a year of bicentenary celebrations, kicking off on 20 February 2024.

20 February celebrations

The Museum will be hosting behind-the-scenes tours, activity stations in the Main Court, and an evening 'birthday' celebration.

Summer 2024

The iconic *Megalosaurus* trackway replicas are scheduled to be reinstalled on the Museum's front lawn in time for the busy summer season.

Autumn-Winter 2024

The Museum's upcoming exhibition, **Breaking Ground**, is due to open on 18th October 2024. The exhibition will use a rich archive from the lives of William and Mary Buckland (née Morland) to lift the lid on the amazing fossils, rocks, places, and people that revolutionised our understanding of Earth history. Discover how the Bucklands set the scene for the modern science of palaeontology. The exhibition will be accompanied by a full programme of exhibition events for adults and families, due to be announced later in the year on our events webpage.

Resources

Images

A press pack of images is available at:
https://drive.google.com/drive/folders/1JfZ_5HMri_havHAGb6mzWcG2n6CyckgB?usp=sharing
Images can be used in articles if credited

About *Megalosaurus*

https://oumnh.ox.ac.uk/megalosaurus-0
https://morethanadodo.com/2017/04/28/the-birth-of-dinosaurs/
Howlett, E. A., W. J. Kennedy, H. P. Powell, and H. S. Torrens. "New light on the history of Megalosaurus, the great lizard of Stonesfield." *Archives of natural history* 44, no. 1 (2017): 82-102.
Benson, Roger BJ. "A description of Megalosaurus bucklandii (Dinosauria: Theropoda) from the Bathonian of the UK and the relationships of Middle Jurassic theropods." *Zoological Journal of the Linnean Society* 158, no. 4 (2010): 882-935.

About Stonesfield

Benton, M.J. and P.S. Spencer. *Fossil reptiles of Great Britain.* Nature Conservation Committee, Geological Review Series, Volume 10. Chapman & Hall, London: 1995. ISBN 0-412-62040-5.
https://morethanadodo.com/2016/06/10/the-fossils-of-stonesfield/

About the Bucklands

William Buckland
Mary Morland

Notes to Editors

Oxford University Museum of Natural History holds an internationally-significant collection of natural history specimens and archives in a stunning example of neo-Gothic architecture. It is home to a lively programme of research, teaching and events focused on the sciences of the natural environment.

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