



El parque Crystal Palace incluye las primeras reconstrucciones a escala real de dinosaurios del mundo....

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El primer parque de dinosaurios del mundo: qué acertaron y qué se equivocaron los victorianos

Emily Osterloff



Los dinosaurios del Palacio de Cristal pueden parecer cómicamente incorrectos, pero ocupan un lugar importante en la historia de la paleontología y en el momento de su construcción eran tan precisos como era posible según los datos



El artista de historia natural Benjamin Waterhouse Hawkins presentó sus esculturas de dinosaurios en 1854. Estas fueron las primeras reconstrucciones a escala real de

dinosaurios del mundo y representan las tres primeras especies descubiertas.

Los dinosaurios eran un descubrimiento relativamente nuevo a mediados del siglo XIX. Había muy pocos **fósiles** para estudiar y un conocimiento limitado sobre cómo podrían haber sido estos reptiles prehistóricos en vida.

Pero, ¿cuánto acertaron y cuánto se equivocaron Benjamin Waterhouse Hawkins y sus asesores científicos sobre estos reptiles prehistóricos? **La Dra. Susie Maidment**, investigadora de dinosaurios del Museo, lo explica.

Diseñando dinosaurios

Las más conocidas de las numerosas esculturas de Benjamin Waterhouse Hawkins en el Crystal Palace, al sureste de Londres, son los cuatro dinosaurios: un **Megalosaurus**, un **Hylaeosaurus** y dos **Iguanodon**. En la época de su construcción, en la década de 1850, existían muy pocos restos de estos animales con los que trabajar. Aunque Waterhouse Hawkins y sus asesores sabían que eran reptiles, ahora sabemos que algunas de sus teorías sobre los dinosaurios no eran del todo correctas.

Susie dice: 'Creo que realmente lo que hicieron fue tomar cosas que conocían, como cocodrilos y lagartos, y ampliarlos hasta que tuvieran el tamaño de los huesos.'

Hoy en día, los animales grandes suelen tener cuatro patas y ser relativamente voluminosos. Un ser grácil de dos patas estaba completamente fuera del alcance de la comprensión de lo que podía ser un reptil.





Cuando se construyeron las esculturas del Palacio de Cristal, se pensaba que el *Megalosaurus* caminaba sobre cuatro patas.



El *Megalosaurus* de Crystal Palace podría haber sido modelado a partir de un reptil de...

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La forma de cuatro patas del Megalosaurus puede haberse basado en los lagartos monitores (género *Varanus*), algunos de los lagartos más grandes del mundo.

Aún no existe un esqueleto completo del *Megalosaurus*. Se conoce a partir de la mandíbula inferior, las extremidades traseras y algunas otras partes. Hay suficiente evidencia para saber que pertenece al grupo Megalosauridae, que conocemos mucho mejor.

'Eran bípedos y tenían antebrazos pequeños, y en lugar del cráneo alargado, parecido al de un cocodrilo, que tiene la escultura, probablemente tenían un cráneo mucho más profundo.'

'But given they didn't know anything other than these very few bones and didn't have any context, it's not unreasonable to construct *Megalosaurus* as they did,' explains Susie.





With the data available today, palaeontologists now know that *Megalosaurus* was a bipedal dinosaur

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Waterhouse Hawkins's *Iguanodon* also looks nothing like its real-life counterpart. This dinosaur was named after its iguana-like teeth, found by Mary Ann Mantell in 1822, and its body may have been modelled on an iguana as well.

Susie explains, 'It's a similar story, really. They found the teeth and recognised they belonged to a reptile, and they found a few other bits and bobs like femora and vertebrae, so they knew they had a big reptile.'

'They found the spike and stuck it on the end of the nose, a bit like a rhinoceros. It's all based on analogy!'





The *Iguanodon* sculptures at Crystal Palace were the best possible reconstructions of...

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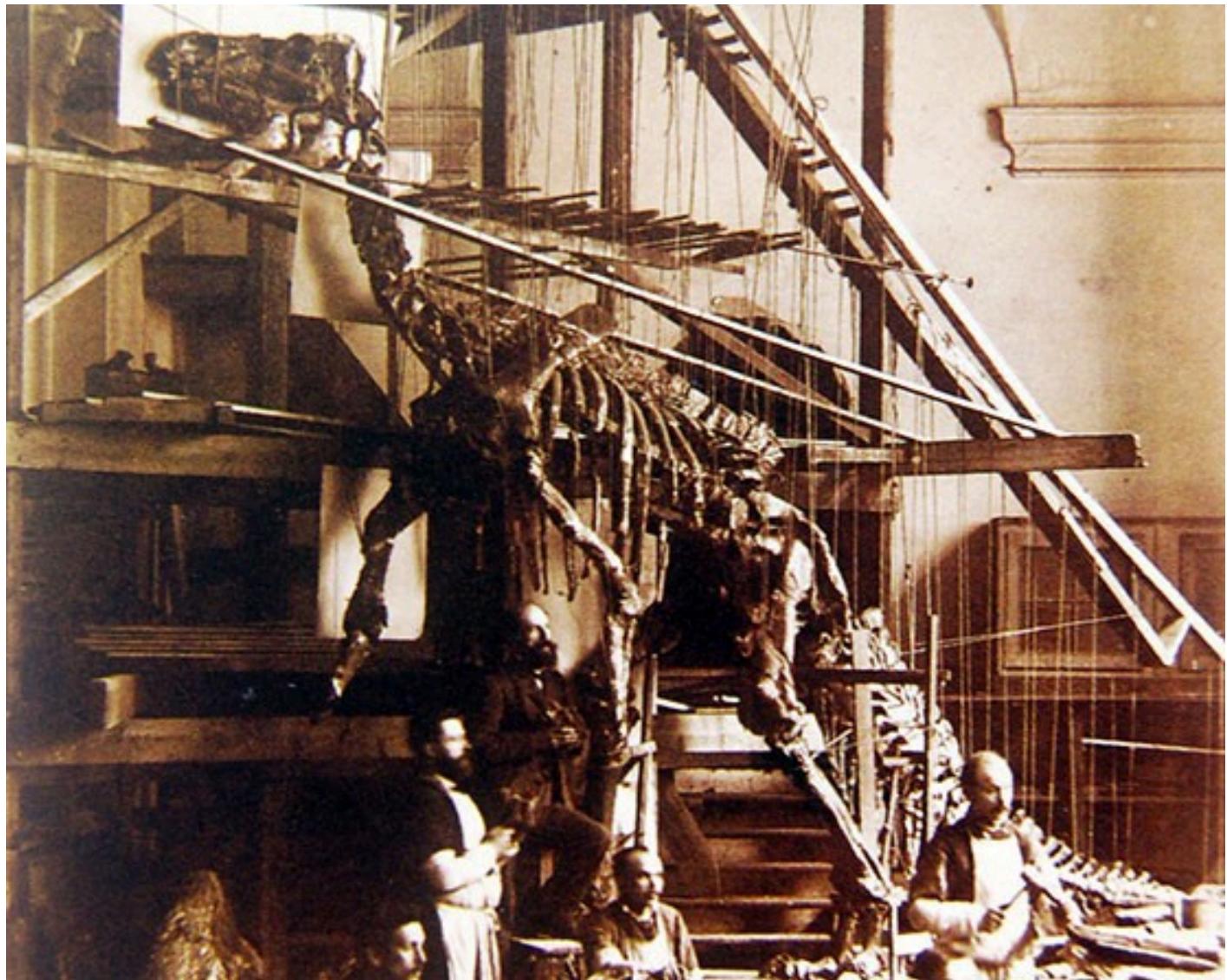


Iguanodon was named for it's iguana-like teeth. The Crystal Palace *Iguanodons* may...

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It wasn't until a landmark discovery of *Iguanodon* fossils in Bernissart, Belgium, in 1878 that the famous spikes were moved to their rightful place on the dinosaurs' hands. But even with this new knowledge, not all was right with *Iguanodon*.





When the Bernissart *Iguanodons* were reconstructed in the 1870s, these dinosaurs were thought to have a kangaroo-like posture...

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Palaeontologists in the 1870s determined *Iguanodon* would have had a kangaroo-like posture, although we now know that these animals were predominant quadrupeds, walking on the hoof-like ends of their fingers. This makes the Crystal Palace *Iguanodons* correct in their four-leggedness, albeit for the wrong reasons.

The most obscure of the three dinosaurs in the park is *Hylaeosaurus*, described by Gideon Mantell in 1832. Only one specimen of this dinosaur has ever been



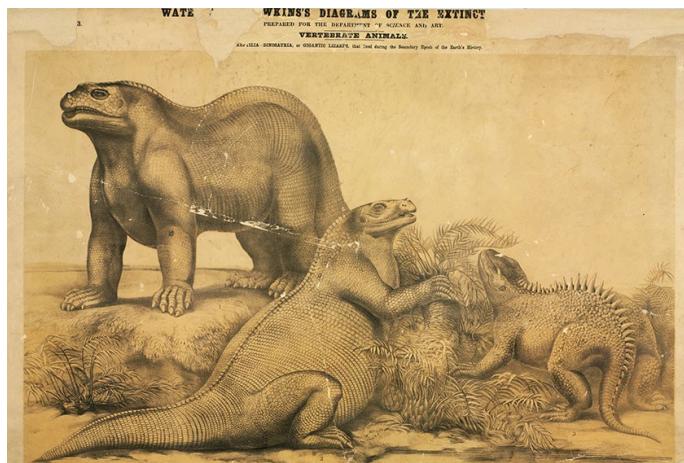
'Basic says, "what we know today is based on recognising that the rounded spines, plates and particularly the shape of the scapulae are characteristic of ankylosaurs.'

In his 1833 book, *The Geology of the South-East of England*, Mantell stated that 'there appears every reason to conclude that either its back was armed with a formidable row of spines, constituting a dermal fringe, or that its tail possessed the same appendage, and was enormously disproportionate to the size of its body.'

In Waterhouse Hawkins's reconstruction, the spikes are located along the spine. In life these and armour plates would have been found across the animal's back or sides.

Susie explains, 'Back then they just had a neck and forearms, or at least a pectoral girdle, and they knew it had some spikes on its body. So what do you do? You take a crocodile or lizard, put some plates on it and you end up with a fairly reasonable reconstruction.'

In the park, *Hylaeosaurus* faces away from visitors. [The Friends of Crystal Palace Dinosaurs](#) - the group that promote the long-term conservation of the Crystal Park statues and wider geological site - suggest that this might have been [due to the lack of skull material](#) for Waterhouse Hawkins to use as a guide for the models.



Benjamin Waterhouse Hawkins's diagrams of *Iguanodon* and *Hylaeosaurus*



Hylaeosaurus may have been positioned facing away from the public due to the lack o...



Scaly skin

Despite their well recorded flaws, some parts of the Crystal Palace Dinosaurs are correct.

For instance, Waterhouse Hawkins's models are covered in neat scales. For *Hylaeosaurus* and *Iguanodon*, this is almost certainly accurate.

'There are a couple of ornithischian dinosaurs that have sort of integumentary structures, but they tend to be more like bristles. Not covering the whole body, just on the ends of the tails or something like that. But we don't have any evidence for that in *Iguanodon* or *Hylaeosaurus*,' explains Susie.

There is plenty of evidence of scaly skin in impressions left by hadrosaurs, close relations of *Iguanodon*. Stegosaurs were also scaly, suggesting that the same was likely of their ankylosaur cousins like *Hylaeosaurus*.

'These are reptiles. **If we exclude birds**, which they didn't know were dinosaurs at this time, reptiles are exclusively scaled. Snakes, lizards, *Sphenodon* - they all have scales, so it's reasonable to give the models scaled skin and it's still kind of our best bet today.'





This is a fossilised impression of *Edmontosaurus* skin. This dinosaur was a close relation of *Iguanodon*, so it's possible that they would have shared features, such as scaly skin.

What colour were dinosaurs?

We don't know everything about dinosaurs, so some aspects of the Crystal Palace models are up for debate. For example, the dinosaurs have been painted a variety of shades over the years.

Susie says, 'We'll probably never know the colour of dinosaurs with scaly skin.'

'The way that they're looking at colour in feathers is by these structures called melanosomes. The shape of those code for colour. People have found melanosomes in scaly skin, but there isn't a good correlation between colour and



but we may never know for sure.'



Why is palaeoart important?





A reconstruction of *Megalosaurus* from The Book of the Animal Kingdom, published in 1910.

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For non-dinosaur experts it can be tricky to look at isolated fossil bones and imagine a dinosaur. It would have been especially so for Victorians, when dinosaurs were a brand-new discovery.

Palaeoartists take those bones and create artworks that show the animals as they would have been in life, often with painstaking attention to the latest scientific understanding.



what they looked like and I think from that point of view palaeoart is really important.'

Like in Crystal Palace Park, over the last 150 years, palaeoartists haven't always got things quite right. For example, there are a number of reconstructions of *Megalosaurus* and *Iguanodon* facing off in dramatic battles.

We now know that although both dinosaurs were once found in Britain, they lived about 40 million years apart.

'Geologists knew that these dinosaurs were found in different rocks, but they had no real idea of the geological timescale and how old these rocks were,' Susie adds. 'Some still believed Earth was 4,000 years old. The amount of time between these rocks could have been days, weeks or years.'

Even today, palaeoart is incredibly important for several reasons. 'You can't have a children's book about dinosaurs without pictures inside, but palaeoart is also increasingly the best way of communicating what we do with the public.'



Édouard Riou's reconstruction of a battle between *Iguanodon* and *Megalosaurus* featured in Louis Figuier's 1864 book, *La Terre Avant Le*

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Benjamin Waterhouse Hawkins and Crystal Palace Park

The Crystal Palace Dinosaurs were the creation of one of the best-known natural history sculptors of his time, Benjamin Waterhouse Hawkins (1807-1894).

Waterhouse Hawkins's dinosaur sculptures were commissioned in 1852 and the finished models were unveiled to the public in 1854. These then-obscure animals were built with advice from Sir Richard Owen, the first Superintendent of the Natural History Museum and the man who put *Iguanodon*, *Megalosaurus* and *Hylaeosaurus* together into a new group called Dinosauria in 1842.



Benjamin Waterhouse Hawkins's sculptures featured in the foreground

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The Crystal Palace Dinosaurs are joined by a number of other prehistoric animal sculptures designed by Waterhouse Hawkins.

These include the giant ground sloth *Megatherium*, the Irish elk *Megaloceros*, as well as a number of other reptiles including Ichthyosaurs, *Mosasaurus* and pterosaurs. In 2023, a model of the extinct mammal *Palaeotherium magnum* was recreated and placed in the park, with the original having disappeared in the 1960s.

These models and more are placed around Crystal Palace park, ordered by their associated geological period.

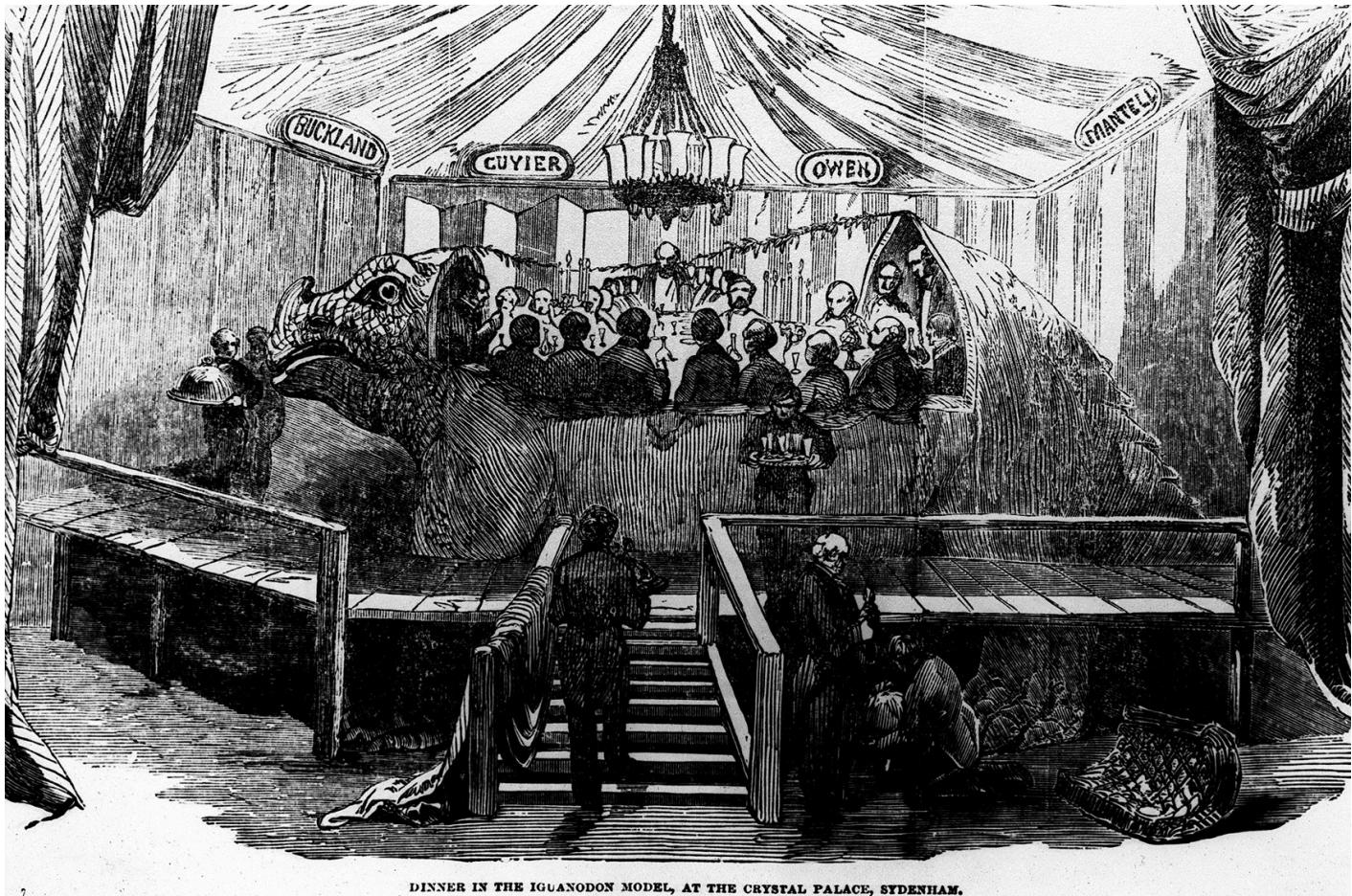
The sculptures were built on the grounds of the Crystal Palace when it was relocated to Sydenham. Originally the Crystal Palace stood in Hyde Park, about 15 kilometres away, built to house the Great Exhibition of 1851. The sculptures have long outlasted the historic Crystal Palace building, which was destroyed by a fire in 1936.

On 31 December 1853, before the dinosaurs were officially unveiled to the public, Waterhouse Hawkins hosted a banquet to celebrate their launch inviting scientists and officials of the Crystal Palace Company. The dinner took place inside the mold of one of the *Iguanodon* sculptures.

After over 150 years exposed to the elements, the sculptures deteriorated, and major conservation work has been carried out to try to restore the dinosaurs to their former glory. As of 2007, the Crystal Palace Dinosaurs have been awarded a Grade 1 listed status owing to their importance.

The areas around the sculptures in the park are currently being planted with vegetation that reflects the eras when these animals lived.





DINNER IN THE IGUANODON MODEL, AT THE CRYSTAL PALACE, SYDENHAM.

An engraving of the dinner held by Benjamin Waterhouse Hawkins in a Crystal Palace *Iguanodon* mold.

Susie dice: 'Son tres dinosaurios icónicos que se remontan al origen de **Dinosauria**, por lo que son increíblemente importantes desde una perspectiva histórica en términos de dónde proviene la ciencia.'

"Creo que capturan la imaginación de muchas personas y mucha gente va a Crystal Palace a verlos. Siguen siendo una gran publicidad de lo que hacemos".



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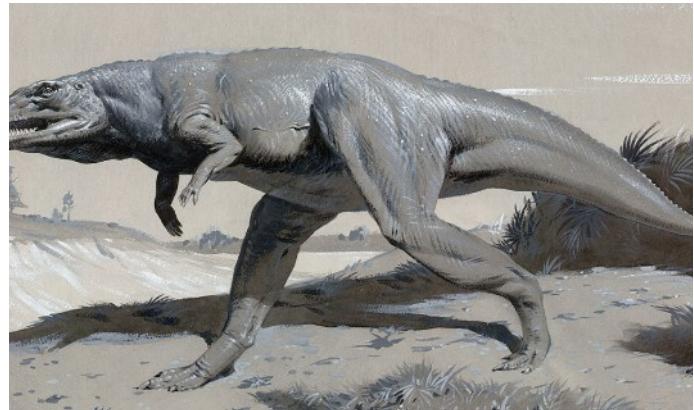


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1 de julio de 2023



Dinosaurios

¿Qué les pasa a estos dinosaurios?

Estas populares reconstrucciones de dinosaurios de la década de 1960 ya no son científicamente exactas. ¿Puedes identificar los errores?



Dinosaurios

Dinosauria: Cómo los 'terribles lagartos' obtuvieron su nombre

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Dinosaurios

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