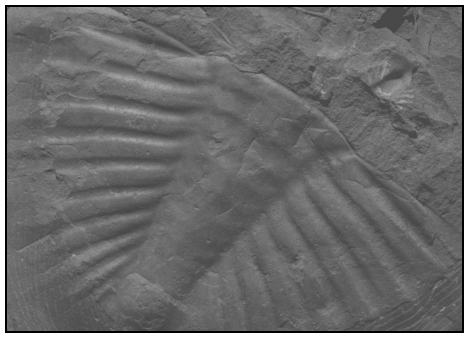
The Bone Trail: the meaning of fossils
Emm Barnes, October 2006

What did it feel like to find a fossil of an extinct animal?

The first twenty-five years of the 19th century were very exciting for 'fossilers,' or 'geologists' as they later became known. The new science of geology was born out of a need to make sense of how stone remains of odd plants and creatures could possible exist in a world made by God. We can try to think back to what it might have been like back then, to find or see fossils of animals which were not like anything then alive in the world. The world was believed to be about 6,000 years old, so what could fossils be?

A popular belief at the time was that simple organisms were produced from nothing in just a moment out of rotting matter. Some people explained fossils as images burned into rock as animals or plants came into being this way. Others said that these 'pictures' in rocks were put there by God to show how powerful He was.



People studying the Earth and the way rocks had been formed were coming to believe that the world was much older than the Bible suggested. One of the first men to write this was James Hutton. In 1785 he wrote "The Theory of the Earth" which said the planet was millions of years old. He argued that the Earth was shaped by slow processes which acted the same way through time. Rocks wear away in wind and rain, and sediments squashed together turn into new rocks. In this world view, fossils would make sense as the remains of creatures which died out tens of thousands, or even millions of years ago.

It is 1820. You are a Christian, and have a little education – perhaps you were taught to read and write at home if your parents were wealthy, or at Sunday school if not. You earn your living in a workshop in the town of Lyme Regis, and on your way to work you go past a shop selling 'fossils.' Sometimes you see gentlemen from London arrive in carriages to look over the dusty rocks.

One day you stop and look – there are teeth of creatures unlike anything you've ever heard of, and small rocks with prints of fish on them. The lady says she found them on the beach after last week's cliff fall. What are they? Are they real or fake? How can they be made from living things since now they're rock? Why would God make animals like this and let them die out?

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The Bone Trail: fossil hunter #1
Emm Barnes, January 2006



Unknown artist, circa 1814-1816

Who was she?
What did she do?
Where and when did she live?

How others saw her

“The princess of palaeontology.”
- Ludwig Deichardt, 1817.

“The extraordinary thing in this young woman is that she had made herself so thoroughly acquainted with the science that the moment she finds any bones she knows to what tribe they belong… By reading and application she has arrived at that greater degree of knowledge to be in the habit of writing and talking with professors and other clever men on the subject, and they all acknowledge that she understands more of the science than anyone else in this kingdom.”
- Lady Harriet Silvester’s diary, 1824.

“A prim, pedantic, vinegar looking, thin female, shrewd and rather satirical in her conversation.”
- Gideon Mantell, 1831.

“A being of imagination - she has so many ideas and such power of communicating them.”
- Mrs Stocks of Lyme, an early employer of the woman, 1831.

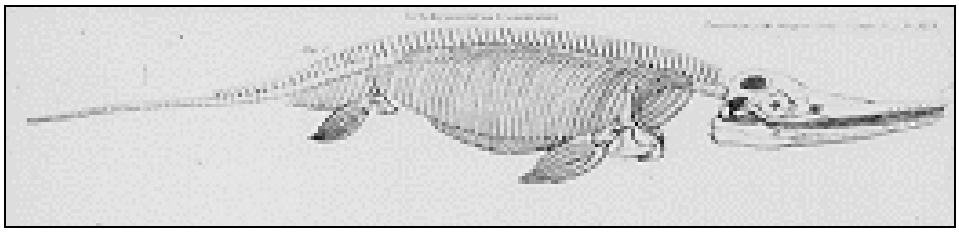
How historians have seen her

“About the time that watering-places arose out of the old town, fossils, called curiosities, became an object that attracted visitors… _____ _____ solds similar objects at Lyme, having learnt how to find such things by accompanying a Mr. South… From this beginning, ____ _____, his famous daughter, proceeded to great discoveries, and geology became established as a science.”
- George Roberts, 1856.

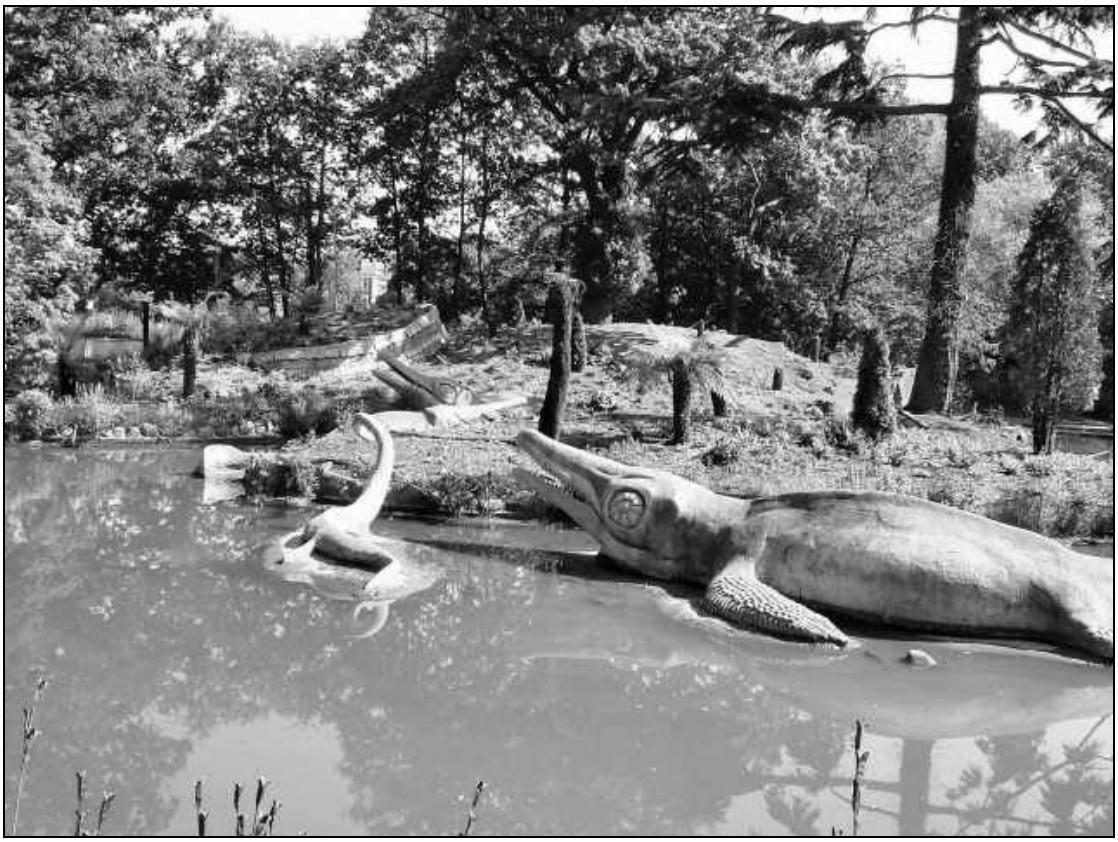
“The greatest fossilist the world ever knew.”
- Hugh Torrens, 1995.

“There is very little firm evidence about _____. For one thing, although her discoveries revolutionised geology, she never published anything herself. For most Victorians she was unimportant because she suffered from several disadvantages – she was a woman, she was poor and she lived in the countryside.”
- Patricia Fara, 2005.

What she found



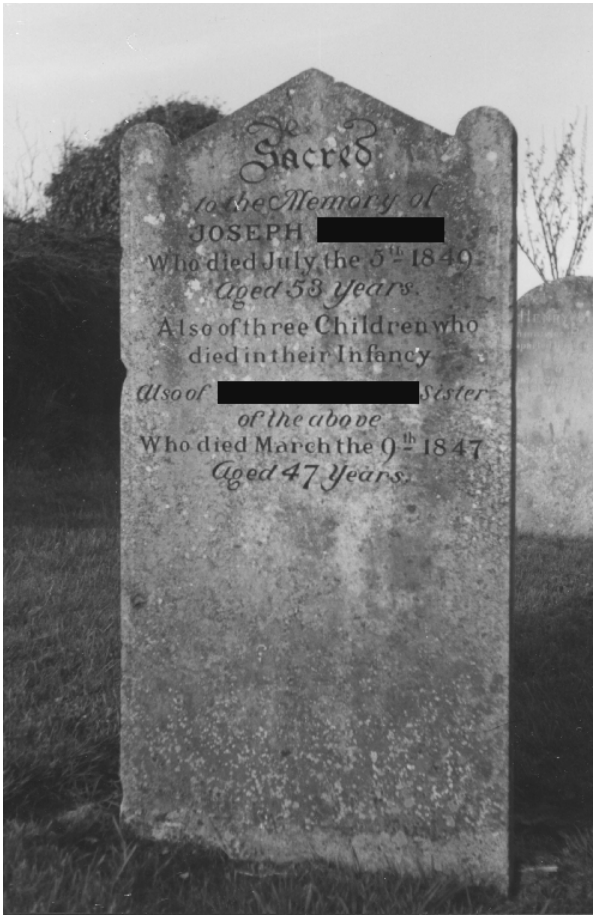
A fossil she found and sold.
This fossil is now in which museum?



Models of the new animal she discovered,
displayed at the Crystal Palace since c1854.



The house where she was born



Her gravestone.
Picture courtesy of Professor Hugh Torrens.

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The Bone Trail: fossil hunter #3
Emm Barnes, March 2006



Illustration courtesy of Professor Eric Robinson

Whose house was this?

What did he do?

Where did he work?

When did he work?

How others saw him, how he presented himself

"A few cottages are scattered round this point, some of the inhabitants of which work upon the beach collecting cement stone or pyrites, the latter being better known by the name of copperas. To these, application should be made to know if they have any 'curiosities', and very frequently excellent specimens, and at a small price, will be thus procured. From this point the route will then be beneath the cliffs upon the shingle, amidst which, dark patches, ten or fifteen yards in length, will be observed, composed of nodules of pyrites, intermixed with pyritised fragments of branches of trees, in great abundance. It is at such spots that the numerous and beautiful specimens of fossil fruits are found; but, to ensure success, the collector must be content to go upon his knees, and carefully search among the fragments. The whole of the beach, from about the parallel of about Minster church to Warden Point, abound with these patches of pyrites, and I have by this means obtained in the course of a morning, upwards of one hundred fine fruits of various sizes."

- letter to the editor of *The Magazine of Natural History*, March 1840.

"The only house in London for Antediluvian creatures"

- a cartoon about his house, which called it "Megatherium Mansion," 1846. He opened a museum in his house in 1842 to show his collection of fossils.

"[He] got lots of names down at once [for previously unidentified British fossils] and thus… [took] out of our hands what all the world looked for us to do. So much for the Palaeontological department and its six years work!"

- Andrew Ramsey, speaking of our mystery man's visit to the Paleeontological Department of the new Geological Survey (of which Ramsey was a principal officer at the time) in 1846.

How historians have seen him

"A forgotten geologist. A notable man of science of the mid-nineteenth century, pre-eminently as a geologist, but with a whole list of additional subject areas into the bargain."

- Eric Robinson, 2003.

"[He was] a sociable man, and used to hold 'open house' on Monday evenings, to which young beginners in geology and microscopy were especially welcome. The idea of the aquarium was developed at his house as he experimented with growing algae, other plants, and fish in a large jar. The secretary of the Zoological Society saw what he was doing and adopted the idea, on a much larger scale, for the London Zoo in 1853."

- John C. Thackray, 2004-05.

What he found



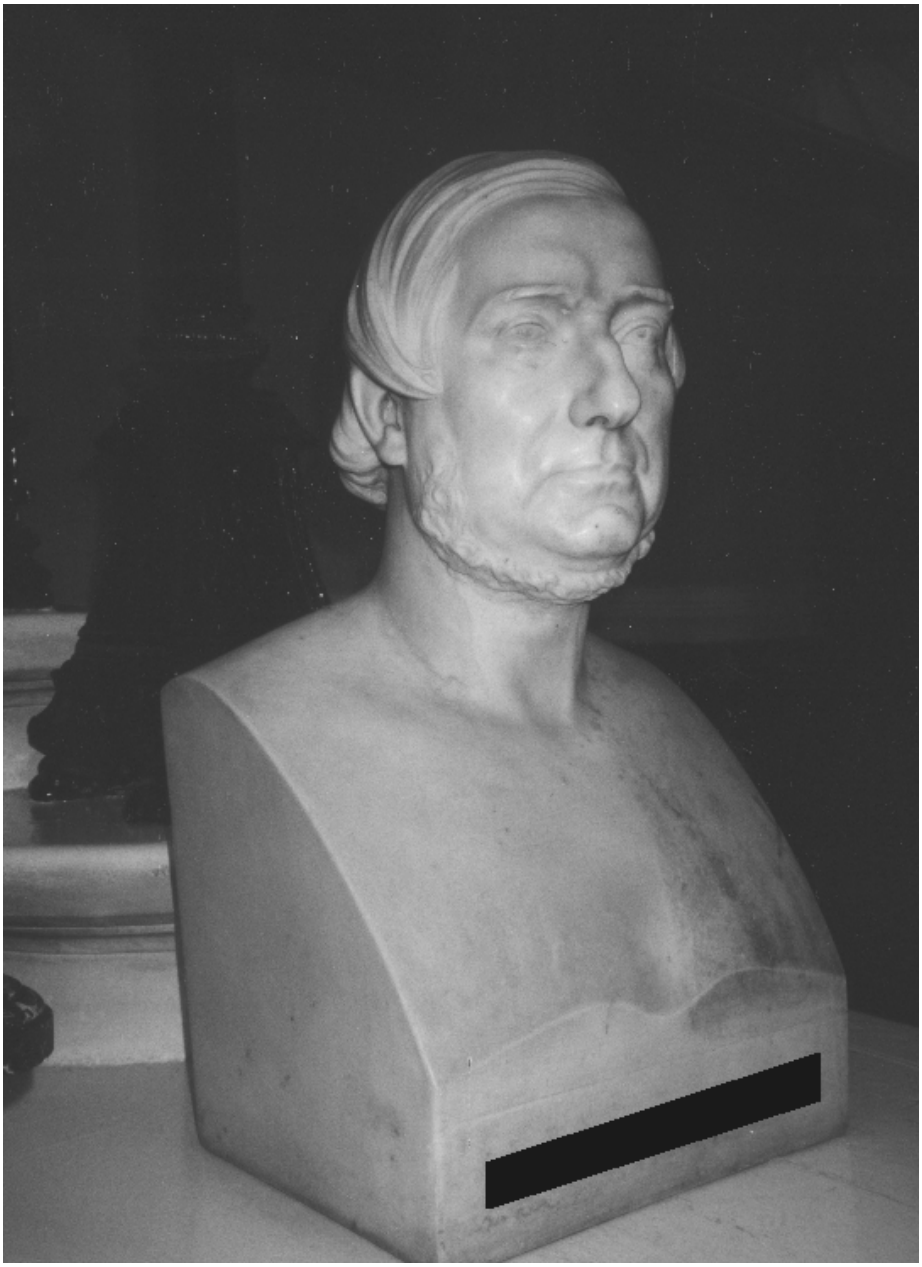
What sort of fossil is this?



And this?

How big is it?

Fame



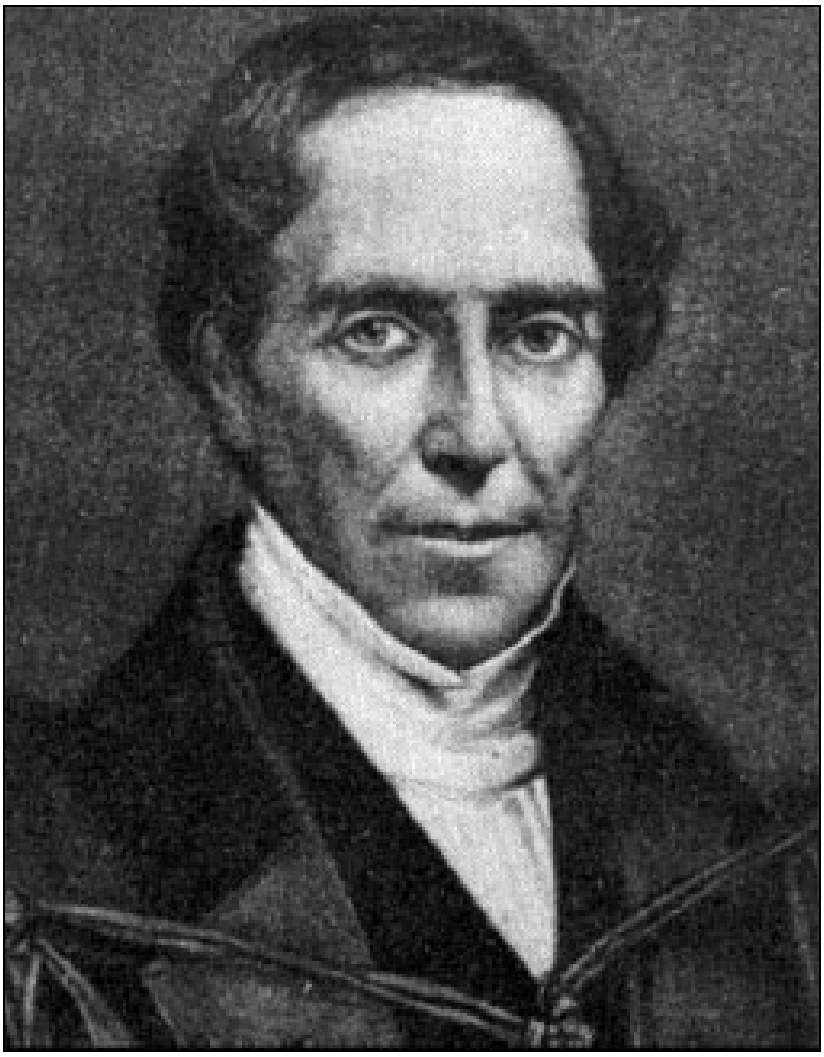
Photograph courtesy of Professor Eric Robinson

Why was this made of him?
Where was it placed?

He was in many scientific professional societies. In 1842, he was elected a Fellow of the Royal Society. In 1847, he initiated the Palaeontological Society, supported by other famous men who studied fossils including William Buckland and Henry de la Beche. But he has been largely forgotten now. Why might this be? Is what he found no longer interesting to people?

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The Bone Trail: fossil hunter #2
Emm Barnes, January 2006



Who was he?

What was his profession?

When and where did he live?

What did he find?

How others saw him

"Dr. _____'s important and interesting discoveries in fossil comparative anatomy, are… immediately connected with his professional attainments… The anatomical details which appear in his various memoirs and works… attest his skill."

- review of our man's fossil museum in The Lancet, 29th June 1839.

"It is now twenty years before I had the good fortune to become acquainted with Mr _____... His Collection is, of itself, a monument of original research and talent… and an assemblage of treasures which the mere industry of a collector could never have brought together… It required his zeal, inspired by genius… to call into existence those huge Saurians… with whose names we have been made as familiar as with those of our domestic animals."

- Charles Lyell, founder of modern geology, and President of the Geological Society, presenting our fossil hunter with the Wollaston Gold Medal for his work in 1835.

"All _____ had done was collect the fossils and let others work them out!"

- Richard Owen, a rival to our mystery man, trying to stop the Royal Society from awarding a Royal Medal to our fossil hunter, 1849.

How historians have seen him

"No one had queried the opinion of an amateur to name a new reptilian species… Without any institutional backing or the reassuring support of a close circle of colleagues, he had successfully convinced some of the most learned men of the country of his discovery."

- Deborah Cadbury, 2000.

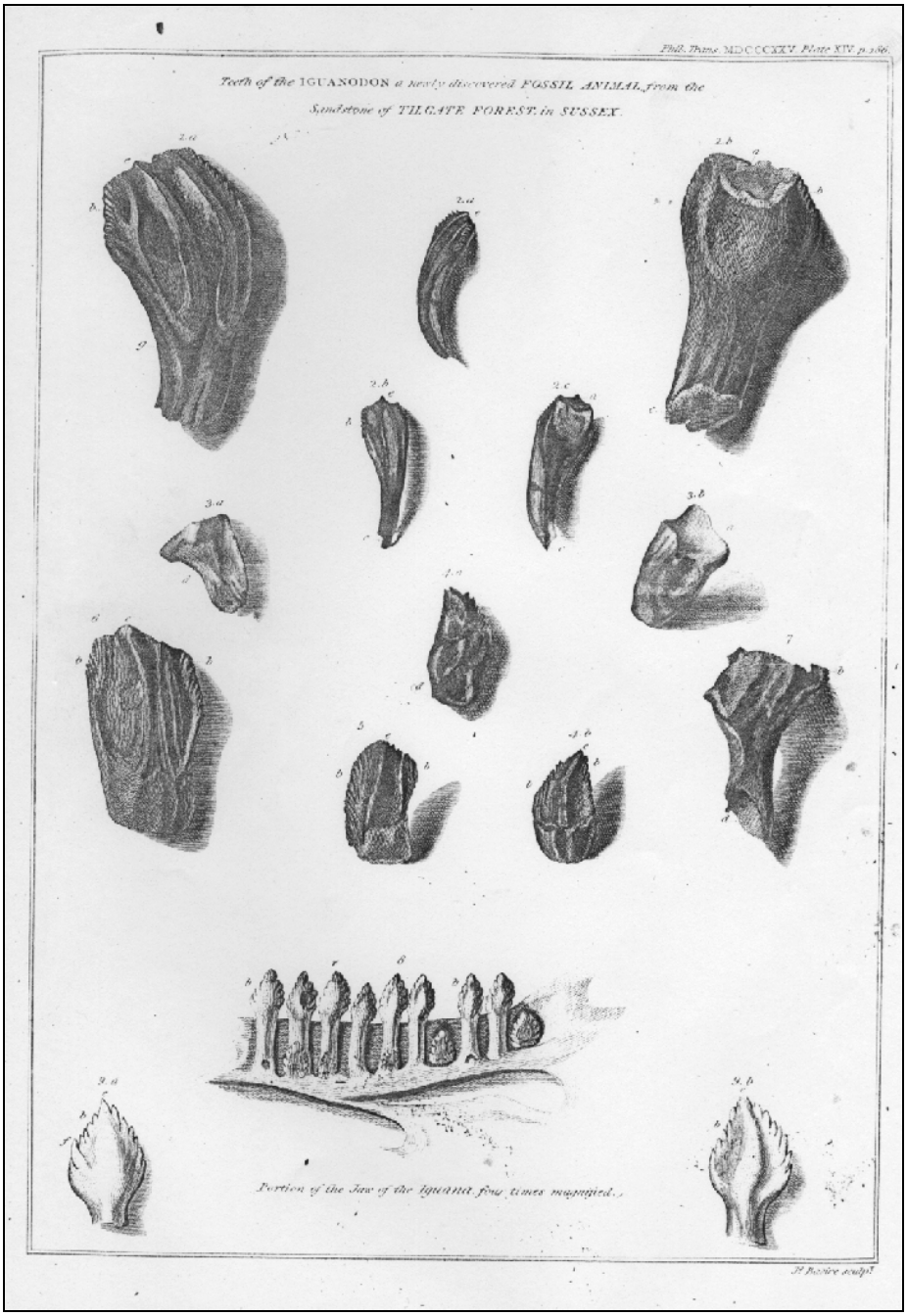
"The Sussex-born scientific genius, _____ _____ (1790–1852), who died 150 years ago, gained fame as the discoverer of Iguanodon and other dinosaurian fossils, but it is a little-known fact that his very first appearance in print related to archaeology rather than geology."

- Anthony Brook, 2002.

"In the history of geology, _____ _____ _____ stands out as someone special, even exceptional, a figure not unlike Mary Anning or Hugh Miller who within their lives became Victorian folk legends… He was the best known of his breed: a provincial middle-class collector who also took to publication. In his day there was someone like him in every neighbourhood: Nathaniel Wetherell, James Bowerbank,… and many others."

- Simon Knell, 2001.

What he found



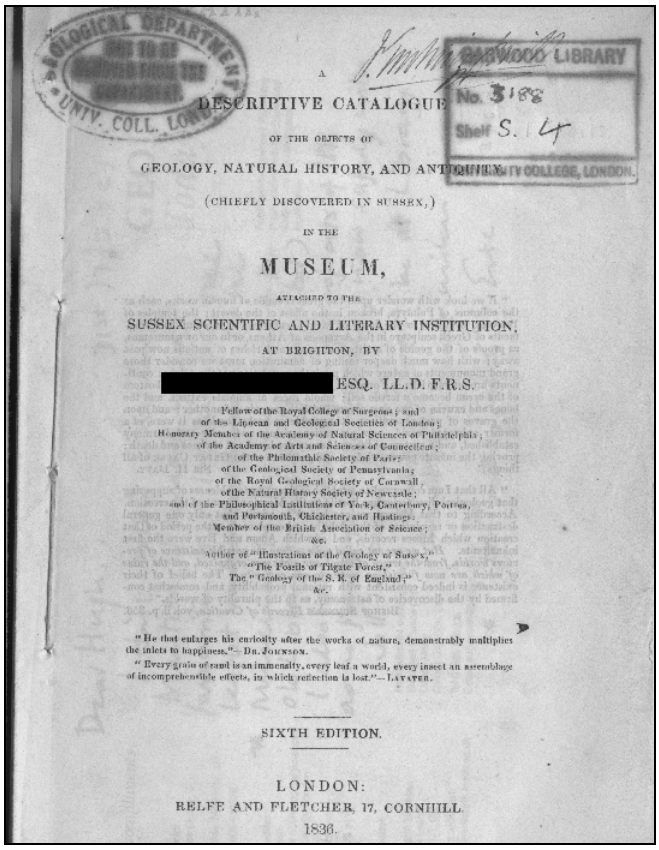
An illustration of the fossil teeth he found in Sussex in 1822.
The illustration comes from a paper he published about his findings three years later after he had decided what kind of creature the teeth belonged to.

What are the teeth illustrated at the bottom?
Why are they on the same illustration?

Who drew the illustration?

Fame, and fortune?

In 1825, shortly after presenting his findings to the Royal Society, our mystery man was elected a Fellow. He was also elected to the Council of the Geological Society and became a member of many learned societies. But by 1836 he was so poor that the council of the town where he lived paid him to turn his house into a public museum. The museum failed and he had to sell his collection to the British Museum in 1838.



A

DESCRIPTIVE CATALOGUE

OF THE OBJECTS OF

GEOLOGY, NATURAL HISTORY, AND ANTIQUITIES,

(CHIEFLY DISCOVERED IN SUSSEX,)

IN THE

MUSEUM,

ATTACHED TO THE

SUSSEX SCIENTIFIC AND LITERARY INSTITUTION,

AT BRIGHTON, BY

[redacted] ESQ. LL.D. F.R.S.

Fellow of the Royal College of Surgeons; and
of the Linnean and Geological Societies of London;
Honorary Member of the Academy of Natural Sciences of Philadelphia;
of the Academy of Arts and Sciences of Connecticut;
of the Philomathic Society of Paris;
of the Geological Society of Pennsylvania;
of the Royal Geological Society of Cornwall;
of the Natural History Society of Newcastle;
and of the Philosophical Institutions of York, Canterbury, Porto,
and Portsmouth, Chichester, and Hastings;
Member of the British Association of Science;
&c.
Author of "Illustrations of the Geology of Sussex,"
"The Fossils of Tilgate Forest,"
The "Geology of the S. E. of England,"
&c.

"He that enlarges his curiosity after the works of nature, demonstrably multiplies the inlets to happiness."—Dr. Johnson.

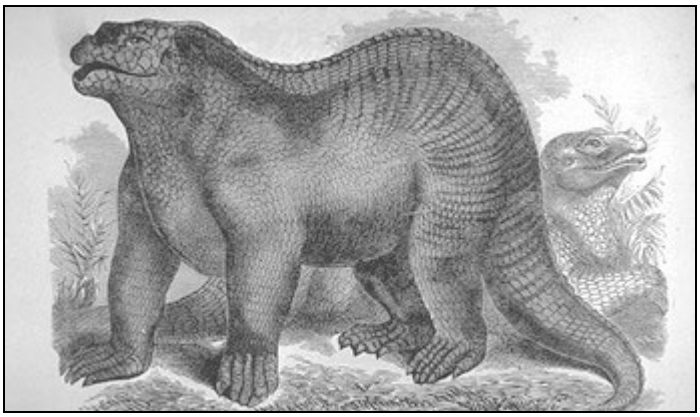
"Every grain of sand is an immensity, every leaf a world, every insect an assemblage of incomprehensible effects, in which reflection is lost."—Lavater.

SIXTH EDITION.

LONDON:
RELFE AND FLETCHER, 17, CORNHILL.
1836.

GEOLOGICAL DEPARTMENT
UNIV. COLL. LONDON
LIBRARY
No. 3188
Shelf S. 4
UNIVERSITY COLLEGE, LONDON.

A catalogue from his museum.
Picture courtesy of Professor Hugh Torrens.



An artist's impression of the animal, recreated from the few fossils found, 1859.

The Bone Trail: William Smith
Alison Henning, March 2006

William Smith



William Smith, also known as Strata Smith, was a civil engineer and geologist. He was born in 1769 and died 1839, the son of an Oxfordshire blacksmith. He became an assistant to a land surveyor in 1787, which taught him how to look at the lay of the land, and taught him mapping skills. This work led to working with coal mine owners, planning the transportation of the coal via canals. During this time he spent much time out in the field and his interest in the recently investigated science of stratigraphy was sparked. [Stratigraphy is concerned with the study of stratified rocks in terms of time and space. It deals with the correlation of rocks from different locations.]

Smith specialized in surveying canal routes. In the process he discovered that fossils could be used to recognize strata found many miles apart. He proposed the principle of superposition, which is that lower strata or beds of rock are older than those above them. Helped by his nephew John Phillips, he published the first geological maps of Great Britain, starting in 1815.

Commoners like Smith were not able to study at one of the great universities, but the influence of the universities pervaded the culture in which he lived. His humble origin and limited education were obstacles to his work's acceptance. But he became acquainted with distinguished men, and some became lifelong friends. He came to know several of the landed gentry well, as they employed him and asked his advice on land matters. The Duke of Bedford was one of Smith's supporters. He introduced Smith to his land steward John Farey. John Farey became a consulting surveyor and geologist under Smith's guidance.

In 1802, thanks to the success of his Farey, Smith was granted an interview with Sir Joseph Banks, the president of the Royal Society. Banks became Smith's biggest and most influential patron and a lifelong friend. It seems that throughout his life, Smith was trusting in showing people the work he produced and the data he had collected.

Geological Society

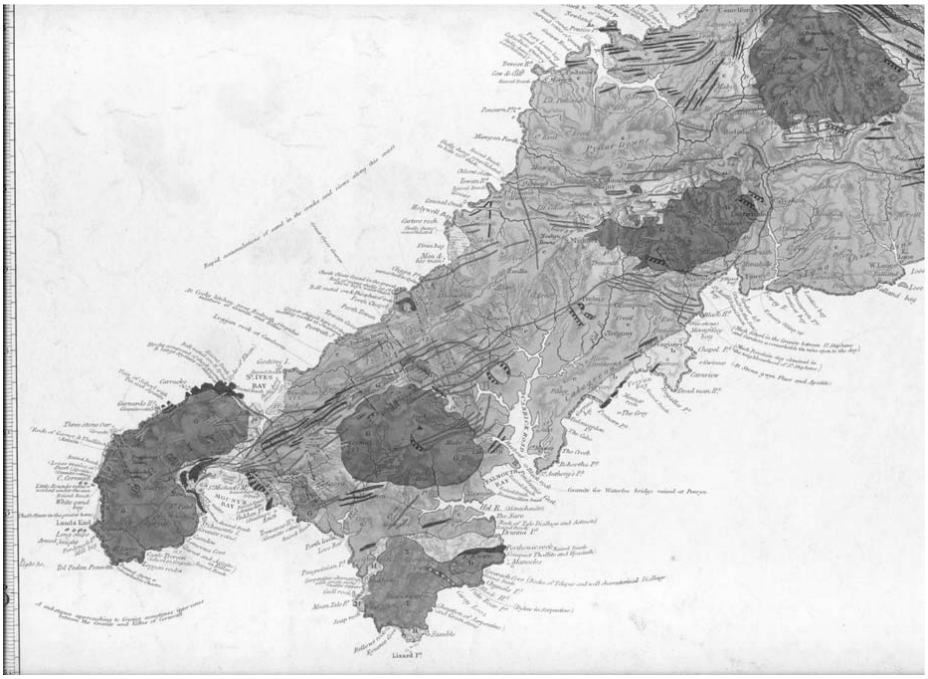
The Geological Society of London is a society dedicated to "investigating the mineral structure of the Earth, and making geologists acquainted with each other, of stimulating their zeal, of inducing then to adopt one nomenclature, of facilitating the communication of new facts, and of contributing to the advancements of geological sciences." Founded in 1807, it is the oldest geological society in the world. Among its founder members were Humphry Davy and George Bellas Greenough. It received its Royal Charter in 1825 from George IV. Since 1874, the Society has been based at Burlington House in London. It exists to promote the geosciences and the professional interests of geoscientists in the United Kingdom.

Greenough was the first president of the Society. He was also a Member of the House of Commons. The Society started out as a social and dining club with just thirteen members. Distinguished and wealthy gentlemen, who had interests in geology, were invited to attend the meetings and become members. The geology that was discussed at these dinners was mostly the theory of geology. Even though this was a society for educated men and men with fresh ideas, Smith was not considered a suitable candidate, as the members were not convinced on the reliability of Smith's work.

In 1819, Greenough's famous "Geological Map of England and Wales, in six sheets" was published. This map was to a large extent based on the original map of William Smith but included much new information. Greenough was not an original researcher but rather a gatherer of information, which he recorded in numerous notebooks. Greenough had also formed a collection of maps upon which he entered all the geological data he could obtain from travellers and from books. In 1808 he first sketched the boundary-lines of the various strata in England and Wales, and in 1810 he travelled over a great part of the country for the purpose of mapping it. At the request of the Geological Society he then, with the help of other members, coloured a large scale-map drawn by Webster, which became the six-sheets map.

This map looked remarkably similar to Smith's map. Although Greenough had collected information using different methods from Smith, it has been speculated that he used Smith's map as a base map, as several of Smith's maps were found in the Geological Society's headquarters with Greenough's handwriting stating that he had taken the information he needed from this piece of work. But Greenough neither acknowledged nor referenced Smith's work. He then added information to his own map, by sending out questionnaires throughout the country and reading papers (so not going out to the sites and finding the information himself). When it was published people

were disappointed as it did not contain many new features. One commentator at the time wrote that “there was despite all the waiting and the expectation, not very much more in this map that had been produced by a society and backed by private wealth, than in the predecessor that had been published five years earlier by one impoverished man, working on his own.”



One of Greenough’s maps, courtesy of the Lapworth Museum, Birmingham.

Both Greenough’s and Smith’s maps were created when “geology” was a new subject of study. It was an age of industrial and urban expansion where there was pressure to locate sources of coal, iron, building stone and brick clay. It is not hard to see that mapping the geology of the entire country was of obvious importance to the economic expansion of that age, and why there may have been competition to be the first to achieve it.

By the 1830s, the quality of Smith's work had been acknowledged by the Geological Society. In 1831, Smith was awarded the Society’s first Wollaston medal by the new president, Adam Sedgwick – a scientific award for geology, the highest award granted by the Geological Society of London. It was awarded “in consideration of William Smith being a great original discoverer in English geology; and especially for his having been the first, in this country, to discover and to teach the identification of strata, and to determine their succession by means of their imbedded fossils.” The following year the government gave him a generous pension of £100 per annum. However, despite this, there was still no acknowledgement to Smith on the map itself. This only appeared on the map’s third edition in 1869, long after Greenough’s death. The two men appear to have remained rivals until the end.

The Bone Trail: Smith versus the Society
Alison Henning, May 2006

William Smith versus the Geological Society
Teacher sheet

The aim of this debate is to encourage the students to think about whether it is acceptable to pass another's work as one's own.

This activity could be spread across two lessons, but can cut it down. The full activity would involve one lesson for students to do their research and the other for the debate. The class needs to be broken into small groups, but each group could be given more than one factor to research if pupil numbers are low, or two groups could be given the same factors to work on.

Pupils should be asking themselves if it was acceptable for the Geological Society to use William Smith's work without giving him credit for it, balancing the idea of the social good (of making the geological knowledge available) versus the individual good (Smith being able to earn a living through sales of his maps, and receiving recognition for his labours). A sheet of questions for students to consider is provided.

Divide the groups into two halves, one to concentrate on William Smith, the other on the Geological Society of London. Ask the students to form groups of about four people, each of which will be responsible for thinking about a different factor. These are as follows:

<u>William Smith</u> His background, His geological maps His friends (were they influential) Bankruptcy and the Wollaston medal

<u>Geological Society</u> Formation of the Geological Society George Bellas Greenough Geological Map The Wollaston Medal

The students will have two sheets of information, one on Smith and the other on the Society, from which to work, extracting information which they think is useful. Additional research materials could be made available. The students will need time to organise the relevant information and discuss it in their groups.

After this initial stage, bring the whole of the William Smith group together to share information and to find the main points from each group to talk about. Each group must tell the rest of the Smith teams what they learnt in a summary using the main points they found. The Smith teams need to appoint a spokesperson to give a 5-minute-long presentation of their arguments to the Geological Society teams. At the same time the Geological Society will be doing same thing.

The teacher could toss a coin to see who speaks first.
While the first group is talking, the second group is listening to their arguments, perhaps taking notes, and coming up with questions to ask. After taking questions, the roles are reversed: the second group gives their presentation and then takes questions from the first. The teacher should make sure she or he has some back-up questions to feed groups who get stuck.

To complete the debate, the teacher asks as a general question whether the students think it is accurate to say that the Geological Society stole William Smith's work, and if so whether this was justified. The teacher could also use other questions as per the student sheet. To avoid the problems of shouting out, other techniques for measuring opinion could be used, for example students to put their thumbs up if they agree, down if not, in the middle if undecided, or students to move into a line to show where they stand between "strongly agree" and "strongly disagree" on each issue.

Student sheet questions

Do you think that Greenough stole Smith's work?
Is it okay to steal someone else's work? Is it ever okay to steal?
Share your thoughts with the group and in the debate.
Is it okay for a mother to steal some bread to feed her starving children?
Is it then okay for a hundred people to steal the bread making the baker bankrupt?

Was it okay for the Geological Society to use William Smith's work without giving him credit and respect?
Would Smith have sold enough copies to keep him out of bankruptcy if his map had been acknowledged by Greenough?
Did the Geological Society give Smith Wollaston medal to apologise for their earlier treatment of Smith?

After reading the information, do you think it was right that the Geological society took William Smith's work without giving him credit? Can you think of other cases where people who have made important discoveries in the sciences have not been properly acknowledged for their work?

William Smith versus the Geological Society
Student sheet

Do you think that Greenough stole Smith's work?
Is it okay to steal someone else's work?
Is it ever okay to steal?
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Can you think of other cases where people who have made important discoveries in the sciences have not been properly acknowledged for their work?

Geological maps over time
Teacher sheet

This would make a good starter for the activities on the history of geology. It asks children to compare William Smith's 1815 map of England and Wales with a recent map produced by the British Geological Survey. The teacher starts by putting the two large maps on the wall (supplied). The teacher then asks these questions, for students to work on in small groups:

In two columns, write down the similarities and differences between the two maps. When do you think the maps were drawn and why? What questions would *you* ask about the maps?

This last is crucial, as it encourages the students to decide what the most interesting questions about the maps might be, and allows for the teacher to more accurately assess the level at which individual children are working.

After time for group work, the teacher reveals that one of the maps was drawn from the work of one man, William Smith, published in 1815. The other is a refinement of Smith's map, relying on the work of many geologists and cartographers using modern technology. The teacher can then collect answers from the groups, including the questions they have thought up.

Some of the questions asked by previous groups of students:

Are the colours for different rock types?
Why has Scotland been chopped off?
Why doesn't the older one have place names on it?
Why are there numbers on the newer one?
Is one older than the other?
Why are the colours so dull on the older one?
The Isle of Man is in different places on the two maps – is this a mistake or is there a geological reason?
The gridlines between the two maps are different, why?
Why has one map got a key while the other hasn't?
Who drew them?
How many colours are there?
Do they both represent the same thing?
What is the point of these maps?

The Bone Trail: dinosaurs in art
Emm Barnes, March 2006

Changing ideas about to represent dinosaurs in pictures and models

You have some cards with pictures of dinosaurs – iguanadon, diplodocus, and tyrannosaurus rex – taken from the past 170 years. Your task is to group them together and place each set in chronological order, watching for how the reconstructions of these animals from partial fossil remains have evolved over time according to changing scientific theories and changing fashions and techniques in art.

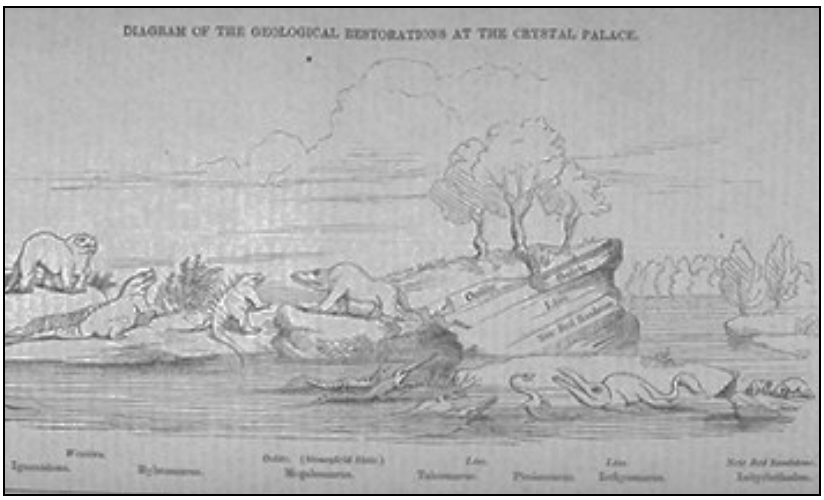
Iguanadon – pictures in chronological order, with estimated dates for each
1st 2nd 3rd 4th

Diplodocus – pictures in chronological order, with estimated dates for each
1st 2nd 3rd 4th

Tyrannosaurus rex – pictures in chronological order, with estimated dates for each
1st 2nd 3rd 4th

The Bone Trail: travelling with dinosaurs
Emm Barnes, March 2006

What was it like to visit the Crystal Palace park in Sydenham in 1854?



You are visiting London in 1854. You have made a day trip to visit the Great Exhibition now it has been relocated to Sydenham, south of the city. Write a short letter home to your family in a small country town about seeing the new lifesize models of extinct animals in the grounds of the Crystal Palace. You could sketch your impressions in prose, poetry, pictures, or some mix.



Top: plans dated 1854; bottom: photograph taken 2005.

How visitors saw them in 1854

"'What are those?' exclaimed a passenger in the railway carriage, as it ran along the embankment above the gardens. 'The antediluvian animals, to be sure', a comrade informed him. 'Why antediluvian?' 'Because they were too large to go into the ark; and so they were all drowned.'"

- Harriet Martineau, a report of an overheard conversation, in "The Crystal Palace," *The Westminster Review*, 1854. Most visitors arrived by train on a line specially constructed.

"[T]he visitor will now pass along the walk by the water's edge, and inspect the restoration of animals which existed in the vast and grand Secondary Epoch. These were ages when a luxuriant vegetation prevailed and huge creeping things and carnivorous monsters, roamed through tangled brake, or pursued their prey along the shallow banks of inland seas. Here creatures more terrible and appalling than a poet's fancy ever dreamed of, lived and died."

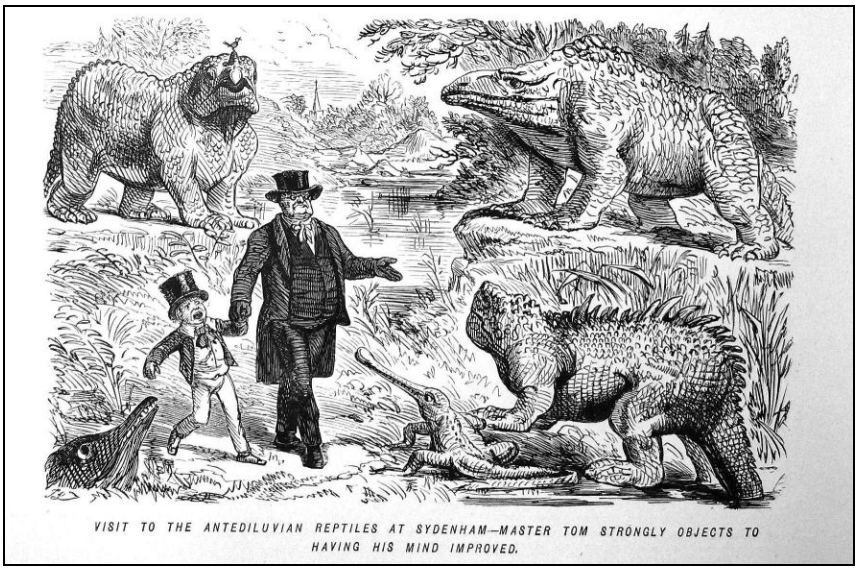
- *Routledge's Guide to the Crystal Palace and Park at Sydenham*, 1854.

There were "shilling days" when entrance to the Crystal Palace was cheaper than usual, and these became popular with schools groups and with families:

"School children are now beginning, after the fashion of the old Exhibition, to appear in bands, headed by their teachers, on the shilling days. This is a practice which cannot be too much encouraged, and it is to be hoped that every facility will be given to these young students to carry away with them as large an amount of information as possible about all they see."

- The *Times*, 7th July 1854.

Cartoonists realised that not all children wished to be instructed!



VISIT TO THE ANTEDILUVIAN REPTILES AT SYDENHAM—MASTER TOM STRONGLY OBJECTS TO HAVING HIS MIND IMPROVED.

By John Leech, in *Punch*, 1854.

Dinosaurs in the popular imagination in the mid 19th century

"London. Michaelmas Term lately over, and the Lord Chancellor sitting in Lincoln's Inn Hall. Implacable November weather. As much mud in the streets, as if the waters had but newly retired from the face of the earth, and it would not be wonderful to meet a Megalosaurus, forty feet long or so waddling like an elephantine lizard up Holborn-hill."

- Charles Dickens, *Bleak House*, the opening words of the novel, first serialised in 1852.

Dinosaurs were not the only giant extinct reptiles being discovered in the early 19th century. Mary Anning first found the fossil remains of sea-dwelling reptiles in the 1810s, and then those of a flying reptile in 1828. These were often understood as being like the dragons of stories and poems from earlier times and distant lands. Ichythosaurus (meaning "fish lizard") was frequently described as a sea-dragon. One author wrote that it was so much like the dragons in myths that one could be lead to suppose that "among the buried learning of the earlier nations there lurked some knowledge of geology."

- "The Natural History of the Dragon," *Chambers Journal*, 1848.

Anning's flying reptile was christened Pterodactyl. It was "a monster resembled nothing that had ever been seen or heard of upon the earth, excepting the dragons of romance and heraldry."

- William Buckland, "On the Discovery of a New Species of Pterodactyl in the Lias at Lyme Regis," *Transactions of the Geological Society of London*, 1835.

When dinosaurs were discovered in the following years, they were seen as land dragons.

"'Tis indeed a world of wonder,
Found within the earth and under;
…
Forms as wild as fancy wishes,
Monster lizards, stony fishes;
Fragments of the lost amphibia,
Here a femur, - there a tibia; -
Here the monster mammoth sleeping,
Here the giant lizard creeping."

- G. F. Richardson, curator of Gideon Mantell's museum in Brighton, written for its opening in 1836.

How we see the models now, looking back

“Over a million people a year for the next half-century [from 1854] saw these remarkable full-scale models of extinct reptiles and mammals – more than had ever viewed a scientific work of any kind. Although ancient forms of life had previously been presented to a wide audience in panoramas and books, they had never been shown in three dimensions…

“The Crystal Palace models… have come to serve as iconic substitutes for an understanding of Victorian attitudes towards science. The New Year’s Eve dinner held inside a mould of one of the creatures [in 1853] is among the most celebrated meals in history… and a potent symbol of the modern fascination with dinosaurs.”

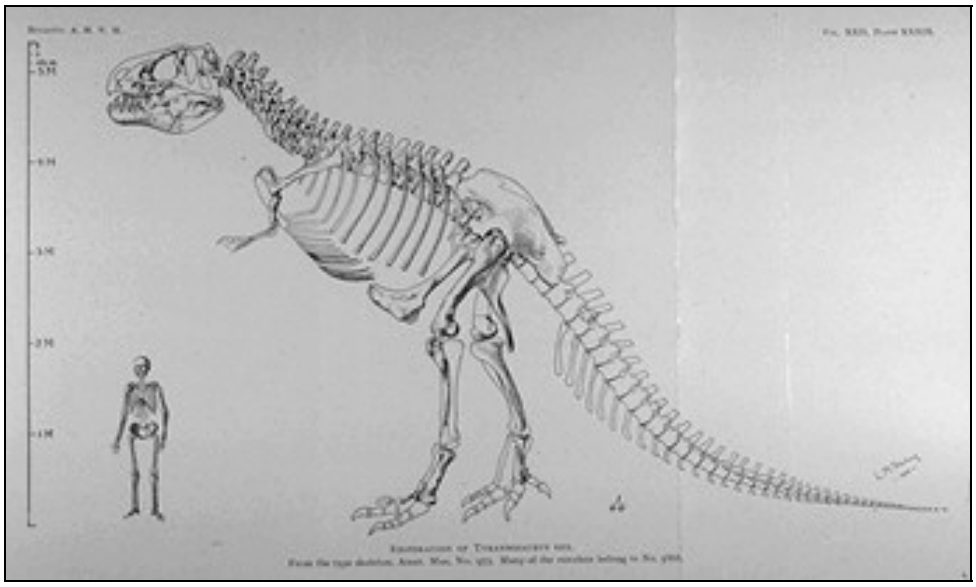
- Jim Secord, 2004.



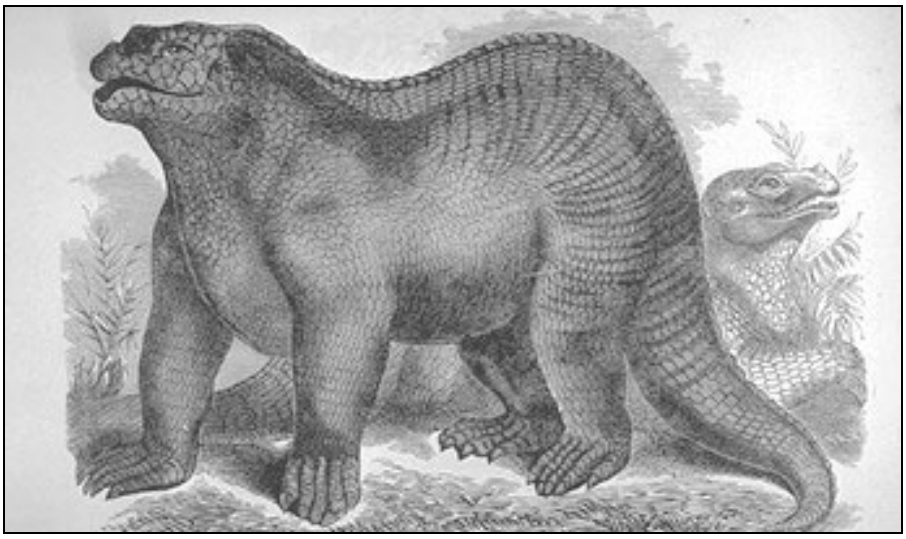
Another recent photograph of the models as they look today.

“[I]n the ‘open-air’ museum that constituted part of the Crystal Palace park at Sydenham, visitors came face to face with the nineteenth-century equivalent of a modern ‘virtual reality display’, complete with mock geological strata and life-sized representations of reptiles as they basked amid man-made lagoons.” This park was written about in similar ways to those used to describe “a Disney theme park, or perhaps… London’s millennium dome.”

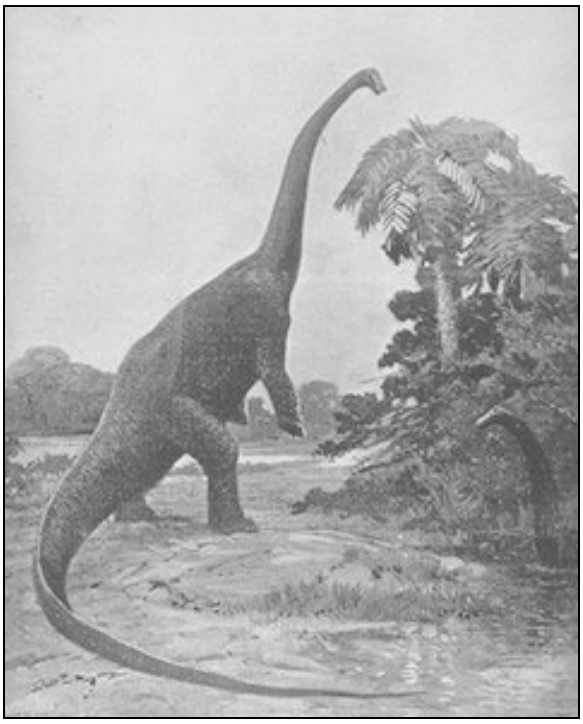
- Michael Freeman, 2004.



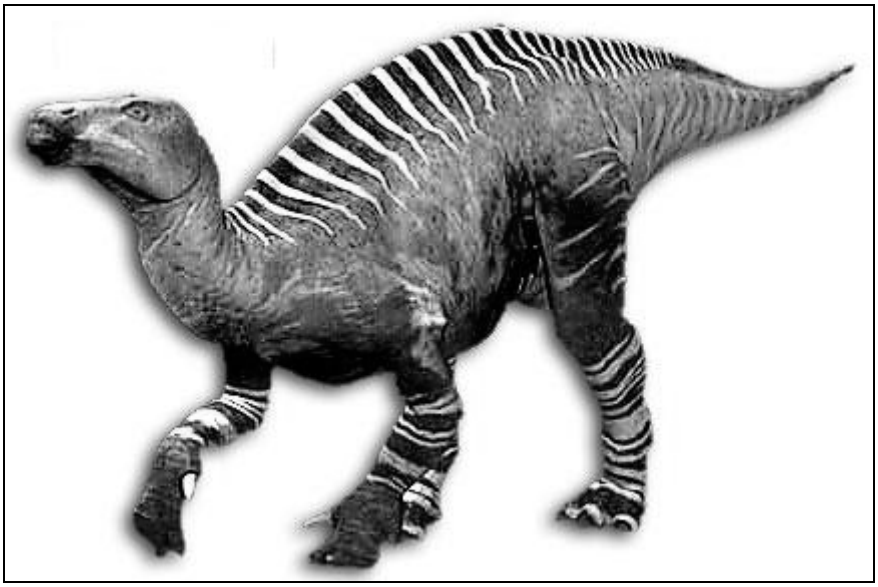
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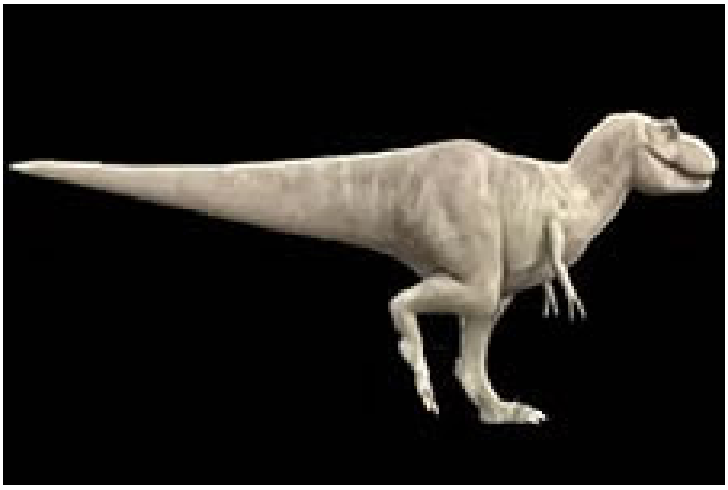
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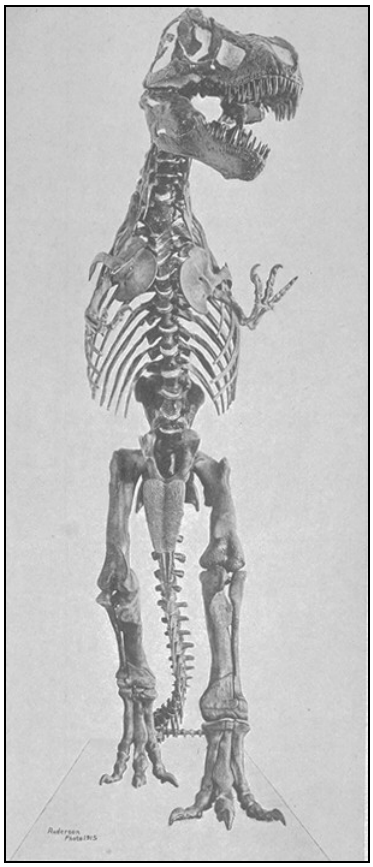
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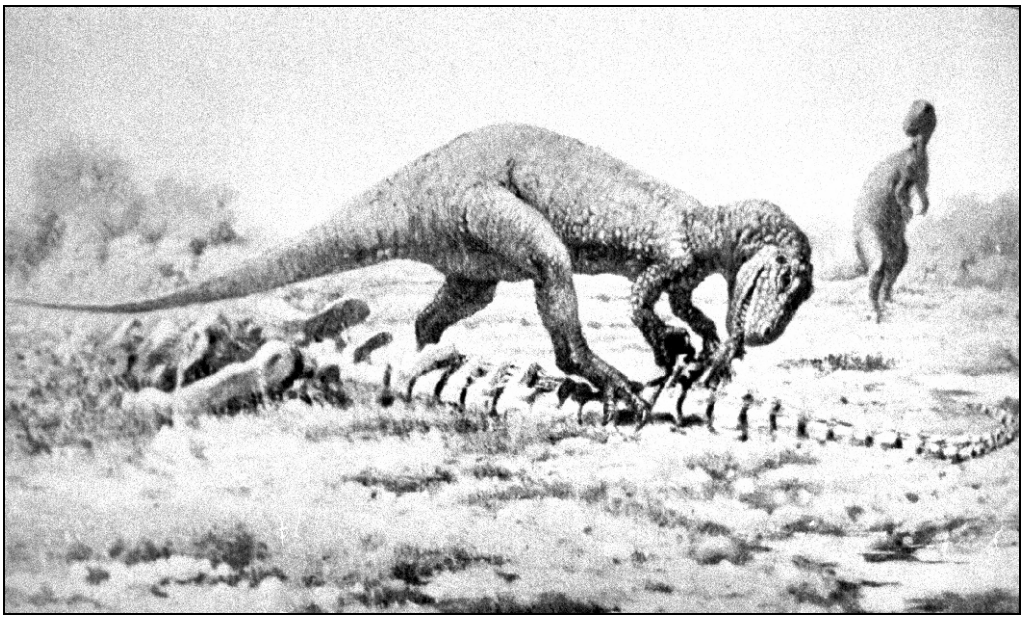
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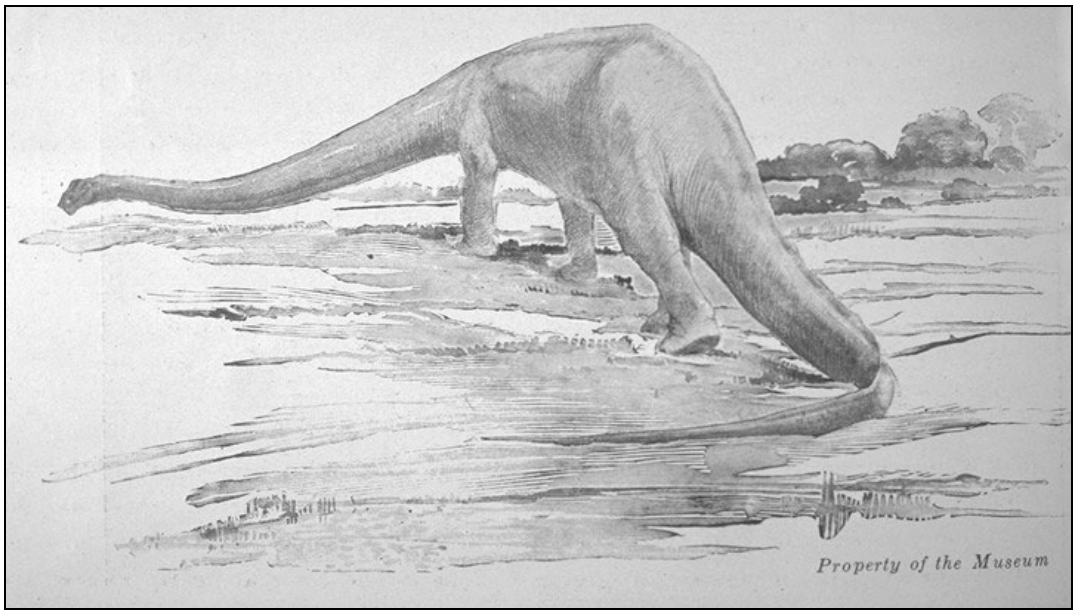
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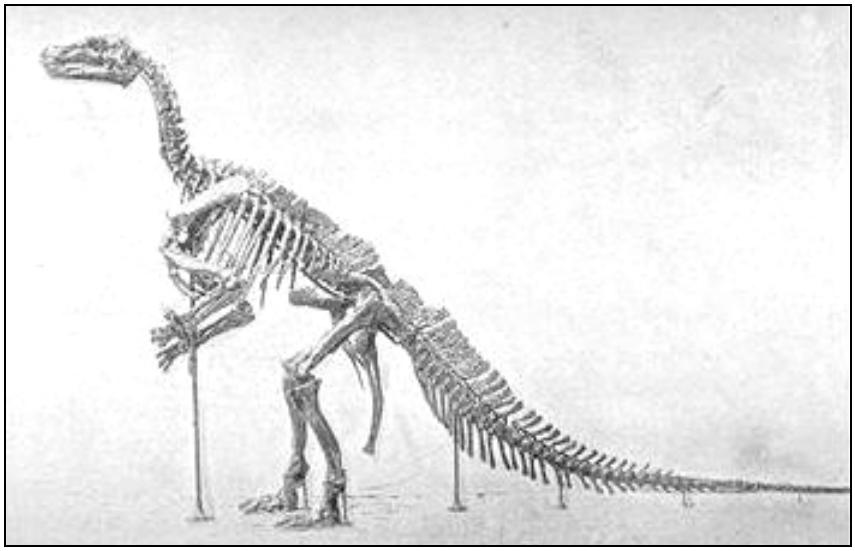
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