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Richard Owen: A Forgotten Icon

Born to humble beginnings as the son of a West India Merchant, naturalist Richard Owen rose to become one of the most famous scientists of the nineteenth century.¹ Nicknamed the “British Cuvier” and mentioned in the same breath as Isaac Newton, Owen played a fundamental role in the development of comparative anatomy and biology in the 1800s.² Despite this, Owen is largely forgotten today, dwarfed by Charles Darwin’s stardom. Envious of Darwin eclipsing him professionally, Owen started a fight with Darwin he could not finish.

Due to his relatively modest upbringing, Owen did not have a university education when he started his professional career. He took an alternative route, working his way up through a series of apprenticeships. Endorsed by his mentor, surgeon John Abernethy, Owen earned membership to the Royal College of Surgeons in 1826, and he pivoted to secure a curatorial position at the college’s Hunterian Museum in 1827. Driven by a desire to increase the educational and research capabilities of museums, Owen was one of the driving forces behind the Victorian-era movement of expanding museum collections.³ Applying that philosophy at the Hunterian Museum, Owen oversaw its growth and enhanced its collection during an expansion from 1834 to 1837.⁴ His ambition met a wall when he attempted to turn the Hunterian Museum into a museum of osteology and paleontology; the museum’s board refused on the grounds of

¹ Nicolaas A. Rupke, *Richard Owen: Biology without Darwin* (Chicago: University of Chicago Press, 2009), 12.

² Nicolaas A. Rupke, *Richard Owen: Victorian Naturalist* (New Haven: Yale University Press, 1994), 1.

³ Rupke, *Richard Owen: Biology without Darwin*, 12-13.

⁴ *Ibid*, 18.

wanting to remain an institution primarily focused on educating surgeons and doctors. In 1856, Owen accepted the position of superintendent at the British Museum, where he could realize his goal of unifying the Hunterian collection of skeletons and the vertebrae fossils of the British Museum.⁵

Owen's claim to fame began at the Hunterian Museum. Continuing his goal of improving public education, he frequently hosted lectures in which he would discuss discoveries and issues relating to comparative anatomy. Owen's lectures attracted a wide audience, ranging from medical students and other members of the college to revered colleagues such as geologists Charles Lyell and William Buckland. These lectures were covered extensively by the press, and the press reports derived from his lectures were popular with the reading public. Owen was known as an engaging lecturer, and his ability to excite people about comparative anatomy greatly raised his profile in the public eye.⁶

At the Hunterian Museum, Owen was also able to perform work that garnered him respect as a researcher, as well. His first big, well-received work came when the Royal College of Surgeons received a rare specimen of nautilus, a relative of octopuses and squids; Owen produced a series of monographs on the specimen and recorded his findings in *Memoirs on the Pearly Nautilus* (1832). The memoir received high praise from fellow naturalists Anthony Carlisle and William Buckland.⁷ His position at the Hunterian Museum granted him privileged access to many fossils and specimens that he could study, thus raising his profile.

The perks of this privilege proved to be a great boon to his renown as Owen was talented at organizing fossils to reconstruct extinct creatures. His most famous reconstruction was his work on the Moa in 1839. From fragmented bones, Owen was able to derive the structure of the

⁵ Ibid, 21.

⁶ Ibid, 28-31.

⁷ Ibid, 68-69.

rest of the large, flightless bird. The work of reconstructing fossils was of great interest to the general public, and Owen earned the reputation as the reviver of dead species. Owen's work on the Moa was published in 1840 and it spurred further research and study on bird fossils.⁸

Owen utilized his momentum from his work at the Hunterian Museum to become a greatly respected leader in the comparative anatomy community. As a leader, Owen had a controversial reputation. At a distance, he was seen as a charismatic and helpful lecturer. Perceived as the "supreme expert," those who only interacted with Owen on a surface level, like non-experts, junior naturalists, and distant colleagues saw him as a "model of kindness and generosity." However, when among his close colleagues, Owen turned petty and autocratic towards those who challenged his authority.⁹ As naturalist Gideon Mantell (Owen's biggest rival early in his career) put it, Owen was intolerant and resented "that anyone put a foot upon the lowest step of his throne."¹⁰

Owen's rivalry with Mantell is the best example of the type of perfidy Owen was capable of. Mantell and Owen's relationship started off cordially. In 1840, Mantell helped Owen gather materials for the "Report on the Fossil Reptiles of Britain" that Owen was constructing, and together they shared ideas and observations about the reptile fossils they were inspecting.¹¹ However, when Owen presented this report in August 1841 at the annual meeting of the British Association for the Advancement of Science, Owen not only stole credit for Mantell's observations about the *Iguanodon*, but he used his platform to attack Mantell and his ideas.¹² Additionally, in 1841, Owen established a new subgroup called *Dinosauria* (from Greek words *deinos*, meaning 'fearfully great' and *sauros*, meaning 'lizard'). As such, Owen is known as the

⁸ Ibid, 70-72.

⁹ Rupke, *Richard Owen: Victorian Naturalist*, 9.

¹⁰ Deborah Cadbury, *Terrible Lizard*, (New York: Holt, 2001), 265.

¹¹ Ibid, 237.

¹² Ibid, 240-241.

one to coin the word “dinosaur” and was lauded with credit for their discovery, despite the fact that Mantell had been working with fossil reptiles for years and had been the one to discover two of the three species, *Hylaeosaurus* and *Iguanodon*, Owen initially classified in the *Dinosauria* subgroup.¹³ Mantell was one of many that Owen pushed out of the way to raise his own notoriety.

Owen utilized that notoriety to become a leading theorizer on topics in comparative anatomy. Owen’s models of comparative anatomy were based on homology. Archetype theory formed the crux of his homological beliefs. According to Owen, God creates simple archetypes, which include vertebrates, and from those archetypes more complex species evolve from “secondary causes.”¹⁴ Owen’s biggest works detailing archetype theory are *On the Archetype and Homologies of the Vertebrate Skeleton* (1848) and *On the Nature of Limbs* (1849). The former discusses the comparative anatomy of vertebrate skeletons in the context of homology and how vertebrates have similar underlying structures, and the latter focuses on the comparative anatomy of limbs in different vertebrate species. These works also demonstrate Owen’s belief in heterogeneity and predetermined evolution, with *Nature of Limbs* referencing “natural laws or secondary causes” that are in accordance with the Divine plan.¹⁵

Despite how many of his contemporaries characterized him, Owen did likely believe in evolutionary theory. His belief can be summarized by saying that God creates simple archetypes, like vertebrates and invertebrates, and instills life in various places based on those archetypes. From these archetypes, more complex forms evolve by secondary causes; those secondary causes are unknown, but Lamarckian atrophy and hypertrophy, sudden birth defects, premature birth,

¹³ Ibid, 249-250.

¹⁴ Rupke, *Richard Owen: Biology without Darwin*, 118-120.

¹⁵ Evelleen Richards, “A Question of Property Rights: Richard Owen’s Evolutionism Reassessed,” *British Journal for the History of Science*, vol. 20, no. 2 (1987): 129–71; 151.

prolonged gestation, and Parthenogenesis are likely among the causes.¹⁶ Development of classes and families occurs in a “multilinear process with many lines diverging away... toward different adaptive modifications.”¹⁷ Species have an innate tendency to evolve toward something as overseen by God.

Owen tried to introduce evolutionary ideas to his colleagues with little success. For example, his controversial ending to *Nature of Limbs* suggested that humans evolved from fish, and that led to so much controversy that he eventually had to walk it back. He later claimed that he meant that the creator creates other species based on the archetypes of existing species.¹⁸ In addition, Owen had an overall positive reaction toward Robert Chambers’s 1844 work *Vestiges of the Natural History of Creation*. He sent a letter to its publisher, John Chapman, in which he speculated several possible causes of the introduction of new species.¹⁹ Although he never publicly reviewed it, despite pressure from his peers,²⁰ he still vehemently denounced it to stay in line with his colleagues.²¹

One last example of Owen testing the waters on evolution is his introduction of the translated works of Lorenz Oken. Owen owed much of his homological beliefs to the work of Oken. Oken promoted ideas that were seen as radical at the time in the English scientific community, particularly that humans were not specifically created but that they evolved from lower lifeforms. When Owen tried to introduce Oken’s *Lehrbuch der Naturphilosophie* to the Ray Society it caused such a stir that two members resigned in disgust.²² As they were creationists,

¹⁶ Rupke, *Richard Owen: Biology without Darwin*, 148.

¹⁷ Giovanni Camardi, “Richard Owen, Morphology and Evolution,” *Journal of the History of Biology*, vol. 34, no. 3 (2001): 481–515.; 496.

¹⁸ Richards, “A Question of Property Rights,” 167.

¹⁹ *Ibid*, 131.

²⁰ Rupke, *Richard Owen: Biology without Darwin*, 143.

²¹ Richards, “A Question of Property Rights,” 157.

²² *Ibid*, 163-164.

Owen's contemporaries were concerned about Oken's suggestions regarding the natural descent of humans from nature.

Owen never wrote much about his ideas of evolution due to the cold reception he received on that front. His vagueness caused people to misunderstand and mischaracterize his beliefs on evolution and ultimately led to a significant issue when Owen read Charles Darwin's *On the Origin of Species*. In a letter written to Charles Lyell on December 10th, 1859, Darwin detailed an interview with Owen where he angrily confronted Darwin about listing him among those who "vehemently maintained the immutability of species." Although he overall had positive things to say to Darwin about his book (like it being the "best ever published of manner of formation of species"), his anger at that mischaracterization caused him to be "bitter and sneering" towards Darwin.²³

This misunderstanding proved to be a nexus point in Owen and Darwin's relationship, and ultimately in Owen's career, as Owen's response was to write an anonymous review in the *Edinburgh Review* in May 1860 that heavily criticized *Origin*. Although the review starts by praising Darwin's work with bees and pigeons, it refers to such work as "gems" in what is otherwise a highly speculative and unfounded book. Owen does not like that Darwin never answers what the origin of life actually is and that Darwin specifies that life has a common origin.²⁴ As Christopher Cosans explains in his analysis of Owen's review, "Owen believed that anatomical observations of living things and fossil organisms supported the idea that new living things are constantly generated," so Owen's belief in heterogeneity was a clashing point for him.²⁵

²³ Darwin Correspondence Project, "Letter no. 2575."

²⁴ Richard Owen. "[Review of Origin & Other Works]," *Edinburgh Review*, vol. 111 (1860): 487-532, 494-495

²⁵ Christopher Ernest Cosans, *Owen's Ape and Darwin's Bulldog* (Bloomington: Indiana University Press, 2009), 98.

Owen also criticized how Darwin relied on the interpretation of other naturalists rather than providing more original evidence and interpretation. Owen wanted to see more work like the study of bee hives and the breeding of pigeons rather than being derivative of other naturalists. One last big criticism is that he implies Darwin is a hypocrite for rebuking those who believe species were created by God while his theory relies on a creator initially breathing life to originate species.²⁶ Owen's criticisms can be summarized as asserting that Darwin provides more questions than answers and does not provide sufficient evidence to support his argument.

While no one likes receiving criticism, it is more the tone of the review rather than the content that irreparably destroyed Owen and Darwin's relationship. The following quote by Owen critiquing Darwin for his lack of evidence exemplifies the unnecessary venom with which Owen wrote his review:

We were then left to confide in the superior grasp of mind, strength of intellect, clearness and precision of thought and expression, which raise one man so far above his contemporaries, as to enable him to discern in the common stock of facts, of coincidences, correlations and analogies in Natural History, deeper and truer conclusions than his fellow-labourers had been able to reach.²⁷

Darwin was hurt by the review as he saw it as a "personal slight and betrayal" and "ad hominem attacks" starkly contrasted by his previous meetings with Owen, which were "nothing but cordial and flattering to Darwin."²⁸ Owen did not even necessarily disagree with natural selection or Darwin's ideas; he mainly wrote the review to clear his own name after his anger at being labeled as a believer in the immutability of species. The irony of this is that the fallout from this

²⁶ Owen, "[Review of Origin & Other Works]", 521.

²⁷ Ibid, 495.

²⁸ Curtis N Johnson, "Charles Darwin, Richard Owen, and Natural Selection: A Question of Priority." *Journal of the History of Biology*, vol. 52, no. 1 (2019): 45–85; 60.

review would lead to a conflict with Darwin, from which his reputation would never recover.

Darwin addressed Owen's criticisms in his addition of the "Historical Sketch" to the third, 1861 edition of *Origin*. Darwin included the "Historical Sketch" in the third and all subsequent editions of *Origin* to acknowledge the viewpoints of his contemporaries on the evolution of species and Darwin's theory specifically. In it, Darwin paid special attention to Owen and included quotes of Owen that portrayed him as a creationist. The quote Darwin incorporated in his third edition of the "Historical Sketch" that he felt was particularly damning to Owen's credibility was a reference to Owen's Address to the British Association in 1858 where he speaks on "the axiom of the continuous operation of creative power, or of the ordained becoming of living things," and then later defines creation as "a process he knows not what."²⁹ In a letter to T.H. Huxley dated January 3rd, 1861, Darwin summarizes why he included those quotes:

[I am reminded of a] passage which I have just observed in Owen's address at Leeds, which a clever Reviewer might turn into good fun. He defines & further on amplifies his definition that Creation means "a process he knows not what". And in previous sentence he says facts shake his confidence that the Apteryx in N. Zealand & Red Grouse in England are "distinct creations". So that he has no confidence that these birds were produced by "processes he knows not what".— What miserable inconsistencies & rubbish this truckling to opposite opinions leads the great generaliser!³⁰

The tone of this letter best foreshadows the feud that would transpire between Owen and Darwin over the following years. Far from being a debate solely of different biological ideas, Darwin and Owen would engage in petty attacks born from a mutual disdain aimed to embarrass the other in

²⁹ Charles Darwin, *On the Origin of Species*, 3rd ed (Albemarle Street: John Murray, 1861), xvi-xvii.

³⁰ Darwin Correspondence Project, "Letter no. 3041."

the public eye. Owen was at a disadvantage in this fight, for he had written almost nothing about evolution before 1859 and therefore had little ammunition with which to defend himself.³¹

Once Owen realized that publicly tearing apart *Origin* would not bury it in the public eye, he sought a new campaign: trying to claim priority on Darwin's idea of survival of the fittest. He did so in 1866 through the first volume of *On the Anatomy of Vertebrates* and in his letter to the *London Review*, in which he claimed that he discovered "Darwin's theory" in his 1850 work *Transactions*.³² The relevant passage in *Transactions* is:

[A change in external agencies over time] will militate against the [continued existence of a species] in a degree proportionate, perhaps in a geometrical ratio, to the bulk of the species.... The actual presence, therefore, of small species of animals in countries where the larger species of the same natural animals formerly existed, is not the consequence of any gradual diminution of the size of such species, but is the result of circumstances...; the smaller and feebler animals have bent and accommodated themselves to changes which have destroyed the larger species.³³

In the "Historical Sketch" of the fourth edition of *Origin*, Darwin rebuked Owen's claim of priority by pointing out that Owen is making an argument about "extermination and preservation of animals" and not an argument about "their gradual modification, origination, or natural selection". He highlighted that in *Transactions*, Owen states that there is no evidence "that any species of bird or beast that lived during the pliocene period has had its characters modified in any respect by the influence of time or change of external circumstances."³⁴ As such, Owen lost most of his footing on his claim of priority.

³¹ Camardi. "Richard Owen, Morphology and Evolution," 498.

³² Johnson, "Charles Darwin, Richard Owen, and Natural Selection," 70.

³³ Ibid, 73.

³⁴ Charles Darwin, *On the Origin of Species*, 4th ed (Albemarle Street: John Murray, 1866), xviii.

In 1868, Owen pivoted and claimed that he was only making his claim of priority on the basis of “struggle for life.” He rebuffed natural selection and asserted that that was his position from the start.³⁵ He had a claim that he referred to a struggle for life in *Transactions* as he argued that external conditions cause large animals, which were poorly adapted to change, to be more likely to go extinct.³⁶ Reviewers wrongfully did not give credit for that, but the ultimate result is that Darwin still deserves full credit for his theory of natural selection.³⁷

Owen’s failed assault on Darwin greatly diminished his legacy. That combined with other blunders in regard to the construction of fossils and in a lost debate to T.H. Huxley regarding the descent of man from apes, Owen’s reputation was irreparably tarnished.³⁸ Overtaken by younger naturalists with newer ideas, Owen lost any great influence he had in the naturalist community, and he disappeared into the background only to surface occasionally to lecture on dinosaurs.³⁹ The biggest blow to his historical legacy, though, was making enemies with Darwin. Darwin and his followers systematically wrote Owen out of Victorian history.⁴⁰ In addition, secondary authors, wanting to side with someone as legendary as Darwin, naturally believed what Darwin and his followers had to say about Owen and left him as a better-to-be-forgotten, bitter naturalist. It was not until revisionist efforts led by Nicolaas Rupke that a more balanced view of Owen could be made.

Richard Owen was a legendary figure of Victorian biology and a fundamental contributor to comparative anatomy. However, his ego and his jealousy made him powerful enemies, and he is now a forgotten character in history. While Owen was a complicated person capable of great malice and vengefulness, he was not above being graceful when necessary. His last comment on

³⁵ Johnson, “Charles Darwin, Richard Owen, and Natural Selection,” 79-80.

³⁶ *Ibid*, 53.

³⁷ *Ibid*, 78.

³⁸ Rupke, *Richard Owen: Biology without Darwin*, 189-196.

³⁹ Cadbury, *Terrible Lizard*, 319.

⁴⁰ Rupke, *Richard Owen: Victorian Naturalist*, 3.

Darwin came following the death of Darwin on April 19, 1882. Owen wrote a letter to Spencer Walpole, trustee of the Natural History Museum in London, in which he recommended placing a statue of his old nemesis in Westminster Abbey, the highest honor that England could bestow. Although he never admitted Darwin was right about the origin of species and rebuked those who referred to him as the “Newton” of biology, he admitted he was its “Copernicus” and should be applauded for leading a great inquiry into the subject. ⁴¹

⁴¹ Jeremy Norman, “Richard Owen Calls Darwin the ‘Copernicus of Biology.’” *History of Information*.

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