Entertaining storytelling about the presumed evolution of mammals

The Rise and Reign of the Mammals: A new history from the shadow of the dinosaurs to us

Steve Brusatte

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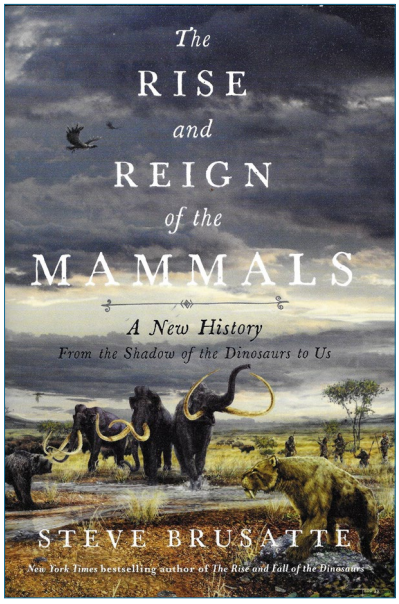

John Woodmorappe

Author Steve Brusatte (b. 1984) is an American paleontologist. He is currently Reader (second-highest academic rank) in Vertebrate Paleontology at the University of Edinburgh.

This book is delightful, sometimes entertaining, reading. The author is clearly a storyteller, not only in terms of the presumed evolutionary origin of mammals, but also in terms of the adventures of the leading personalities in mammalian paleontology.

As an example of the latter, Brusatte discusses Leigh Van Valen (1935–2010), a very brilliant and creative evolutionary biologist at the University of Chicago, with his personal library of 30,000 books. I can relate. While I never went to that school, I often met informally with Van Valen and had long discussions with him on various details of evolutionary theory.

Author Brusatte's writing is not pushy; it is rather low-key. He avoids the usual evolutionistic triumphalism and the bashing of those who dissent from evolution (creationists and proponents of Intelligent Design). However, he presents really nothing new, just the same old shibboleths of evolutionistic orthodoxy. His gentle storytelling style may evoke childhood memories of bedtime fairy tales, and thus make the reader more prone to be receptive to his evolutionistic claims (fairy tales?).

Mammal-like reptiles or stem mammals?

By way of introduction, the author rejects the term 'mammal-like reptiles' as outdated (p. 20), as it seems to imply some kind of correspondence with modern 'crown' reptiles, such as snakes, lizards, and turtles. In addition, Brusatte considers the 'reptilian' traits in mammal-like reptiles to be 'primitive' features shared with many other organisms in the fossil record, and not features that are specifically reptilian. He uses the term 'stem mammals' instead of 'mammal-like reptiles'.

This new term is a bit Orwellian, in that it, by itself, implies the validity

of organic evolution and cladistics. For this reason, I reject it in favour of the old term. In addition, 'mammal-like reptiles' is a long-standing term, and has never before seemed to bother anyone.

Mammal-like reptiles are not a prediction of evolutionary theory!

Author Brusatte brings up T.H. Huxley's belief that certain salamanders, and not the mammal-like reptiles, were ancestral to mammals. Unfortunately, he caricatures and scorns this position as some kind of a personal spat between Huxley and Owen (a fellow evolutionist), and does not mention any specific evidence that Huxley used to arrive at his conclusions.

Huxley was clearly a thoughtful and doctrinaire evolutionist. After all, they did not call Huxley 'Darwin's Bulldog' for nothing! Was Huxley's personal grudge against Owen the *only* reason for Huxley accepting evolutionary mammalian origins from salamander-type amphibians instead of from mammal-like reptiles? (p. 27). Hardly.

In fact, Brusatte inadvertently destroys his 'personal grudge' argument as he admits that the salamander-as-ancestors position had persisted for several decades, long after the deaths of Darwin, Huxley, and Owen. In fact, it was not finally laid to rest until paleontologist Robert Broom (1866–1951, figure 1) did his extensive work in the early 20th century (pp. 27–28).

Let us take a closer look at all this. Evolutionists commonly refer to mammal-like reptiles as being a prediction of evolutionary theory. This evolutionary triumphalist assertion is nothing of the sort. T.H. Huxley, who was about as evolutionistic as one can get, had no problem rejecting mammal-like reptiles as ancestors of mammals and still fully believing in evolution.

What if we extend this reasoning? If mammal-like reptiles had never existed, would evolutionary theory be discredited or falsified? Absolutely not. Evolutionists would just pick out some other fossil organism and invoke it as an ancestral state of mammals. And evolutionists would live happily ever after.

In other words, evolution is endlessly plastic. No matter what turns up in the fossil record, it will not only be explained in terms of evolution, but can even be proclaimed a 'prediction' of evolutionary theory.

No special explanatory power of evolutionary theory

The author makes these candid comments on the presumed evolutionary 'chain' of Permian therapsids into eventual mammals:

> "Many things were changing in harmony, and *it's difficult to untangle what was driving what*. Perhaps small size necessitated higher body temperatures to buffer against sudden climate shifts or demanded more efficient ways of gathering and processing smaller parcels of food. Maybe warm-bloodedness mandated that these cynodonts ate bigger meals to fuel themselves, or possibly it was the other way around: changes to the jaws and muscles came first, allowing them to eat more, and thus provided more energy for warm-blooded physiology to develop. *We don't really know the answer*. What we do know, though, is that small size, warm-blooded metabolism, and stronger and more efficient bites developed together as part of a package deal [emphases added]" (p. 57).

We see that the 'chain' of mammal-like reptiles 'becomes more and more mammalian' only in a rather forced and confused sense. Also, based on the foregoing quoted statements, evolutionary theory has rather limited explanatory power. It does not predict the evidence: It *follows* the evidence. In addition, evolutionary theory is not read out of the evidence: Evolutionary theory is read *into* the evidence. And all this is supposed to pass for 'absolutely factual' evolutionistic science!

The bewildering assortment of 'reptilian' and 'mammalian' traits does not require an evolutionistic explanation. It can readily be explained by the larger morphospace enjoyed by fossil organisms in comparison with that of the relatively narrow set of extant mammals.

A closer look at the 'chain' of mammal-like reptiles, as customarily assembled, bears the hallmarks of an artificial set of disparate organisms that had been cobbled together. At best, it shows only a contrived 'progression' to 'mammal-ness'—one that is full of internal inconsistencies, major discontinuities, and trait reversals.[1]

Potential problems of a transitional mammalian-reptilian masticatory-auditory system

According to standard evolutionary orthodoxy, a mammal-like reptile having a quadrate-articular jaw joint evolved into an organism with a dentary-squamosal jaw joint, and the remaining bones evolved into the three tiny bones in the inner ear. Decades ago, the immortal creationist debater Dr Duane Gish (1921–2013), objected to this scenario, questioning the workability of the proposed transitional system.[2]

While not going as far as Gish, Brusatte, in his discussion of *Origolestes*, alludes to the potential handicap that is inherent in the believed transitional system:

> "Because these two former jaw bones are not fully detached from the jaw, we can call them by their new names: the hammer and the ring. This small step was revolutionary. Now the jaws could go their own way, and become more efficient at biting and chewing, *without worrying about interfering with hearing function*. The ears could go their own way, too, and become even better at hearing high-frequency sounds *without being*

disturbed by the jaws [emphases added]" (p. 111).

Taking Brusatte further, one must keep in mind that unless the transitional system gives the organism immediate selective advantage, or at least does not diminish its fitness even slightly, it will be removed by natural selection. This reinforces the fact that evolution does not have foresight and is not teleological: an organism cannot have a transitional system merely in 'anticipation' of a later evolutionary development—wherein some of the jaw bones become 'free' to become the bones in the inner ear for better hearing. It must fully work immediately, or it will not work at all.

Based on what Brusatte has written, it does not sound as though evolutionists have solved the problem of the adequate fitness of their suggested transitional masticatory-auditory system.

Ontogeny recapitulates phylogeny—special pleading?

Brusatte falls back on embryonic recapitulation, wherein the ontological development of the mammalian jaw and ear is supposed to recapitulate the presumed evolution of the reptilian jaw into the mammalian jaw and ear. He presents no independent evidence demonstrating that embryonic development ever became a 'movie' of presumed evolutionary history.

In addition, use of embryological evidence is another evolutionistic pick-and-choose exercise: If embryonic development happens to recapitulate phylogeny as it is currently understood, then it 'counts'. If it does not, then this fact is disregarded. This reeks of special pleading. In conclusion, any correspondence of embryological development and presumed evolutionary history appears to be little more than a coincidence.

Mammaliaformes and mammals

Many decades ago, Duane Gish was berated by his evolutionist opponents for 'refusing to recognize' that the 'first mammal', *Morganucodon*, was indeed a mammal. Let us look closer at this.

Evolutionists themselves have different definitions of 'mammal'! Brusatte comments:

> "The definition of mammals that I use throughout the book—any descendant of the first cynodont to develop a robust dentary-squamosal jaw joint [and includes *Morganucodon:* p. 72]—is prevalent in the historical literature… . This group—what I call 'mammals'—is referred to as Mammaliaformes by those researchers who prefer a 'crown group' definition for mammals, *which limits the name 'mammals' to the group on the family tree including the modern mammals* (monotremes, marsupials, placentals) and all descendants of their most recent common ancestor [emphasis added]" (p. 419).

Clearly, it is 'permissible' to deny that *Morganucodon* is a mammal, even within the confines of evolutionistic reasoning. The evolutionists owe Gish a posthumous apology.

By the way, the ability of the term 'mammal' to have different shades of meaning is unremarkable, and does not necessarily imply evolution. As noted earlier, fossil organisms had utilized a broader morphospace than do the animals that we are familiar with. So it is hardly surprising that traits we consider mammalian, because they only appear in mammals today, had a broader deployment in the fossil record. The term 'Mammaliaformes' appears to be a good one, if it is divested of its evolutionary baggage.

Nor is this playing with definitions confined to academic matters. Words can have different shades of meaning in an everyday sense. Consider the word *meat*. It usually means the flesh of common farm animals, such as

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Figure 1. Robert Broom, the South African paleontologist who officially 'promoted' mammal-like reptiles, over salamanders, as the putative evolutionary ancestors of mammals.

that of cows and pigs. It can also be broadened to include game animals, and even insect-based food. Finally, the term meat can refer to *any* solid food, whether it is of animal or plant origin—e.g., "I have given every green herb for meat" (Genesis 1:30, KJV).

The molecular 'clock' conflicts with fossil-based evolutionary scenarios

I now shift the discussion to more modern-looking mammals. With reference to the DNA molecular 'clock', Brusatte comments:

> "When Springer's team applied this rationale to their DNA trees, *they were in for another shock*: many of the modern placental lineages—not only the fundamental groups like Afrotheria and Laurasiatheria, but also individual lines like primates and rodents—must have originated back in the Cretaceous or the earliest Paleocene. *In many cases, this is long before their fossils first*

appear, hinting at a vast unrecorded history [emphasis added]" (p. 210).

Most definitely, this was not a prediction of evolutionary theory! For those who are 'keeping score' about the wonderful predictive powers of evolutionary theory, here is another example of the contrary.

Evolutionary 'natural groupings' and nested hierarchies blown away

One of the pillars of evolutionary theory is the premise that living things can be sorted in accordance with a hierarchy of shared similarities, and that the very ability of such a hierarchy to be constructed proves evolution. Decades ago, George Gaylord Simpson (1902–1984) had all the mammals sorted and classified in accordance with such an evolutionistic methodology.

With reference to him, Steve Brusatte comments:

> "When the first DNA-based genealogies of mammals were published in the late 1990s and early 2000s, by molecular biologist Mark Springer and his network of collaborators, *paleontologists were shocked. Many of the relationships among placentals championed by Simpson disintegrated*, revealed as illusions of anatomical convergence. Genes showed that pangolins are not closely related to anteaters and sloths, but group with dogs and cats. Bats are not next-of-kin to primates, but part of a larger assemblage with dogs, cats, and pangolins, plus the perissodactyls with an odd number of toes (like horses) or even-toad artiodactyls (like cattle). These latter two groups both have hooves, but there are other hoofed mammals dispersed around the family tree—like the cute little hyraxes, which group with elephants. Hooves, therefore, really did evolve multiple times [emphasis added]" (pp. 208–209).

Brusatte then turns the knife as he continues:

> "But that is nothing compared to the madness of the insect-eaters. Once thought by Simpson and Novacek to compose a single group, they were scattered all across the DNA tree. Some, like the golden moles and tenrecs, are closely related to the hyraxes and elephants—*a most unusual union that nobody had ever predicted from anatomy*. Insectivory, and the distinctive molars that enabled it, was thus reinvented numerous times by numerous different mammal lineages [emphasis added]" (p. 209).

The presumed predictive powers of evolutionary theory have just taken another nosedive. Note also that 'convergent evolution', or 'things evolving multiple times', is another form of evolutionistic special pleading. It allows for shared, detailed anatomical similarities to remain proofs of evolution—except, conveniently, when they don't.

No transitions in the alleged evolution of bats

Brusatte candidly writes:

> "It goes without saying, but a bat looks nothing like a horse or a dog, so there must have been a transitional sequence of extinct species that morphed from a ground-dwelling mammal with walking limbs to a hand-winged flier. The problem is, we don't have many fossils depicting this evolutionary transformation. The first bat skeletons that turn up in the Eocene, like Nancy Simmons's *Onchonycteris*, *already look like bats* [emphasis added]" (p. 261).

Conclusions

Special creation is often dismissed, based on the claim that 'God can do anything and everything', and especially that 'it explains too much' in that any possibility can be fitted to it. As shown in this review, this criticism backfires. Much the same (if not more) can be said about evolutionary theory.

The more that is learned about alleged evolution, the more plastic and *ad hoc* it becomes. Just about any observation, from living things or from the fossil record, can be fitted to it. All this further erodes evolutionistic claims of the explanatory power of evolution over special creation.

The mammal-like reptiles, nowadays touted as the self-evident ancestors of mammals, were, for a long time, challenged as mammalian ancestors in favour of certain salamanders. Were mammal-like reptiles never discovered, evolutionists would just have nominated some other organism as the ancestor of mammals, and evolutionary theory would just have continued on its merry way.

Does detailed anatomical similarity self-evidently imply a close common evolutionary relationship? Hardly, and certainly not self-consistently. Certain evolutionary relationships, deduced from careful studies of comparative anatomy, have been shown to be impossible based on analysis of DNA.

References

1. Woodmorappe, J., Mammal-like reptiles: trait reversals and discontinuities, *J. Creation* **15**(1):44–52, 2001.
2. Cserháti, M., Did the ear bones of mammals really evolve from the jawbones of reptiles? Eardrum is an obstacle for evolution of middle ear bones in mammals, 2 Jul 2019, creation.com.