

Back to Internet Library

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## Just Four Points on the Hypothesis of Prof. Nikos Solounias and Co-Workers on the Neck of *Samotherium major* being “Truly Intermediate Between the Okapi and the Giraffe”<sup>1</sup>

**Carolus Linnaeus**

World-renowned “Father of Modern Taxonomy”<sup>2</sup>

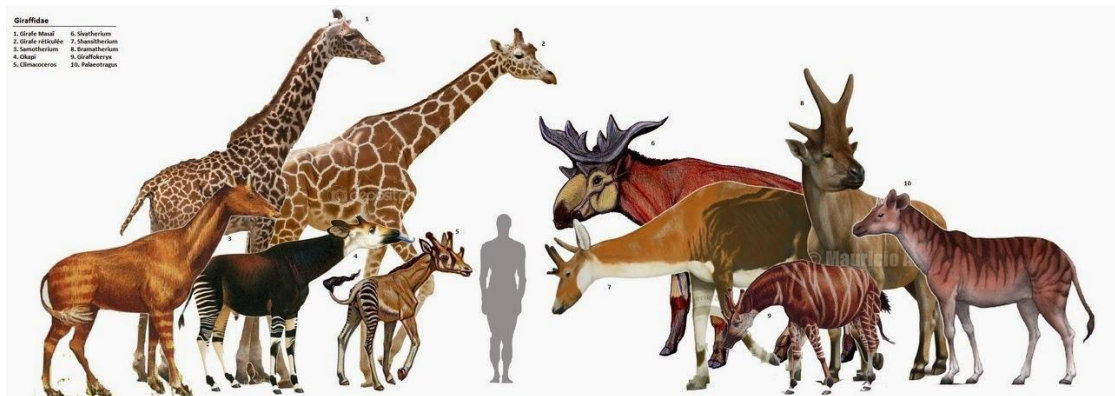
*His Guiding Maxims for his Epoch-Making Tenth Edition of Systema Naturae (1758):*

“O JEHOVA **Quam ampla sunt Tua Opera!** Quam sapienter Ea fecisti! Quam plena est Terra possessione Tua!”

“Magnus est DEUS noster & magna est potentia Ejus. & **potentiae Ejus non est numerus.**”

“O JEHOVA! **Quam magnifica sunt Tua Opera!**

Vir insipiens non cognoscit ea & stultus non animadvertit ea. David.”



“As the range of our collections extends, so we invariably enrich our representation of various groups, and this **necessarily and inevitably entails the appearance of intermediates between the forms in the collection** from the restricted area in which we started. The recognition of this fact, with respect to the collections of organisms existing here and now, **does not necessarily commit us to any particular view of the origin of species; and the same thing is true of the collection of fossil material.**”

**William R. Thompson, F.R.S.**<sup>4</sup>

In his introduction to Darwin’s Origin of Species

### Just four points:

1. As the authors<sup>5</sup> themselves clearly state, *Samotherium major* is **not an ancestor of the giraffe** or the okapi.<sup>6</sup> And I would like to add that **neither are there true/real/valid series of transitional links**<sup>7</sup> of any of the evolutionarily imagined lines of descent, the postulated phylogenetic lineages, assumed to be leading to the long-necked giraffe or okapi (or any other member of the giraffidae) – as the authors also concede<sup>8</sup>.

<sup>1</sup> M. Danowitz et al. (2015): The cervical anatomy of *Samotherium*, an intermediate-necked giraffid. <https://royalsocietypublishing.org/doi/10.1098/rsos.150521>

<sup>2</sup> On the question “Why is Linnaeus world-famous” the answer at **Linné online**, sponsored by Uppsala University, is this: “Linnaeus’ way of classifying Nature was so good that **this system, called Systema naturae, came to be used all over the world.** He simplified the scientific nomenclature of plants and animals. This system, with two Latin names for every species of animal or plant, **is still used the world over and simplifies communication between scientists, gardeners, birdwatchers etc.** ... Linnaeus’ idea was that if we learn the Latin names we won’t need to know the names in other languages.” See references, photographs and **English translations of the quotes** at <https://www.weloenig.de/PlantGalls.III.2020.pdf> pp. 12-14. Capital Letters in the quotations above by Linnaeus.

<sup>3</sup> From left above (left group) from left to right: “1. Girafe Masai, 2. Girafe réticulé.” Second row: Left: “3. **Samotherium**, 4. Okapi, 5. Climacoceras”. Group on the right: “6. Sivatherium, 7. Shansitherium, 8. Brahmathierium, 9. Giraffokeryx, 10. Paleotragus” <https://valentint.blog.bg/zabavlenie/2015/12/18/encyclopedia-largest-prehistoric-animals-vol-1-vertebrates-p.1415931> [https://www.reddit.com/r/Naturewasmade/comments/rq540n/giraffidae\\_in\\_their\\_variable\\_splendor\\_through\\_time/#lightbox](https://www.reddit.com/r/Naturewasmade/comments/rq540n/giraffidae_in_their_variable_splendor_through_time/#lightbox)

<sup>4</sup> <https://royalsocietypublishing.org/doi/pdf/10.1098/rsbm.1973.0024> and/or [https://en.wikipedia.org/wiki/William\\_R.\\_Thompson](https://en.wikipedia.org/wiki/William_R._Thompson)

<sup>5</sup> See again <https://royalsocietypublishing.org/doi/10.1098/rsos.150521>, cf. moreover <https://www.cambridgescholars.com/resources/pdfs/978-1-5275-8686-4-sample.pdf> p. 12

<sup>6</sup> The authors state on p. 2 of the first contribution mentioned in the links above that “*Samotherium major* **is not a direct ancestor** of the giraffe or the okapi, ...” Well, it is neither a “direct” nor “indirect” ancestor – if such an ancestor ever existed in the latter sense; **this species is not an ancestor of the giraffe or okapi at all.**

<sup>7</sup> For the categorical difference between the adjectives “transitional” and “intermediate” see <https://www.weloenig.de/ElephantEvolution.pdf> p. 51

<sup>8</sup> And before that quote, also on p. 2, they (M.D. and N.S. who wrote the manuscript) say: “While they [the “intermediate-necked giraffids”] are closely related, these species are **not direct ancestors** to the long-necked giraffe.”

2. However, the authors repeatedly and emphatically state that “...we find the *S. major* neck to be **truly intermediate** between the okapi and the giraffe” – and they use the term “intermediate” for their findings and descriptions almost mantra-like<sup>9</sup> **28 times**<sup>10</sup> in their paper – including **4 times** as “**truly intermediate**”. Could the fact that *Samotherium major* **was definitely not an ancestor of the short-necked or long-necked giraffe** perhaps be lost by some readers by so many suggestive repetitions?
3. Nevertheless, on p. 16 the authors point out that “*Samotherium major* exhibits **several unique morphologic features that are absent in** the *G. camelopardalis* and *O. johnstoni* cervical vertebrae” – and they continue:

“In *S. major*, the cranial-most aspect of **the spinous process of C2 is positioned caudally to the dens**, whereas in *G. camelopardalis* and *O. johnstoni* it reaches the level of the dens. This increases the space between the atlas and axis, and would allow for increased dorsally directed motion of the atlas and the head. *Samotherium major* also has **an atypical skull feature**, where **the occipital bone protrudes caudal to the skull** (figure 8). We believe these two features are interrelated. Moreover, the dorsal lamina of *S. major* cervicals has a **fossa**, lateral to the spinous process. Ridges formed from the attachment of the multifidus muscle create this concavity. While *S. major* shares many features with the two extant giraffids, **this extinct taxon also demonstrates characteristics atypical of giraffids, and ruminants in general.**”<sup>11</sup>

Before that they mention about *Samotherium*:

“*Samotherium major* **exhibits cervical vertebral features that are uncharacteristic of ruminants.** The *S. major* cervicals, in lateral view, have a ‘wedged’ morphology, where the caudal end of the vertebra has more depth, and the cranial end is smaller. This is **atypical of ruminants**; normally, the vertebral body and pedicles are of relatively equal size throughout the length. Several muscles that originate in the thorax insert on the caudal aspect of the cervical vertebrae.” (Further details in Solounias 2025, p. 53.)

Nikos Solounias states in his excellently researched book *Putting Samotherium in its Place* (2025, pp. 87/88 – under the subheading *Evolutionary comparisons of Samotherium with the okapi and the giraffe*)<sup>12</sup>:

“The okapi has a large frontal sinus and so does the giraffe. *Samotherium* does not. This feature is suggestive of the two living taxa being closely related. However, there is little more similarity and it is more likely that the frontal sinus is a parallel evolution. The dentition is more brachydont and plesiomorphic in the okapi and the giraffe. In *Samotherium* there is a slight hypsodonty and some reduction on the premolars making this taxon unique. The ossicones are different in all three species and this does not give a signal<sup>13</sup>. The cervical vertebrae are elongated in *Samotherium* which brings it closer to the giraffe. The metapodials are stout in *Samotherium*. Thus, they differ from both the okapi and the giraffe. In conclusion, **only the neck elongation brings Samotherium closer to the giraffe.** Similarly, the frontal sinuses bring the okapi closer to the giraffe. It seems that these three species cannot be brought closer in terms of evolution. Thus, they are in three isolated silos of the Giraffidae.”

Later the author specifies that “The Giraffidae form a number of subfamilies which are not directly connected” (still p. 88).

In his equally well researched book *Anatomy and Evolution of the Giraffe – Parts Unknown* (2024, p. 117)<sup>14</sup> Solounias mentions that:

“There are some cladograms of the giraffids (Hamilton 1978; Geraads, 1986; Janis and Scott 1987; Solounias 2007; Rios et al. 2017). **The outcomes of these are different.**”

<sup>9</sup> “A mantra (/ˈmæntɹə, ˈmæn-/ MAN-trə, MUN-; Pali: mantra) or mantram (Devanagari: मन्त्रम्) is a sacred utterance, a numinous sound, a syllable, word or phonemes, or group of words (most often in an Indo-Iranian language like Sanskrit or Avestan) believed by practitioners to have religious, magical or spiritual powers.” <https://en.wikipedia.org/wiki/Mantra>

<sup>10</sup> Plus in the title **29 times**.” (Retrieved 18 March 2025)

<sup>11</sup> which is more extensive in *S. major*. We believe this matches the verticality osteological features, and that the presumed verticality of this extinct giraffid was strongly reinforced by muscular connections between the thorax and neck.”

<sup>12</sup> In: Solounias, N. (2025): *Putting Samotherium in its Place: The Morphology of Giraffids and the Geology of Samos*. Cambridge Scholars Publishing. Newcastle upon Tyne, England. (269 pp.)

<sup>13</sup> Perhaps independently designed concerning this feature?

<sup>14</sup> Solounias, N. (2024): *Anatomy and Evolution of the Giraffe – Parts Unknown*. Cambridge Scholars Publishing. Newcastle upon Tyne, England. (194 pp.)

And he explains in the next paragraph (same page):

“What I observe with the classifications of the Giraffidae, is that **one cannot make an evolutionary sequence across taxa. One cannot make a sequence however general.** That is, not real steps but a simulation of the unknowable real steps well enough to develop an understanding<sup>15</sup>. The meaning of this heterogeneity of the genera is most likely due to them truly **evolving independently within each subfamily.** What I suggest is that in Giraffidae there was an early large adaptive radiation and subsequently species evolved in silos of their respective subfamily. Uniting the subfamilies is very difficult because of these early adaptive radiations.”

Similarly on p.118 he “proposes that most of these are distinct subfamilies that go back in time to the very beginning of Giraffidae.”

Now, returning to our initial question: Is the *S. major* neck “**truly intermediate** between the okapi and the giraffe”? Or, to take the summarizing closing sentence of Danowitz et al. (p. 17): “Both quantitatively and qualitatively, we find the *S. major* neck to be **truly intermediate** between the okapi and the giraffe” – Is this scientifically correct?

You, the reader, are invited to check the facts and decide.

4. As far as I can understand it: Fact is that ***we have not discovered a single transitional form, i.e. not detected even one truly transitional link (or an intermediate mosaic form) of the evolutionarily imagined lines of descent*** (the postulated phylogenetic lineages) assumed to be leading ***directly/straightforwardly*** to the long-necked giraffe or okapi or any of the other subfamilies.

For all the additional anatomical and further details, I recommend the analytical study of the papers and books cited.

To be continued.

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A personal note of my appreciation of Nikos Solounias’ empirical work.

Part of my mail to him of 3 April 2025 (emphasis in the text in the original mail):

Dear Professor Nikos Solounias:

A few days ago, I have read **with great sympathy** your *Preface* and *Introduction* to your book *Anatomy and Evolution of the Giraffe: Parts Unknown*.<sup>16</sup>

Since I am appreciating your empirical work very much, I was worried about your health problems when I read that you “now have serious renal failure which makes life very difficult” and that you are “strongly dyslexic”. So, your work is all the more appreciated. Reminded me a bit of famous Stephen Hawking.

I myself am 82 years and also have several health problems which I never thought possible. [...]

Although we have a rather different understanding about the origin of species (<https://www.weloennig.de/internetlibrary.html> see perhaps the TV interview with English subtitles

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<sup>15</sup> Presupposes his evolutionary worldview, suggesting the hypothesis that follows (as quoted above).

<sup>16</sup> <https://www.cambridgescholars.com/resources/pdfs/978-1-5275-8686-4-sample.pdf>

here <https://www.youtube.com/watch?v=9HxcaXDWELE> there and on the media library of the TV station altogether more 45 thousand views), I strongly hope that you can continue your important empirical work also in the future.

When I read your comments on the island of Samos, I was so enthusiastic that I immediately said to my wife: "Let's go there and look for fossils." However, about an hour later I said to her that this would not be a wise idea for me: in both knees arthritis, also in the right shoulder, and there are several further health problems.

All the best,

Wolf-Ekkehard Lönnig

Back to Internet Library