

## **A monument of inefficiency: the presumed course of the recurrent laryngeal nerve in sauropod dinosaurs**

Mathew J. Wedel

*Acta Palaeontologica Polonica* 57 (2), 2012: 251-256 doi: <http://dx.doi.org/10.4202/app.2011.0019>

The recurrent laryngeal nerve is an often cited example of “unintelligent design” in biology, especially in the giraffe. The nerve appears early in embryonic development, before the pharyngeal and aortic arches are separated by the development of the neck. The recurrent course of the nerve from the brain, around the great vessels, to the larynx, is shared by all extant tetrapods. Therefore we may infer that the recurrent laryngeal nerve was present in extinct tetrapods, had the same developmental origin, and followed the same course. The longest-necked animals of all time were the extinct sauropod dinosaurs, some of which had necks 14 meters long. In these animals, the neurons that comprised the recurrent laryngeal nerve were at least 28 meters long. Still longer neurons may have spanned the distance from the end of the tail to the brainstem, as in all extant vertebrates. In the longest sauropods these neurons may have been 40–50 meters long, probably the longest cells in the history of life.

**Key words:** Dinosauria, Sauropoda, larynx, neck, neuron.

Mathew J. Wedel [[mathew.wedel@gmail.com](mailto:mathew.wedel@gmail.com)], College of Osteopathic Medicine of the Pacific and College of Podiatric Medicine, Western University of Health Sciences, 309 E. Second Street, Pomona, California 91766–1854, USA.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see [creativecommons.org](http://creativecommons.org)), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

