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We must admit that we actually admired Dr. Spencer Lucas's point by point response to the letters of complaint that we sent to the Department of Cultural Affairs involving the papers published by Dr. Lucas and his colleagues in the 2006 New Mexico Museum of Natural History and Science (NMMNHS) bulletin. The response is cleverly written, and someone reading through Dr. Lucas's commentary without knowledge of the publication history of these specimens could be swayed. However, his comments are misleading and his allegations demonstrably false.

#### **Parker and "*Desmotosuchus*" *chamaensis* revisited**

First, we consider Lucas's response to the allegations regarding "*Desmotosuchus*" *chamaensis*. Dr. Lucas attempted to deflect charges of ethical misconduct against himself and his colleagues by re-directing them at Parker. The following is an abbreviated version of our point-by-point rebuttal to these charges: more thorough discussion of these points, and supporting documentation, is available at <http://www.miketaylor.org.uk/dino/nm/visit/response.html>

- 1) Dr. Lucas claims that Parker did not visit the NMMNHS in 2003 to examine the "*Desmotosuchus*" *chamaensis* material. Parker did in fact visit the NMMNHS in the spring of 2003 with the permission of the staff. His research notes, time-stamped photos, and an e-mail, all support this. In addition, he was accompanied by a colleague who also has notes and photos from that day.
- 2) Never at any time was Parker informed by museum staff that he could not have photos of the material. Dr. Lucas's claim that he inappropriately obtained photos is untrue, as is his statement on why he would not let Kate Zeigler supply Parker with additional photos. This is supported by e-mail documentation.
- 3) Dr. Lucas provided Parker with explicit verbal permission to rename the material and even suggested a name. This is based on a conversation between Parker and Lucas at the

NMMNHS in 2003, which was witnessed by a colleague.

4) Dr. Lucas's claims that he and his colleagues were unaware of Parker's intent and that the naming of *Rioarribasuchus* was based on his own independent conclusions is also demonstrably false. The truth lies in the literature history of the specimens, including Lucas's review of a 2005 manuscript that Parker wrote with Randall Irmis, in which Lucas refers to Parker as a "taxonomic splitter" – an opinion confirmed by a comment made in his own report (p. 7) stating that "as for disagreement with Parker's assessment that *Desmotosuchus* belonged to a new genus, at the time Lucas et al. continued to believe the material to represent *Desmotosuchus*." This demonstrates that Lucas and his colleagues were aware of Parker's hypothesis that the material was referable to a new genus, but did not immediately agree with it. They cannot claim to have come to this finding "independently" if they had been previously informed of this conclusion by Parker.

Dr. Lucas's attempt to turn the allegations of ethical misconduct around on Parker is irresponsible and disquieting. Dr. Lucas is correct that it is fair, and consistent with normal ethical research practices in vertebrate paleontology, for a visiting researcher to allow original researchers to publish on fossil material before publishing on the material himself or herself. However, once the original researchers have formally published on this material, it is necessary and conventional to allow visiting researchers to access the material and publish their own observations in order to maintain standards of scientific objectivity and quality.

Parker did not publish his re-description of "*Desmotosuchus*" *chamaensis* until a few years after two *full descriptions* of the material by Dr. Lucas and his colleagues. Lucas has clearly acknowledged in his response that Parker *informed* him that a new genus name was necessary for the material at least as early as 2005, despite his repeated and bizarre claims to have later come to the same conclusion "independently." Moreover, Parker clearly indicated his intentions to provide a new genus name in his 2003 master's thesis, and also informed Dr. Lucas directly of his intentions. More importantly, he informed Kate Zeigler and Andy Heckert, the senior authors of the original descriptive papers (Lucas was third and final author on both). Parker was fully within his rights as an independent researcher to publish his own observations and interpretations, and his interactions with the original researchers were at all times open and respectful.

### ***Redondasuchus* revisited**

Dr. Lucas's response to our allegations that Spielmann et al. (2006) plagiarized Martz's (2002) master's thesis is also filled with inaccuracies and illogical reasoning. To briefly recap, it is now agreed by all workers on Triassic vertebrates who have dealt with the material (e.g. Martz, Lucas, Spielmann, Hunt, and Heckert) that the holotype of *Redondasuchus* is an osteoderm from the right side of the body, which puts the "flexing" or "arching" (the place

where the osteoderm is “bent”) closer to the medial edge. This is the interpretation Martz gave in his 2002 master’s thesis, as this morphology is typical for the posterior dorsal and caudal osteoderms of many aetosaurs. This is the same interpretation which Spielmann et al. (2006) later presented without giving credit to Martz (2002), which Dr. Lucas again claims they came up with “independently.” Oddly, Spielmann et al. did not give an explanation for their interpretation.

The previous interpretation of the holotype osteoderm of *Redondasuchus* given by Hunt and Lucas (1991), Heckert et al. (1996), and Heckert and Lucas (2000) is that it is from the left side of the body, with the flexing being closer to the lateral edge. This would give the osteoderm a unique “downturned” lateral edge, which they interpreted as being characteristic of the taxon.

In spite of the fact that Martz’s (2002) thesis was published four years before the Spielmann et al.’s (2006) paper, Lucas tries to claim credit for the correct reinterpretation of the *Redondasuchus* holotype in two ways:

1) Dr. Lucas claims that Justin Spielmann made the new interpretation “independently” in 2006, and told Hunt, Heckert, and Lucas, who were “easily convinced.” This latter claim is easy to believe, since Martz had sent all three of the junior authors copies of his thesis early in 2003. As with the case of Parker informing Lucas that “*Desmotosuchus chamaensis*” was a new genus, Lucas seems to have an unusual understanding of the term “independent,” and it is hard to see how they can even claim partial credit for an interpretation Martz had *given* them years earlier. In a paper describing a new species of *Typhothorax* in their “2002” NMMNHS bulletin (actually published in 2003), Lucas, Heckert, and Hunt cited section of Martz’s thesis, and Spielmann et al. (2006) also cited the thesis extensively (though only on matters they disagreed with). This clearly establishes that the authors were familiar with the contents of Martz’s thesis before and during publication of their 2006 paper.

2) Dr. Lucas also claimed that Heckert et al. (1996) had in fact made the correct interpretation of the *Redondasuchus* holotype osteoderm before Martz. However, the 1996 paper explicitly says that the holotype osteoderm is a left repeatedly, and never identifies it as a right. Moreover, it bases its diagnosis and discussion of the taxon entirely on the incorrect interpretation, which places the flexing closer to the lateral edge. Lucas’s argument depends on the suggestion that reading between the lines shows the paper actually means the exact opposite of what it claims explicitly.

In particular, Dr. Lucas does not seem to understand the significance of the anterior bar (a smooth-surfaced raised bar which lies along the anterior edge of nearly all aetosaur osteoderms) to the interpretation. Lucas claims that as Heckert et al. (1996) correctly identified the anterior bar, they must have known which end of the osteoderm

was medial and which was lateral. This is false. Interpreted incorrectly as a left and oriented with the flexing incorrectly placed closer to the lateral edge (as all the pre-2002 papers explicitly did), the anterior bar of the holotype scute still faces anteriorly.

Finally, all authors of the 1991, 1996, and 2000 papers which made the erroneous interpretation (Hunt, Heckert, and Lucas) were co-authors on the Spielmann et al. (2006) paper, which says explicitly that the older papers used the incorrect interpretation, before taking full credit for the correction of this interpretation:

“The interpretation of the orientation of flexure in the diagnosis of the genus *Redondasuchus* presented here (Fig. 1) differs from that of previous studies (Hunt and Lucas, 1991; Heckert et al., 1996). These studies suggested that, for the mid-dorsal paramedian scutes, the point of flexure was “two-thirds of the lateral distance from the medial to lateral edge of the scute” (Heckert et al., 1996, p. 620). However, *we believe* that this is incorrect and that the point of flexure instead lies one-third of the lateral distance from the medial to lateral edge of the scute (Fig. 1). This changes the conception of how the scutes are flexed; previous interpretations had the point of flexure between the medial two-thirds of the scute and the lateral third, while *our interpretation* has the point of flexure between the medial third of the scute and the lateral two-thirds.” (Spielmann et al., 2006, p. 583; italics ours).

In addition to his attempt to demonstrate that Heckert and Spielmann came up with the re-interpretation of *Redondasuchus* “independently” of Martz, Dr. Lucas also attempts to downplay Spielmann et al.’s (2006) failure to credit Martz (2002). This is equally unconvincing:

1) Dr. Lucas claims that as Spielmann et al. (2006) cites Martz’s (2002) thesis extensively, they clearly intended to give him credit. As we have repeatedly pointed out, Spielmann et al. cited Martz only where they disagreed with him (on only indirectly related matters) and explicitly take full credit for the re-interpretation (see above quote). The length to which they cite Martz on other matters makes this omission all the more glaring.

Moreover, Lucas and his colleagues further downplayed Martz’s contribution in a later 2007 publication reviewing the Late Triassic land vertebrate faunachrons. In this paper (p. 233, right column, fourth paragraph) they state (falsely) that Martz claimed the flexing in the scutes of *Redondasuchus* was due to distortion after burial, and again credited Spielmann et al. (2006) with the correct interpretation. Not only is Martz not given credit for the correct interpretation, but he *is* falsely claimed to have given an *erroneous* interpretation, further cementing Spielmann et al.’s claim to have made the correct interpretation themselves.

2) Finally, Lucas claims that Spielmann et al.'s (2006) Fig. 1 was based on Heckert et al.'s (1996) Fig. 5 and not on Martz's (2002) Fig. 3.1c. This is true only of the irrelevant part of the figure. Spielmann et al.'s figure is intended to show both the original and revised interpretations of *Redondasuchus*. The left side of the Spielmann et al. (2006) figure, showing the incorrect original interpretation in cross section, is indeed from Heckert et al.'s (1996) figure. The modified version of this figure on the right side clearly shows the same interpretation as in Martz's (2002) figure. We never claimed that the Spielmann et al. figure was reproduced directly from Martz's thesis, only that it shows the same interpretation. This is important because Spielmann et al. (2006) cited a different part of Martz's (2002) Fig. 3.1, so there is no plausible way this could have eluded them.

These crucial inaccuracies in Dr. Lucas's account, regarding both Parker's and Martz's allegations, have misled the Department of Cultural Affairs, his supporters including Drs. Silberling and Anderson, and the vertebrate paleontology community. It is now up to Dr. Lucas as well as Dr. Hunt, and Mr. Spielmann (I am assuming that they are part of the "us", and "we" referred to repeatedly in Lucas's written response) to explain why, if they are innocent of any wrongdoing, they provided this erroneous information.

Finally, we wish to acknowledge a correction of an inaccurate statement of our own we made in our original letter to the New Mexico Department of Cultural Affairs. We claimed that Spielmann et al.'s (2006) paper on *Redondasuchus* had not been peer-reviewed. Dr. Lucas has correctly noted that the paper was in fact reviewed by Dr. Jerry Harris and Dr. Robert Sullivan. Unfortunately, the involvement of these reviewers does not allay our concerns about the publishing practices of the NMMNHS bulletins for reasons discussed by Kevin Padian, Bill Parker, and Jeffrey Martz (posted by Nicola Jones) at:

<http://www.nature.com/news/2008/080130/full/451510a.html>

Yours sincerely,

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