Peer review history for:

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Looking for the origins of the human brain: The role of South Africa in the history of palaeoneurology [peer review history]. S Afr J Sci. 2025;121(1/2), Art. #18604.
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Reviewer 1: Rounds 1 and 2
Not openly accessible under our Publishing peer review reports policy.

Reviewer 2: Round 1
Date completed: 29 August 2024
Recommendation: Accept / Revisions required / Resubmit for review / Resubmit elsewhere / Decline / See comments
Conflicts of interest: None

Does the review fall within the scope of SAJS?
Yes/No
Is the review written in a style suitable for a non-specialist and is it of wider than only specialist interest?
Yes/No
Do the Title and Abstract clearly and accurately reflect the content of the review?
Yes/No
Does the review provide a significantly novel perspective or significant recent advances in the field?
Yes/No
Is the objective of the review concisely stated?
Yes/No
Is appropriate and adequate reference made to other work in the field?
Yes/No
Do current debates and points of contention receive appropriate coverage?
Yes/No/Not applicable
Are gaps in the literature adequately identified?
Yes/No/Not applicable
Does the review provide direction for future research?*
Yes/No/Not applicable
Are the methodology and statistical treatment appropriate?
Not applicable/Yes/No/Partly/Not qualified to judge
Are the interpretations and recommendations aligned with the objective?
Yes/Partly/No
Please rate the manuscript on overall contribution to the field
Excellent/**Good**/Average/Below average/Poor
Please rate the manuscript on language, grammar and tone
Excellent/**Good**/Average/Below average/Poor
Is the manuscript concise and free of repetition and redundancies?

Yes/No

Is the supplementary material relevant and separated appropriately from the main document?

Yes/No/**Not applicable**

Please rate the manuscript on overall quality

Excellent/**Good**/Average/Below average/Poor

If accepted, would you recommend that the article receives priority publication?

Yes/**No**

Are you willing to review a revision of this manuscript?

Yes/No

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Yes/No

Comments to the Author:

Thank you for asking me to read this paper. The paper is a synthesis about the work done on endocasts of South African fossils. It is clear and will be of interest for a larger audience than the few paleoanthropologists working on endocasts. I do not have major comments, only a list of small points that could be addressed easily by the authors. I list them below, following the order of the ms.

Page 1, line 20. Of "our" brain. This general formulation is problematic. It is not a big issue here, but generally in the literature on endocasts there are vague formulations about the polarity of the observed variation that deserves discussion on the evolution of the brain in hominins. If you refer here to the brain among hominins, you should state like this. If it is the brain of H. sapiens, it is not adapted.

Fig.1 Why showing those specimens in particular? Moreover, maybe should you clarify how those models were obtained, scans of natural casts vs. microCT data.

Page 3, line 62. "neuroanatomical changes" the formulation is strange, because imprints on endocasts show related traits of the brain that need to be identified, and it is a problem by itself, and that's the variation between fossils that informs on changes.

3, 80. Here and in general, you give a slightly exaggerated version of the story in favour of the south African researchers, fossils, or of you. It seems that the focus leads you to say that nothing else has been done. For a general audience, it would be better if your formulation were more precise to include your point of view into a wider context.

4, 112. "Crucial" …. "in the emergence of the modern human brain". If the link was mentioned at the time of the discovery of the fossil, the formulation is not accurate now. Moreover, I do not like the term "modern human", except if you refer to people living today.

5, 130. "a very detailed description of endocasts… rapidly emerged", really?

5, 152 "a derived pattern of brain growth… emerged". Derived relatively to which group? I am not fan of the word "emerged" for human evolution.

6, 160, maybe mention the recent paper of Hurst et al., on Lesedi 1.

6, 171, I am not convinced that we are yet able to detail the critical changes that affected Broca's area. If the debate on FO vs horizontal and vertical rami is advanced, I think that we still have a lot to do to really describe the two last features.

6, 176, this paragraph could appear well before

9, 243, maybe mention the recent paper of Labra et al. here.

Author response to Reviewer 2: Round 1

Thank you for asking me to read this paper. The paper is a synthesis about the work done on endocasts of South African fossils. It is clear and will be of interest for a larger audience than the few paleoanthropologists working on endocasts. I do not have major comments, only a list of small points that could be addressed easily by the authors. I list them below, following the order of the ms.

AUTHOR: We thank Rev. 2 for their comments.

Page 1, line 20. Of "our" brain. This general formulation is problematic. It is not a big issue here, but generally in the literature on endocasts there are vague formulations about the polarity of the observed variation that deserves discussion on the evolution of the brain in hominins. If you refer here to the brain among hominins, you should state like this. If it is the brain of H. sapiens, it is not adapted.

AUTHOR: We replaced "our brain" by "the hominin brain".

Fig.1 Why showing those specimens in particular? Moreover, maybe should you clarify how those models were obtained, scans of natural casts vs. microCT data.

AUTHOR: The specimens selected are some of the best-preserved southern *Australopithecus* crania and endocasts. Since the paper is about the endocast of the *Australopithecus* specimen "Taung child" and the role of southern African *Australopithecus* specimens in our understanding of hominin brain evolution, we think it is appropriate here. We added the following information in the caption: "3D models derive from surface scanning ("Taung child") and microtomography.".

Page 3, line 62. "neuroanatomical changes" the formulation is strange, because imprints on endocasts show related traits of the brain that need to be identified, and it is a problem by itself, and that's the variation between fossils that informs on changes.

AUTHOR: We modified the sentence as follows (line 64): "In the absence of brain tissues, palaeoanthropologists have to rely on brain imprints preserved on the inner surface of the braincase (endocasts) to reconstruct the hominin brain evolutionary history (Figure 1).".

3, 80. Here and in general, you give a slightly exaggerated version of the story in favour of the south African researchers, fossils, or of you. It seems that the focus leads you to say that nothing else has been done. For a general audience, it would be better if your formulation were more precise to include your point of view into a wider context.

AUTHOR: While we are happy to tone down some of the statements in the paper, we do believe that South Africa did play an important role in the field of paleoneurology. If the reviewer can provide papers that would contradict our points, we would gladly amend our paper and correct any potential misinterpretations accordingly.

4, 112. "Crucial" …. "in the emergence of the modern human brain". If the link was mentioned at the time of the discovery of the fossil, the formulation is not accurate now. Moreover, I do not like the term "modern human", except if you refer to people living today.

AUTHOR: We modified the sentence as follows (line 119): "in the emergence of the derived neuroanatomical traits in the hominin lineage.".

5, 130. "a very detailed description of endocasts… rapidly emerged", really?

AUTHOR: Indeed, as explained in this paragraph, many monographs and papers were published with very detailed description of brain imprints in fossil hominin endocasts from southern Africa that are still used today (Broom and Schepers, 1946; Saban, 1983; Falk, 1980, 1983, 2009; Holloway, 1981a, 1984; Holloway et al., 2004a,b…).

5, 152 " a derived pattern of brain growth… emerged". Derived relatively to which group? I am not fan of the word "emerged" for human evolution.

AUTHOR: We modified the sentence as follows (line 162): "…further supported the possibility that a derived pattern of brain growth (i.e., prolonged) might have emerged within *Australopithecus*…"

6, 160, maybe mention the recent paper of Hurst et al., on Lesedi 1.

AUTHOR: Done.

6, 171, I am not convinced that we are yet able to detail the critical changes that affected Broca's area. If the debate on FO vs horizontal and vertical rami is advanced, I think that we still have a lot to do to really

describe the two last features.

AUTHOR: We agree.

6, 176, this paragraph could appear well before

AUTHOR: The idea is to first summarize the historical discoveries (past), go through the new technologies (today) and think about possible perspectives (future). We believe that for a general audience the paper would be easier to read using this organisation.

9, 243, maybe mention the recent paper of Labra et al here

AUTHOR: Done.