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Reply to "Comment on: Depositional palaeoenvironments in a tide-influenced delta plain with amphibian and Cycadophyta remains – the Triassic Zarzaitine Formation (Algerian eastern Sahara) by S. Mazrou, Y. Lasnami, J. Amer, A. Boutaleb: Geologos 30, 3 (2024): 209–229"

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Abstract

In a recent paper entitled, "Depositional palaeoenvironments in a tide-influenced delta plain with amphibian and Cycadophyta remains – the Triassic Zarzaitine Formation (Algerian eastern Sahara)" (Mazrou et al., 2024), we have demonstrated a prograding delta in an intertidal zone, on the basis of fieldwork yielding new sedimentological and palaeontological descriptions and interpretations. These are completely contrary to those of previous authors, who proposed rivers, lakes, sabkha, etc., as we shall demonstrate in the present note. However, in their comment, Dahoumane et al. (2025, in this issue) have accused us, without any valid argument, of having borrowed the work of other authors without citing them, claiming everything presented in our paper to be erroneous, and not based on work by Dahoumane herself or Dahoumane et al., but on so-called references cited. We shall provide proof in the present paper that not a single line has been borrowed from anyone, and also demonstrate that Dahoumane and Dahoumane et al. are not familiar with the basics of sedimentology, which makes them poor judges of sedimentary geology in any objective way. In addition, they do not know the Triassic terrains of Zarzaitine, confuse Triassic formations with those of Jurassic age that outcrop in the study region, and cite false bibliographic references to support their 'claims'. We shall illustrate below that no information, detail or anything else was presented by Dahoumane et al. concerning the Triassic terrain studied, except for a plate presenting photographs, interpretations of which are all erroneous. We would have appreciated academic critique that could have helped us improve our work, instead of wasting our time responding to false allegations and nonsensical comments.

1. Introduction

Certain data provided and confusion generated by some authors who worked on the Zarzaitine Triassic were omitted from our paper (Mazrou et al., 2024), because we did not intend our work to be a critique of the work of others, but rather a contribution to the advancement of scientific research.

However, we now feel compelled to discuss these here in order to dispel certain confusions that Dahoumane et al. (2025, in this issue) have attempted to 'play' on in a sly manner, in the absence of any scientific argument, as we shall show below.

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2. The bibliographic section of the paper

We have specified (Mazrou et al., 2024) that sedimentary studies concerning the "Triassic Zarzaitine Formation" are indeed few in number, and authors referred to by Dahoumane et al. (e.g., Taib-cherif, 2011; Dahoumane, 2011) are in fact MSc theses that followed subsequent to papers by Nejari et al. (2010) and Ait Ouali et al. (2011), which we have cited extensively in our paper. With regard to Bourquin et al. (2010) and Busson (1972), these were indeed cited (and we shall also cite them extensively in what follows here). Incidentally, Dahoumane et al. confound a published paper with an academic MSc thesis.

The extension of Triassic outcrops of Zarzaitine. Throughout the Algerian Sahara, that Triassic outcrops are only found in the vicinity of Zarzaitine (southeastern Algerian Sahara), is not an 'idea' of Nedjari et al. (2010), as Dahoumane et al. seem to believe, but, this can be deduced from work of numerous authors (e.g. Fabre, 1976, p. 268; Busson, 1972, p. 140).

The Hercynian Angular Unconformity. This unconformity, which marks the Permo-Triassic transition, does not exist in outcrop in Algeria. It was exposed thanks to recent excavation work and described in Mazrou et al. (2024). Nedjari et al. (2009) demonstrated horizontal Permo-Carboniferous layers that they described as a Hercynian unconformity (Fig. 1). This level, which shows conformable layers, is not covered by Triassic deposits. We recommend Dahouman et al. to research the difference between unconformity and concordance of geological layers (e.g., Allaby A. &Allaby M., 1991).

Photograph of the temnospondyl deposit. In our paper (Mazrou et al., 2024, p. 212), we have highlighted photographs of the deposit taken during its 'rediscovery', which allowed us to study the conditions of burial of fossils. This has been clari-

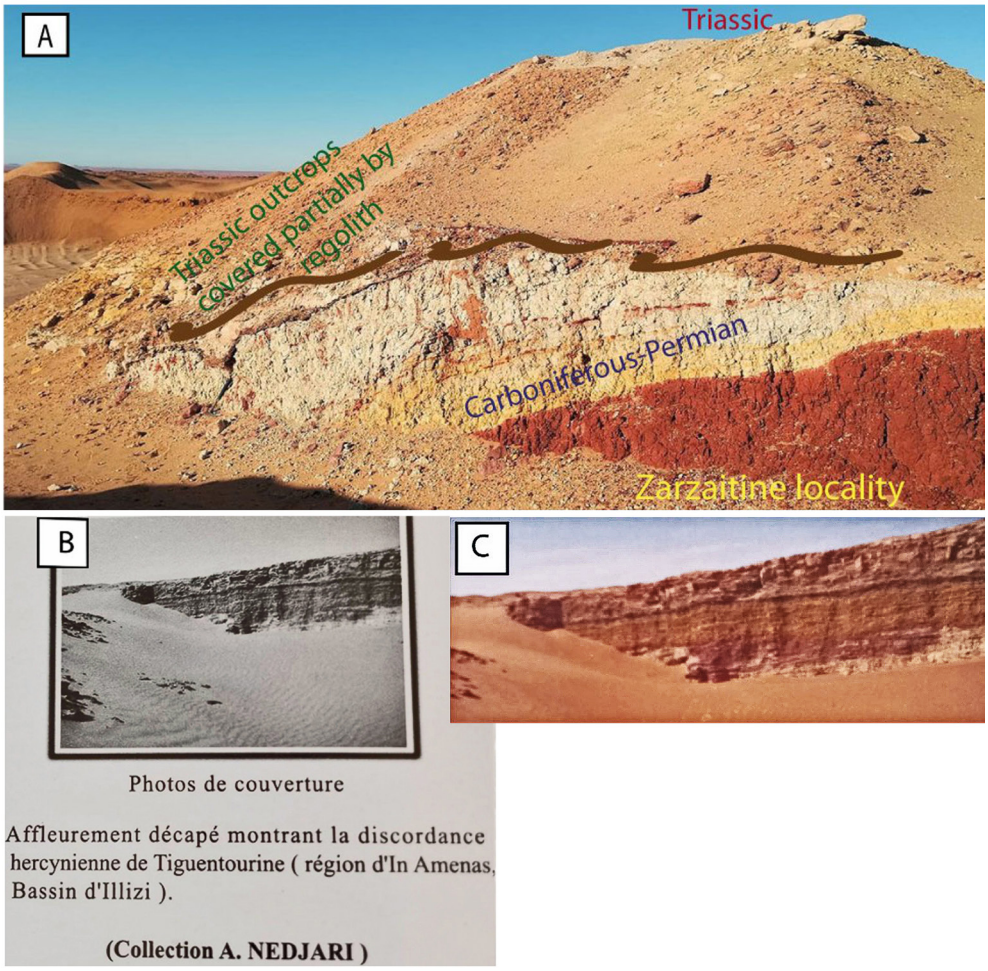

Fig. 1. A – Hercynian unconformity (passage of Palaeozoic/Triassic formations – inclined layers) (from Mazrou et al., 2024); **B–C –** Concordant horizontal Permian-Carboniferous layers interpreted as Hercynian unconformity (from Nedjari et al., 2009).

fied in our paper; we have clearly specified that the deposit was found by Nedjari (Nedjari et al., 2010) and that everything concerning the palaeontological study of temnospondyls has been carried out by a specialist, Dr Stayer (e.g. Stayer, 2001; Stayer, 2010; Dahoumane et al., 2016; Stayer, 2021) (Stayer being second author in Dahoumane et al., 2016). We have not included any reconstruction of the deposit as outlined by Alain Bénéteau or others, since this had no relevance to the sedimentological analysis presented by Mazrou et al. (2024).

3. Stratigraphy

The lithostratigraphical column of the Triassic series and the assigned ages (Mazrou et al., 2024, fig. 1) are from Nedjari et al. (2010, p. 220) as we have specified in our paper, and not from Dahoumane et al. (2016).

The age of the "Zarzaitine with 'stégocéphales' formation, the Zarzaitine series or 'section' of the 'reculée'". We shall begin by stating that age attribution of the Zarzaitine Formation was not done by Jallil (1991), nor by Carpentier (2010) as Dahoumane et al. seem to believe, but by Lehman (1957), followed by de Lapparent et al. (1958) and Lehman (1971).

It is also important to specify which Mesozoic formations outcrop in the Zarzaitine region and what their ages are, as they have been confused throughout the manuscript by Dahoumane et al. Indeed, in the Zarzaitine region (study area of the Triassic Deltaic Formation with amphibian and cycad remains; see Mazrou et al., 2024), two formations are distinguished, based on their fossil content and geographical extent:

– The Middle-Upper Triassic Stegocephalian Sandstone Formation (e.g. Lehman, 1957; de Lapparent et al., 1958; Lehman, 1971; Busson, 1972; Fabre, 1976, pp. 271, 272).
– The reddish clay-silt Jurassic formation with dolomitic intercalations which yielded fern remains: *Paradoxopteris stromeri* and *Weichselia reticulata* and brachiosaur remains (Boureau et al., 1958; de Lapparent, 1960; Fabre, 1976).

The Jurassic formation, which outcrops in the form of a cliff called "la reculée" (geomorphological term), overlies the Triassic sandstone formation (Busson &Cornée, 1989, pp. 37–39 ; Fabre, 1976, pp. 271, 272). The outcrop of this series (Fig. 2) has been illustrated in Mazrou et al. (2024, p. 211, fig. 2B), as well as in other papers (e.g. Bouras, 2010, pp. 62, 63, figs III.5, III.6; Nedjari et al., 2010; Ait Ouali et al., 2011, p. 12).

It should be noted that some authors who, when referring to the geological map published in Busson (1972) and Busson &Cornée (1989, p. 30) which shows the generalisation of the Triassic age to the entire Zarzaitine – 'Reculée' region, failed to take into consideration all the bibliography of the region concerning the different formations and their ages (as cited above), and thus confused the Triassic and Jurassic formations. Indeed, Nedjari et al. (2010) proposed a lithostratigraphical log of the 'Triassic-Jurassic' series, for which they used the vague term 'reculée section', which they attributed to the Middle and Upper Triassic (Mazrou et al., 2024, fig. 1A). This confusion is also seen in Bourquin et al. (2010), who studied the Triassic-Jurassic outcrops of Zarzaitine and its surroundings, to which theyattributed a Late Triassic date.

We shall conclude this stratigraphy section by specifying once again that there are not four formations in the Mesozoic of the Zarzaitine region, but only two: the 'Triassic light-coloured stegocephalic sandstone formation' and the 'Jurassic reddish carbonate-clay formation with brachiosaurs and *Paradoxopteris stromeri* and *Weichselia reticulata'*. These two formations have a regional extent and are therefore mappable.

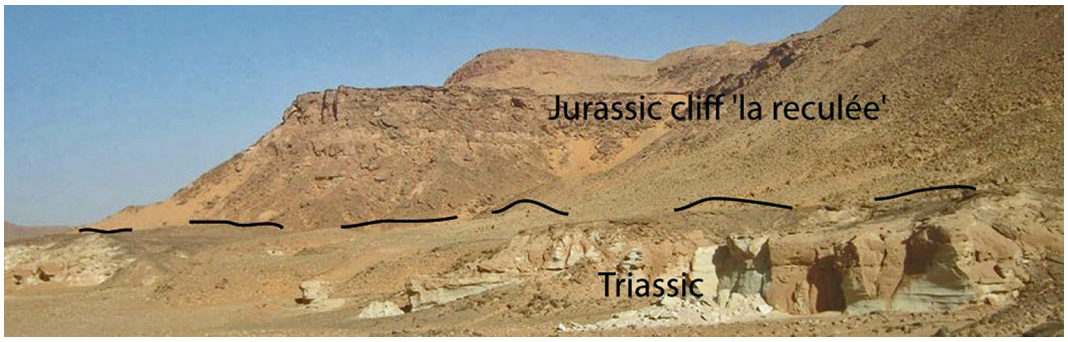

Fig. 2. Triassic (white sandstones with 'stegocephals') and Jurassic (red clayey silts with Brachiosaurus and filicales). Zarzaitine – cliff of 'la reculée'.

It should also be noted that it is precisely this confusion on the part of earlier authors that Dahoumane et al. have 'played very slyly' into their manuscript, as we shall see below.

4. Sedimentology

According to Dahoumane et al., **the depositional environment of the Triassic Zarzaitine Formation** should be interpreted as either braided river deposits, meandering across an arid to humid(!) alluvial plain, as gently meandering rivers across a humid alluvial plain, or as lacustrine deposits with the existence of a marginal environment of the sabkha type. We wish to respond to these authors by stating that, first of all, all of these environments cannot coexist, since a humid alluvial plain is not compatible with sebkha, and that sebkha do not develop in a lacustrine environment. In addition, we wish to remind them that the Triassic facies with stegocephaliabs are 'channelled sandstones' (eg. Fabre, 1976, 2005; Nedjari, 2010; Mazrou et al., 2024). We also like to add that if there had been facies (or facies associations) of the type sebkha, lakes or lagoons, under aeolian environments, or even rivers with low sinuosity or braided rivers, we would have noticed, described and interpreted them. We do know how to do this, since all of these terrestrial environments and subenvironments have been studied in our previous papers on the Algerian Sahara (see e.g. Mazrou, 2010; Mazrou et al., 2016; Mazrou & Lasnami, 2022; Mazrou, 2023). We do advise Dahoumane et al. to read these papers, so as to allow them to distinguish these different environments. In fact, Dahoumane et al. only cited (and carefully left out any illustrations) the results of work carried out by Nedjari et al. (2010) on the Triassic Formation and by Bourquin et al. (2010) on the 'Triassic and Jurassic deposits'. The latter authors effectively highlighted gypsiferous deposits of the sebkha type, and lacustrine type deposits in the Jurassic Formation (or Jurassic Cliff of la reculée).

Dahoumane et al. point out that **the Triassic was studied over only two transects, as opposed to the work of Bourquin et al. (2010), who studied 25 transects**. In fact, Bourquin et al. (2010) studied 15 transects (not 25); we wish to respond that this is normal, since the Jurassic, which they also studied (and not just the Triassic), crops out over a very large area and does so continuously. It starts at the cliff of 'la Reculée' (in Zarzaitine) and continues for more than 200 km (extending to the north and south of Zarzaitine), before disappearing beneath the Cretaceous facies. As far as Mazrou et al. (2024) are concerned, they studied the Triassic deposits, at two sites where these crop out exclusively and not at two transects. Indeed, such strata crop out only at Zarzaitne and Edjeleh, these two regions being 47 km apart, and were deemed sufficient to study the 'formation with stegocephals ' on the scale of the basin and thus give it the stratigraphical scale of a formation. This also sufficed for sedimentary analysis and interpretation of palaeoenvironments (Mazrou et al., 2024).

Tidal structures highlighted in the Triassic Zarzaitne Formation (Mazrou et al., 2024). We have shown that all types of tidal structures exist in the Triassic Zarzaitne Formation, namely mud-draped cross-stratifications, tidal bundles, reactivation surfaces, etc. (Mazrou et al., 2024, figs. 9, 10). It seems that these structures are unclear to Dahoumane et al., who, for example, confused tidal bundle and tidal bundle sequence, which do not correspond to reactivation surfaces. We advise them to consult the excellent review by Davis & Dalrymple (2012) or papers by Abouessa et al. (2014), Mazrou & Mahboubi (2021) and Mazrou (2023).

Facies Association 2 (FA2) (Mazrou et al. 2024, figs. 7–10). This facies association, which defines the lower delta plain of the intertidal zone, comprises the majority of the Zarzaitine Formation. Represented are deltaic sandstone channels supporting tidal structures. The light-coloured sandstone channels are immediately recognisable to anyone who has worked on this formation. However, Dahoumane et al. do not recognise these facies, and even go as far as to deny their existence.

Desiccation cracks (Mazrou et al. 2024, fig. 11D). These desiccations, which actually exist on the surface of the beds, but also throughout their entire thickness, also show traces of gypsum visible on the surface of the beds. Gypsum also exists on some tree trunks (Fig. 3), effectively indicating a dry and hot climate.

Figure 1A of Dahoumane et al. for the Triassic of Zarzaitine, illustrates sand dunes that Dahoumane et al. interpreted as aeolian sands. In reality, these dunes, located at the base of the Triassic formation (base of facies association 2 or FA2), are composed of coarse, heterometric sands, particularly at the base (Fig. 4). The grains are angular and shiny, corresponding to channel facies (deltaic channels in this case). The dunes are also characterised by tidal bundles (Fig. 4A), indicating tidal influence. Should we remind our critics that aeolian dunes are characterised by very fine, rounded and matte grains? Let us also specify that figure 1A of Dahoumane et al. is also found in Nedjari et al. (2010), Aitouali et al. (2011) and Bourquin et al.

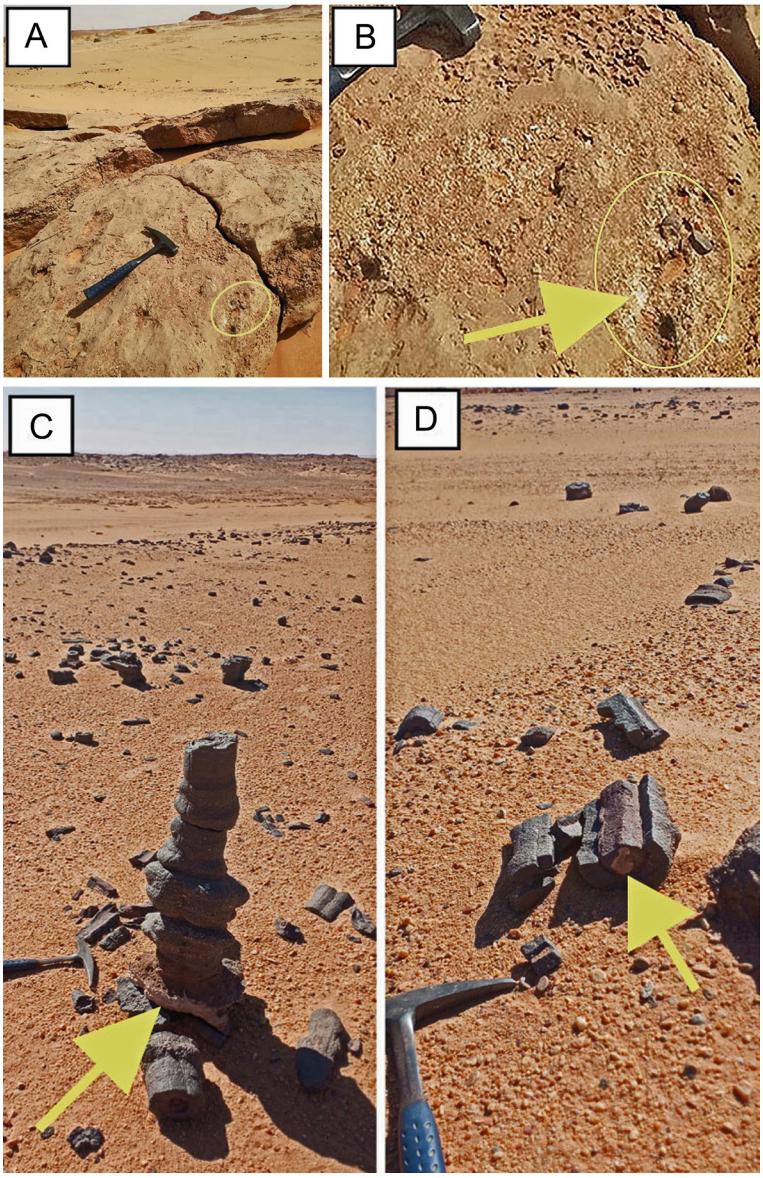

Fig. 3. A, B – Sandstone bars showing traces of gypsum (from Mazrou et al., 2024); **C, D –** Tree trunks showing gypsum at their bases and in their innermost part (arrows) indicating hot and arid climate (unpublished photos – S. Mazrou).

(2010), having been interpreted in the same way (i.e. wind dunes).

Figure 1B of Dahoumane et al. shows channel deposits above stratified sands. The small structure which is designated as a root trace by Dahouman et al. is not visible. This might correspond to *Skolithos* or to post-deposition gypsum trace.

Figure 1C of Dahoumane et al. shows a palaeosol with dolocretes and silcretes, which were not mentioned in our descriptions. Indeed, this illustration depicts a sandstone bar at the top of the Zarzaitine formation (facies association 3 or FA3), bearing not silcretes or dolocretes, but the remains of ferruginised tree trunks. An equivalent of this photograph may be found in Mazrou et al. (2024, fig. 11D).

Figure 1D of Dahoumane et al. corresponds to stratified sands bearing reworked mud pebbles, which are numerous in the formation.

The Zarzaitine Sandstone with stegocephals are considered a formation. These deposits extend over about 45 km, having been recorded from Zarzaitine and Edjeleh. In our paper the formation is defined by its facies, fossiliferous content and geographical extension on the scale of the basin (i.e. extension large enough to be mappable).

5. Trace fossils

The Zarzaitine Skolithos ichnofacies. The question about the Zarzaitine Triassic ichnofacies was raised by Dahoumane et al. in the *Methodology*

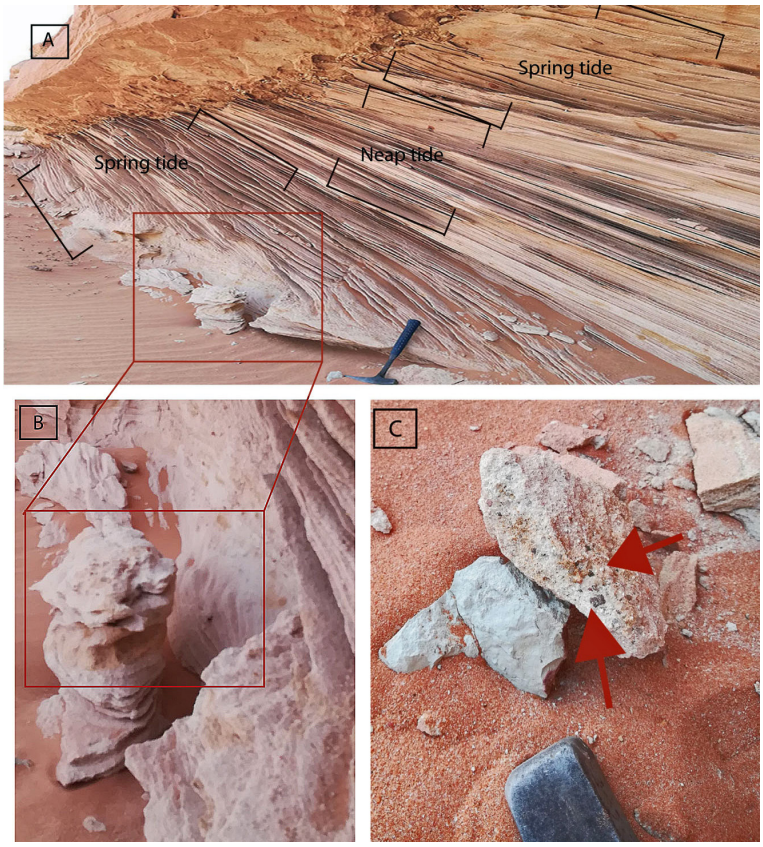

Fig. 4. A – Deltaic channel infill showing tidal bundles (spring tide-neap tide intervals) and coarse sandstones at the base (red square); **B –** Close-up view of the coarse sediments; **C –** Detail of heterogenic, heterometric and angular sandstone grains (arrows). Unpublished photos – S. Mazrou.

and *Sedimentology* sections, as well as in the *Trace fossils* section. We here choose to group together the various questions, remarks and 'accusations' and to respond to these as objectively as possible.

In Mazrou et al. (2024), the Skolithos ichnofacies was identified in the two facies associations FA1 and FA2, which constitute two-thirds of the tidally influenced Triassic deltaic formation of Zarzaitine. These ichnogenera exist in full relief and epirelief in the intertidal environment. We here specify that these ichnogenera were found in both regions (i.e. Zarzaitine and Edjeleh, 47 km apart), in the same position, with similar morphology and occupying exactly the same level within FA1. In FA1 of Mazrou et al. (2024, figs. 5, 6), the Skolithos association appears in full relief after sediment erosion (Fig. 5A). These are the ichnofacies contested by Dahoumane et al., because they did not observe them in the field. Yet, they do not hesitate to put forward anything and everything on this subject, as we shall see below.

We shall first point out that similar ichnogenera have been known for a very long time to many authors, having been described from the Cambro-Ordovician sandstones of the Ajjers, In Tahouite formation (Ahnet, southern Algerian Sahara), where they are preserved in the form of tubes with smooth or striated walls. These ichnogenera, which form true rock pipes, were for a long time considered to be stems or casts of algae or terrestrial plants (Boeuf et al., 1971, pp. 240–244, fig. 198, pl. 16; Fabre, 1976). Furthermore, we ourselves have described from the Miocene of Tebessa *Skolithos* in the basal part of the deltaic sandstone bars at Pipe rocks (Mazrou & Mahboubi, 2021, fig. 17B). We here add a photograph of these *Skolithos* from the Miocene of Tebessa, in which some are in a vertical position, fixed to the substratum, while others lie horizontally on the substratum, torn off by deltaic currents (Fig. 5B).

Dahoumane et al. claim that these ichnogenera were not only described upstream by Ait Ouali et al. (2011), Arbey et al. (2011) and Bourquin et al. (2010) [not cited in Mazrou et al. (2024)], and that, in addition, they considered them to be rhizoliths. In support of this, Dahoumane et al. presented a table with measurements pertaining to rhizoliths that Klappa (1980) described from Quaternary carbonates in the Mediterranean, rather than supply field photographs of such *Skolithos*, as taken by the authors cited, who compared them to the ichnogenera described from the Triassic (!). Indeed, Ait Ouali et al. (2011) and Arbey et al. (2011) described absolutely nothing concerning *Skolithos* or rhizoliths (PDFs that are not available online have been sent by us to the editor-in-chief of *Geologos*). As to Bourquin et al. (2010): described are root networks in the

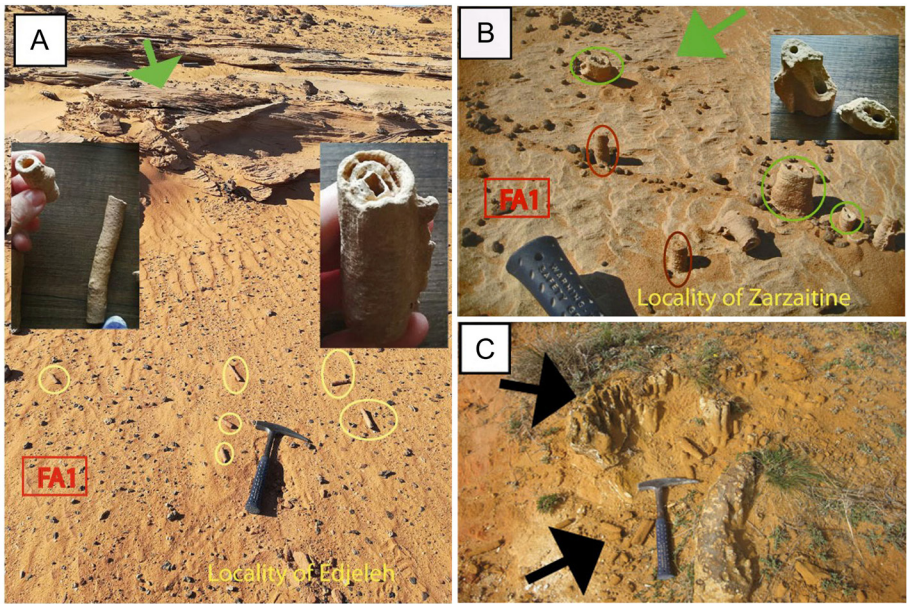

Fig. 5. *Skolithos* ichnogenus in full relief fixed to the substratum. **A–B –** Triassic Zarzaitne Formation (Mazrou et al., 2024); horizontal position results from redeposition by intertidal currents (A), vertical original position (B); **C –** *Skolithos* ichnogenus in full relief, in the same environment (Miocene tidally-dominated delta deposit of Tebessa, Eastern Atlas – Sahara, Algeria) (Mazrou et al., 2021).

Jurassic reddish clay-silt formation (Bourquin et al., 2010, fig.7, p. 375) that have nothing in common with the FA1 ichnofacies of the Triassic Zarzaine Formation, as can be clearly seen. These root networks, which are otherwise very common in this Jurassic plant-and brachiosaur-bearing unit, were also described by Bouras (2010, p. 72, pl. 10).

The same authors criticised us on certain other points, to which we shall briefly respond:

- Regarding the names of the genera and species, they were all written in italics; this is simply an error introduced during the latest formatting by *Geologos*.
- For the temnospondyl-bearing deposit, we used the word 'rediscovered' rather than 'discovered' (Mazrou et al., 2024, p. 212).
- The systematic and phylogenetic study of Triassic temnospondyls was carried out by Stayer (*in* Dahoumane et al., 2016). This particular paper has been cited more than once in ours.

6. Temnospondyl fossils

Mazrou et al. (2024, pp. 212–217) specified that remains of Triassic amphibians were found in structureless fine sands (F4) with highly indurated greenish silty-clays of intertidal mixed flat deposits with a *Skolithos* association. Gypsum, which is the main facies element of a sabkha environment, was not observed in the vertebrate fossil deposit, and the latter showed no evidence of gypsum epigenesis either. In the discussion section (Mazrou et al., 2024, p. 225) we added about these fossil remains that epigenesation in gypsum weakens the bones and inhibits good preservation, contrary to what was stated by Nedjari et al. (2010) and repeated by Dahoumane et al. (2016). This state of affairs is also deduced from our observations on other Mesozoic terrains, for which we show a skull and a tooth whose structure is completely replaced by gypsum, making these fossils fragile and occasionally indeterminate (Fig. 6). Dahoumane et al. dispute this, yet their arguments are not derived from direct field observations by themselves in the Triassic, but rather from certain authors around the world who have allegedly found vertebrate skulls in sabkhas. For this, they cited, for example, Peneiro et al. (2012). However, those authors found mesosaurs in a Permian Lagerstätte from Mangrullo (Uruguay), being very well preserved in marine black shales, and not in a continental sabkha, as Dahoumane et al. claim. The latter authors also cited Schoch et al. (2022), who allegedly found temnospondyls in another sabkha. However, those authors described rather temnospondyls that lived in lakes located on the coastal edge and thus influenced by marine incursions. This palaeoenvironment was highlighted by facies including: dolomites and black marls, which have nothing to do with the sebkha, essentially made up of gypsum, and which Dahoumane et al. absolutely wish to see as the sole habitat for the Algerian temnospondyl *Stanocephalosaurus amenasensis*, in spite of facies data for the deposit in question which are indicative of an intertidal plain.

Dahouman et al. cited other authors around the world who have allegedly found temnospondyls living in lakes, rivers and other habitats. We lacked the time to verify the credibility of everything they reported. Anyway, we have worked only on the Al-

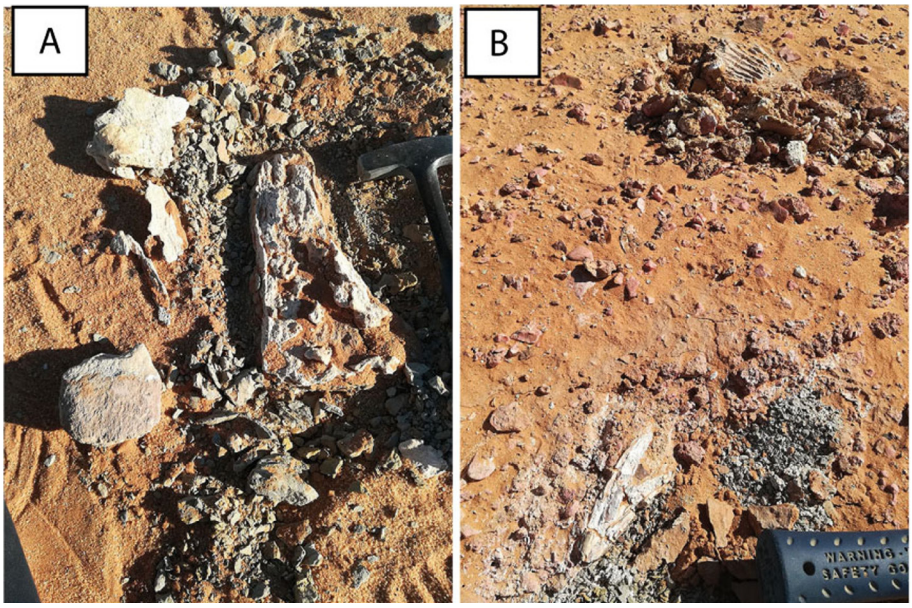

Fig. 6. A–B – Examples of indeterminate skull and tooth fossil remains, because completely epigenized by gypsum in an outcrop of the Algerian Sahara. Unpublished photos – S. Mazrou.

gerian Zarzaitine Triassic, and the results obtained only concern this area and this time period.

Mazrou et al. (2024, pp. 212–217) demonstrated that the Triassic Zarzaitine Formation was formed by a prograding delta with tidal influence, and the intertidal deltaic plains must have been the habitat of the temnospondyls, as shown by facies association 1 (FA1). Mazrou et al. (2024) never mentioned a marine environment or marine microfauna, contrary to what Dahouman et al. claimed.

In the discussion section (Mazrou et al., 2024), we specified that the braided river plain palaeoenvironment proposed by Nedjari et al. (2010) would not be compatible with the aquatic habitat of temnospondyls, which must have lived in fairly deep plains, and a perennial water table. Indeed, braided rivers are specific to arid climate, tending to occupy most of their alluvial valley, leaving little room for flood plains (e.g. Miall, 1996). On the other hand, deltaic plains were more closely compatible with the aquatic lifestyle of temnospondyls.

Moreover, we wish to take this opportunity to refer to excellent papers by Laurin & Soler-Gijon (2010) and Morin (2024), who compiled good overviews of the habitats of temnospondyls, as studied by various authors across the globe. They concluded that, if temnospondyls were considered by many palaeontologists to be specific to a freshwater milieu, this was related to the fact that many brackish or saline water environments were poorly described by these authors (Morin, 2024). This is the case, for example, of deltaic environments that could be free of marine microfauna and were then considered terrestrial, and of tidal environments whose tidal structures are not recognised and therefore not described or reported by certain authors. Morin (2024) came to the conclusion that temnospondyls rather inhabited saline or brackish waters than in freshwaters. These conclusions are really in agreement with ours concerning the habitat of temnospondyls (Mazrou et al., 2024). Indeed, it is true that the prograding deltaic environment of the Triassic of Zarzaitine had not been described by previous authors.We think that this is due to the absence of marine microfauna, as we remarked in the Discussion section (Mazrou et al., 2024). Tidal structures were not recognised or in any case, they were not described by previous authors, whereas they are common in outcrops of the Triassic of Zarzaitine.

Plant palaeosols. Dahouman et al. even criticised the Cycadophyta palaeosol discovered at the top of the Triassic Zarzaitine Formation, and accused us of not having taken thin sections that would have allowed the study of tree trunk tissues. Had these authors been truly familiar with this terrain, they would have noted that these plants were completely ferruginised, and that it was impossible to take thin sections for microscopic or other studies.

7. Final discussion

Contrary to Dahoumane et al., there is no genuine proof of repetition of previous work without source citation in the paper by Mazrou et al. (2024), nor can any claim of falsification of the entire work be put forward. Here we shall focus in a succinct and well-argued manner on essential points raised by Dahoumane et al., and demonstrate the lack of seriousness of those authors and

illustrate the false claims they make in their manuscript.

The **Hercynian unconformity** (Permo-Triassic unconformity) was indeed highlighted by Mazrou et al. (2024), whereas Nedjari et al. (2010) showed concordant horizontal layers attributed to the Permo-Carboniferous, which are not overlain by any Triassic levels (light sandstone facies). Note that Dahoumane et al. did not present any illustration or other evidence to support their accusations.

For the **stratigraphy,** we explained that the outcrops of the Zarzaitine region are represented by Triassic sandstones with temnospondyls (e.g. Lehman, 1971; Busson, 1972; Fabre, 1976), overlain by red silty clays with stems of the *Paradoxopteris stromeri* and *Weichselia reticulata* type and with remains of Jurassic brachiosaurs (e.g. Boureau et al., 1958; de Lapparent, 1960; Fabre, 1976, 2005; Bouras, 2010; Mazrou et al., 2024). This Jurassic-Triassic lithostratigraphical succession which crops out at the cliff of 'la reculée', was considered as entirely of Triassic age by Bourquin et al. (2010), Nedjari et al. (2010) and Aitouali et al. (2011), some referring to it as 'Coupe de la reculée'. This stratigraphical error is induced by the geological map of Busson (1972) in which a Triassic age is attributed to the entire Zarzaitne-Reculée region **(**see for more details on the geology of the region: Busson, 1972 and Busson &Cornée, 1989). Dahouamane et al. compared Jurassic and/or Triassic and Jurassic data published by the previous authors cited above, with those of the Triassic formation described and interpreted by Mazrou et al. (2024), without supplying illustrations to support this or that argument, so as not to reveal this stratigraphical confusion .

Mazrou et al. (2024) proposed a **tidally influenced prograding delta** with amphibians and cycads for the Triassic deposits of Zarzaitne, based on sedimentological analysis and palaeontological identification. They highlighted for the first time sandstone channel infills with tidal structures (tidal bundles, tidal rhythmites, reactivation surfaces, etc.), *Skolithos* in the first two members (facies associations 1 and 2), and a cycad-bearing palaeosol (facies association 3). Thus, we can confirm that this is in no way plagiarism (contra Dahoumane et al.), since our data in their entirety are in contradiction to those of previous authors (Bourquin et al., 2010; Nedjari et al., 2010; Aitouali et al., 2011), who proposed braided rivers (Nedjari et al., 2010) and fluvio-lacustrine and aeolian environments (Bourquin et al., 2010).

The rediscovery of the temnospodyl deposit (Mazrou et al., 2024) has allowed to analyse the sedimentary deposits which covered the skulls and other remains of temnospondyls; gypsiferous deposits which constitute the key facies of the subenvironment of sebkha or salt lagoon, were not observed. However, the skulls of temnospondyls are not epegenised by gypsum, and this precisely explains their good preservation (Mazrou et al., 2024). This state of affairs was contested by Dahoumane et al., who said that vertebrate fossils were found in a sebkha, not on the basis of their own work on the deposit, but leaning on some published articles (Peneiro et al., 2012; Schoch et al., 2022), for which they claim that vertebrate fossils were found in sebkha in excellent preservation. Yet, as shown above, those authors did not discover fossils in sebkha, but in black shales belonging to a coastal environment (Peneiro et al., 2012) and in marl-dolomitic sediments from a coastal lacustrine environment (Schoch et al., 2022).

Skolithos were observed in the association of facies 1 and 2 of the Triassic Zarzaitine Formation. Part of the FA1 *Skolithos* crops out in relief on an eroded surface of the intertidal environment. Dahoumane et al. questioned this and assimilated them with root traces on the basis of the supposed work of certain authors (Bourquin et al., 2010; Aitouali et al., 2011; Arbey et al., 2011). In reality, there is no reference to *Skolithos*, nor to root traces in the papers by Aitouli et al. (2011) and Arbey et al. (2011). As to Bourquin et al. (2010), they described different remains of fossil roots from the Jurassic of the Reculée; these do not resemble in any way the *Skolithos* analysed by Mazrou et al. (2024).

Dahoumane et al. posted a plate with photographs of Triassic deposits that do not indicate the level from which these were taken. Indeed, their figure 1A has been interpreted as aeolian dunes; however, these are deltaic channels represented by sandstones with tidal bundles, while sands at the base of dunes are characterised by very coarse, shiny and heterometric grains (Fig. 4). In contrast, aeolian sands are characterised by fine, matte and rounded grains. Dahoumane et al. also described in another picture a dolocrete and silcrete palaeosol; in fact, this is a palaeosol with fossilised tree trunk remains on fluvial channels.

8. Conclusions

The work of Mazrou et al. (2024) on the Triassic Zarzaitine Formation with temnospondyls of the eastern Algerian Sahara has documented a delta with tidal influence. In this respect, that paper differs completely from those by previous authors in terms of description of facies, interpretation of

palaeoenvironments, determination of plants and *Skolithos*, etc.. This clearly proves that this objective work has nothing to do with that of previous authors who proposed braided rivers, lakes, sebkha, aeolian deposits, etc.

On the *Geologos* website we have included a Supplement containing papers by Nedjari (2009), Ait Ouali et al. (2011) and Arbey et al. (2011); these are otherwise not readily available online.

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