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Reinterpretation of *Malvinoconularia cahuanotensis* (Braniša and Vaněk) from the Devonian Altiplano and Western Andean Cordillera, Bolivia, South America

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Abstract. The holotype of *Malvinoconularia cahuanotensis* (Braniša and Vaněk) (Devonian, Bolivia), the type species of the monospecific genus *Malvinoconularia* Babcock *et al*., is redescribed and refigured. *M. cahuanotensis* exhibits several gross morphological features that together are uniquely shared with *Reticulaconularia baini* (Babcock and Feldmann). In both taxa, the transverse ribs are nodose, the interspaces bear longitudinal ridges (bars or crests) that are collinear (line up) across the transverse ribs, and the longitudinal centerline (midline) of the faces is marked by a subdued ridge. Additionally, the two species may also be similar in the anatomy and external ornament of the corner sulcus. The slightly undulose geometry of the transverse ribs of *M. cahuanotensis* also is exhibited by certain specimens of *Reticulaconularia*; however, whether this feature is primary or taphonomic in origin is unclear at present. Together, these similarities suggest that the genus *Malvinoconularia* probably is a junior synonym of the genus *Reticulaconularia*.

Resumen. Reinterpretación de *Malvinoconularia cahuanotensis* (Braniša y Vaněk) del Devónico de Bolivia, America del Sur. El holotipo de *Malvinoconularia cahuanotensis* (Braniša y Vanek) (Devónico, Bolivia), la especie tipo del género *Malvinoconularia* Babcock *et al*., es reinterpretado y refigurado. *M. cahuanotensis* exhibe varios rasgos morfológicos que en conjunto son compartidos únicamente con *Reticulaconularia baini* (Babcock y Feldmann). En ambos taxones las costillas transversas son nodosas, los interespacios poseen aristas longitudinales (barras o crestas) que son colineares a las costillas transversas, y las caras presentan una pequeña elevación externa sobre su línea media. Además, estas especies parecen ser similares en la anatomía y ornamentación externa del surco marginal. La geometría suavemente ondulada de las costillas de *M. cahuanotensis* es también exhibida por ciertos especímenes de *Reticulaconularia*, aunque aún no es claro si esta característica es primaria o tafonómica en su origen. En conjunto, estas similitudes sugieren que *Malvinoconularia* es un sinónimo junior de *Reticulaconularia*.

Key words. Bolivia. Devonian. Conulariids. Cnidaria. Systematics.

Palabras clave. Bolivia. Devónico. Conuláridos. Cnidaria. Sistemática.

Introduction

Devonian strata of Bolivia have long been known for their exceptionally abundant and well preserved invertebrate fossils, particularly in comparison with equivalent strata in other parts of the Malvinokaffric Realm (Sharpe, 1856; Bernard, 1895; Kayser, 1897; Reed, 1904, 1925; Thomas, 1905; Schwarz, 1906; Knod, 1908; Clarke, 1913; Kozlowski, 1913, 1923; Douglas, 1920; Richter and Richter, 1942; Boucot, 1971; Méndez-Alzola and Sprechmann, 1973; Cooper, 1977; Eldredge and Ormiston, 1979; Babcock *et al*., 1987; Leme, 2002; Rodrigues, 2002; Rodrigues *et al*., 2003; Leme *et al*., 2004). The most common fossils in the Bolivian rocks are trilobites, rhynchonelliform brachiopods, molluscs, and conulariids (d'Orbigny, 1842; Ulrich, 1892; Kozlowski, 1923; Braniša, 1965; Babcock *et al*., 1987; Babcock, 1993). Conulariids are very common in the Belén, Icla, and Sicasica formations (figure 1), where they generally occur in hard siliceous concretions (Ulrich, 1892; Kozlowski, 1923; Braniša, 1965; Babcock *et al*., 1987; Babcock, 1993). In the most recent review of the conulariids of these strata, Babcock *et al*. (1987) described six species: *Conularia albertensis* Reed, 1925, *C. quichua* Ulrich, 1890, (*in* Steinmann and Doderlein), *Paraconularia africana* (Sharpe, 1856), *P. ulrichana* (Clarke, 1913), *Reticulaconularia baini* (Ulrich, 1892), and *Malvinoconularia cahuanotensis* (Braniša and Vaněk, 1973). *Malvinoconularia cahuanotensis* originally was placed in the genus *Metaconularia* (Braniša and Vaněk, 1973), and was erected on the basis of three specimens, all from the Lower Devonian Belén Formation. Unfortunately, Braniša and Vaněk's holotype and nearly all other

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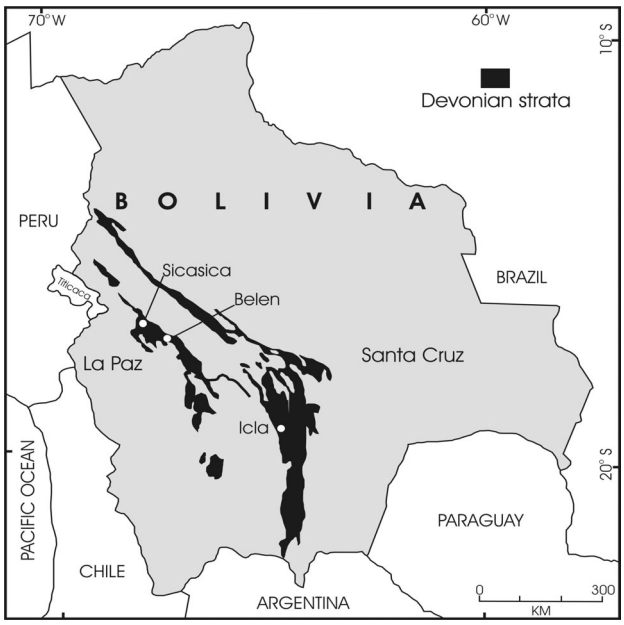

Figure 1. Map showing the distribution of Devonian strata in Bolivia / *mapa exhibiendo la distribución de los estratos del Devónico en Bolivia.*

specimens, originally reposited in collections of the Yacimientos Petrolíferos Fiscales Bolivianos (YPFB, Santa Cruz de La Sierra, Bolivia), have been lost (José Oliveira and Hugo Barba, YPFB, oral communication, 2003). Only one actual specimen, the holotype of *Malvinoconularia cahuanotensis* (YPFB 5630; Braniša and Vaněk, 1973, Fig. 2.1-4), currently is available for study.

According to Babcock *et al.* (1987, p. 219), the monospecific genus *Malvinoconularia* differs from all previously described conulariid genera "by [1] having rods [transverse ribs] that usually abut at the midline, [2] widely spaced rods, [3] large apical angles (37 to 43º), and [4] subtle thickenings of [the] integument which run the length of the exoskeleton and [5] by lacking spines [interspace bars, ridges, or crests]." However, reexamination of the holotype of *M. cahuanotensis* shows that it exhibits anatomical features that were not noted previously or may have been misinterpreted (Braniša and Vaněk, 1973; Babcock *et al*., 1987). Furthermore, comparison of this specimen with specimens of *Reticulaconularia baini* shows that it and other species of *Reticulaconularia* exhibit most of the characteristics attributed by Babcock *et al*. (1987) to *Malvinoconularia*, and that these two taxa share several anatomical features not shared with other conulariids. Based in part on these new observations, presented below, we argue that *Malvinoconularia* may be a junior synonym of *Reticulaconularia*.

Materials and methods

The present study is based on direct examination of the holotype of *Malvinoconularia cahuanotensis* and 78 specimens of *Reticulaconularia baini*, all from Bolivia (see Appendix). Most of the *R. baini* specimens are from the Icla Formation, though some may be from the Belén Formation of the Altiplano and Western Andean Cordillera. Specimens were examined and photographed using reflected light microscopy. Use of anatomical terminology in this paper generally is consistent with precedents to be found in Sinclair (1940a, 1940b, 1942, 1948, 1952), Moore and Harrington (1956), Bischoff (1978), Van Iten (1991a, 1991b, 1992a, 1992b), Jerre (1993), Van Iten *et al*. (1996, 2000), Leme (2002), and Leme *et al*. (2004). Finally, all examined specimens are reposited in collections of the Yacimientos Petrolíferos Fiscales Bolivianos (YPFB), Santa Cruz de La Sierra, Bolivia, and Museo de Historia Natural Alcide d'Orbigny, Cochabamba, Bolivia.

Previous descriptions of *Malvinoconularia*

Braniša and Vaněk (1973). The original description of *Metaconularia cahuanotensis* reads as follows: "The faces are not uniform in size, with bent edges. The corners are marked by broad shallow furrows, across which the transverse ridges are clearly continuous. These ridges are slightly variable in thickness. The transverse ridges are slightly arched adaperturally, and are offset along the midline. Midline of faces inconstantly marked by faint groove; on inner side (internal mould) enclosed by well-developed septal ridge. The interspaces, because of the close spacing of the transverse ridges, are represented only by shallow grooves. Faces with accessory longitudinal lines in outer surface. Apical angle: about 14º. Transverse ridge spacing: 10-11/5 mm".

Babcock *et al.* (1987). Based on examination of a single specimen (YPFB 5630), Babcock *et al.* (1987) erected the new, monospecific genus *Malvinoconularia*, with type species *M. cahuanotensis* Braniša and Vaněk (1973). Their description of the genus *Malvinoconularia* reads as follows (Babcock *et al*., 1987, p. 219): "Conulariids with rods [transverse ribs] widely spaced; 18 to 24/cm; undulose; fewer than 30% alternate at midline; greater than 70% abut. Apical angles large, approximately 37 to 43º. Nodes present and closely spaced. Adapertural and adapical spines absent. Several narrow, subtle thickenings of integument run longitudinally along the exoskeleton".

Present description

The holotype of *Malvinoconularia cahuanotensis*

(figure 2.A-D) can be redescribed as follows: Pyramidal theca having four faces that differ in width, with one set of opposing faces (the major faces; Babcock and Feldmann, 1986) approximately 1.3 times as wide as the other set of opposing faces (the minor faces); theca slightly compressed both parallel and perpendicular to its long axis, with several low, broad transverse folds, probably produced by secondary compaction parallel to the longitudinal axis of the theca (figure 2.C), crossing the faces; apical region and apertural margin missing; minimum original length of the theca approximately 4.2 cm. Apical angles of the major and minor faces approximately 51° and 37.5°, respectively. Midline of the faces marked discontinuously by a very low external ridge (figure 2.C). Transverse ribs finely nodose, slightly undulated, confluent at the midlines, widely spaced (figures 2.C, 2.D), with 4 ribs/mm within approximately 10 mm of the former apex and 3-3.5 ribs/mm elsewhere; transverse ribs on the faces chevron-like (figure 2.D); in some places (figure 2.B1), inflected toward the aperture on the shoulders of the corner sulcus; geometry of the transverse ribs in the corner sulcus proper cannot be determined owing to poor preservation of this feature; rib nodes on the faces hemispherical, generally numbering 4/mm. Interspaces locally (near the corners) showing narrow, bar-like longitudinal ridges (interspaces ridges) that line up across the transverse ribs and are more or less parallel to the corners (figure 2.B1-3); interspaces of the two major faces also exhibit four subdued, relatively broad longitudinal ridges that likewise extend across the full width of the interspaces and are collinear (line up) across the transverse ribs (figure 2.A). Corner sulcus relatively deep, possibly angulated (figure 2.B1); edges (shoulders) of the corner sulcus also angulated (figure 2.B1). Schott (apical wall; Babcock and Feldmann, 1986) absent.

Discussion. The present description differs from the descriptions of Braniša and Vaněk (1973) and Babcock *et al*. (1987) in several ways. One of these concerns the anatomy of the longitudinal centerline, or midline, of the faces (figure 2.C). According to Braniša and Vaněk (1973), the midline is marked by a discontinuous "faint groove" associated with a "well-developed septal ridge". Although it is no longer possible (apparently) to examine the full suite of specimens assigned by Braniša and Vaněk (1973) to *Metaconularia cahuanotensis*, we found no evidence of a faint groove or internal ridge at or near the midlines of YPFB 5630. Instead, the midlines of at least some of the faces of this specimen appear to be slightly and discontinuously raised (figure 2.C). In many other conulariids (e.g., many species of *Conularia* and *Paraconularia*; e.g., Babcock and Feldmann, 1986) having transverse ribs that arch or point toward the aperture on the faces, the summit of the ribs more or less coincides with the midline. In YPFB 5630, the summit of many of the chevron-like transverse ribs is noticeably displaced from the geometrical centerline (figure 2.D). Also, none of the transverse ribs on this specimen is disrupted (offset) at or near the midline (figure 2.D).

A second point of disagreement concerns the anatomy of the interspaces. According to Babcock *et al*. (1987), the interspaces of *Malvinoconularia* lack longitudinal ridges (referred to by these authors as "spines"). However, as shown here in figures 2.B1-3, relatively narrow, bar-like interspace ridges clearly are present in YPFB 5630. [These ridges may correspond to the "accessory longitudinal lines" noted by Braniša and Vaněk (1973)]. Moreover, these ridges line up (are collinear) across the transverse ribs (figure 2.B1-3).

Babcock and Feldmann (1986) also noted the presence of eleven "subtle thickenings" running along the length of each face (Babcock *et al*., 1987, fig. 6; this paper, figures 2.1, 2.3). Inspection of YPFB 5630 shows that these features probably are not sites of actual thickening, but instead are subtle folds or corrugations that are somewhat similar to the interspace ridges (crests) of other conulariids (e.g., *Reticulaconularia*). Thus, YPFB 5630 exhibits both bar-like interspace ridges and broader, subtler longitudinal ridges (figure 2.A). While the interspace ridges probably are primary anatomical features, the broad longitudinal ridges may be artifacts of transverse compaction. Owing, unfortunately, to the fact that there is only specimen of *Malvinoconularia* available for study, we cannot resolve this problem.

A third difference involves the geometry of the transverse ribs within and near the corner sulcus. According to Braniša and Vaněk (1973), the transverse ribs are "clearly continuous" across the corner sulcus. Babcock *et al*. (1987) did not describe the corner sulcus, and continuity of the ribs across the sulcus is not evident in their published photographs (Babcock *et al*., 1987, figure 6, p. 220). In YPFB 5630, the corner sulcus is distorted (by compaction) and/or partially obscured by rock matrix, and thus without further preparation (possibly) it cannot be determined whether the transverse ribs are in fact continuous across the sulcus (as is the case in many other conulariids such as *Conularia* and *Metaconularia*; e.g., Van Iten *et al*., 1996). However, on the rounded shoulders (edges) of one of the corner sulcus (figure 2.B1), some of the transverse ribs are inflected (bent) toward the apertural end of the theca. Such bending generally is displayed by conulariids, including *Climacoconus*, *Paraconularia*, and *Reticulaconularia*, whose transverse ribs terminate within the corner sulcus (e.g., Van Iten *et al*., 1996; Van Iten *et al*., 2000).

Finally, Babcock and Feldmann (1986) noted that the transverse ribs of *Malvinoconularia* are slightly undulated. Similar undulation of the transverse ribs, though perhaps not as pronounced as in YPFB 5630 (figure 2.D), also is exhibited by certain specimens of *Reticulaconularia* (figure 2.E). Again, however, it is not clear whether these features are primary or are artifacts of preservation (see Simões *et al*., 2003).

The genus *Reticulaconularia* Babcock and Feldman

According to Babcock *et al*. (1987), *Malvinoconularia cahuanotensis* is most similar to *Reticulaconularia*. The original diagnosis of this genus (Babcock and Feldmann, 1986, p. 447) reads as follows: "Conulariids with rods that are widely spaced, 12-39/cm. 30-80% of rods alternate at midline; 20-70% abut. Apical angles large, 22-59°. Nodes and adapertural spines present and widely spaced; adapical spines not known." At present, *Reticulaconularia* contains three species: *R. penouili* (Clarke, 1907), *R. sussexensis* (Herpers, 1949), and *R. baini* (Babcock *et al*., 1987).

In a recent study comparing *Reticulaconularia* with the monospecific genus *Changshaconus* Zhu, 1985 (Devonian, China), Van Iten *et al*. (2000) noted five additional characteristics of *Reticulaconularia*: (1) midline of the faces marked by an external ridge; (2) nodes located at the ends of the interspace furrows (as opposed to the interspace bars or ridges); (3) long axes of the interspace ridges generally line up across the transverse ribs; (4) interspace ridges extend across the full width of the interspaces; (5) interspace ridges inclined at high angles (approximately 70°) to the transverse ribs. Van Iten *et al*. (2000) argued further that *Changshaconus* and *Reticulaconularia* may have been more closely related to each other than either genus was to any other conulariid, and suggested that one or both genus names may have to be abandoned in order to eliminate paraphyly.

Based on the two descriptions previously published and on direct examination of 78 specimens of *R. baini* from the Devonian of Bolivia (Appendix), we summarize the common characteristics of the three species placed by Babcock and Feldmann (1986) in the genus *Reticulaconularia* as follows: Conulariids with four faces; apical angles range from approximately 22° (minor faces) to 59° [major faces; see however Simões *et al*. (2003) for a discussion of the limitations of the use of the apical angles to diagnose conulariid species]. Transverse ribs finely nodose, chevron-like or bell-shaped on the faces, numbering from 39 ribs/mm in the apical region and from 12 to 21 ribs/mm elsewhere; transverse ribs generally cross the midlines without disruption or offset (figure 2.G); transverse ribs inflected toward the aperture on the shoulders (edges) of the corner sulcus and terminate within the corner sulcus, where the ends of the transverse ribs of one face alternate and interlock with the ends of the transverse ribs of the adjacent face (figure 2.F). Midlines marked by a low external ridge (figure 2.G). Interspaces with interspace ridges (bars or crests) that extend across the full width of the interspaces and are collinear (line up) across the transverse ribs (figure 2.F). Corner sulcus deep, angulated (figure 2.F), with shoulders (edges) also angulated (figure 2.F). Schott not observed.

Comparisons of *Reticulaconularia* and *Malvinoconularia*

As noted above in the introduction, Babcock *et al*. (1987, p. 219) stated that *Malvinoconularia* differs from all other conulariid genera "by [1] having rods [transverse ribs] that usually abut at the midline, [2] widely spaced rods, [3] large apical angles (37° to 43°), and [4] subtle thickenings of [the] integument which run the length of the exoskeleton and [5] by lacking spines [interspace bars, ridges, or crests]". However, our work shows that characteristics 1-3 also are exhibited by species in the genus *Reticulaconularia*. Furthermore, some specimens of *R. baini* also exhibit subdued longitudinal ridges, which may or may not be primary anatomical features, and interspace bars (crests) and troughs are present in *Malvinoconularia*. Data presented in this and previous studies (Sinclair, 1942; Braniša and Vaněk, 1973; Babcock and Feldmann, 1986; Babcock *et al*., 1987; Babcock, 1993; Van Iten *et al*., 2000) show further that *Malvinoconularia* and *Reticulaconularia* share the following anatomical similarities: (1) interspaces with interspace ridges (bars or crests) that line up (are collinear) across the transverse ribs; (2) midline of the faces marked by a more or less distinct external ridge; (3) transverse ribs with nodes; (4) transverse ribs commonly chevron-like. Finally, although the anatomy of the transverse ribs in the corner sulcus of *Malvinoconularia* is unclear, the geometry of the ribs on the shoulders of the corner sulcus is consistent with the hypothesis that the sulcus proper is similar to that of *Reticulaconularia*, in which the transverse ribs terminate and their ends are arranged in alternation.

In short, then, *Malvinoconularia* Babcock *et al*. (1987) exhibits all of the characters regarded by Babcock and Feldmann (1986) as diagnostic of *Reticulaconularia*, and many and possibly all of the characteristics attributed to this genus by Van Iten *et al*. (2000). For this reason, we conclude that *Malvinoconularia cahuanotensis* (Braniša and Vaněk, 1973)

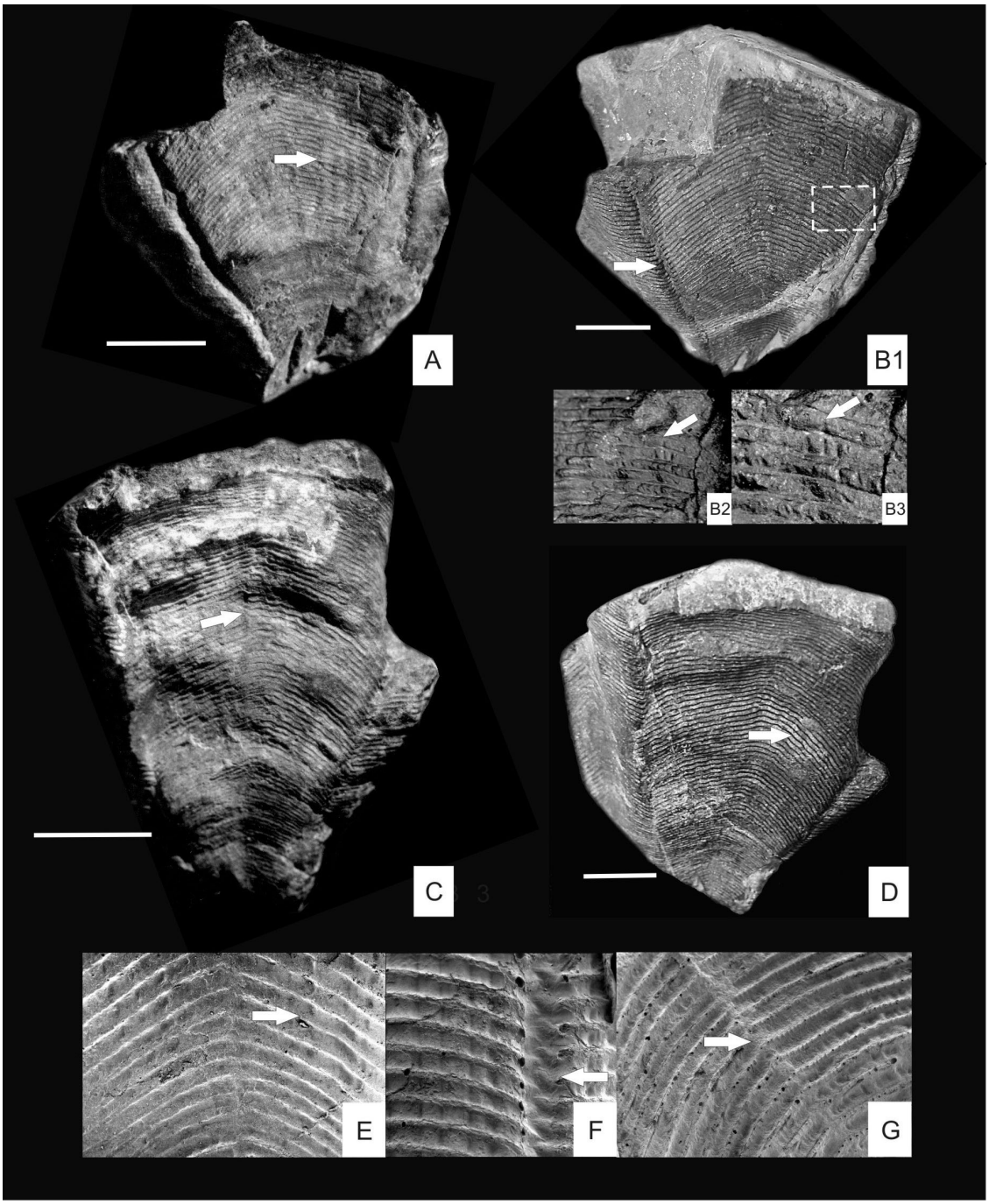

Figure 2. ***Malvinoconularia cahuanotensis*** (Braniša and Vanek, 1973) and ***Reticulaconularia baini*** (Ulrich, 1892) from the Devonian of Bolivia. **A-D,** ***M. cahuanotensis*** (YPFB 5630). **A,** General view of the specimen showing the "subtle thickenings" on one of the faces (white arrow) / *vista general del especimen presentando* "subtle thickenings" *(espesamientos longitudinales) en el peridermo (flecha blanca)*; **B1,** General view of the same specimen with transverse ribs on the faces inflected toward the aperture on the shoulders of the corner sulcus (white arrow) */vista general del mismo especimen con costillas que se doblan en dirección a la abertura en el surco de las aristas (flecha blanca)*; **B2,** Detail of the collinear alignment of the interspace ridges (crests), extending across the full width of the interspaces and lining up across the transverse ribs (white arrow), (x1.6) / *detalle del peridermo exhibiendo elevaciones colineares a través del interespacio (crestas) (flecha blanca)*; **B3,** Same detail of **B2** showing the collinear alignment of the interspace ridges (white arrow), (x2.0) / *mismo detalle del* ***B2*** *exhibiendo elevaciones colineares a través del interespacio (crestas) (flecha blanca)*; **C,** Side view of the holotype, a relatively complete specimen showing the subdued longitudinal external ridge at the facial midline (white arrow) / *vista del holotipo, presentando una pequeña elevación externa en la línea media (flecha blanca)*; **D,** Theca showing the "undulate" transverse ribs (white arrow) / *Peridermo exhibiendo costillas "onduladas" (flecha blanca)*. **E-G,** ***R. baini***. **E,** View of the specimen (YPFB 3139) showing the "undulate" transverse ribs (white arrow), (x25.0) / *vista del especimen (YPFB 3139) presentando costillas "onduladas" (flecha blanca)*; **F,** Same specimen of E, with the transverse ribs inflected toward the aperture on the shoulders of the corner sulcus (white arrow), (x25.0) / *mismo especimen del* ***E*** *con costillas que se doblan en dirección a la abertura en el surco de las aristas (flecha blanca)*; **G,** Specimen (YPFB 461) with the longitudinal external ridge at the facial midline (white arrow), (x 15.0) / *especimen (YPFB 461) con elevación externa en la línea media (flecha blanca)*. Scale bar = 1 cm / *escala = 1 cm*.

might be placed in the genus *Reticulaconularia*. Thus, under the rules of priority of the International Code of Zoological Nomenclature (2000), *Malvinoconularia* should be considered a junior synonym of *Reticulaconularia*, and *M. cahuanotensis* a junior synonym of *R. baini*.

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Appendix

List of examined material of *Malvinoconularia cahuanotensis* and *Reticulaconularia baini*. Specimens deposited in the paleontological collections of the Yacimientos Petroliferos Fiscales Bolivianos (YPFB), Santa Cruz de La Sierra, Bolivia, and the Museo de Historia Natural Alcide d'Orbigny (MHNC), Cochabamba, Bolivia / *lista del material examinado de* Malvinoconularia cahuanotensis *y* Reticulaconularia baini. *Especímenes depositados en las colecciones paleontológicas de Yacimientos Petrolíferos Fiscales Bolivianos (YPFB), Santa Cruz de La Sierra, Bolivias y en el Museo de Historia Natural Alcide d'Orbigny (MHNC), Cochabamba, Bolivia.*

Institution	Species	Formation	Age	Register Number
YPFB	*Reticulaconularia baini*	-	Devonian	332
YPFB	*Reticulaconularia baini*	Icla	Devonian	345
YPFB	*Reticulaconularia baini*	-	Devonian	394
YPFB	*Reticulaconularia baini*	-	Devonian	458
YPFB	*Reticulaconularia baini*	-	Devonian	461
YPFB	*Reticulaconularia baini*	-	Devonian	564
YPFB	*Reticulaconularia baini*	-	Devonian	635
YPFB	*Reticulaconularia baini*	-	Devonian	668
YPFB	*Reticulaconularia baini*	-	Devonian	698
YPFB	*Reticulaconularia baini*	-	Devonian	713
YPFB	*Reticulaconularia baini*	Icla	Devonian	1942
YPFB	*Reticulaconularia baini*	Icla	Devonian	1950
YPFB	*Reticulaconularia baini*	Icla	Devonian	1952
YPFB	*Reticulaconularia baini*	-	Devonian	2370
YPFB	*Reticulaconularia baini*	-	Devonian	2371
YPFB	*Reticulaconularia baini*	Icla	Devonian	3035
YPFB	*Reticulaconularia baini*	Icla	Devonian	3037
YPFB	*Reticulaconularia baini*	Icla	Devonian	3075
YPFB	*Reticulaconularia baini*	Icla	Devonian	3111
YPFB	*Reticulaconularia baini*	Icla	Devonian	3112
YPFB	*Reticulaconularia baini*	Icla	Devonian	3113
YPFB	*Reticulaconularia baini*	Icla	Devonian	3114
YPFB	*Reticulaconularia baini*	Icla	Devonian	3115
YPFB	*Reticulaconularia baini*	Icla	Devonian	3116
YPFB	*Reticulaconularia baini*	Icla	Devonian	3121
YPFB	*Reticulaconularia baini*	Icla	Devonian	3122
YPFB	*Reticulaconularia baini*	Icla	Devonian	3123
YPFB	*Reticulaconularia baini*	Icla	Devonian	3124
YPFB	*Reticulaconularia baini*	Icla	Devonian	3125
YPFB	*Reticulaconularia baini*	Icla	Devonian	3126
YPFB	*Reticulaconularia baini*	Icla	Devonian	3136
YPFB	*Reticulaconularia baini*	Icla	Devonian	3137
YPFB	*Reticulaconularia baini*	Icla	Devonian	3138
YPFB	*Reticulaconularia baini*	Icla	Devonian	3139
YPFB	*Reticulaconularia baini*	Icla	Devonian	3143

YPFB	*Reticulaconularia baini*	Icla	Devonian	3434
YPFB	*Reticulaconularia baini*	Icla	Devonian	3483
YPFB	*Reticulaconularia baini*	Icla	Devonian	3488
YPFB	*Reticulaconularia baini*	Icla	Devonian	3554
YPFB	*Reticulaconularia baini*	Icla	Devonian	3560
YPFB	*Reticulaconularia baini*	Icla	Devonian	3568
YPFB	*Reticulaconularia baini*	Icla	Devonian	4292
YPFB	*Reticulaconularia baini*	Icla	Devonian	4657
YPFB	*Reticulaconularia baini*	-	Devonian	4958
YPFB	*Reticulaconularia baini*	-	Devonian	4962
YPFB	*Reticulaconularia baini*	-	Devonian	5230
YPFB	*Reticulaconularia baini*	-	Devonian	5602
YPFB	*Reticulaconularia baini*	Icla	Devonian	5606
YPFB	*Reticulaconularia baini*	Icla	Devonian	5611
YPFB	*Reticulaconularia baini*	Icla	Devonian	5618
YPFB	*Malvinoconularia cahuanotensis*	-	Devonian	5630
YPFB	*Reticulaconularia baini*	-	Devonian	5656
YPFB	*Reticulaconularia baini*	-	Devonian	5657
YPFB	*Reticulaconularia baini*	-	Devonian	5685
YPFB	*Reticulaconularia baini*	-	Devonian	5926
YPFB	*Reticulaconularia baini*	-	Devonian	5930
MHNC	*Reticulaconularia baini*	Icla	Devonian	584
MHNC	*Reticulaconularia baini*	Icla	Devonian	587
MHNC	*Reticulaconularia baini*	Icla	Devonian	588
MHNC	*Reticulaconularia baini*	Icla	Devonian	7406
MHNC	*Reticulaconularia baini*	Icla	Devonian	7410
MHNC	*Reticulaconularia baini*	Icla	Devonian	7411
MHNC	*Reticulaconularia baini*	Icla	Devonian	7412
MHNC	*Reticulaconularia baini*	Belén ?	Devonian	7724
MHNC	*Reticulaconularia baini*	Belén ?	Devonian	7744
MHNC	*Reticulaconularia baini*	Belén ?	Devonian	7745
MHNC	*Reticulaconularia baini*	-	Devonian	11482
MHNC	*Reticulaconularia baini*	-	Devonian	11505
MHNC	*Reticulaconularia baini*	-	Devonian	11505
MHNC	*Reticulaconularia baini*	-	Devonian	11506
MHNC	*Reticulaconularia baini*	-	Devonian	11508
MHNC	*Reticulaconularia baini*	-	Devonian	11510
MHNC	*Reticulaconularia baini*	-	Devonian	11511
MHNC	*Reticulaconularia* baini	-	Devonian	11512
MHNC	*Reticulaconularia baini*	-	Devonian	11514
MHNC	*Reticulaconularia baini*	-	Devonian	11515
MHNC	*Reticulaconularia baini*	Icla	Devonian	11631
MHNC	*Reticulaconularia baini*	Icla	Devonian	11634
MHNC	*Reticulaconularia* baini	Icla	Devonian	11635