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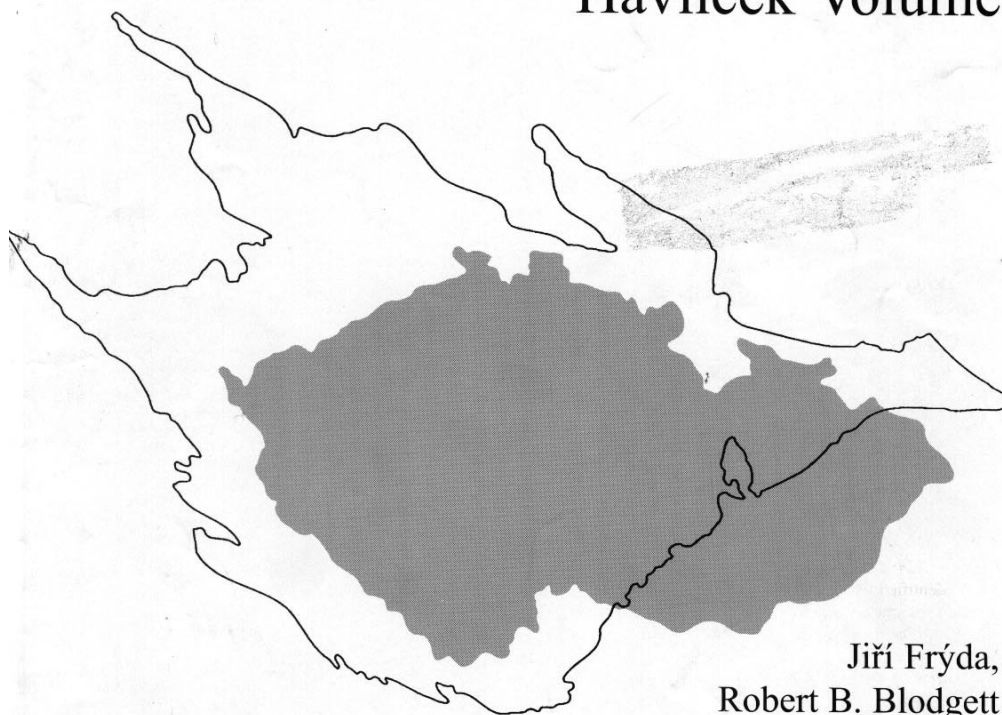
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Ordovician gastropods from Argentina

Ordovičtí gastropodi z Argentiny

(3 figs)

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Ordovician (Arenig to Lower Llanvirn) gastropods are summarized from the San Juan Formation, in the San Juan Precordillera of Argentina. Preservation is poor, but at least fourteen genera representing bellerophontoids, macluritoids, euomphaloids, pleurotomaroids, murchisonoids, and an onychochiloid are present. The San Juan Formation is the only known Ordovician occurrences of the superfamilies Macluritoidea and Onychochiloidea in South America.

Key words: Ordovician, Gastropoda, Argentina



Ordovician gastropods are poorly known from South America. Jell and others (1983) reported *Peelerophon* from Argentina and discussed the bellerophontids illustrated by Kobayashi (1935, 1937) and Harrington (1938). The most diverse gastropod collection was made from the Precordillera of western Argentina, by Kayser (1876, 1925). The current report is based on 109 specimens from the San Juan Formation, in the San Juan Precordillera. The Precordillera of Argentina (Fig. 1) is a Paleozoic sedimentary sequence with a thick Cambro-Ordovician carbonate platform succession. The San Juan Formation (Arenig to Lower Llanvirn) is the carbonate unit of this succession characterized by shallow subtidal fossiliferous limestones. The formation shows a diverse fauna of brachiopods, trilobites, nautiloids, sponges, gastropods, pelmatozoans, calcareous algae and conodonts (Fig. 2). The specimens of gastropods are not well preserved, and are mostly internal molds from limestone. Solution of much of the shell material must have occurred during early diagenesis because little evidence of the shells is seen in sawn sections. In spite of this, we attempt to identify the specimens because of the paleobiogeographic significance of the collection. At least fourteen genera are present, and the diversity is comparable to North American occurrences of the same age. Taken together, the tentative identifications would be consistent with an age range of late-Early Ordovician to Middle Ordovician. The number of endemic taxa is uncertain, because the specimens are assigned to the most likely common genera.

Internal molds of some of the more abundant specimens are tentatively assigned to the common and cosmopolitan *Lophospira* and *Hormotoma*. Slowly expanding, low-spired shells appear similar to *Helicotoma* (Kayser 1876, Pl. 4, Figs 7 and 7a). Lenticular forms are likely to be *Liospira* or *Pararaphistoma*. A single large lenticular shell with very rapid expansion appears to be a new genus. Holopeiform molds may be *Holopea* or thick-shelled *Trochonema*.

Internal molds of *Maclurites* were illustrated by Kayser (1876, Pl. 4), and similar specimens are found in this

collection. They appear rounded and have a concave base because the shell material is missing. In sawn specimens some have the characteristic sub-pentagonal whorl of *Maclurites* (late Early Ordovician–Late Ordovician), but at least one macluritid specimen has a vertically elongated profile like *Teiichispira* (latest Early Ordovician). This is the only formation in South America from which the cosmopolitan *Maclurites* is known (see Rohr 1978).

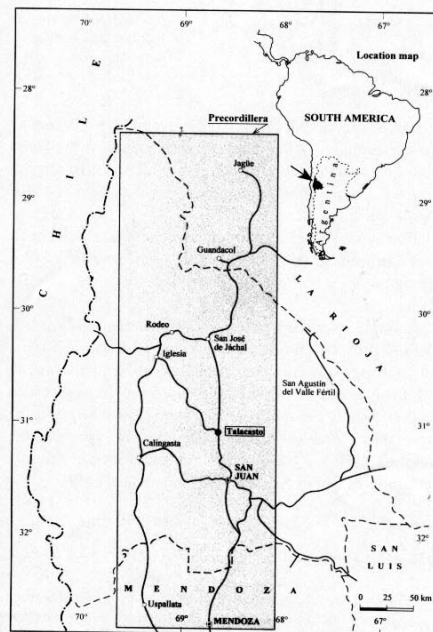


Fig. 1 Index map of the Precordillera of western Argentina.

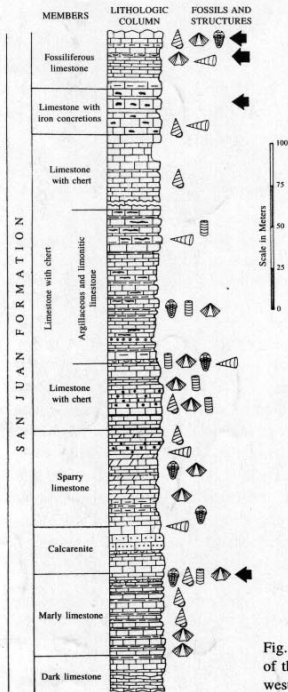


Fig. 2 Stratigraphic column of the San Juan Formation, western Argentina.

Larger specimens superficially resembling *Maclurites* are euomphaloids. The internal molds suggest the presence of a crest at the outer margin which is characteristic of *Ecculiomphalus* and *Leuseurilla* (Kayser, 1876, Figs 4, 4a-c).

Two types of bellerophonitiform shells are present in small numbers. One has a very open umbilicus like *Megalomphala* and the other is more involute like *Sinuities*.

A single specimen of an onychochiloidean is readily identified by its unique coiling (Fig. 3). The most typical character of many onychochiloidean is that whorl is elliptical in axial cross section. Based on the axial cross section, it may belong to a new genus close to group of *Mimospira*, *Ferrogryra*, and *Laeogyra* (Fryda, person commun.). This is the only known occurrence of this superfamily in South America (Fryda - Rohr 1999).

Ordovičtí gastropodi z Argentiny

V práci je podán přehled gastropodů ordovičského stáří (arenig až spodní llanvirn) ze souvrství San Juan z oblasti San Juanské Precordillery v Argentině. I když je zachováni fosilii nepřítzlivé, bylo determinováno přinejmenším 14 rodů zahrnujících bellerofontidní, macluritoidní, euomphaloidní, pleurotomaroidní, a munchisonoidní gastropody a jeden onychochiloidní taxon. Souvrství San Juan je jedinou jihoamerickou jednotkou, ze které jsou známi ordovičtí zástupci nadčeledi Macluritoidea a Onychochiloidea.



Fig. 3 Side view of the same specimen of an onychochiloidean, x3, that is readily identified by its unique coiling. The superfamily is not previously known from the Ordovician of South America. Specimen number IANIGLA - PI No. 901. The specimen is deposited at the Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales, Unidad de Invertebrados of the Departamento de Geología y Paleontología of the IANIGLA.

This occurrence the gastropod fauna from the San Juan Formation, can provide new elements for paleoenvironmental and paleobiogeographical interpretations and correlations between the Precordillera terrane and Laurentia.

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References

- Fryda, J. - Rohr, D. M. (1999): Taxonomy and paleobiogeography of the Ordovician *Clisospira* and *Onychochilidae* (Mollusca). Acta Universitatis Carolinae - Geologica 1999, 43: 405-408.
- Harrington, H. J. (1938): Sobre las faunas del Ordoviciano Inferior del norte Argentino. - Revues Museum La Plata, New series, Paleontology Section, 4: 109-289.
- Jell, P. A. - Burrett, C. F. - Stait, B. - Yochelson, E. L. (1984): The Early Ordovician bellerophonitoid *Peelerophon oehlerti* (Bergeron) from Argentina, Australia and Thailand. - Alcheringa 8: 169-176.
- Kayser, E. (1876): Über Primordiale und unterilurische Fossilien aus der Argentinischen Republik. - Beitrage zur Geologie und Paläontologie der Argentinischen Republik 2. Paläontologische Teil. Palaentographica Cassel, Supplement 3, (2): 1-33.
- (1925): Contribuciones a la Paleontología de la República Argentina. Sobre fósiles primordiales e infrasilurianos. - Act. Acad. Nacional Ciencias, Cordoba, 8: 297-333. [translation of 1876 volume]
- Kobayashi, T. (1935): On the *Kainella* fauna of the basal Ordovician age found in Argentina. - Japanese Journal of Geology and Geography, 12: 59-67.
- (1937): The Cambro-Ordovician shelly faunas of South America. - Journal of Faculty of Science, Tokyo University, Series 2, 4: 369-522.
- Rohr, D. M. (1979): In: Gray, J. - Boucot, A. J. Geographic distribution of the Ordovician gastropod *Maclurites* - Historical Biogeography, Plate Tectonics and the Changing Environment. Proceedings of the 37th Annual Biology Colloquium and Selected Papers, Oregon State University Press, Corvallis, 45-52.