

AN UPPER JURASSIC APIOTRIGONIA FROM MEXICO

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RESUMEN

Goniomya calderoni Castillo y Aguilera, 1895, especie proveniente de la unidad sedimentaria Alamitos, en la Sierra de Catorce, del Estado de San Luis Potosí, se re-describe aquí como *Apiotrigonia calderoni*. Su edad aparente como del Jurásico Tardío, la hace la especie más antigua del género *Apiotrigonia*, el cual está considerado como básicamente del Cretácico Tardío.

ABSTRACT

Goniomya calderoni Castillo and Aguilera, 1895, from the Alamitos sedimentary unit of the Sierra de Catorce, Mexico, is redescribed as *Apiotrigonia calderoni*. Its possible dating as Late Jurassic, makes it the oldest known representative of genus *Apiotrigonia*, which basically is a Late Cretaceous genus.

INTRODUCTION AND ACKNOWLEDGEMENTS

While examining Mesozoic fossils in the collections of the Geological Institute of the National University of Mexico, in the University City, my attention was drawn to two shells labelled "*Goniomya calderoni* Aguilera, 1895" which in shape and external ornamentation seemed to more closely resemble the genus *Apiotrigonia* Cox, 1952. As the assemblage from which they were described has been dated as Late Jurassic, and as *Apiotrigonia* is regarded as fundamentally a Late Cretaceous (Albian-Maestrichtian) genus —although some evidence has recently come forward to suggest that it may have existed in Australia in Aptian times (Skwarko, 1968)— it seemed important that the true identity of the two shells be known.

In both specimens the dentition was, however, hidden from view by strongly indurated matrix and it seemed that persistent attempts at cleaning the hinge by any of the usual methods would only damage the shells themselves. I wish therefore to thank Dr. Gloria Alencaster, of the Department of Paleontology, for securing for me permission to take the two specimens to Canberra where, aided by a sandblaster, I succeeded in preparing their hinges. The hinges when

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exposed showed teeth of the kind characteristic of the Trigoniidae, proving their true identity beyond shadow of doubt. I also wish to thank Dr. Alencaster for the critical reading of the manuscript.

THE AGE OF *Apiotrigonia calderoni*

The Mesozoic fossils from the Sierra de Catorce were originally described by Castillo and Aguilera in a monograph published in 1895. The faunas were derived from the upper two of the three main sedimentary horizons. The top-most one of these is of Aptian-Albian age. The middle one contains two distinct faunas, the upper one known as Cieneguita and date as Neocomian, and the lower one, known as Alamitos the one reputedly containing *calderoni* —and date as Kimmeridgian-Portlandian. The Alamitos horizon is the one richest in fossils, and the published list of determination is as follows:

Rhynchonella lacunosa, *R. lacunosa* var. *arolica*, *Terebratula* cf. *zietenii*, *T. sp?*
Waldheimia catorcensis, *Aucella bronni*, *Cucullaea (Trigonarca) catorcensis*,
Lucina coetoi, *Cyprina coteri*, *Cyprimeria mexicana*, *Goniomya calderoni*, *Pleu-*
romya inconstans, *Vermetus? (Burtinella) cornejoi*, *Nautilus burkarti*, *Rhaco-*
phyllites calderoni, *R? disputabile*, *R. alamosensis*, *Haploceras carinata*, *H.*
mazapilensis, *H. catorcensis*, *Perisphinctes* cf. *colubrinus*, *P. colubrinus*, *P. ma-*
zapilensis, *P. cf. balderus*, *P. felixi*, *P. lauri*, *P. lenki*, *P. aff. pouzinensis*, *P.*
flexicostatus, *P. transitorius*, *P. plicatilis*, *P. potosinus*, *P. alamosensis*, *P. dol-*
fussi, *P. montserrati*, *P. pouzinensis*, *Olcostephanus* aff. *portlandicus*, *Hoplites*
calisto var., *H. cahglani*, *H. heilprini*, *H. exceptionalis*, *Aspidoceras alamosensis*,
Aptychus mexicanus, *A. latus*, *Belemnites* aff. *pouzosi*, *B. aff. obeliscus*.

Caution must be exercised in accepting the Late Jurassic dating FOR THE WHOLE ASSEMBLAGE. The fossil list is now in need of revision as it seems to contain elements, particularly among ammonites, of more than one age. It may not be surprising, therefore, that on checking through the monograph it soon became clear that the individual members of the Alamitos assemblage were collected, not at one but at several localities.

Evidence for the Late Jurassic age of *calderoni*, which may indeed be convincing, is forthcoming from its suggested presence in another formation to which a Late Jurassic age was assigned. Cragin (1905) identified with *Trigonia calderoni* eleven rather poorly preserved bivalves and fragments from the Kimmeridgian-Portlandian Malone Formation of Texas. His specimens are not well enough preserved, however, to be unequivocally identified. Stoyanow (1949) illustrates a more convincing specimen collected by Stanton, also from the Malone Formation. Alencaster (1965), in the course of discussion of the Mexican Upper Jurassic formations, correlated the Catorce fauna with other Upper Jurassic formations occurring in Mexico, such as the Acatlan and Petlalcingo faunas.

It would seem that the age of *Apiotrigonia calderoni* may indeed be Late Jurassic. Clearly, however, only the finding of good examples of this species

in direct association with Upper Jurassic fossils would remove remaining shades of doubt regarding its exact age.

At this stage it seems fair to conclude that the genus *Apiotrigonia* can no longer be regarded as one limited to the Middle-Upper Cretaceous, that its recent downward extension in time to Aptian is now substantiated, and that it already existed in Neocomian and probably Late Jurassic times.

DESCRIPTION OF THE SPECIES

Family TRIGONIIDAE

Genus APIOTRIGONIA Cox, 1952 em Nakano, 1956

Type species: *Trigonia sulcataria* Lamarck, 1819

Apiotrigonia calderoni (Aguilera, 1895)

(Plate 1, figures 1-6)

Goniomya calderoni CASTILLO AND AGUILERA, 1895, p. 1, 9, 10, pl. 5, figs 17, 18.

Trigonia calderoni (Aguilera); CRAGIN, ?1905, p. 59, 60, pl. 9, figs. 4-6;
STOYANOW, 1949, p. 81, 82, pl. 14, fig. 1.

MATERIAL: A right and a left valve belonging to two distinct bivalves; both specimens slightly incomplete posteriorly, both are from Arroyo de Alamitos, Mineral de Catorce, San Luis Potosí. Catalogue number 48; collection number AI-1-23. Type material held in the Paleontological Collection of the Museum of Instituto de Geología, in the Ciudad Universitaria in Mexico City.

REVISED DESCRIPTION: The right valve is 35 mm long, 10 mm high, and $7\frac{1}{2}$ mm thick. It is produced and inflated to the front and strongly produced and attenuated to the rear. Its umbo is broad, pointed, incurved, orthogyrous or very slightly prosogyrous, its posterior margin well defined by postumbonal carina. The flank occupies most of the shell's surface and can be divided into a front and a rear portion on the basis of ornament. The anterior larger portion of the flank is striated concentrically with about 20 narrow sharpcrested ribs separated from each other by broadly concave interspaces many times their width. The posterior portion of the flank is striated with about a dozen vertical ribs thicker than concentric ribs and with narrower interspaces. The ribs originate below the marginal carina, the distance between their proximal ends and the carina increasing posteriorly. The carina itself is smooth and angular, with a faint shallow groove running parallel to it on its areal side. Only one boundary of the area, that delineated by the marginal carina, is clearly visible on the right valve. The area is devoid of ribbing except in its proximal-most part, where a few fine radial riblets are visible. The escutcheon is smooth.

The left valve is 33 mm long, 24 mm high, and almost 9 mm thick. Its height-to-length ratio seems greater than that of the right valve, but both are posteriorly incomplete. It seems obvious that the two valves are not from the same individual. Flank ribbing is similar in type and number of ribs to that on the right valve, except for the posterior vertical costae, which are a little thinner and slightly more closely spaced. No ribbing was observed on the area or escutcheon. The junction between the area and the escutcheon is marked by their different inclination to the commissure.

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