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Author(s)	NAKANO, Mitsuo
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A New Genus *Levantotrigonia* nov. gen.

By

Mitsuo NAKANO

with 1 Text-figure

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ABSTRACT: In this paper, the writer proposes *Levantotrigonia* nov. gen. typified by *Trigonia lewisi* BLANCKENHORN, 1890. This new genus is one of the most aberrant and interesting Trigoniids, and may be an off-shoot derived possibly from *Frenguelliella* by the effacement of the carinae and the development of radial striation on the surface.

The new genus is characteristic in the Aptian of the Levant Coast region where the aberrant and endemic *Arabitrigonia* and other Trigoniid genera collected. In this respect, the Levant Coast is quite distinct from the other regions in the so-called Mediterranean province.

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I. INTRODUCTION

Since BLANCKENHORN in 1890 described *Trigonia lewisi* found in the *Trigonia* sandstone at Abeih (?) situated about 25 km southeast of Beirut in Lebanon, it has been reported and described by BLANCKENHORN (1934), VOKES (1946) and others from the Aptian of Lebanon and Syria in the Levant Coast region.

Trigonia lewisi considered to be a member of GILLET's Groupe des *Excentricae* BIGOT (*Glabrae* d'AG. *pars*) is one of the most interesting and aberrant Trigoniids. It is very close to the members of the *Nipponitrigonia* section of the subfamily Rutitrigoniinae in surface sculpture and shell form but differs in having radial striation on the surface in the earlier stage. On this occasion, the writer wishes to establish a new genus *Levantotrigonia* typified by *Trigonia lewisi* BLANCKENHORN.

The writer wishes to express his sincere thanks to Professor Emeritus W. P. POPENOE and Mr. Takeo SUSUKI of the University of California at Los Angeles and Professor W. R. DANNER of the University of British Columbia at Vancouver for their kind advices and reading the manuscript. The writer expresses, also, his gratitude to the Japanese Government Ministry of Education who supported his financing to study abroad. Finally, the writer thanks Mrs. Vicki DOYLE-JONES and Miss Julie GUENTHER of the University of California at Los Angeles for their help in preparing the illustration.

II. PALAEOLOGICAL NOTE

Subfamily Rutitrigoniinae van HOEPEN, 1929

(=Laevitrigoniinae SAVELIEV, 1958; Frenguelliellinae NAKANO, 1960)

NAKANO's proposal (1963) for the subfamily accepted here.

In 1890, BLANCKENHORN described *Trigonia lewisi* nov. collected from the *Trigonia* sandstone at Abeih (?) in Lebanon and he emphasized that in this species the radial striation is characteristic and weakly developed on the concentric to subconcentric costae and their interspaces. According to COSSMANN (1912, p. 76), BLANCKENHORN considered that *Trigonia lewisi* seemed to be a member of AGASSIZ' *Glabrae* on the basis of surface sculpture and shell form. On the other hand, GILLET (1924, pp. 83-84) considered and assigned *Trigonia lewisi* to be a member of her Groupe des *Excéntricae* BIGOT (*Glabrae* d'Ag. pars) and she also recognized the presence of the radial striation. Although, there are some differences in their classification, it is interesting to note that the presence of the radial striation was recognized and reported by BLANCKENHORN (1890), GILLET (1924), VOKES (1949) and others.

As previously mentioned, this species is characterized by the presence of radial striation on the costae. In this aspect, this is considered to be one of the peculiar forms in the family Trigoniidae and makes it distinct and easily separable from *Nipponitrigonia*, *Rutitrigonia* and so on. On this occasion, the writer proposes to establish *Levantotrigonia* nov. gen. based on *Trigonia lewisi* BLANCKENHORN.

Genus *Levantotrigonia* nov.

Type species: — *Trigonia lewisi* BLANCKENHORN, 1890. Aptian; Lebanon and Syria.

Diagnosis: — Shell fairly small to medium, trigonally ovate to subtrigonal; umbo broad and rather prominent; beak orthogyrous or slightly prosogyrous and located anteriorly; escutcheon depressed or excavated, fairly narrow, with transverse costellae which become obsolete later; carinae evanescent except near umbo; area narrow and slightly concave, ornamented with plain or radially striated transverse costae which are obsolete in the later stage; median furrow obscure; flank with concentric costae and radial striation near umbo; rest of flank ornamented with subconcentric costae and fine radial striation which is gradually obsolete in the anterior and the ventral part; ante-carinal depression indistinct.

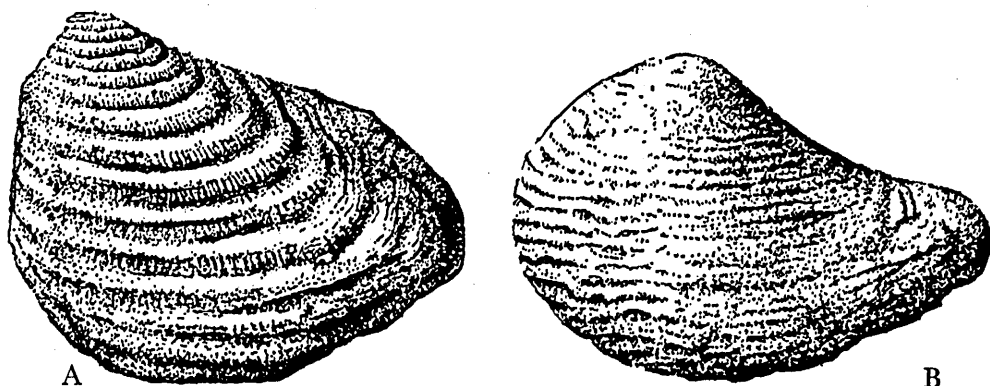
Remarks: — This new genus resembles *Nipponitrigonia* and *Rutitrigonia* in surface costation and shell form, but differs in having radial striation on the surface.

This new genus presents a somewhat remarkable change of characters in the ontogenetic development. The shell is rather orbicular in the early stage, but the outline changes gradually into ovately trigonal to subtrigonal in the adult.

In the early stage, the surface is provided with concentric costae and costellae and radial striation, and the shell is tripartite distinctly by a marginal and an escutcheon carina into a flank, an area and escutcheon.

In the succeeding stage, costae on the flank are concentric to subconcentric and the radial striation becomes gradually obsolete in the anterior extremity and the ventral part.

A New Genus *Levantotrigonia* nov. gen.



Text-fig. 1. Illustration of *Levantotrigonia* nov. gen. and *Rutitrigonia*.

A. *Levantotrigonia lewisi* (BLANCKENHORN) ($\times 2$.)

B. *Rutitrigonia peregrina* van HOEPEN ($\times 1.3$)

The area and escutcheon are ornamented with plain transverse costae and costellae.

In the later stage, the flank is sculptured with plain, concentric to subconcentric costae which gradually weaken toward the posterior. Radial striation on the surface is, in many cases, indistinct. The area and the escutcheon are commonly smooth.

According to ABBASS (1962, pp. 86-88; pl. 13, figs. 2-4; pl. 14, figs. 1-6; text-figs. 1, i-iv), *Trigonia loutfyi* ABBASS, *T. higazyi* ABBASS, *T. magharensis* ABBASS and *T. picteti* COQUAND were reported from the Aptian to the Albian of Sinai Peninsula and they are represented by numerous, fairly well-preserved specimens. ABBASS' *T. magharensis* (p. 86, pl. 13, fig. 2; text-fig. 1, i) derived from the Aptian of Maghara in Sinai Peninsula looks like a member of *Levantotrigonia* nov. gen., because the radial striation on the concentric costae is recognized in its ventral periphery. The other forms appear to be close to *Levantotrigonia* nov. gen. in surface costation and shell form, but the radial striation on the costae of the surface is not well shown in ABBASS' illustration.

Distribution: — Aptian of the Levant Coast region, i.e., Lebanon, Syria and Sinai Peninsula.

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INSTITUTE OF GEOLOGY AND MINERALOGY,
FACULTY OF SCIENCE, HIROSHIMA UNIVERSITY,
HIROSHIMA, 730, JAPAN