

**ON THE OCCURRENCE OF THE FAN SHELL *ATRINA (SERVATRINA)*
PECTINATA PECTINATA (LINNAEUS) OFF MANDAPAM IN PALK BAY**

ABSTRACT

The occurrence of the fan shell *Atrina (Servatrina) pectinata pectinata* (Linnaeus) in Palk Bay off Mandapam at a depth of five to six fathoms on a muddy-sand bottom is reported. The synonyms, description and distribution of the species have been given with remarks on the wide variations in the structure of the shell of this species from different geographical regions of the Indo-Pacific.

A live female specimen of a strongly inflated fan shell measuring 248 mm in length was collected from the catches of a trawler operated off Mandapam in the

Palk Bay on August 23, 1971. On examining it was found to belong to *Atrina* (*Servatrina*) *pectinata pectinata* (Linnaeus) described by Rosewater (1961). An adequate description of this species from the Indian region is not available. Further, the systematic position and nomenclature of this species have undergone much change since it was first named as *Pinna pectinata* by Linnaeus in 1767. Hence a detailed account of the description and identity of the species is given below.

***Atrina* (*Servatrina*) *pectinata pectinata* (Linnaeus)**

Synonyms :

Pinna pectinata Linnaeus 1767, *Systema Naturae*, ed. 12, p. 1160.

Pinna hanleyi Reeve 1858, *Conchologia Iconica*, 11, *Pinna*, pl. 8, fig. 15.

Pinna japonica 'Hanley' Reeve 1858, *Ibid.*, pl. 25, fig. 47.

Pinna (*Atrina*) *pectinata* Gravely 1941, *Bull. Madras Govt. Mus., Nat. Hist. Sec.*, 5 (1), p. 38.

Atrina (*Servatrina*) *teramachii* Habe 1953, *Illustrated Catalogue of Japanese Shells*, 1, p. 192, pl. 24, fig. 1, pl. 25, Fig. 5.

Atrina (*Servatrina*) *pectinata pectinata* Rosewater 1961, *Indo-Pacific Mollusca*, 1 (4), p. 211.

Material : The fan shell was caught from a muddy-sand bottom sixteen miles off Mandapam (fishing ground : 9-79/A 4/C) by a 32' vessel operating otter trawl at a depth of five to six fathoms during day-time. The specimen has been deposited in the Reference Collection Museum of Central Marine Fisheries Research Institute at Mandapam Camp (Reg. No. CMFRI-M. 334).

Description : Shell triangular-wedge-shaped, strongly inflated, thin, fragile and translucent. Fifteen radiating smooth ribs on posterior slope. Concentric sculpture of fine growth lines is convex posteriorly and sometimes wavy. Posterior margin truncate; junction of ventral and posterior slopes projecting posteriorly. Dorsal margin nearly straight with a series of short spines protruding from dorsal most rib. Ventral margin convex posteriorly and concave anteriorly like a sigmoid curve. Nacreous layer present in anterior two-thirds of valve. Posterior adductor muscle scar of medium size, sub-circular in shape and located within posterior border of nacreous area. Anterior adductor muscle scar small and located near tip of nacreous area. Posterior border of nacreous layer broadly rounded and without distinct embayment. Primary hinge ligament moderately thin, black and extends from anterior end of shell to posterior border of nacreous layer; secondary hinge ligament present (Plate I).

Shell olivaceous brown externally with faint shine. Interior of shell of same colouration with moderate shine. Nacreous layer iridescent.

Measurements (in mm) :

Total length : 248 ; Width : 145 ; Thickness : 79 ; Maximum length of nacreous layer : 167 ; Length of primary hinge ligament : 145 ; Width of anterior adductor muscle scar : 13 ; Width of posterior adductor muscle scar : 41.

Distribution : This species has been recorded from India (Madras, Mandapam, Nicobar Is.), Ceylon, Thailand (Trang, Prachuap Khiri Khan), Singapore, Korea

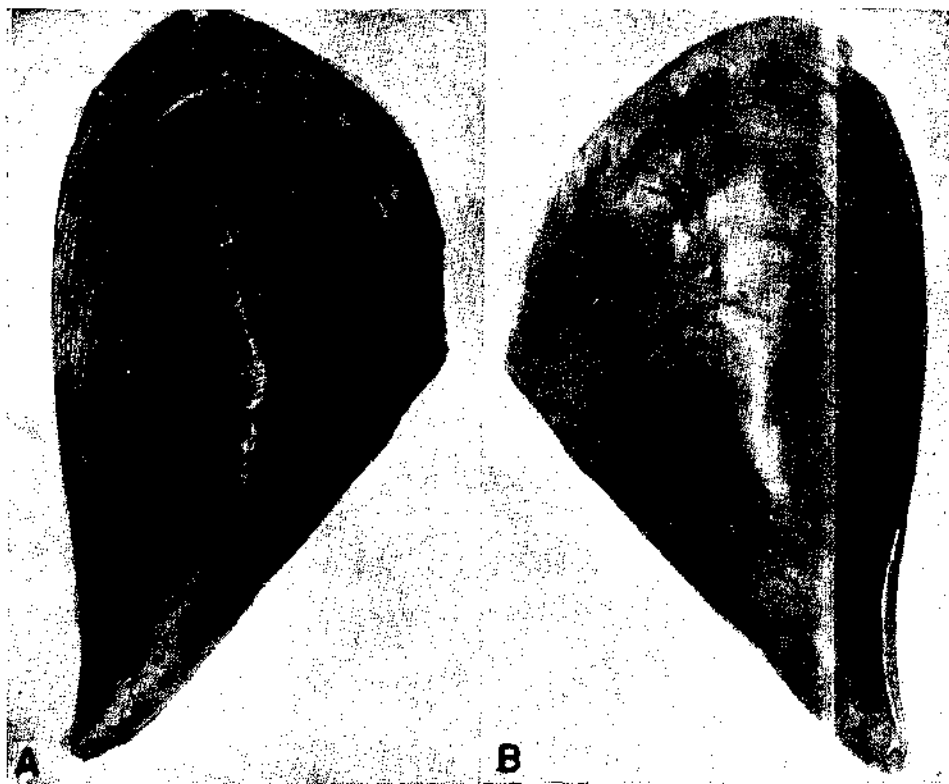


PLATE I. A and B. Outer and inner views of the Fan Shell, *Atrina (Servatrina) pectinata pectinata* (Linnaeus) from Palk Bay off Mandapam.

(southern tip), Hong Kong, Japan (Western Honshu, Tokyo Harbour, Tosa, Shikoku, Kagoshima Gulf, Kyushu, Yokohama, Fukura), Philippine Islands (many localities), Indonesia (Amboyna, Moluccas), Australia (Broome, Torres Strait, Buchan's Point, Brampton Reef, Moreton Bay) and New Guinea (Samberbaba, Mierauki).

Remarks: Originally described as *Pinna pectinata* by Linnaeus (1767), the type locality is unknown. Gray (1842) erected a separate genus *Atrina* which is distinguished by the nacreous layer being undivided unlike *Pinna* in which the nacreous layer is divided by a longitudinal sulcus. Two subgenera *Atrina* (s.str.) Gray 1842 and *Servatrina* Iredale 1939 have been recognized under the genus *Atrina* (Rosewater, 1961). The shells of the species of the two subgenera show resemblance in external features but differ in regard to the position of the posterior adductor muscle scar. In the former it protrudes beyond the posterior margin of the nacreous layer and in *Servatrina* it lies enclosed fully within the posterior border of the nacreous layer. Gravely (1941) recorded this species from the Madras coast under subsection *Atrina* of the genus *Pinna*. Hornell (1951) has not dealt with this species.

Two subspecies and one species belonging to the subgenus *Servatrina* viz., *Atrina* (*Servatrina*) *pectinata pectinata* (Linnaeus), *A. (S.) pectinata zealandica* (Gray) and *A. (S.) tasmanica* (Tenison-Woods) occur in the Indo-Pacific region (Rosewater, 1961). The distinctly inflated shell, the series of short spines on the dorsal margin commencing from the dorsal most rib and olivaceous colouration are the distinguishing characteristics of *Atrina* (*Servatrina*) *pectinata pectinata*. In the subspecies *A. (S.) pectinata zealandica* occurring in New Zealand the shell is elongate-triangular in outline, moderately inflated, has uniformly distributed semi-tubular spines on the radial ribs, and the colouration varies from light to darker tan. In *A. (S.) tasmanica* the shell is moderately inflated, tannish brown in colour and has 10-14 moderately prominent radiating ribs usually bearing well-developed spines on the posterior slope (Rosewater, 1961).

It is of interest to mention that the shell of the members of *A. (S.) pectinata pectinata* exhibits wide variation in its shape, degree of inflation, sculpture and colouration as pointed out by Rosewater (op. cit.). For instance the shell recorded now as well as that from Fukura, Awaji, Japan is broad and triangular-wedge shaped while that from Philippine Islands is narrow and triangular wedge-shaped. The shell may also be either moderately or strongly inflated. The radial ribs are either smooth or prominent bearing spines as in specimens of Rines's Island, Torres Strait. Colouration varies between olivaceous tan and dark brown.

Subsequent observations and enquiries revealed that large and small sized *Atrina* (*Servatrina*) *pectinata pectinata* are often caught in trawl catches in Mandapam area. The meat of fan shells is eaten in Japan, Polynesia and a number of islands in the Indo-Pacific region (Turner and Rosewater, 1958). Plates and decorative lampshades are made with the shells of *Atrina* in Polynesia.

We express our deep gratitude to Dr. R. V. Nair, Deputy Director, Central Marine Fisheries Research Institute and Mr. K. Virabhadra Rao, Retired Fishery Scientist for critically reading the note.

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