SOME OBSERVATIONS ON THE RAY *HIMANTURA MARGINATUS* (BLYTH) FROM THE GULF OF MANNAR

ABSTRACT

A detailed description of *Himantura marginatus* (Blyth) based on two large specimens from the Gulf of Mannar is given.

Trygon marginatus was first described by Blyth (1860) in his account of the fishes of lower Bengal based on a specimen 52 inches (1320 mm) wide, where reference was also made to a young female 20½ inches (520 mm) wide, a larger male (size not given) and a large specimen 5 feet (1524 mm) across. The species was later reported by Dumeril (1865), Day (1878, 1889), Annandale (1909), Pearson (1915-1918), Garman (1913) and Munro (1955) but evidently no new material was involved in the last two descriptions.

While describing two specimens, one from off Burma and the other from off Ganjam (India), Annandale (*op. cit.*) remarked that 'although they do not agree in every respect with Blyth's description of the species I think these specimens must belong to it. Blyth's specimens appear to have perished and there are no others, except the ones described, in the Indian Museum, or, indeed, so far as I can discover, in any other collection'.

Recent capture of two large male specimens of this species (1192 mm disc width from Hare Island on February 22, 1966; 1000 mm disc width from Manauli Island on March 23, 1966 from the Gulf of Mannar near Mandapam in bottom set gill nets is of considerable interest as only few specimens of this species are on actual record. Therefore, a detailed description of the species based on the specimens is given in this paper. The measurements are given in Table 1. Some body measurements

TABLE 1. *Measurements of* H. marginatus

Character	Specimen No. 1 male (mm)	Specimen No. 2 male (mm)
Maximum width of disc ..	1,192	1,000
Maximum length of disc (vertical distance from tip of snout to end of disc) ..	1,295	1,040
Snout to middle of cloaca ..	1,020	930
Length of tail (middle of cloaca to tip of tail) ..	1,430	1,410
Snout in front of eyes ..	285	275
Snout in front of spiracles ..	310	278
Snout in front of mouth ..	235	197
Eye diameter (longitudinal) ..	30	23
Spiracle (length) ..	85	60
Spiracle (width) ..	50	50
Width of mouth ..	135	90
Inter-orbital space ..	220	210
Inter-spiracular space ..	240	..
Distance between 1st gill slits ..	290	240
Distance between last gill slits ..	180	155
Length of ventral ..	215	190
Width of ventral ..	150	103
Length of clasper (left) ..	185	130
Width of clasper (left) ..	65	40
Length of tail spine ..	261	..
Width of tail spine ..	16	..
Total weight (in kg) ..	178.2	..

and proportions of all specimens known so far are given in Table 2 for a comparison. The complete tail, tail spine (broken) and portions of tooth band of a male, 1192 mm wide and a piece of skin from the dorsal side in front of the base of the tail of another male, 1000 mm, have been deposited in the CMFRI Reference Collection Museum (Reg. No. CMFRI-F 9/575).

TABLE 2. *Measurements (in mm) and body proportions (as per cent of disc width given in parentheses) of* H. marginatus

Character	Blyth (1860)	Annandale (1909)		Present author	
		Specimen No. 1	Specimen No. 2	Specimen No.1	Specimen No. 2
Width of disc ..	1320	1787	1362	1192	1000
Length of disc ..	stated to be little more than width	1475 (82.54)	1025 (75.25)	1295 (108.64)	1040 (104.00)
Length of tail ..	2108 (159.69)	1975 (110.52)	2208 (162.11)	1430 (119.96)	1410 (141.00)
Inter-orbital distance ..	177 (13.40)	265 (14.82)	212 (15.56)	220 (18.45)	210 (21.00)
Snout in front of eyes ..	..	375 (20.98)	250 (18.35)	285 (23.90)	275 (27.50)
Mouth to vent ..	..	962 (53.83)	..	785 (65.85)	733 (73.30)
Sex ..	not known	Female	Male	Male	Male

Day (1878) treated *Himantura* as one of the three subgroups under the genus *Trygon*, diagnosing it as having 'no caudal cutaneous fold' and included under it four species, *viz.*, *T. uarnak*, *T. bleekeri*, *T. walga* and *T. marginatus*. According to the diagnosis of the genus *Himantura* given by Muller and Henle in 1837 as cited by Bigelow and Schroeder (1953, p. 389) to include sting rays in which there is no trace of a 'schwanzflosse' (= tail fold), these four species of Day should properly be referred to this genus.

Although local fishermen report that *H. marginatus* is occasionally caught in Gulf of Mannar, as far as the author is aware it is a comparatively rare species, while *H. bleekeri* and *H. uarnak* are the species most frequently caught in the area.

Description : Disc oval in shape, broad anteriorly and narrow posteriorly. Length of disc slightly more than its width. Tip of snout projects a little in front of disc on either side of which are two gentle concavities. The central part of the disc is elevated, with the angles smoothly rounded. Ventrals extend beyond the posterior limit of disc (Pl. I A).

Dorsal surface of the disc rough with granules, which are large over the central elevated area of the disc and small over the rest of the region. The granules commence approximately 55 mm in front of the eyes and extend posteriorly to about 360 mm from tip of snout. Large tubercles with stellate bases and interspersed with granules (Fig. 1 a) are prominent from about mid-length of disc (about 550 mm from tip of snout) along the median line. They are arranged in irregular rows, conspicuous on the base of tail up to

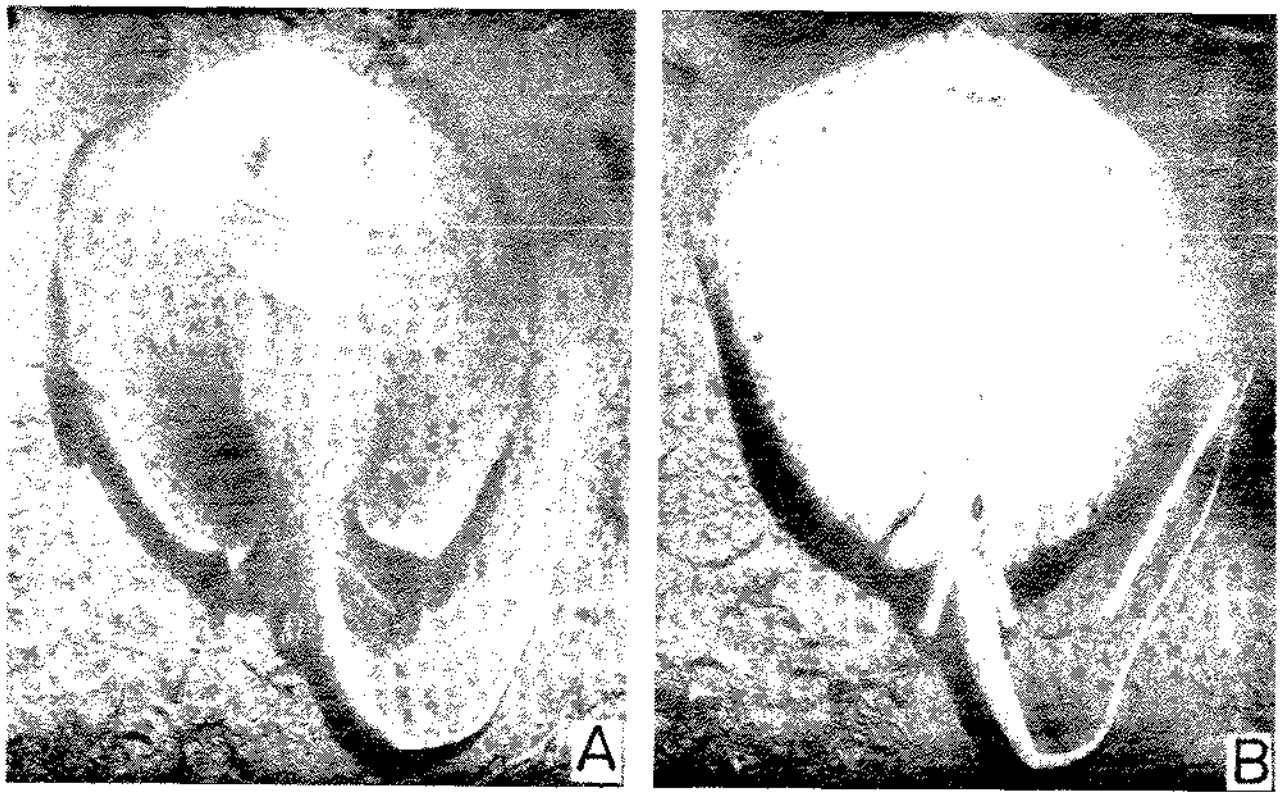

PLATE I. *Himantura marginatus* (Blyth) : A. Dorsal view of male, 1000 mm wide and B. Ventral view of the same (note the black blotches on the margin) (Photographs by Mr. S. P. D. Ghanshani).

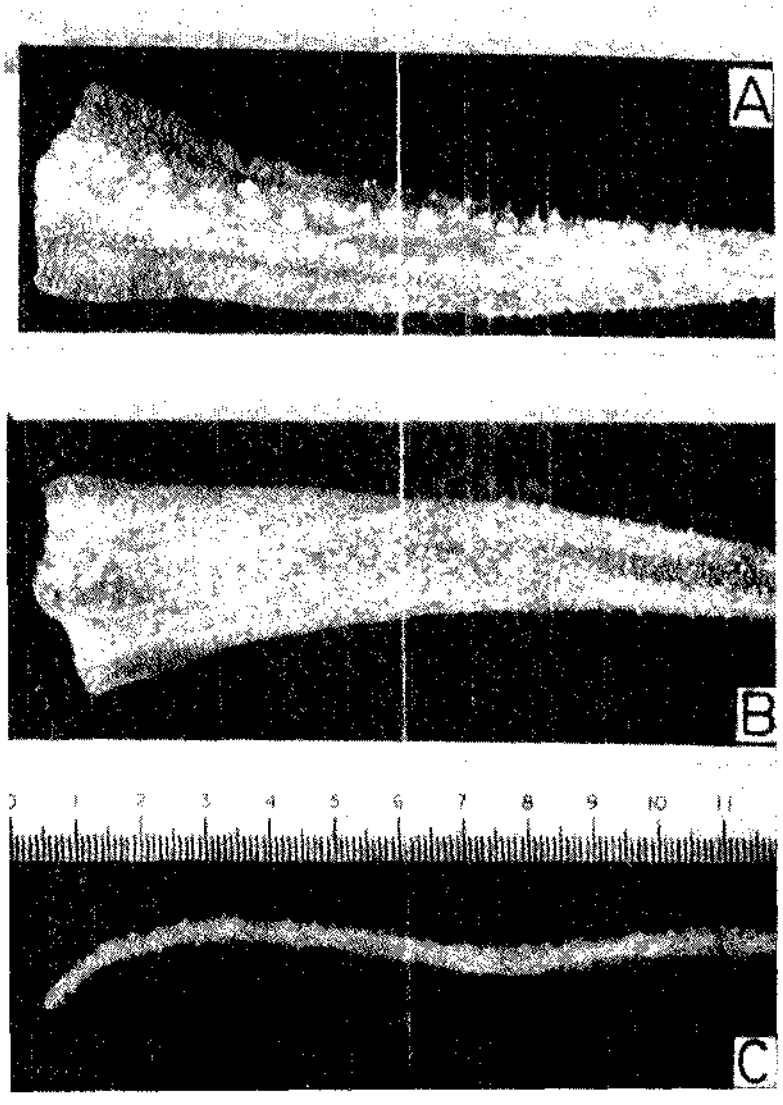

PLATE II : *Himantura marginatus* (Blyth) : A. Dorsal view of base of tail of male, 1192 mm wide, to show the prominent stellate tubercles, B. Ventral view of the same and C. Tip of tail of the same specimen to show its prickly nature (Photographs by Mr. S. P. D. Ghanshani).

the origin of the sting (Pl. II A). Each tubercle is composed of a bony basal disc over which is situated a sharp spine. The basal disc is multiradiate, some radii dividing into two at their tips and others with irregular shapes (Fig. 1 b). The tubercles give the appearance of small limpets (aptly described by Blyth and Day) or salt crystals from whence the local name *Uppan thirukai* (in Tamil language, *uppan* = salt-like, *thirukai* = ray). The tubercles are large along the median line and small on the sides. The distances between tubercles are unequal. From the origin of the sting up to about 200 mm mid-dorsally, the tail is smooth (where the spine rests). Beyond this point, small prickles are scattered over the granules all round up to the tip of the tail (Pl. II C). Teeth are numerous, flat and with ridges. Their shape in different regions is variable being oval inside (away from mouth opening) and diamond shaped outside (near the mouth opening) where they are worn out (Fig. 1 c). The ventral surface of disc is smooth. The ventral surface of the base of the tail shows smaller tubercles than those on its dorsal surface (Pl. II B). The tail is longer than disc, conspicuously depressed at its base and gradually becomes round towards tip. There is no trace of dorsal or ventral folds on the tail. A single prominent spine is present on the tail, arising at a point 1037 mm (in the first specimen) from tip of snout and 490 mm from root of tail. It is serrated on both edges, the serrations being directed towards its base, where they are smaller and gradually becoming larger and sharper towards

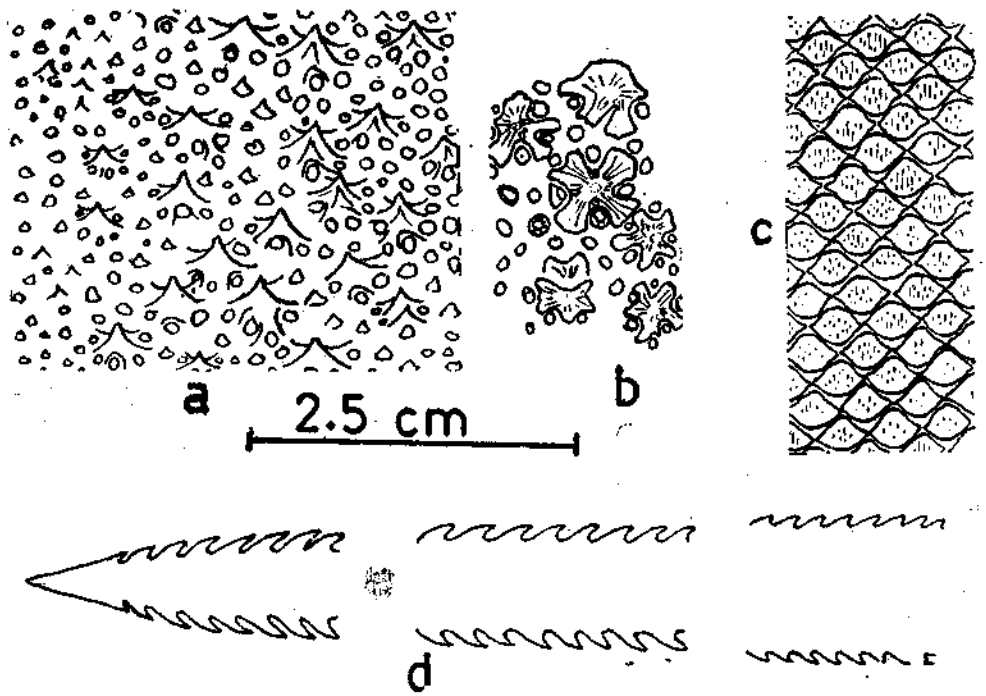

FIG. 1. *Himantura marginatus* (Blyth): a. The nature and distribution of tubercles and granules on the dorsal side, in front of base of tail of male, 1000 mm wide as viewed from an agle; b. Enlarged dorsal view of the tubercles to show their characteristic stellate bases from the same region and specimen as above; c. Portion of tooth band of male 1192 mm wide, top rows near and bottom rows away from the mouth opening and d. Tip, middle and basal regions of tail spine of male, 1192 mm wide (By Mr. S. P. D. Ghanshani).

its tip, which is like the tip of an arrow. The spine is depressed, with median elevated ridges (Fig. 1 d).

Dorsally, the elevated central portion of the disc is dark brown, the margins darker or pale violet in colour. From the central part of the disc to origin of spine (in the first specimen) it is golden yellow. Small pale yellow or creamy spots are scattered all over the dorsal surface. Ventral side of disc white with conspicuous, black, irregular blotches over the entire margin (Pl. I B). Tail brownish in front of origin of sting and white behind on both sides. The root of tail and sides of the claspers are pale violet in colour on the ventral side.

Distribution : The species has so far been reported from Bengal, Burma and Ganjam (Blyth, 1860 ; Annandale, 1909) and Gulf of Mannar (Pearson, 1915-1918 and the present author).

Remarks : In all earlier descriptions of the species, except that of Blyth (1860), the disc was described as wider than long. According to Blyth (1860), 'form a trifle longer than broad, or shorter than broad, if the length be measured from front to base of tail'. In the present two specimens also the disc is slightly longer than wide (Table I). However, different body proportions may obtain depending on the age and sex of the individual, as is commonly known in several species of rays.

The prominent stellate tubercles along the median line on the dorsal surface of the disc, especially on the base of the tail up to origin of sting and the prickly nature of the tail up to its tip appear to be characteristic of the species.

Munro (1955) placed the species under the genus *Amphotistius* in which, according to him ,as given in the key (p. 12), the tail has both dorsal and ventral cutaneous folds. But in the description of the species, *A. marginatus* (p. 14) he stated that the tail is without cutaneous folds. It should therefore be referred to the genus *Himantura*.

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