A New Siphonophora, *Vogtia kuruae* n. sp.[1]

ANGELES ALVARIÑO

THE GENUS *Vogtia* Kölliker is represented by four species: *Vogtia pentacantha* Kölliker, 1853; *V. spinosa* Keferstein and Ehlers, 1861; *V. serrata* (Moser), 1925; and *V. glabra* Bigelow, 1918.

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The most useful diagnostic feature of the nectophores of the first three species has been described as being angular, prismatic, and pentagonal (Table 1). The last species, *V. glabra*, has rounded nectophores which are rather similar to those of *Hippopodius hippopus*. Bigelow and Sears (1937) described the first three species above as "the three angular belled species." Actually that characteristic is most conspicuous in *Vogtia kuruae* n. sp. Holotype: USNM Catalogue Number 52609; Paratype: USNM Catalogue Number 52610.)

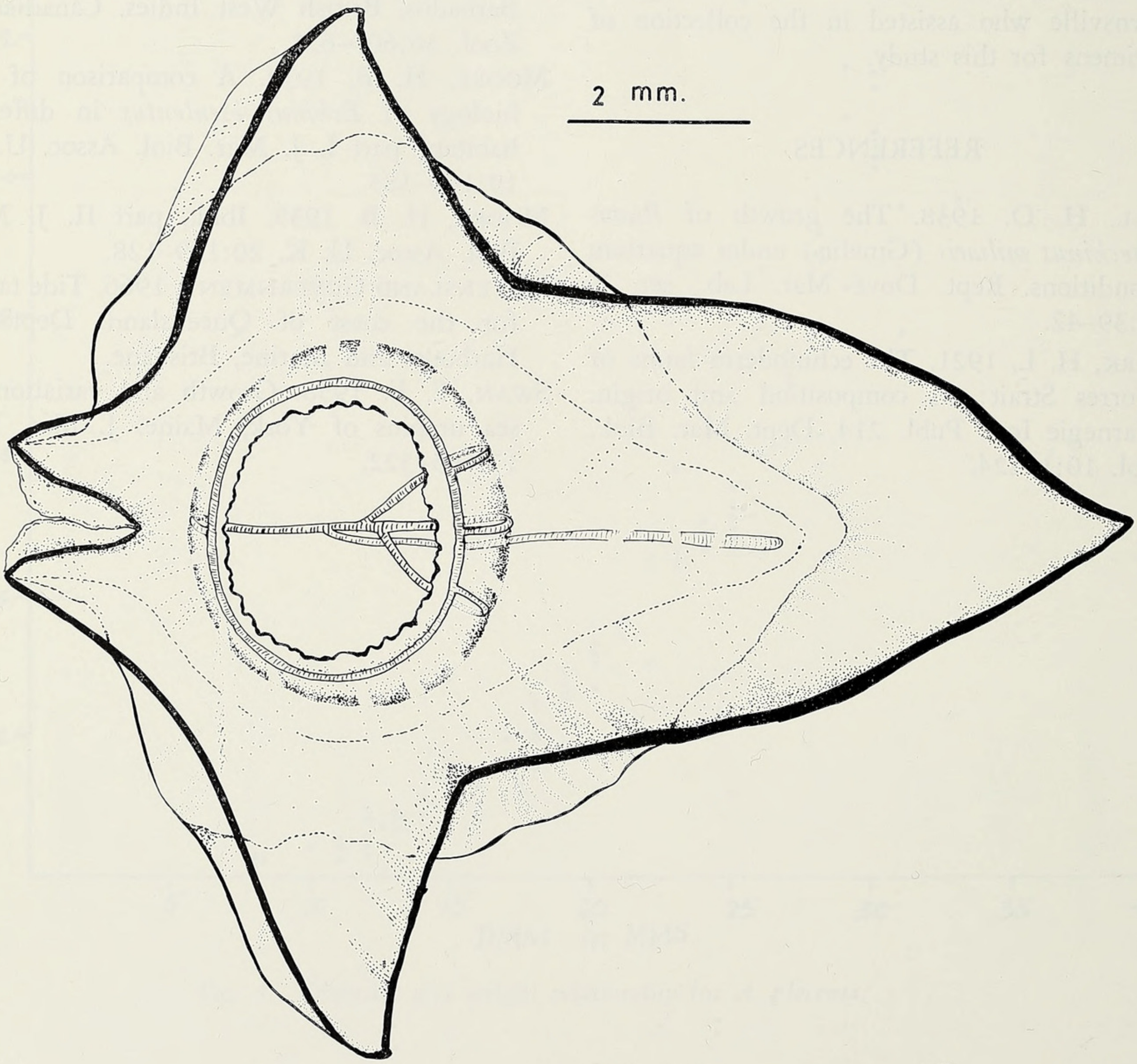

FIG. 1. Young nectophore of *Vogtia kuruae* n. sp.

TABLE 1

GENERAL CHARACTERISTICS OF THE NECTOPHORES OF FOUR SPECIES OF *Vogtia**

V. pentacantha KÖLLIKER	*V. spinosa* KEFERSTEIN AND EHLERS	*V. serrata* (MOSER)	*V. kuruae* N. SP.
Pentagonal, prismatic, ridges with prominences; facets smooth.	Pentagonal, prismatic; facets and ridges with conical gelatinous prominences.	Angular, prismatic; ridges serrated, facets smooth.	Prismatic, star-shaped; both ridges and facets smooth, without serrations or conical prominences.
Ventral channel joins the dorsal one at about the first 1/4 of the nectosac.	Ventral channel joins to the dorsal channel at about the first 1/8 of the nectosac.	Ventral channel joins the dorsal one at about the first 1/3 of the nectosac.	Ventral channel joins the dorsal one at about the middle of the nectosac.

* *Vogtia glabra* Bigelow is not included in this comparison because it has rounded nectophores.

The nectophores of *V. kuruae* n. sp. present an outline like a three-pointed star. Three isosceles triangles are arranged surrounding the nectosac in such a way that the imaginary bases or smallest side of the triangles circumscribe the nectosac (Figs. 1 and 2). These nectophores thus display the most exaggerated angular shape of all the previously described species, where the three-pointed shape is already incipient. In this species both edges and facets are completely smooth, without protuberances, spines, or serrations.

On the dorsal part of the nectophores appears the nectosac, a shallow cavity outlined as a quite

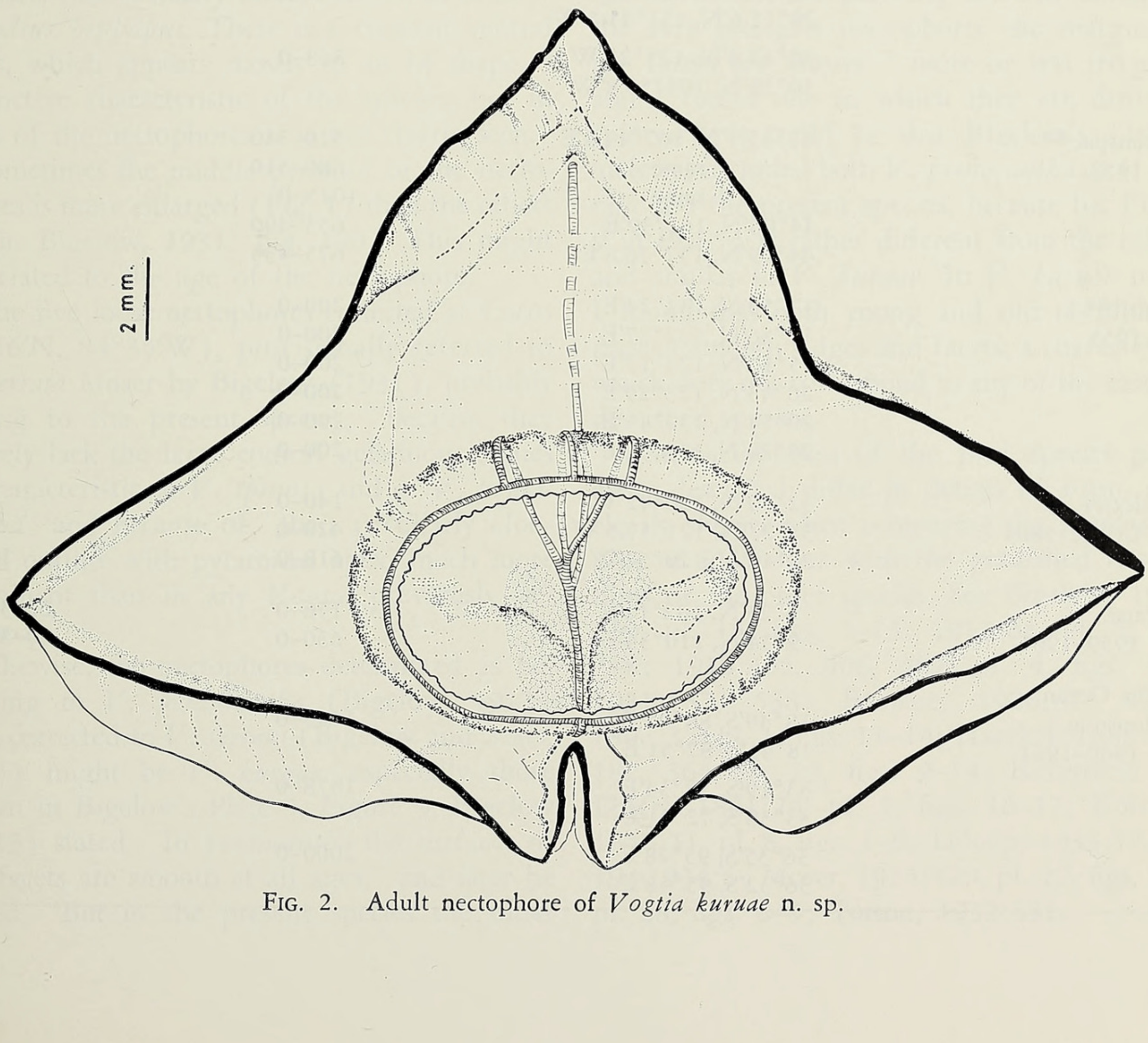

FIG. 2. Adult nectophore of *Vogtia kuruae* n. sp.

TABLE 2

DISTRIBUTION OF *Vogtia kuruae* N. SP.

EXPEDITION OR CRUISE	POSITION	DEPTH IN METERS	STATION
Pacific Ocean			
Downwind	46°35′S, 113°12′W	2010–0	20a
1957	23°39′S, 118°12′W	514–0	37
Monsoon*	49°26′S, 132°18′E	1878–0	13
1960–1961	49°21′S, 132°39′E		
Shellback	9°52.5′S, 81°32′W	313–0	125
1952	12°59′S, 85°01′W	311–0	144
	8°07′S, 84°58′W	176–0	149
	4°05′S, 85°00′W	298–0	153
Tethys	21°33′N, 123°02′W	1500–0	4
1960	21°21′N, 123°12′W		
	18°44′N, 124°24′N	2586–0	5
	18°16′N, 124°24′W		
	7°47′N, 129°37′W	3114–0	9
	7°26′N, 129°34.5′W		
	10°09′N, 147°08′W	868–0	19
	10°35′N, 147°29.6′W		
	26°13.9′N, 141°34.5′W	3000–0	28
	26°22.1′N, 141°06.9′W		
	29°01.2′N, 132°09′W	3000–0	31
	29°11.6′N, 131°41.5′W		
	30°47.6′N, 125°25′W	868–0	33
	30°59′N, 124°53.8′W		
Transpac**	47°35.7′N, 167°44.8′E	510–340	49C
1953	same	680–510	49D
	same	1015–0	
	44°06′N, 161°39′E	653–490	59D
	44°09′N, 152°56.8′E	675–435	66D
Troll***	17°59′N, 134°24′E	200–0	21
1955	15°56′N, 132°27′E	200–0	22
	15°17′N, 124°17′E	200–0	33
	20°43′N, 123°29′E	200–0	35A
	29°54′N, 132°45′E	200–0	41A
	28°28′N, 135°52′E	200–0	43A
CalCOFI	32°50′N, 120°42′W	140–0	87.65
Cruise 5804	31°27′N, 121°57.5′W	420–0	90.90
	29°40′N, 120°52′W	618–0	100.90
Naga	6°23′N, 102°11′E	176–0	60–324
1959–1961	9°54′N, 110°34′E	630–0	60–525
Indian Ocean			
Monsoon	18°49′S, 88°05′E	1643–0	6
1960–1961	18°41′S, 87°51′E		
	33°19′S, 72°34′E	1878–0	9
	33°38′S, 72°31′E		
	36°35′S, 95°28′E	2000–0	11
	36°32′S, 95°52′E		

TABLE 2 (*Continued*)

EXPEDITION OR CRUISE	POSITION	DEPTH IN METERS	STATION
Atlantic Ocean			
Lusiad 1963	00°56′N, 11°29′W 01°25′N, 11°43′W	2300–0	79
	18°58′S, 10°15′W 18°30′S, ——	2000–0	55
	19°13′S, 13°44′W 18° 58S′, 13°37′W	2000–0	52
	30°09′S, 04°42′W 30°07′S, 05°15′W	3500–0	24
	32°30′S, 09°04′E 32°24′S, 08°25′E	3400–0	14
	33°47′S, 15°48′E 33°46′S, 15°29′E	2000–0	11

* This species did not appear in the one-meter net oblique tows taken from various depths (356–200 m) to the surface. The records included correspond to mid-water trawls.

** In the small number of stratified samples obtained during this expedition, the species occurred in only a few, and always at depths below 300 m.

*** It is interesting to note that the species occurred in the upper 300 m in the tropical regions, or in zones of upwelling in subtropical waters (CalCOFI records). This emergence of the populations in the tropical regions is not apparently related to either temperature or salinity; but it might be associated with the oxygen concentration, or indirectly with the inorganic-organic phosphate-phosphorus (see Reid, 1965: Figs. 2–5).

perfect circle. In the nectosac the four radial channels follow nearly direct courses, as in *Hippopodius hippopus.* There is a crescent ventral sinus, which appears mostly in an M shape, a distinctive characteristic of the species, but in most of the nectophores it is not clearly seen.

Sometimes the middle pyramid of the nectophores is more enlarged (Fig. 1) than the others (as in Bigelow, 1931: Fig. 190). This might be related to the age of the nectophore.

The five loose nectophores collected at Cocos (4°56′N, 84°35′W), provisionally referred to *V. serrata* Moser by Bigelow (1931), probably belong to the present species, "because they entirely lack the large conical gelatinous spines so characteristic of *V. spinosa* and of *V. pentacantha*" and because of "their peculiarly elongated outline with pyramidal apex, much more prominent than in any *Vogtia* previously described."

Likewise, the nectophores determined as belonging to *V. pentacantha* (Bigelow, 1913) later corrected to *V. serrata* (Bigelow and Sears, 1937) might be *V. kuruae*, especially those shown in Bigelow's Plate 5, Figure 9. Bigelow (1913) stated, "In *pentacantha* the surfaces of the facets are smooth at all ages," and later he added, "But in the present species the older nectophores have no spines at all. The ridges, like the facets are perfectly smooth, though in the very youngest nectophores the margins of the facets are always ? more or less irregular, and I found one in which they are distinctly spinous." It could be that Bigelow's (1913) material included both *V. pentacantha* or *V. serrata* and the present species, because his Figure 9 in Plate 5 is rather different from the others, and similar to *V. kuruae.* In *V. kuruae* n. sp. I found that both young and old nectophores present smooth ridges and facets, a characteristic which does not correspond to any of the existing described species.

The nectophores of the four species previously described differ in details of form, as is clearly shown when comparing the present figures of *V. kuruae* with the published descriptions of the other species. See Bigelow, 1911: 210, pl. 15, figs. 5–13; 1913:66, pl. 5, figs. 7–8; 1918:405, 406, 407, pl. 4, figs. 1–7; 1931:537, 538; Browne, 1926:61; Chun, 1897:35, pl. 1, figs. 11–14; Haeckel, 1888:177, 182, 364, pl. 29, figs. 9–14; Keferstein and Ehlers, 1861:24, pl. 5, figs. 16–17; Kölliker, 1853:31, pl. 8, figs. 1–8; Leloup, 1933:17, 18, 19; 1934:6; Moser, 1925:420, pl. 27, figs. 6–8, pl. 28, figs. 8–9; Totton, 1932:331.

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