

ANOTHER NEW CHAETOGNATH FROM MALAY WATERS, WITH
A PROPOSAL OF GROUPING SOME SPECIES OF
SAGITTA INTO SUBGENERA

TAKASI TOKIOKA

Seto Marine Biological Laboratory, Sirahama, Japan

and

D. PATHANSALI

Fisheries Laboratory, Glugor, Penang

With Plate VII and 1 Text-figure

After we had submitted our manuscript on a new chaetognath, *Sagitta johorensis*, from Malay waters to the editorial board of the Publ. Seto Mar. Biol. Lab., another new form was discovered in the material from Penang waters. This belongs to the *neglecta*-group, too, but it is very distinctive in having the posterior fin beginning at the trunk-tail septum. As so many species are now included in the *neglecta*-group, we have become aware of the necessity of subdividing the genus *Sagitta* or grouping some species of *Sagitta* into subgenera as mentioned in the paragraph of *remarks*.

Before closing the introductory note, we want to express here our hearty thanks to the Director of Fisheries, Federation of Malaya, for his kindness in giving us the chance to study the material and to publish the results obtained.

Sagitta demipenna n. sp.

A small rigid species resembling superficially *Sagitta bedfordii* DONCASTER commonly found in Penang waters, up to 4.3 mm in body length (including tail fin), and with the tail segment (including tail fin) occupying 36-41% of the total length. Head rather slender and bluntly pointed at the tip in ones with hooks closed as in *Sagitta regularis* AIDA. Neck inconspicuous, collarette is distinctive in the range from the neck to the frontal end of the anterior fin, but diminishes in thickness posteriorly; it may continue further posteriorly to the seminal vesicle as a very faint thickening. Constriction at the

trunk-tail septum is indiscernible. The body is nearly of the same width throughout the length. Lateral field is narrow, muscles fairly developed and resultantly the body looks opaque.

Anterior fin begins behind the ventral ganglion, though the distance to the posterior end of the ganglion is very small, usually less than one fourth of the ganglion length, or 0.5-1.1% of the total body length. It is narrow, (15 to 19% of the body length) and wholly rayed, rays near the anterior end are set perpendicularly to the fin base. Posterior fin begins at the trunk-tail septum, nearly as long as or very slightly longer than the anterior fin (19 to 21% of the body length) and is smoothly rounded in outline; rayless-zone is absent and a few rays near the frontal end are set vertically to the base. Tail fin is somewhat tall. The pigmented area of eye is relatively large and roughly roundish in outline (Figure D). Corona ciliata (Figs. B and C) begins on the neck, as long as the head, and with two sinuses along the lateral side, each marked with a large sensory spot on the outside; anterior sinus is very distinct, but the posterior one is somewhat inconspicuous. Intestinal diverticula very distinct.

Formulae of sixteen examined specimens are:

Sp. No.	Total length in mm	Length of tail segment as %	Hooks	Anterior teeth	Posterior teeth	Number of mature eggs
1	3.1	36	10-10	3-3	4-4	—
2	3.4 (2 specimens)	36-39	9-10	2-3	4-5	—
3	3.5	39	10-10	3-3	5-5	—
4	3.6	37	10-10	3-3	4-4	—
5	3.7 (2 specimens)	37-38	10-10	2-3	4-5	—
6	3.8 (2 specimens)	38	9-10	3-4	4-6	—
7	3.8	36.4	9-9	2-3	5-5	4
8	3.8	36.8	9-9	3-3	5-6	6
9	3.8	38.6	9-9	3-4	5-5	0
10	3.9	38.9	8-9	3-3	4-5	3
11	4.0	39	10-10	3-3	5-6	—
12	4.0	39.1	9-10	3-3	6-6	2
13	4.3	41.0	8-9	4-4	5-5	4

Hooks slender. Teeth are comparatively numerous for such small body sizes. The anterior teeth are very slender and as long as posterior ones, the rows meet each other at an acute angle. There is none or only a single tooth out of the wing of the vestibular ridge.

The ovary reaches anteriorly the frontal end of the anterior fin at the maximum. Fully matured eggs are less than six in examined specimens. As

they are so large for such small body sizes, they are always arranged in a single series, but never form two, right and left, rows. Seminal vesicle (Text-fig. 1 and Fig. G in Plate) is elongate, with a small glandular area at the anterior end. It is situated just behind the posterior fin, but fairly apart from the base of the tail fin. The prominence at the opening of seminal receptacle is rather low.

Remarks: This species is quite unique in having the posterior fin beginning at the trunk-tail septum. Other characters conform well to those of the *neglecta*-group. The present species may safely be accepted as a new species and constitutes the twelfth member of the *neglecta*-group. Six specimens,



Text-fig. 1. *Segitta demipenna* n. sp. Matured seminal vesicle, enlarged.

Nos. 7-10, 12 and 13 in the formula table, are deposited at the Seto Marine Biological Laboratory as syntypes; their heads are all dissected. Other specimens are kept at the Fisheries Laboratory, Penang as paratypes.

Now reviewing the Indo-Pacific chaetognath fauna, we are impressed much by the abundance of species belonging to the *neglecta*-group. This group has a dozen species today and is well defined by the following features:

1) Rather rigid body, with relatively long tail segment, 2) existence of intestinal diverticula, 3) corona ciliata beginning below the level of eyes, 4) both anterior and posterior fins wholly rayed and, at least, near the anterior end rays are set perpendicularly to the base; tail fin is rather tall; 5) seminal

vesicle is situated usually just behind the posterior fin and apart for a considerable distance from the base of the tail fin; in no species is the anterior glandular portion differentiated in external appearance; 6) the pigmented area of eye is rather large and roundish in outline, except for *S. regularis*, and 7) most species, excepting *S. neglecta* and *S. regularis*, are of the inlet- or the neritic waters.

We suppose it may be rather convenient to treat all the species of the *neglecta*-group under a common subgeneric name and propose here the subgenus *Aidosagitta* for this purpose. This is to record the works of the late Dr. T. AIDA who examined the chaetognath fauna of the western North Pacific for the first time in 1897 and described the first two species of this subgenus. This subgenus includes the following twelve species:

1. *Sagitta bedfordii* DONCASTER, 1902
2. *Sagitta crassa* TOKIOKA, 1938
3. *Sagitta crassa* f. *naikaiensis* TOKIOKA, 1939
4. *Sagitta crassa* f. *tumida* (TOKIOKA), 1939
5. *Sagitta delicata* TOKIOKA, 1939
6. *Sagitta demipenna* TOKIOKA and PATHANSALI, 1963
7. *Sagitta johorensis* PATHANSALI and TOKIOKA, 1963
8. *Sagitta neglecta* AIDA, 1897
9. *Sagitta oceanica* GREY, 1930
10. *Sagitta parva* OYE, 1918
11. *Sagitta regularis* AIDA, 1897
12. *Sagitta tropica* TOKIOKA, 1942

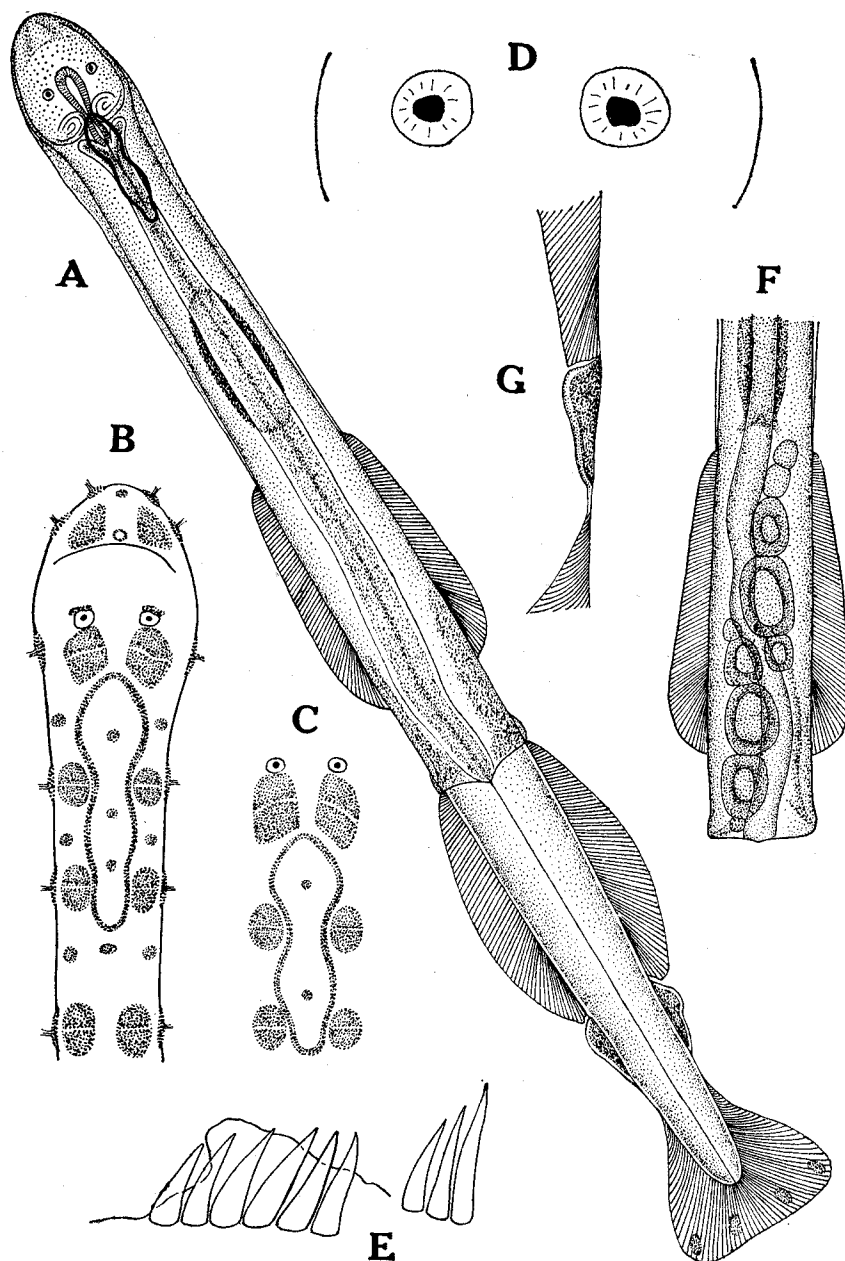
For the same reason, we wish to propose another subgenus *Serratosagitta* to cover the following six species, of which the validity of the last two species is somewhat doubtful, that is characterized by 1) serrated hooks, 2) very small and elongate pigmented area of eye, 3) corona ciliata generally beginning in front of the level of the eyes and very elongate, 4) absence of intestinal diverticula, 5) anterior fin wholly rayed and posterior fin with a narrow inconspicuous rayless zone along the base of the anterior half, 6) seminal vesicle situated just behind the posterior fin and apart widely from the tail fin, and 7) the existence of a remarkable swelling near the middle of vas deferens.

1. *Sagitta pacifica* TOKIOKA, 1940
 2. *Sagitta pseudoserratodentata* TOKIOKA, 1939
 3. *Sagitta serratodentata* KROHN, 1853
 4. *Sagitta tasmanica* THOMSON, 1947
 - (5) *Sagitta bierii* ALVARIÑO, 1961
 - (6) *Sagitta selkirkii* FAGETTI, 1958
- } = ? *Sagitta tasmanica*

EXPLANATION OF PLATE VII

Sagitta demipenna n. sp.

- A. Entire animal, dorsal side. ×47
- B. Anterior part of body, dorsal side. ×73
- C. A shorter corona ciliata. ×73
- D. Eyes. ×200
- E. Anterior and posterior teeth. ×440
- F. Posterior half of the trunk containing six mature eggs. ×47
- G. Seminal vesicle, not yet fully matured. ×73



T. TOKIOKA AND D. PATHANSALI: ANOTHER NEW CHAETOGNATH FROM MALAY WATERS.