

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

BRANDTIKA ASIATICA NEW GENUS, NEW SPECIES,
FROM SOUTHEASTERN ASIA AND A REDESCRIPTION
OF MONROIKA AFRICANA (MONRO)
(POLYCHAETA: SABELLIDAE)

BY MEREDITH L. JONES

Smithsonian Institution, Washington, D.C. 20560

In 1939, Monro reported on a collection of polychaetes from near the mouth of the Congo River in West Africa. Among these were specimens of a small sabellid from Matadi, approximately 130 km upstream from the Congo River mouth, in what is now the Democratic Republic of the Congo. Monro considered these to be a new species of *Manayunkia*, *M. africana*, in spite of the presence of true spatulate thoracic setae (on the basis of there being a trend from mere limbation toward a spatulate condition among various described species of *Manayunkia*) and in spite of the presence of two (rather than three) abdominal setigers. Further, he noted that specimens of *M. africana* constructed incrusting, ". . . intertwining sandy tubules" (Monro, 1939:220) on the shells of the freshwater gastropod, *Hydrobia plena*, that the worms were found in areas of swift current, that they were not confined to snail shells, but also found on rocks, and that additional dried tubes of the worms were collected in the M'Pozo River, further upriver from Matadi.

No additional collections of *M. africana* have been reported in the literature. Hartman (1951:389), in connection with a study of the sabellid polychaetes of the Fabriciinae, considered the presence of a palmate membrane on the branchial crown to be sufficient grounds to separate *M. africana* from *Manayunkia* and established the new genus *Monroika*, based on Monro's description.

During an extensive study of southeast Asian specimens of the polychaete genus *Caobangia* and the molluscs associated with it (Jones, 1969, 1974), curious incrusting sandy tubes were observed on the surface of the shells of the viviparid snail, *Mekongia jullieni* (Deshayes), and on the valves of the unionid bivalve, *Hyriopsis delaportei* (Crosse and Fischer), both collected by Dr. R. A. M. Brandt from the Mekong River in southern Laos. Perusal of the southeast Asian freshwater snails in the collections of the Division of Molluscs, National Museum of Natural History, Smithsonian Institution, yielded other snails with similar incrusting tubes, i.e., *Brotia* cf. *baccata* (Gould) and the paratype of *Melania pagodula* Gould [= *Brotia pagodula* (Gould)] both from the Salween River drainage.

The sandy tubes found associated with the four molluscan species mentioned above contained the dried remains of a sabellid similar to *Monroika* and were in from fair to very poor condition. Drying notwithstanding, it was possible to observe a number of similarities and differences relative to Monro's description of *Manayunkia africana* and it was felt necessary to re-examine Monro's material deposited in the British Museum (Natural History) and, subsequently, to redescribe the type-species of *Monroika*, as well as to establish a new genus, *Brandtika*, for the Asian specimens.

It is with great pleasure that I thank Dr. R. A. M. Brandt, School of Tropical Medicine, Bangkok, Thailand, for the Lao-tian molluscs which bore the tubes of *Brandtika*, Dr. J. David George, British Museum (Natural History) (BMNH) for arranging the loan of Monro's types of *Manayunkia africana*, and Dr. Marian H. Pettibone, National Museum of Natural History (USNM), my colleague and ever ready and ever willing manuscript reader.

FAMILY SABELLIDAE

SUBFAMILY FABRICIINAE

Monroika Hartman, 1951; emended

Type-species: *Manayunkia africana* Monro, 1939, by original designation. Gender: feminine.

Diagnosis: Fabriciine sabellids with 8 thoracic and 2 abdominal setigers; with long limbate capillary setae on all 10 setigers, with short limbate capillary setae on setigers 1, 2, 6–8, with spatulate setae on

setigers 2–5, with neuropodial long-handled hooks on setigers 2–8, and with notopodial long-necked uncini on setigers 9–10; branchial crown of simple radioles united by high palmar membrane (?).

Remarks: Examination of Monro's syntypes and other material from the original collection of *M. africana* have allowed the recognition of two kinds of limbate capillary setae, and the emendation herein reported results from this. The presence of "... fairly numerous, possibly about a dozen [simple filamentous radioles] ... and ... a high palmar membrane" (Monro, 1939:220) could not be confirmed, for, as Monro stated, "... the state of preservation is poor and the more delicate parts such as the gills are partly disintegrated" (Monro, 1939:220).

In contrast to Hartman's judgment, I feel that the crucial generic differences between *Monroika* and *Manayunkia* lie in the type and distribution of setae and the number of thoracic and abdominal setigers, rather than in having "... a weblike membrane in the crown" (Hartman, 1951:389), which has not been unequivocally demonstrated.

Monroika africana (Monro)

Figures 1, 2

Manayunkia africana Monro, 1939:220–223.—Wesenberg-Lund, 1958:29 [list of fresh- and brackish-water polychaetes].

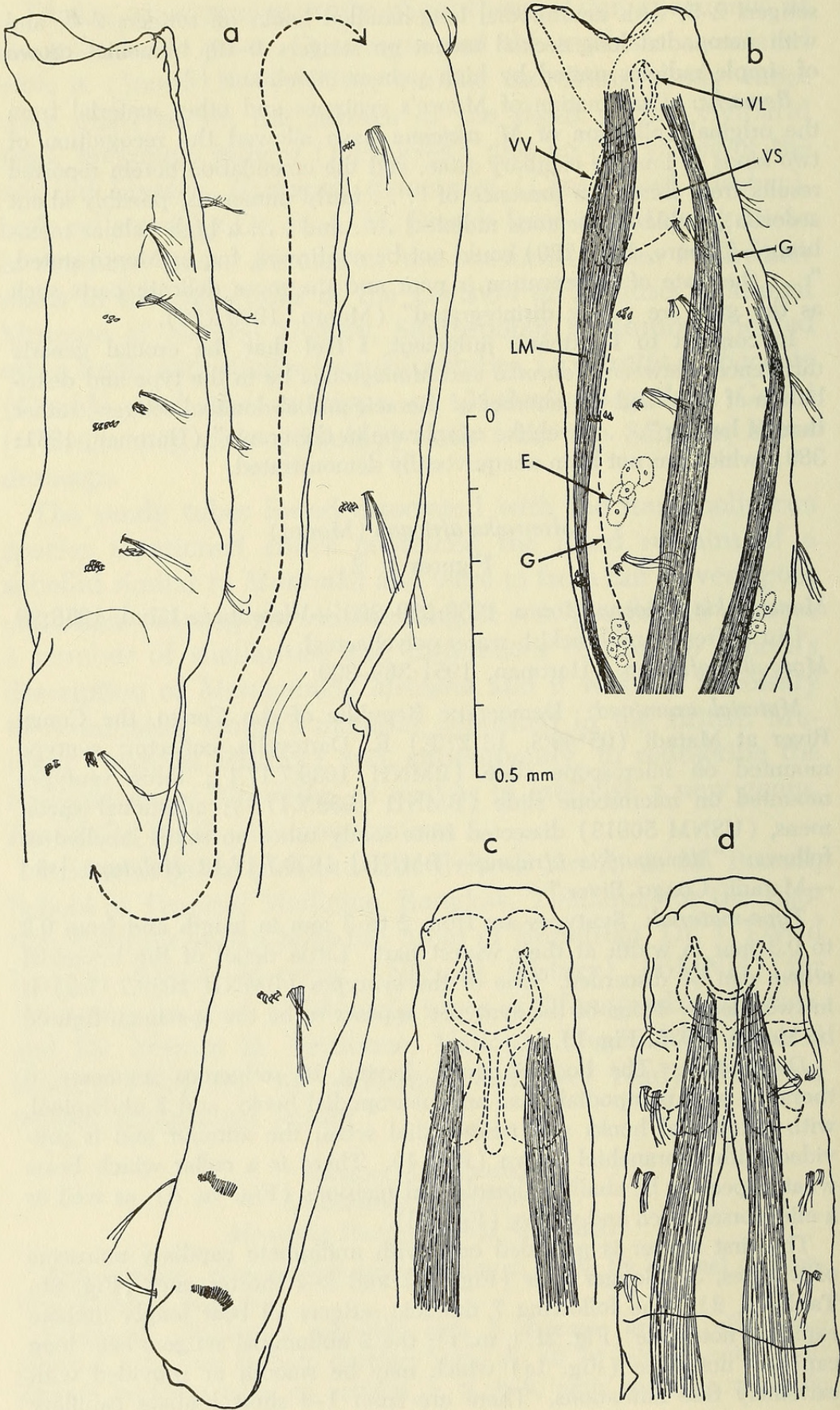
Monroika africana.—Hartman, 1951:389–390.

Material examined: Democratic Republic of the Congo, the Congo River at Matadi (05°49'S, 13°27'E) E. Darteville, collector; syntype mounted on microscope slide (BMNH 1939.7.17.1); three syntypes mounted on microscope slide (BMNH 1939.7.17.2); additional specimens, (USNM 50913) dissected from sandy tubes on snails labelled as follows: "*Manayunkia africana*—[BMNH] 1939.7.17.12 *Holotype* [sic]—Matadi, Congo River."

Type-material: Syntypes are from 2 to 3 mm in length and from 0.2 to 0.3 mm in width at their widest part. Little detail of the branchial crown can be discerned. One of the syntypes (BMNH 1939.7.17.2) is in two pieces. None of the syntypes appears to be the specimen figured by Monro (1936: Fig. 1).

Description: The body is small, having 10 setigerous segments, 8 thoracic, with notopodial setae and neuropodial hooks, and 2 abdominal, with notopodial hooks and neuropodial setae; the anterior end is provided with a branchial crown (Fig. 1). There is a collar which bears what appear to be shallow dorsolateral incisions (Fig. 1c, d), as well as a mid-dorsal notch and groove (Fig. 1d).

The first setiger is provided only with unilimbate capillary notosetae of 2 types, 3–5 longer ones (Fig. 2a) and 2–4 shorter ones (Fig. 2b; Tables 1, 2). The following 7 thoracic setigers all bear longer limbate capillary notosetae (Fig. 2f, i, m, r); the 2 abdominal setigers bear long capillary notosetae (Fig. 1a) which may be smooth or provided with extremely fine limbations. There are from 1–4 short limbate capillary



notosetae on setiger 2 and from 1–3 or 4 on setigers 6–8 (Fig. 1n, p, s). Spatulate notosetae occur on setigers 2–5 (Fig. 2d, g, k). Occasional short limbate capillary notosetae were found on setigers 3 and 5 (Fig. 2j). Limbations tend to become progressively less well-developed toward the posterior end.

There are 2–5 long-handled avicular notopodial hooks on setigers 2–8. These have a stout, sinuous manubrium surmounted by a large central fang topped by series of small denticles, becoming smaller, more distal to the central fang (Fig. 2c, e, h, l, o, q, t). When viewed *en face* it is apparent that there is some asymmetry in the placement of the denticles above the central fang (Fig. 2l). The more posterior thoracic hooks apparently have fewer small denticles. Notopodial hooks of the abdominal region disposed in what might be called “uncinigerous” rows, from 14–41 per row, dorsal to the long capillary neurosetae (Fig. 1a). The hooks are provided with rather broad long necks (Fig. 2u). Each abdominal hook bears a single proximal, relatively large, central tooth surmounted distally by many small teeth, in about 10–11 rows, with about 5 in each row.

Remarks: The buff-colored sand tubes of *M. africana* are found at the apical ends of the associated snails (*Hydrobia plena*). There is a suggestion of a dorsal transverse groove between setigers 3 and 4 (Fig. 1d), and, in the case of 2 of the syntypes, there appears to be an internal septum between setigers 5 and 6. Eggs were noted in one specimen and these were restricted to the anterior end, extending between setigers 3–6 (Fig. 1b). Striated muscles were found associated with the rows of abdominal hooks. There appears to be a single medial ventral blood vessel in the region of the first setiger; this is formed by the union of the lower ends of a vascular loop which seems to be closed dorsally (Fig. 1b, d). There are 2 pairs of brown granular structures, also in the region of the first setiger, which may prove to be “ventral sacs” functioning in tube formation. Spatulate setae may appear to be “spatulate” due to their usual orientation and, when differently disposed, may appear to be limbate (cf. Fig. 2d, g, k, and Fig. 3p).

Brandtika new genus

Type-species: *Brandtika asiatica* new species. Gender: feminine.

Diagnosis: Fabriciine sabellids with 8 thoracic and 2 abdominal

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FIG. 1. *Monroika africana* (USNM 50913): a, Left lateral view of entire specimen, branchial crown lacking (figure split between setigers 5 and 6 to fit page); b, left lateral view of second specimen showing some internal structures (slightly twisted); c, ventral view of same (setae omitted); d, dorsal view of same (VL = vascular loop, VV = ventral vessel, VS = ventral sac (?), LM = longitudinal muscle bundle, E = eggs, G = gut).

TABLE 1. Numbers and distribution of types of setae observed in specimens of *Monroika africana* (A = long limbate capillary notosetae; B = short limbate capillary notosetae; C = spatulate notosetae; D = thoracic avicular neuropodial hooks; E = abdominal notopodial hooks; x = obscured; ? = uncountable). Entries for setigers 9 and 10, column 4, derived from a fifth specimen.

Setiger number	BMNH 1939.7.17.1 (1 syntype)	BMNH 1939.7.17.1 (3 syntypes)			Non-syntypes (5 specimens)			
		1	2	3	1	2	3	4
Th 1	4a, 3B	5A, 2B	3A, 2B	4A, 3B	4A, 4B	3A, 4B	4A, 4B	4A, 5B
Th 2	4A, 4D	5A, 4B, 4D	4A, 2B, 2C, 3D	5A, 1B, 3C, 3D	5A, 4C, 4D	4A, 3C, 4D	4A, 1B, 4C, 5D	5A, 4C, 4D
Th 3	4A, 1B, 4C, 3D	5A, 4C, 4D	4A, 4C, 4D	4A, 3C, 3D	5A, 5C, 5D	4A, 3C, 5D	5A, 3C, 5D	5A, 3C, 5D
Th 4	5A, 3C, 3D	4A, 3C, 3D	4A, 4C, 4D	5A, 2C, 3D	5A, 5C, 5D	4A, 4C, 5D	5A, 3C, 4D	4A, 4C, 5D
Th 5	3A, 3C, 3D	3A, 4C, 3D	3A, 2C, 3D	4A, 2D	5A, 6C, 4D	3A, 4C, 4D	4A, 1B, 3C, 3D	?
Th 6	?	3A, 1B, 3D	2A, 2B, 2D	2A, 1B, 2D	3A, 4B, 3D	4A, 3B, 3D	3A, 1B, 2D	?
Th 7	?	2A, 2B, 2D	3A, 1B, 3D	3A, 2B, 2D	3A, 2B, 4D	3A, 3B, 4D	?	?
Th 8	?	2A, 3B, 4D	3A, 2B, 3D	2A, 2B, 3D	4A, 3B, 5D	4A, 3B, 5D	?	?
Abd 1	?	4A, 26E	3A, 18E	2A, 18E	2A, 1B, 32E	3A, 29E	?	3A, 41E
Abd 2	?	3A, ?E	2A, 14+E	2A, 17E	3A, 21E	3A, 20+E	?	3A, 21E

TABLE 2. Comparison of summarized numbers and distribution of types of setae observed in specimens of (a) *Monroika africana*, (b) *Brandtika asiatica*, and (c) *Brandtika* sp. (A = long limbate capillary notosetae; B = short limbate capillary notosetae; C = spatulate notosetae; D = thoracic avicular neuropodial avicular hooks; E = abdominal notopodial hooks; F = pilose neurosetae).

Setiger	<i>Monroika africana</i>	<i>Brandtika asiatica</i>	<i>Brandtika</i> sp.
Th 1	3-5A, 2-4B	4A, 3B	?
Th 2	4-5A, 1-4B, 2-4C, 3-5D	4-5A, 2C, 4-5D	?
Th 3	4-5A, (1B), 3-5C, 3-5D	4-5A, 2C, 5D	?
Th 4	4-5A, 2-5C, 3-5D	4-5A, 2-3C, 4D	6A, 2C, 7D
Th 5	3-5A, (1B), 2-6C, 2-4D	5-6A, 2-3C, 3-4D	5A, 2C, 6D
Th 6	2-4A, 1-4B, 2-3D	3-4A, 2-3C, 2F	3A, 1C, 2F
Th 7	2-3A, 1-3B, 2-4D	2-4A, 2C, 1-2F	?
Th 8	2-4A, 2-3B, 3-5D	2-4A, 2-4C, 1-2F	5A, 4C, 4F
Abd 1	2-4A, (1B), 18-41E	3A, 17-20E	3A, 34E
Abd 2	2-3A, 14+-21E	2A, 14-15E	3A, 24E

setigers; with long limbate capillary setae on all 10 setigers, with short limbate capillary setae only on setiger 1, with spatulate setae on setigers 2-8, with neuropodial long-handled hooks on setigers 2-5 and short, abruptly geniculate, pilose neurosetae on setigers 6-8, and with notopodial long-necked uncini on setigers 9-10.

Etymology: It is with pleasure that I name this genus in honor of Dr. R. A. M. Brandt, School of Tropical Medicine, Bangkok, Thailand, in appreciation for the collecting of the numerous snails from Thailand and Laos which provided me with these sabellids, as well as specimens of *Caobangia*.

Remarks: *Brandtika* appears to be closely related to *Monroika*, as regards the presence of similar thoracic notopodial and abdominal neuropodial hooks and the presence of thoracic spatulate setae. *Brandtika* differs, however, in that spatulate notosetae are not replaced by short limbate capillaries in the posterior thoracic region, whereas long-handled avicular neuropodial hooks are replaced by short pilose neurosetae in the posterior 3 thoracic setigers.

***Brandtika asiatica*, new species**

Figure 3

Monroika sp. Jones, 1974: Fig. 5a.

Material examined: Laos: Mekong River at Ban Don Det, south of Khong Island, Sithandone (14°07'N, 105°48'E), associated with the

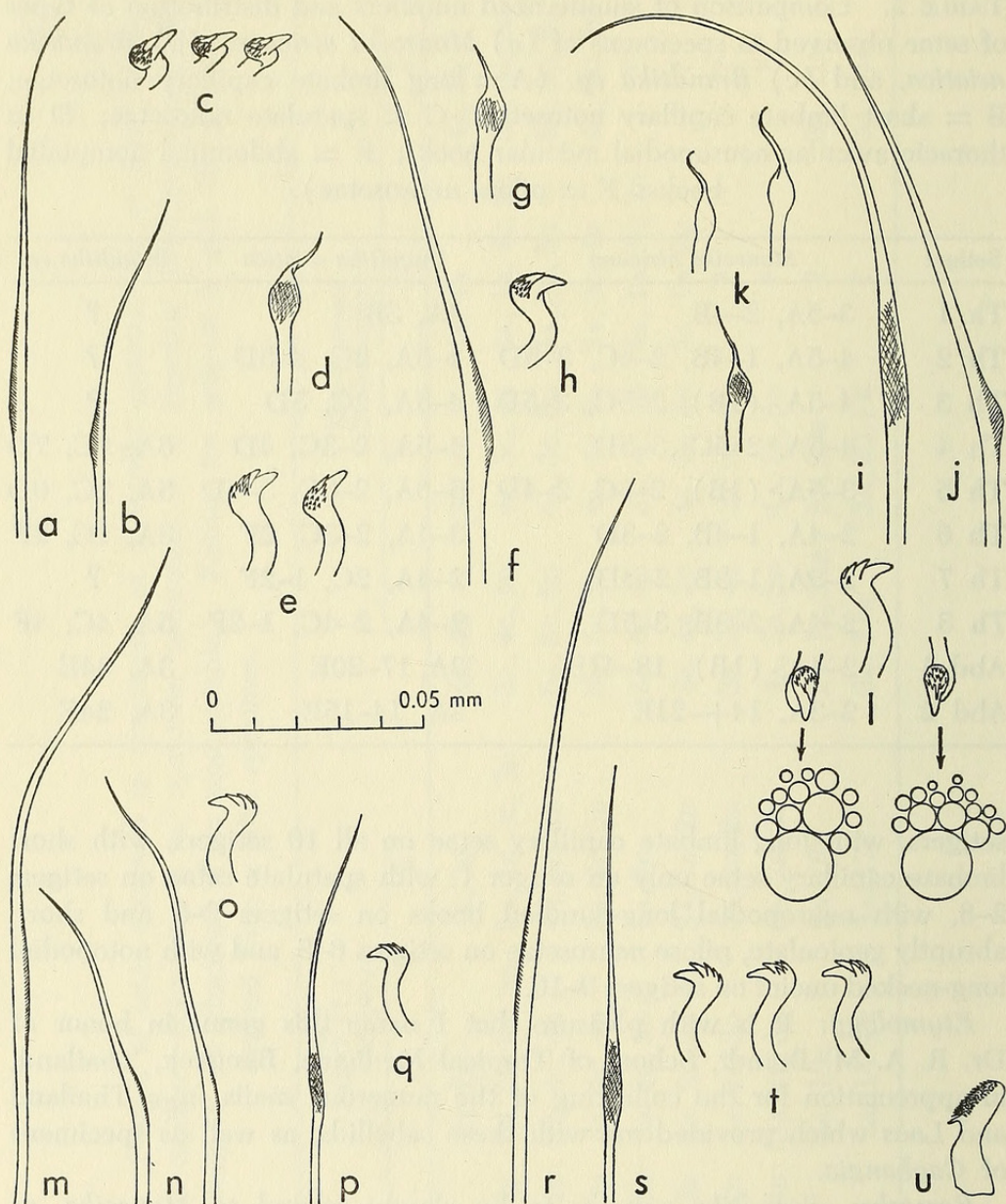


FIG. 2. *Monroika africana* (USNM 50913): a, Long limbate notoseta from first setiger; b, short limbate notoseta from same; c, three neuropodial avicular hooks from setiger 2, viewed from above; d, spatulate notoseta from setiger 3 (limbation not in profile); e, two neuropodial hooks from same; f, long limbate notoseta from setiger 4; g, spatulate notoseta from same; h, neuropodial hook from same; i, long limbate notoseta from setiger 5 (limbation not in profile); j, short (?) limbate notoseta from same; k, three spatulate notosetae from same; l, three hooks from same (diagrams below right and left hooks show disposition of denticles); m, long limbate notoseta from setiger 6; n, two short limbate notosetae from same; o, neuropodial hook from same; p, short limbate notoseta from setiger 7; q, neuropodial hook from same; r, long limbate notoseta from setiger 8; s, short limbate notoseta from

viviparid gastropod *Mekongia jullieni* (Deshayes) (USNM [Molluscs] 704235), R. A. M. Brandt, collector, 13 March 1968—holotype (USNM 50914), paratypes (USNM 50915), dried specimens; Mekong River at Ban Seo, south of Khong Island, Sithandone (14°06'N, 105°51'E), associated with the unionid bivalve *Hyriopsis delaporteii* (Crosse and Fischer) (USNM [Molluscs] 704236), R. A. M. Brandt, collector, 6 March 1968—paratypes (USNM 50916), dried specimens.

Type-material: The holotype is 1.75 mm long, excluding the branchial crown, and 0.13 mm wide at its widest part; the branchial crown is totally dried. Paratypes are from 1.50–3.10 mm long, excluding the branchial crown, and 0.14–0.27 mm wide; branchial crowns are 0.15–0.18 mm.

Description: The body is small, with 10 setigerous segments, 8 thoracic and 2 abdominal (Fig. 3a). The anterior end has a branchial crown whose details can not be determined, due to the dried condition of the specimens. A collar is present, and its margin is entire except for a deep mid-dorsal cleft which is continuous with a dorsal groove extending to about the level of setiger 2 (Fig. 3a).

The first setiger is provided only with unilimbate capillary notosetae of 2 types, about 4 long ones (Fig. 3b) and 3 short ones (Fig. 3c; Table 2). The following 7 thoracic setigers all bear 2–6 long limbate capillary notosetae (Fig. 3f, i, l, o); the 2 abdominal setigers bear long geniculate limbate capillary neurosetae (Fig. 3r, t). Only the first setiger bears short limbate capillary setae; on setigers 2–8, these are replaced by 2–4 spatulate notosetae (Fig. 3g, j, m, p).

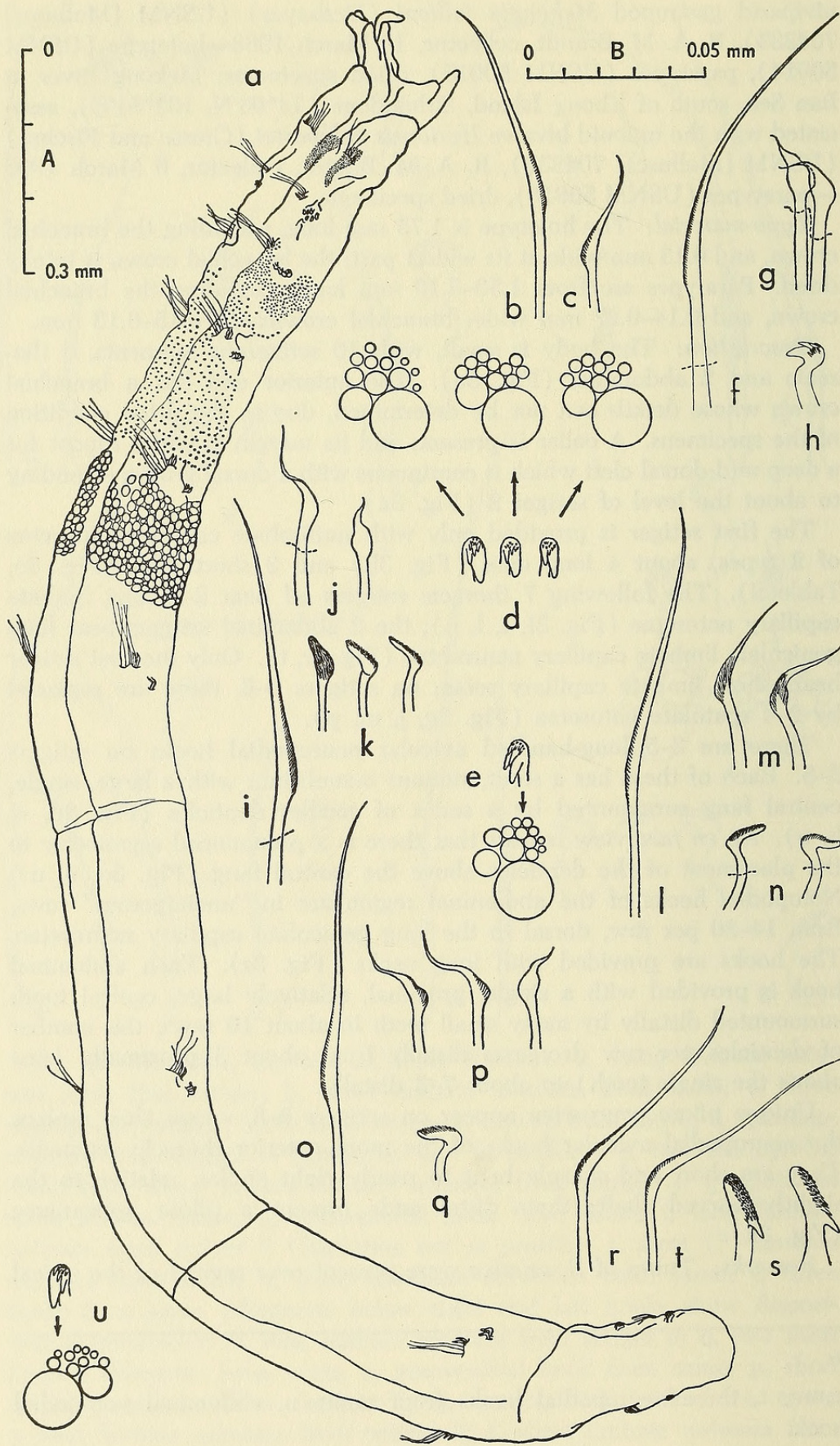
There are 3–5 long-handled avicular neuropodial hooks on setigers 2–5. Each of these has a stout, sinuous manubrium with a large, single, central fang surmounted by a series of smaller denticles (Fig. 3d, e, h, u). An *en face* view reveals that there is a pronounced asymmetry in the placement of the denticles above the central fang (Fig. 3d, e, u). Notopodial hooks of the abdominal region are in "uncinigerous" rows, from 14–20 per row, dorsal to the long geniculate capillary neurosetae. The hooks are provided with long necks (Fig. 3s). Each abdominal hook is provided with a single, proximal, relatively large, central tooth surmounted distally by many small teeth in about 10 rows; the number of denticles per row decreases distally from about 3 proximally (just above the single tooth) to about 7–8 distally.

Unique pilose neurosetae appear on setigers 6–8, where they replace the neuropodial avicular hooks of the more anterior thoracic segments. They are short and sharply bent to nearly right angles, relative to the slightly curved shaft; their distal ends present a pilose appearance (Fig. 3k).

Remarks: Tubes of *B. asiatica* were present over several of the apical

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same; t, three neuropodial hooks from same; u, abdominal notopodial hook.



whorls of *Mekongia* and formed extensive incrustations on the valves of *Hyriopsis*; in both cases, they were associated with the aberrant sabeliform polychaete *Caobangia brandti* (Jones, in press). Two types of granular dermal inclusions are present in the anterior thoracic region of some specimens of *B. asiatica*.

Brandtika sp.

Figure 4

Material examined: Thailand: Salween River at Ban Chao Noi, Mae Hong Son Province (approximately 18°26'N, 97°35'E), associated with *Brotia* cf. *baccata* (Gould) (USNM [Molluscs] 420480b), H. M. Smith, collector, 14 January 1933 (USNM 50917). Burma: Thoungyin River [a tributary of the Salween], associated with paratype of *Melania pagodula* Gould [= *Brotia pagodula* (Gould)] (USNM [Molluscs] 611238) (USNM 50918).

Fragments of from 1 to 3 setigers each were obtained from tubes similar to those of *B. asiatica*. In only a few instances was it possible to determine which setigers were being examined and then, only by making the assumption that the types of setae and their linear distribution along the body of these worms was the same as for *B. asiatica*. Thus, because a posterior end consisted of 3 setigers, the terminal 2 of which had rows of hooks and the other had short pilose setae, it was possible to decide that these were setigers 8–10. Similarly, it was possible to determine that another series of 3 setigers consisted of the setigers 4–6, because of the shift from neuropodial avicular hooks to pilose setae between setigers 5 and 6. Unfortunately, not all of the setae encountered were oriented so that they could be illustrated. However, no setae were found which were radically different from those found in specimens of *B. asiatica*.

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FIG. 3. *Brandtika asiatica* new genus, new species (a–t, USNM 50915; u, USNM 50916): a, Right dorsolateral view of entire specimen; b, long limbate notoseta from first setiger; c, short limbate notoseta from same; d, three neuropodial avicular hooks from setiger 2 (diagrams show disposition of denticles); e, same, from setiger 3; f, long limbate notoseta from setiger 5; g, two adjacent spatulate notosetae from same; h, neuropodial hook from same; i, long limbate notoseta from setiger 6; j, two spatulate notosetae from same; k, three pilose neurosetae from same; l, long limbate notoseta from setiger 7; m, two adjacent spatulate notosetae from same; n, two pilose neurosetae from same; o, long limbate notoseta from setiger 8; p, three spatulate notosetae from same; q, pilose neuroseta from same; r, slightly geniculate, long limbate seta from setiger 9; s, two notopodial abdominal hooks from same; t, geniculate long limbate neuroseta from setiger 10; u, thoracic avicular hook. Scale A, a; scale B, b–u.

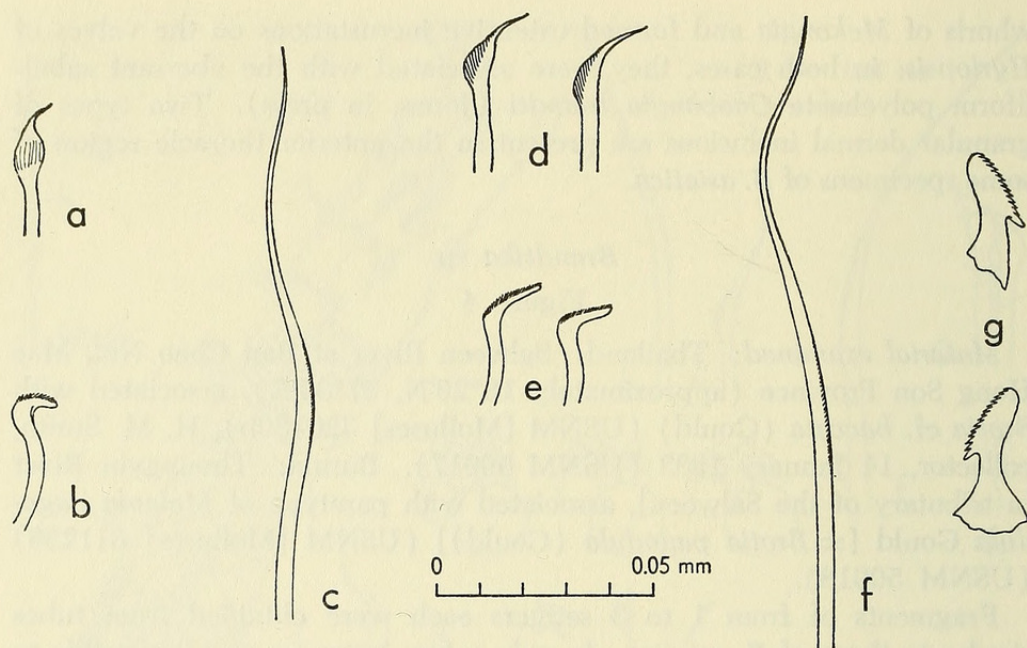


FIG. 4. *Brandtika* sp. (USNM 50917): a, Spatulate notoseta from setiger 4; b, pilose neuroseta from setiger 6; c, long limbate notoseta from setiger 8; d, two spatulate notosetae from same; e, two pilose neurosetae from same; f, long limbate neuroseta from abdominal setigers 9 or 10; g, two notopodial abdominal hooks from same.

Due to the lack of even one whole specimen, I do not feel that these specimens should be considered to be conspecific with *B. asiatica* or necessarily a different species from *B. asiatica*, even though they occur in a quite different drainage system than *B. asiatica*. It should be noted that the two different species of *Caobangia* occur in these same two drainages, i.e., *C. brandti* in the Mekong, as well as the Chao Phraya of Thailand, and *C. smithi* in the Salween (Jones, 1974). Thus, I offer the following merely to add to our present knowledge of the genus *Brandtika*.

Preliminary description: A fourth setiger included 6 long limbate capillary notosetae, 2 spatulate notosetae (Fig. 4a), and 6 neuropodial avicular hooks, all similar to their counterparts in *B. asiatica*. The adjacent setiger 5 bore 5 long capillary notosetae, 2 spatulate notosetae, and 6 neuropodial hooks; setiger 6 had 3 long capillary notosetae, 1 spatulate notoseta, and 2 pilose neurosetae (Fig. 4b). In the posterior section mentioned above, setiger 8 had 5 long capillary notosetae (Fig. 4c), 4 spatulate notosetae (Fig. 4d), and 4 pilose neurosetae (Fig. 4e); setiger 9 carried 3 long, slightly sinuous, limbate capillary neurosetae (Fig. 4f) and about 34 long-necked notopodial hooks (Fig. 4g); setiger 10 was provided with 3 nearly straight capillary neurosetae and about 20 notopodial hooks.

Potential specific differences between these specimens and *B. asiatica*

(Table 2) may lie in the number of neuropodial avicular hooks in the anterior thorax, i.e., 6–7 hooks in setigers 4–5 in *Brandtika* sp. compared with 3–4 hooks in the same setigers in *B. asiatica*, and in the number of abdominal hooks on setigers 9 and 10, i.e., 24–24 in *Brandtika* sp. vs. 15–20 in *B. asiatica*, as well as in the shape of the abdominal capillary setae (cf. Fig. 4f vs. Fig. 3r, t) and of the abdominal notopodial hooks (cf. Fig. 4g vs. Fig. 3s). Confirmation or refutation of this possibility must await the collection of better preserved material.

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