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CONTRIBUTIONS TO THE
KNOWLEDGE OF THE ALPHEID
SHRIMP OF THE PACIFIC OCEAN

Part XVIII: A New Species of the
Genus *Alpheus* from the mouth of the
Sepik River, New Guinea

by

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Figure 1

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Contributions to the Knowledge of the
Alpheid Shrimp of the Pacific Ocean
Part XVIII: A New Species of the Genus *Alpheus*
from the mouth of the Sepik River, New Guinea¹

By

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Figure 1

Manuscript received, 16th January, 1974

***Alpheus leptocheles* sp. nov.**

Holotype

31 mm male from mouth of Sepik River, New Guinea, between Cape Girgir and Kaup. Trawled between 1½ and 10 fms. Collected by R. Eginton on the m.v. *Tagula*, Aug.-Sept., 1965. (Australian Museum reg. No. P.19917.)

Paratypes

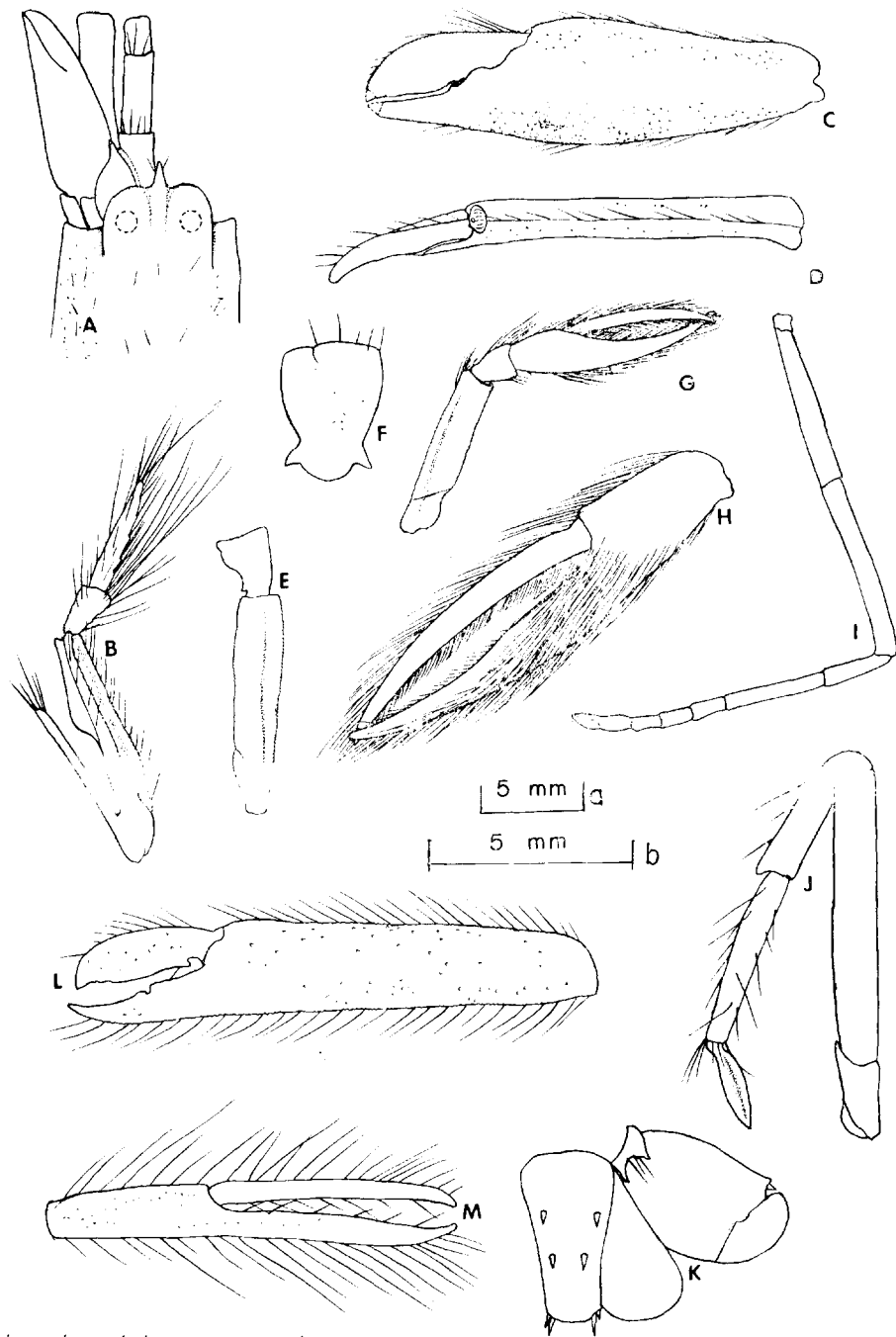
Two female specimens from the same locality as the holotype (AM P.19918).

Description

Rostrum acute, longer than broad at base, reaching to middle of visible part of first antennular article, with slight rounded carina reaching posteriorly only to base of orbits. Orbits moderately inflated, forming moderately deep rounded grooves between rostral carina and orbits. Orbitorostral margin slightly concave. Carapace densely papillose, less abundant on dorsal surface, entire carapace sparsely pubescent. Visible part of first antennular article 0.6 as long as second, a little longer than third article; second article 2.4 times as long as broad. Stylocerite reaching almost to end of first antennular article, distal tooth turned slightly outward. Scaphocerite reaching slightly past antennular peduncle, lateral margin straight, squamous portion narrow, attaining level of tip of lateral tooth. Carpocerite stout, reaching to end of antennular peduncle.

¹ Work supported in part by U.S. National Science Foundation Grant GB 25020.

² Hawaii Institute of Marine Biology contribution number 458.



Alpheus leptocheles sp. nov.—Fig. 1. Holotype: A, anterior region, dorsal view. B, third maxilliped. C, large chela, lateral view. D, large chela, superior view (pollex obscured). E, merus and carpus large cheliped, lateral view. F, carpus, large cheliped, superior face showing proximal teeth. G, small cheliped, lateral view. H, small chela, medial view, enlarged. I, second leg. J, third leg. K, telson and uropods. Paratype, 30 mm female: L, large chela, lateral view. M, small chela, lateral view. C, D, E, G, scale a; A, B, F, H, I, J, K, L, M, scale b.

Entire surface of large cheliped of male finely papillose. Chela 3.7 times as long as broad. Palm with extreme lateral compression, 7.0 times as high as thick; area of maximum longitudinal thickness lying above middle with lower half of chela blade-like; both superior and inferior margins thinned to knife edges. Palm highest immediately proximal to dactylar articulation, tapering proximally, 1.7 times as broad immediately proximal to dactylar articulation as at carpal articulation. Dactylus sharply carinate, fingers very slim, curved slightly outward. Superior margin of palm with moderately long forward-sweeping hairs, superior margin of fingers also bearing hairs, but shorter than those of palm. Carpus cup-shaped, 0.15 as long as chela. Lateral margins of proximal region bearing subacute teeth directed proximally. Merus 4.3 times as long as broad, without armature. Lateral face near superior margin bearing deep groove extending from distal end of proximal portion of ischium. Large chela of female 5.8 times as long as broad also with knife-like margins but with margins almost parallel. Surface papillose, similar to that of male; superior and inferior margins bear long, fine forward-sweeping setae. Merus and carpus similar to those of male.

Small chela of male highly compressed, 5 times as long as broad, fingers 2.2 times as long as palm. Both fingers arched and gaping in middle, uniformly tapering to tip, tips crossing when closed. Superior and inferior margins of chela bearing long forward-sweeping hairs. Opposing surfaces of fingers bearing hairs directed forward which intermesh in middle. Medial face of chela much more hirsute than lateral, with dense tuft of hair near articulation of dactylus. Carpus and merus similar to those of large cheliped. Small chela of female nearly 8 times as long as broad, fingers a little less than 1.5 times as long as palm. Palm papillose and bearing along inferior and superior margins very fine forward-sweeping setae. Opposing surfaces of fingers bearing shorter fine setae that cross. Carpus and merus similar to those of male.

Ratio of carpal articles of second legs: 10:23:8:8:8.

Ischium of third leg without spine. Merus 7 times as long as broad, unarmed. Carpus 0.4 as long as merus; superodistal margin slightly projected. Propodus 0.6 as long as merus, bearing on inferior surface a few stiff setae and long hairs but no spines. Superior margin bearing several long hairs. Dactylus spatulate, 0.5 as long as propodus, superior surface with longitudinal ridge which bears patches of very short stiff setae on both sides.

Telson 3.3 times as long as posterior margin is broad. Dorsal pairs of spines small, anterior pair placed anterior to middle.

Discussion

The compressed large chela, the shape of the orbitorostral front and the flattened dactyli of the third legs, among other characteristics plainly put this species in the *Brevirostris* group of the genus *Alpheus*. As far as we have been able to determine the distal broadening and proximal tapering of the palm of the large chela and its extreme compression are unique to the group. Further characteristics separate this species from previously known species. It can easily be separated from many in the group by the lack of transverse notch behind the dactylar articulation of the large chela, and by the fact that the rostral crest or ridge does not extend posteriorly to well behind the orbital hoods. The description

and figures of *A. halei* Kirk (1887: 194, pl. 6d) leaves ambiguities, but the heavy longitudinal ridge on the outer face of the large chela plainly separates it from this species. *A. macrosketes* Alcock & Anderson ("correct original spelling" as defined in International Rules of Zoological Nomenclature, Article 32 (a) (ii)) (1894: 153), *A. distinguendus* De Man (1909: 155, pl. 7, fig. 9-14), *A. pustulosus* Banner & Banner (1968: 143, fig. 2), *A. nonalter* Kensley (1968: 172, fig. 15) and *A. stephensoni* Banner and Smalley (1969: 45, fig. 2) have some manner of armature, either spines or teeth on merus of the large and small chelae, and only in *A. distinguendus* is the palm of the small chela of the male shorter than the fingers. In *A. stephensoni* the palm of the small chela of the male is about equal in length to the fingers, not markedly shorter than the fingers as in this species.

The differences between both chelae of the male and female could either be sexual dimorphism or be indicative of separate species. Certainly, sexually dimorphic small chelae are common in this genus, but sexually dimorphic large chelae occur only rarely, e.g., *A. idiocheles* Coutière (see Banner & Banner, 1967: 271). If we knew that these were collected from the same environmental niche, we would have no misgivings about pronouncing the differences to be sexually dimorphic. While the collection data were the same for the male as the females, the male was in a separate vial. This may indicate a separate habitat or even a separate trawl haul. If so, then we may have two species. However, because the specimens were so similar in other characteristics and similarly differ from other known species, we presently believe that we are dealing with a single sexually dimorphic species.

The specific name refers to the extremely compressed large chela.

The holotype and paratypes have been placed in the Australian Museum, Sydney.

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Mayr, E., E. G. Linsley, and R. L. Usinger, 1953. Methods and principles of systematic zoology. McGraw-Hill, New York. Pp. ix, 328, 14 tables, 45 figs.

Schöne, H., 1961. Complex behaviour. In T. H. Waterman (ed.), The physiology of Crustacea. Vol. 2: 465-520, 22 figs. Academic Press, New York.

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