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## PSEUDODIAPTOMUS JONESI, A NEW CALANOID COPEPOD FROM INDIAN WATERS\*

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INVESTIGATIONS carried out on the Calanoid Copepoda of the family Pseudodiaptomidae of the Indian Ocean reveal that so far twenty-one species and one sub-species have been described or recorded from this area (Sewell<sup>1-2</sup>; Brehm<sup>3-5</sup>; Nicholls<sup>6</sup>; Tanaka<sup>7</sup>; Ummerkutty<sup>8</sup>; Desai and Bal<sup>9</sup>; Grindley<sup>10</sup>; Wellershaus<sup>11</sup>; Grice<sup>12</sup>). These are: *Pseudodiaptomus annandalei* Sewell (= *P. dubius* Kiefer; = *P. nostradamus* Brehm); *P. aurivillii* Cleve; *P. ardjuna* Brehm; *P. binghami* Sewell; *P. binghami malayalus* Wellershaus; *P. batillipes* Brehm; *P. burckhardtii* Sewell; *P. clevei* A. Scott; *P. charteri* Grindley; *P. cornutus* Nicholls; *P. daughlishi* Sewell; *P. heterothrix* Brehm; *P. hickmani* Sewell; *P. lobipes* Gurney; *P. masoni* Sewell; *P. marinus* Sato; *P. mertoni* Fruchtl; *P. pauliani* Brehm; *P. salinus* (Giesbrecht); *P. serricaudatus* (T. Scott) (= *P. nudus* Tanaka); *P. stuhlmanni* (Poppe and Mrazek) and *P. tollingeræ* Sewell. While examining material of Pseudodiaptomidae from Indian waters a hitherto undescribed species has been encountered in the samples collected from Cochin Backwaters and Palk Bay and this paper embodies a description of the new species.

*Pseudodiaptomus jonesi* Sp. Nov.

(FIG. 1 a-l)

*Pseudodiaptomus ardjuna* (nec. Brehm, 1953) Wellershaus, 1969, pp. 259, 262; Fig. 24.

*Material*.—Collections obtained by horizontal tows along surface by 50 cm. diameter conical net as follows: (1) *Cochin Backwaters*: 17-12-1968, between 07.50-08.00 hr. (4 M, 12 F); 21-1-1969, between 08.03-08.13 hr. (6 F); 4-2-1969, between 07.40-07.50 hr. (1 M); 11-2-1969, between 08.10-08.20 hr. (6 M, 4 F); 18-3-1969, between 08.00-08.10 hr. (6 M, 6 F); 11-3-1969, between 08.00-08.10 hr. (1 M, 1 F); (2) *Palk Bay*: 22-6-1959, between 06.00-06.15 hr. (10 M, 20 F).

*Type material*.—*Holotype*, C.M.F.R.I. No. 151. Female, 1.180 mm., and *Allotype*, C.M.F.R.I. No. 152. Male, 0.968 mm., both from Cochin Backwaters collected on 18-2-1969 from surface. *Paratypes* C.M.F.R.I. No. 153, include 55 adults (31 F, 24 M) collected on 4, 11 and 18 February and 11 March 1969 from Cochin Backwaters and on 22 May 1969 from Palk Bay as listed above. Type specimens are deposited in the Research Collections of Central Marine Fisheries Research Institute, Mandapam Camp.

*Description*.—*Female*: Total length for 33 adults range 1.14-1.18 mm., with mean length 1.16 mm.; Cephalon distinct from T-I and is

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bluntly rounded anteriorly; T-IV and T-V fused, with posterior corners obtuse; rostrum filamentous, directed ventro-posterad; four-segmented urosome with caudal rami showing proportionate lengths = 25 : 18 : 24 : 13 : 20%; genital segment ventrally produced, with

L : W = 2.8 : 1; each ramus with one apical and five marginal setae; A-1 with 21 segments, reaches to middle of genital segment, with partial to complete fusion between segments 4-10 and 24-25 and with the following proportionate lengths:

	1	2	3	4	5	6	7	8	9	10	11
Seg. %	5.1	4.5	2.7	3.5	3.0	4.7	2.4	2.8	4.7	5.2	5.6
Seg.	12	13	14	15	16	17	18	19	20	21	
%	6.0	6.3	6.5	6.6	5.6	4.4	4.5	5.0	5.2	5.6	

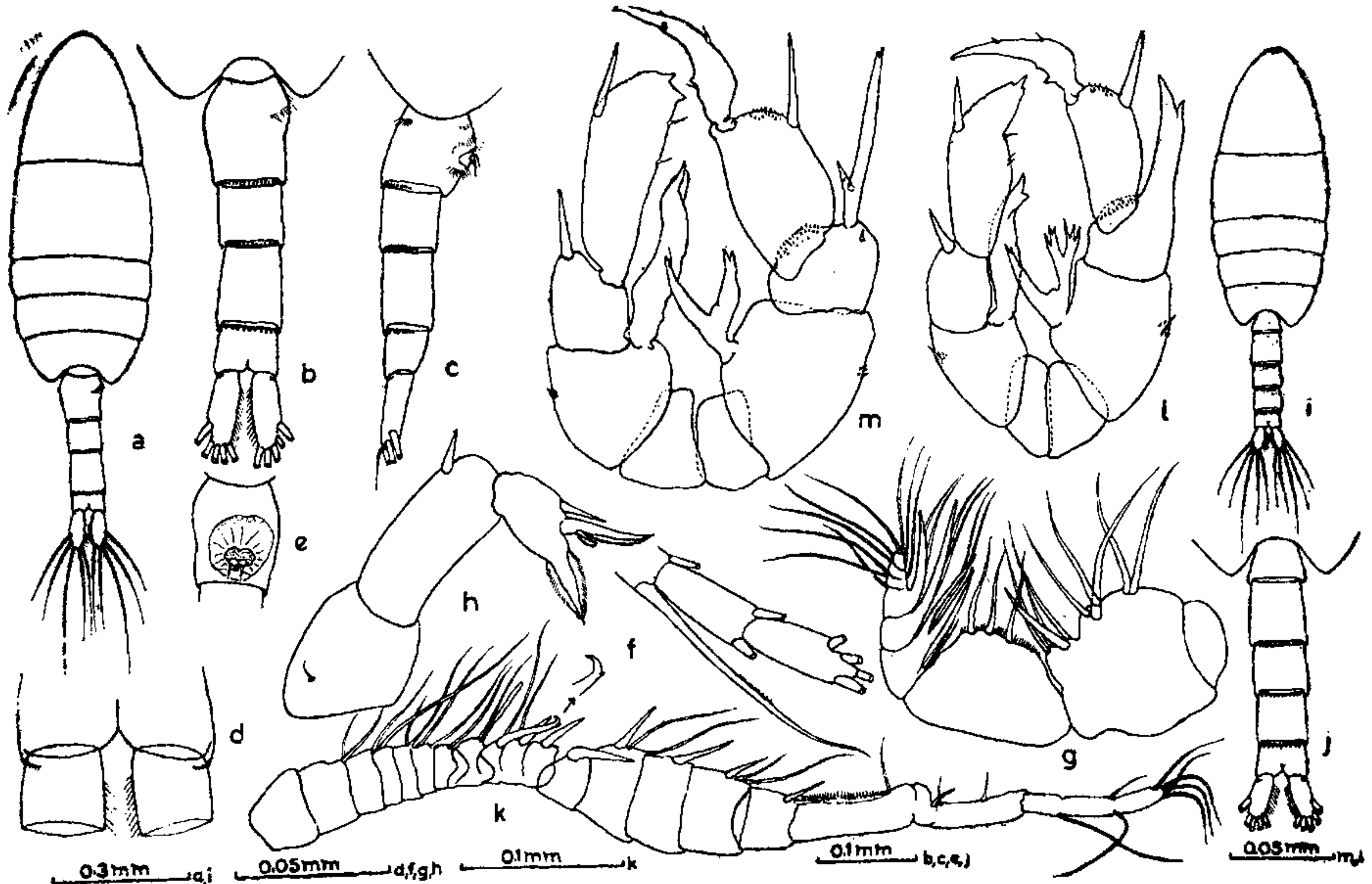


FIG. 1. *Pseudodiaptomus jonesi* sp. nov., Female: a, dorsal view; b, urosome, dorsal view; c, urosome, lateral view; d, posterior margin of U-IV, dorsal view; e, genital segment, ventral view; f, A-1 segments 19-21 with modified seta on segment 19; g, Mxp; h, P-5. Male: i, dorsal view; j, urosome, dorsal view; k, right geniculate A-1; l, P-5. *Pseudodiaptomus ardjuna* Brehm; m, Male P-5.

patches of small spinules arranged asymmetrically and with a perceptible marginal indentation at its right dorsal margin; dorsally a group of spinules also present extending to right proximal margin; ventrally two rows are present anterad and posterad to genital opercular flap; two small setae present on either side of paired genital pores; postero-dorsal margins of U-I to U-III beset with small triangular spikes, those on the latter larger; U-IV dorsally at its postero-lateral angles with finely serrated shields, overlapping a small portion of caudal rami; latter symmetrical, ratio of

A-1 segment 19 having specialised seta with 8-9 small spinules along its mid inner margin; A-2, Mnd and Mx<sub>1</sub> as in *P. ardjuna*; Mx<sub>2</sub> and Mxp with hook-like additional spines on first three endites, with that on first endite on Mxp bifurcate; P-1 to P-4 with three-segmented Ri and Re, with arrangement of setae and spines as given for *P. ardjuna* by Ummerkutty<sup>6</sup>; P-5 as in *P. ardjuna* having distal Re segment with three spines, two of which are subequal and inner distal spine flat and serrated along both margins; Re<sub>1</sub> with a distal outer spine showing slight difference



in ratio of L:W being 2.5:1 (versus 3.0:1 in *P. ardjuna*).

*Male*: Total length for 28 adults range 0.96–0.98 mm., with mean length 0.97 mm.; T-V posteriorly obtuse; five-segmented urosome with caudal rami showing proportionate lengths = 11:26:17:17:12:17%; U-I short, devoid of dorsal spikes; U-II to U-IV with rows of small triangular spikes as in female; U-V with serrated shield as in female; caudal rami symmetrical, its ratio of L:W = 2.5:1; geniculate right A-1 with 19 segments; four large spines one each on segments 10–13, that on segment 10 being longer and recurved at its tip with a small secondary spike; segments 14–16 enlarged each with a slender spine dorsally, serrated plate on segment 18 with minute villiform teeth; distal to hinge three segments present, but segmentation indistinct between terminal and penultimate segments. *Fifth legs*: Right P-5 with  $B_2$  slightly longer than wide and with a row of minute spines along its outer mid margin;  $B_2$  produced at proximal inner margin into a bifurcated process with antler-like arms of unequal length and construction; inner ramus still further branched into two processes, each distally tridentate; outer ramus is asymmetrically bifid at tip;  $Re_1$  as long as wide and dentate along its oblique distal edge and produced into an outer, large broad spine extending upto the distal margin of  $Re_2$  and tapering towards extremity; lateral spine of  $Re_1$  asymmetrically bifid distally (at its 4/5th distal length);  $Re_2$  with L:W ratio = 2:1, and provided with a long distal outer marginal spine 30% length of lateral spine of  $Re_1$ ; a few small spinnules present between former and base of  $Re_3$ ;  $Re_3$  sickle-shaped, with two blunt outgrowths along inner margin towards base and two setae placed equidistant along outer margin; left P-5 with  $B_2$  longer than broad and with a set of small lateral spines on its outer margin;  $B_2$  produced at inner distal margin into a digitiform curved process which reaches middle of  $Re_2$ ;  $Re_1$  with a stout spine at outer distal corner which exceeds 50% length of segment;  $Re_{2-3}$  fused, forming a flat leaf-like structure, distal part conical and bent slightly inwards, with maximum width at almost mid-length of combined lengths of segments; its bent outer margin bearing well-defined serrations, posterior to which is present a long spine marking position of fusion between  $Re_2$  and  $Re_3$ ;  $Re_{2-3}$  termi-

nating in subequal blunt processes and with three setae along inner margin.

*Remarks*.—In the nature of the posterior corners of T-V and the structure of male P-5 this species differs distinctly from the known species of the genus *Pseudodiaptomus*. However, it shows some affinities towards *P. ardjuna* from which it can again be separated by the following characters: (1) T-V produced into asymmetrical spines in *P. ardjuna* whereas in *P. jonesi* it is obtuse; (2) differences noted in the proportionate lengths of female A-1 segments; (3) female P-5 of these two species differ in the length: width ratio of  $Re_1$ . In male differences are found in the modification of the constituting parts of the P-5 such as the endopodal processes on both legs and the spinuous outgrowth on  $Re_1$  and the terminal  $Re_{2-3}$  of left leg.

From the collections it would appear that this species prefers water ranging between 31.82 and 34.08‰ salinity.

One male specimen collected by Wellershaus<sup>11</sup> from Cochin Backwaters on 10-3-1966 from surface (No. Cop. 39 Kiel Zool. Museum) and briefly described by him as *P. ardjuna* distinctly belongs to *P. jonesi*.

The new species is named after Dr. S. Jones as a tribute to his untiring efforts towards the development of marine sciences of this region.

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