TEMNOCEPHALA SEMPERI WEBER, 1890 FROM THE NARMADA RIVER, WITH A NOTE ON OTHER TEMNOCEPHALID MATERIAL IN THE ZOOLOGICAL SURVEY OF INDIA CALCUTTA.

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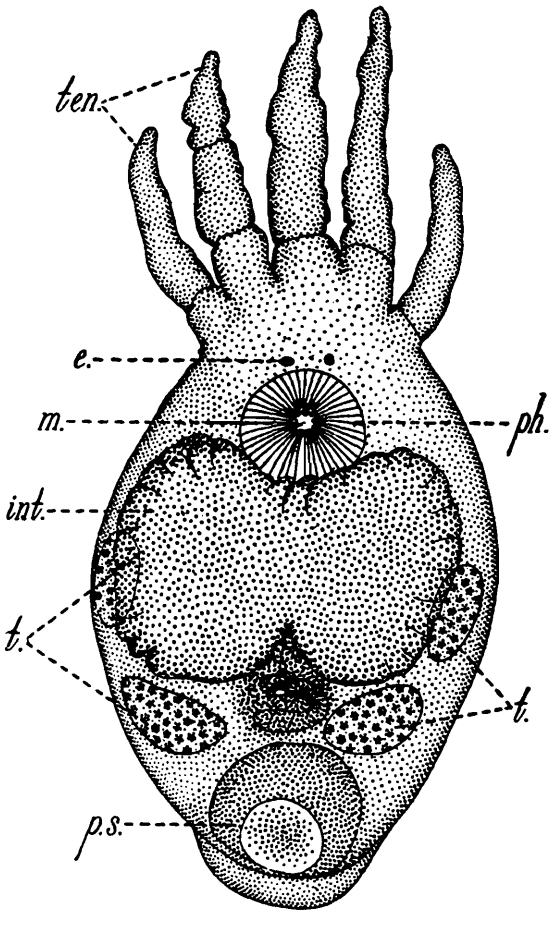
There have been up till now only two records of the occurrence of representatives of the genus *Temnocephala* Blanchard, 1849, from the Indian region. Wood Mason (1875) found a single specimen of *T. chiliensis* amongst a collection of specimens belonging to various groups, collected and sent to him for study by Maj. Godwin-Austen from Daflas (N. E. frontier of India). Gravely (1912-22) recorded *T. semperi* Weber, 1890 from the Dawna Hills of Tennasserim, Burma, where it was found attached to the fresh-water crabs of the species *Potamon manii* and probably also on *P. andersonianum.* He further remarked that " in the absence of any record of another species of *Temnocephala* from Asia, it is probable that the specimen found by Wood Mason in a bottle of fish from the Dafla Hills (1875, p. 337) was also *T. semperi* and has become associated with the fish accidentally ". As the specimen referred to above is now not available in the collections of the Zoological Survey of India, it has not been possible to re-examine it and give its exact specific identity.

The present note is based on a small collection of ten specimens preserved in the Zoological Survey of India. These were collected by Shri D. D. Mukherjee, from the river Narmada (Madhya Pradesh), parasitic on tortoises. Exact locality is lacking, but one of the authors thinks that it was most probably Hoshangabad. On examination, it was found that these specimens also belong to *T. semperi* Weber. The colour of these specimens is not discernible on account of long preservation in spirit. However, it is observed that the nature of sucker in these specimens is oval and not circular, as will be evident from the table of measurements of suckers. In the preserved state the measurements of these specimens are as below.

TABLE OF MEASUREMENTS (*In millimeters*).

	1	2	3	4	5	6	7	8	9	10
Length of the body :	0.33	0.325	0.36	0.27	0.31	0.28	0.44	0.30	0.35	0.26
Diameter of the Sucker (Lengthwise.) :	0.073	0·057	0.072	0.043	0.054	0.061	0.087	0.061	0.087	0.052
(Breadthwise) :	0.082	0.073	0.080	0.056	0.057	0.072	0.112	0.070	0.089	0.070

T. semperi Weber seems to be generally found on the freshwater crabs of the genus *Potamon*. It is reported so far to occur on *P. manii* Rathb.; *P. andersonianum*; *P. adiatretum* and *P. superciliosum*. However, on examination of the collections preserved in the Zoological Survey, it is found to occur at least in one instance on another genus of the freshwater crabs, *viz. Paratelphusa*. It was collected by Dr. H. S. Rao from *Paratelphusa* (*Barytelphusa*) *lugubris* Wood Mason, from Jaintia Hills, in Assam.

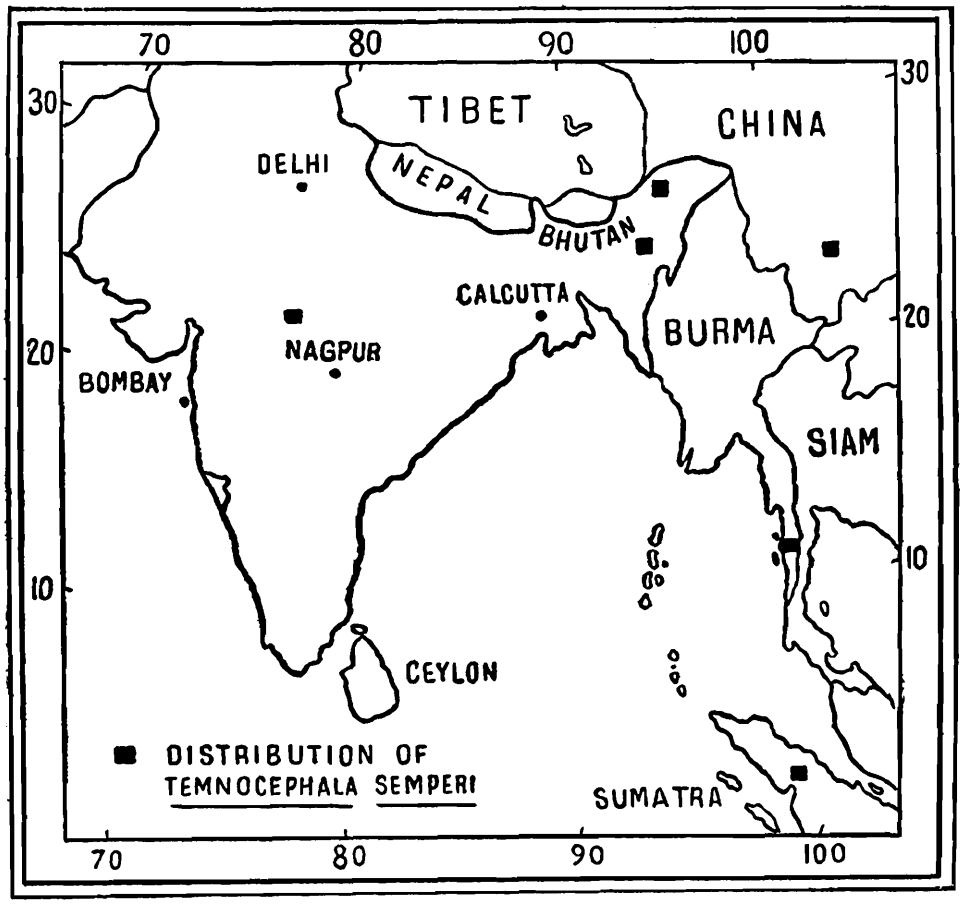


Text Fig. 1.—*Temnocephala semperi* Weber (Dorsal view): *e.*, Eyes; *int.*, Intestine; *m.*, Mouth; *ph.*, Pharynx; *ps.*, Posterior sucker; *t.*, Testis; *ten.*, Tentacles.

Most of these Temnocephalids are found attached to the Decapod Crustacea. Only very few seem to have been attracted by other hosts. The West Australian species. *T. chaeropsis* inhabits the gill chambers of the Cray fishes. One South American species is reported from a tortoise, while another from the pulmonary chamber of the gastropod Mollusc, *Ampullaria* (Annandale, 1912). The so-called Malayo-Burman species, T. *semperi* lives generally on the ventral surface of the freshwater crabs. But these ten specimens reported upon here seem to be an exception to the general rule, in the sense that they were found attached to a new host, *viz.*, a tortoise. Statement of Annandale (1912, p. 244) that "Each species affects a single host or a group of closely allied hosts" does not seem to hold good in this particular instance.

The distribution of *T. semperi* also seems to be very interesting as will be observed from the accompanying map, in as much as, it throws a new evidence on the Satpura theory propounded by Hora (1937) and later supported by many other research workers. It has a very wide range

in the Indo-Pacific region. This species was first found by Semper (1872) on crabs in Luzon and Mindanao, Philippine Islands (from plains to an altitude of 5,000 ft.). Max Weber (1890) described it first as a distinct species on *Telphusa* sp. from Sumatra, Java and various parts of Celebes. Lee (1936) reported the occurrence of the same from South China. Since then, it has been found to occur on the freshwater crabs from Dawna Hills (Gravely 1912), Abor Country and Dafla Hills (Gravely) and the present record of collection from the Narmada river, Madhya Pradesh. Thus it is quite interesting to find that the above extends the limits of its distribution further westward along the Vindhyan—Satpura range, far away from the Eastern Himalayan region from which the previous records were published.



Besides the ten specimens of *T. semperi* referred to above, the collection of the Zoological Survey of India consists of the following :—

Reg. No.	Locality, Location, Host, etc.	Collector or Donor.	No. and Nature of Specimens.
1. *Temnocephala semperi* Weber			
ZEV 5367/7	Sumatra	M. Weber	7 specimens.
ZEV 5367/7	Lake of Maniyani, Sumatra	Ditto	Slide.
ZEV 5373/7	Sukli, E. side of Dawna Hills ca. 2,100 ft.	F. H. Gravely	Several specimens.

Reg. No.	Locality, Location, Host, etc.	Collector or Donor.	No. and Nature of Specimens.
ZEV 5375/7 .	Sukli, E. side of Dawna Hill sca. 2,100 ft.	F. H. Gravely	Three specimens.
ZEV 5378/7	Ditto . .	Ditto . .	Slide (Section).
ZEV 5378/7	Ditto . .	Ditto .	Ditto.
Ditto .	Ditto . .	Ditto . .	Ditto.
Ditto . .	Ditto . .	Ditto . .	Ditto.
Ditto	Ditto . . .	Ditto . .	Ditto.
ZEV 5377/7	Misty Hollow, W. side of Dawna Hills Ca. 2,200 ft.	Ditto . .	Slide.
ZEV 5376/7 .	Third camp, W. base of Dawna Hills, Ca. 400 ft.	Ditto . .	Ditto.
ZEV 5374/7 .	Thingannyianung to Sukli, Dawna Hills, 900-2,100 ft.	Ditto . .	Ditto.
ZEV 6213/7 .	Eggs of *T. semperi* on *P. manii* (Hills between Burma & Siam)	S. W. Kemp .	Several.
ZEV 5372/7	Lalek stream between Renging and Rotung (Abor Expdn.)	Ditto .	Slide.
ZEV 5370/7	Yembung stream	Ditto . .	8 specimens.
ZEV 5380/7	Ditto (Abor Expdn.)	Ditto . .	Slide.
ZEV 5368/7	Yembung Alt. 1,100 ft. (Abor Expdn.).	Ditto . .	8 specimens.
ZEV 5371/7	Yembung 1,100 ft. .	Ditto . .	Slide.
ZEV 5369/7 .	Yembung 1,100 ft. (Abor Expdn.)	Ditto .	Two Slides.
ZEV 5368/7	Ditto . .	Ditto .	Ditto.
ZEV 5368/7 .	Below Damda Banks of the Siyom river ?	..	Slide.
ZEV 6218/7 .	Eggs of *T. semperi* on *P. superciliosum* from Abor Country.	..	Several specimens.
P. 772/1 .	Myantang valley, Nantiang, Jantia Hills, Assam.	Dr. H. S. Rao .	Several specimens.
2. *Temnocephala comes* ——, ——.			
ZEV 5135/7 .	From *Astacopsis serratus*, New South wales.	..	Slide.
3. *Temnocephala fasciata* ——, ——.			
ZEV 5234/7	From *Astacopsis serratus*, New South wales.	..	Ditto.
4. *Temnocephala* (*Dactylocephala*) *madagascariensis* Vay.—.			
ZEV 6214/7		A. Vayssiere	3 specimens.
5. *Temnocephala mexicana* Vay.—			
ZEV 6215/7		A. Vayssiere	Several specimens.

REFERENCES.

Annandale, N. (1912).—Fauna symbiotica Indica, IV, Caridinicola, a new type of *Temnocephaloidea*. *Rec. Indian Mus.* **7** : 243-44.

Gravely, F. H. (1912-22).—Temnocephalidae. *Rec. Indian Mus.* **8** : 229-232.

Lee, L.Y. (1936).—*Temnocephala semperi* Weber on crab *Potamon* sp. South China. *Contr. Inst. Zool. Acad. Peiping* **3** : 127-129.

Semper, C. (1872).—Zoologische Aphorismen. II Ueber die Gattung *Temnocephala* Blanchard. *Z. wiss. Zool.* **22** : 307-310.

Weber, M. (1890).—Uber *Temnocephala* Blanchard. *Zoologische Ergebnisse eines Reise in Nederlandsch Ost. Indien*, 1. Leiden : 1-29.

Wood Mason (1875).—Note on the geographical distribution of the *Temnocephala chiliensis* of Blanchard. *Ann. Mag. nat. Hist.* (4) **15** : 336-37.