

THE HELMINTH FAUNA OF ANDAMAN AND
NICOBAR. NEMATODA

By

T. D. SOOTA

and

Y. CHATURVEDI

Zoological Survey of India, Calcutta

(With 3 Text-figures and 2 Tables)

I—INTRODUCTION

Very little is known about the helminth fauna of the Andaman and Nicobar Islands. While trematodes and nematodes have been casually reported by Sewell (1922) and Bhalerao (1935), cestodes and acanthocephalans have remained practically untouched. The helminth fauna of these islands is of special interest due to the fact that the fauna of this area seems to occupy an overlapping area of two different zones viz., Indian and Malayan.

During 1969 (February-April) the Zoological Survey of India conducted a general faunistic survey of these islands. The nematode material, comprising eight species obtained in the course of this survey, forms the subject of this paper. Some interesting variations and new host and locality records have been brought to light.

The paper also includes a summary of the results of the helminthological studies carried out since Sewell (1922) and Bhalerao (1935).

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II—DESCRIPTION

***Meteterakis andamanensis* Soota and Chaturvedi, 1970.**

(Text-fig. 1)

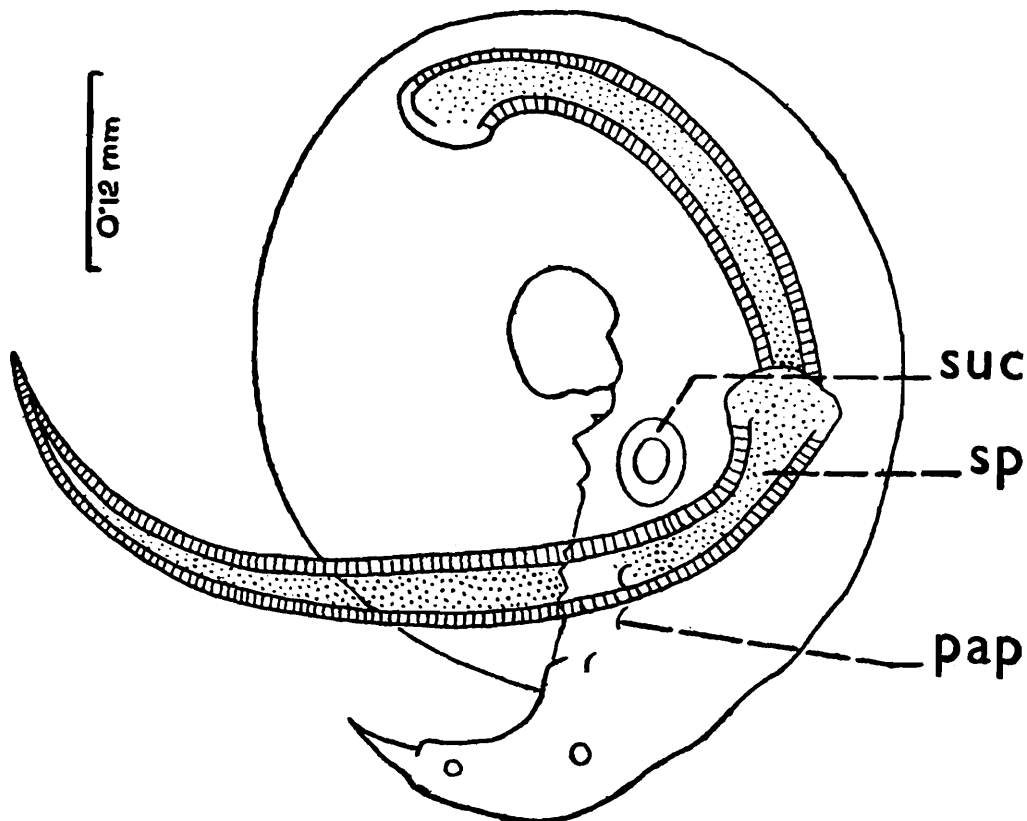
1970. *Meteterakis andamanensis* Soota and Chaturvedi, *Proc. Indian Sci. Congr.*, 450.

Material examined—Holotype—♂, Z.S.I. Reg. No. w 6902/1, host—*Bufo* sp., location—rectum, locality—Maya Bundar (Middle Andaman), collector—T. D. Soota, 27. iii. 1969. Paratypes—Several ♂♂ and ♀♀, Z.S.I. Reg. No. w 6903/1. Other details as for holotype.

All measurements are in millimeters

Description.—Male : Body 3.85-5.0 long, 0.22-0.3 wide ; oesophagus 0.66-0.88 long ; bulb 0.11-0.14 x 0.14-0.16 ; tail 0.16-0.19 long ; sucker 0.055-0.066 long and 0.066-0.077 away from cloaca ; spicules two, equal, non-alate and well-chitinised, 0.4-0.5 long ; papillae, presuctorial one pair, suctorial three pairs, postsuctorial or adanal three pairs, and caudal three pairs and distributed over the tail, sub-ventral papillae not clearly discernible due to the tail region being very closely spiralled.

Female : Body 4.12-5.5 long, 0.22-0.3 wide ; oesophagus 0.55-0.66 long ; bulb 0.11-0.12 x 0.15-0.16 ; vulva 1.6-1.8 away from anterior end ; tail 0.28-0.3 long ; eggs 0.044 x 0.044 in diameter.



TEXT-FIG. 1. *Meteterakis andamanensis* soota & chaturvedi Posterior end of Male.

Remarks.—The present species comes close to *M. govindi* Karve, 1930, and *M. japonica* (Wilkie, 1930) Inglis, 1957, but differs from the first species in various body measurements, in having bigger sucker, lesser number of papillae and their arrangement and in such bigger and chitinised spicules.

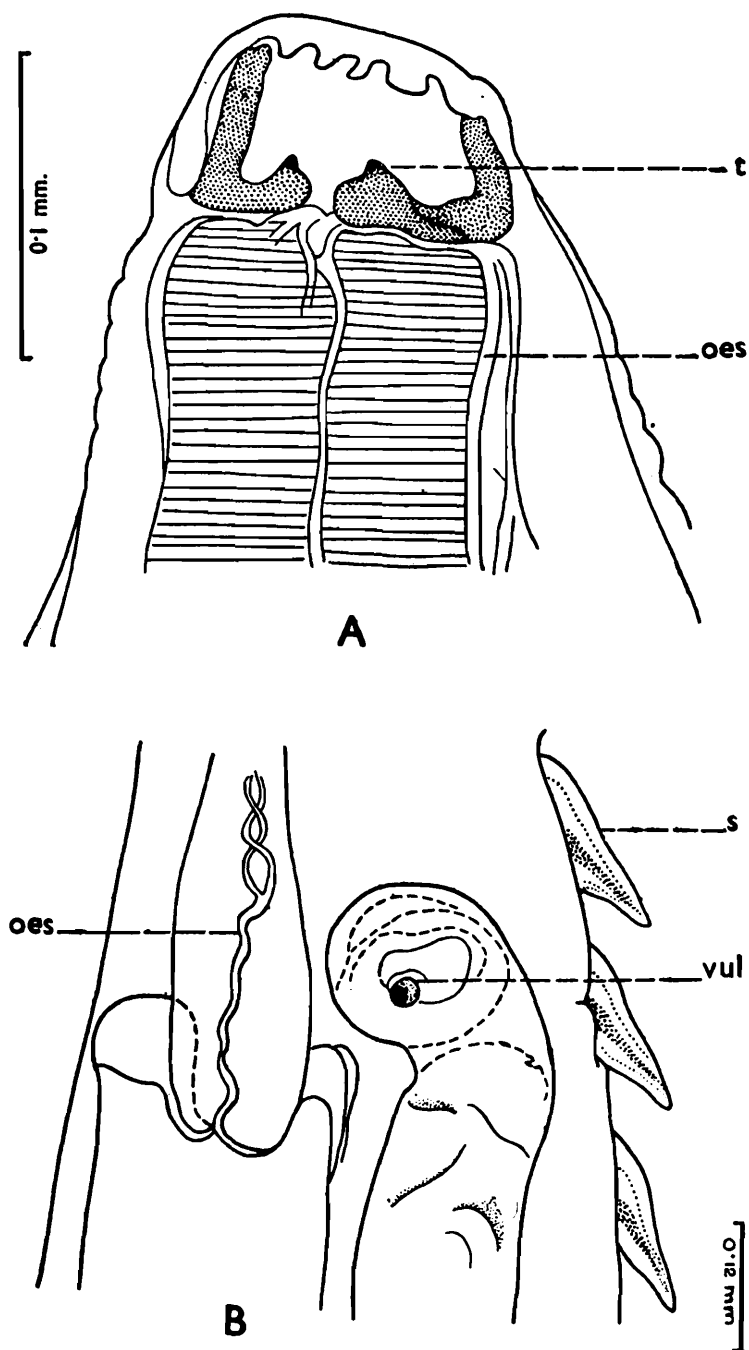
It differs from the second species in various body measurements, in possessing smaller spicules, and in the number and arrangement of papillae.

***Rictularia nicobarensis* Soota and Chaturvedi, 1970.**

(Text-figs. 2, a & b ; and 3, a-c)

1970. *Rictularia nicobarensis* Soota and Chaturvedi, *Proc. Indian Sci. Congr.*, 450

Material examined.—Holotype—♀, Z. S. I. Reg. No. w 6904/1, host—*Rattus rattus*, location—intestine, locality—Car Nicobar, collector—T. D. Soota, 12.iii.1969. Paratype—♀, Z. S. I. Reg. No. w 6905/1. Other details as in holotype.

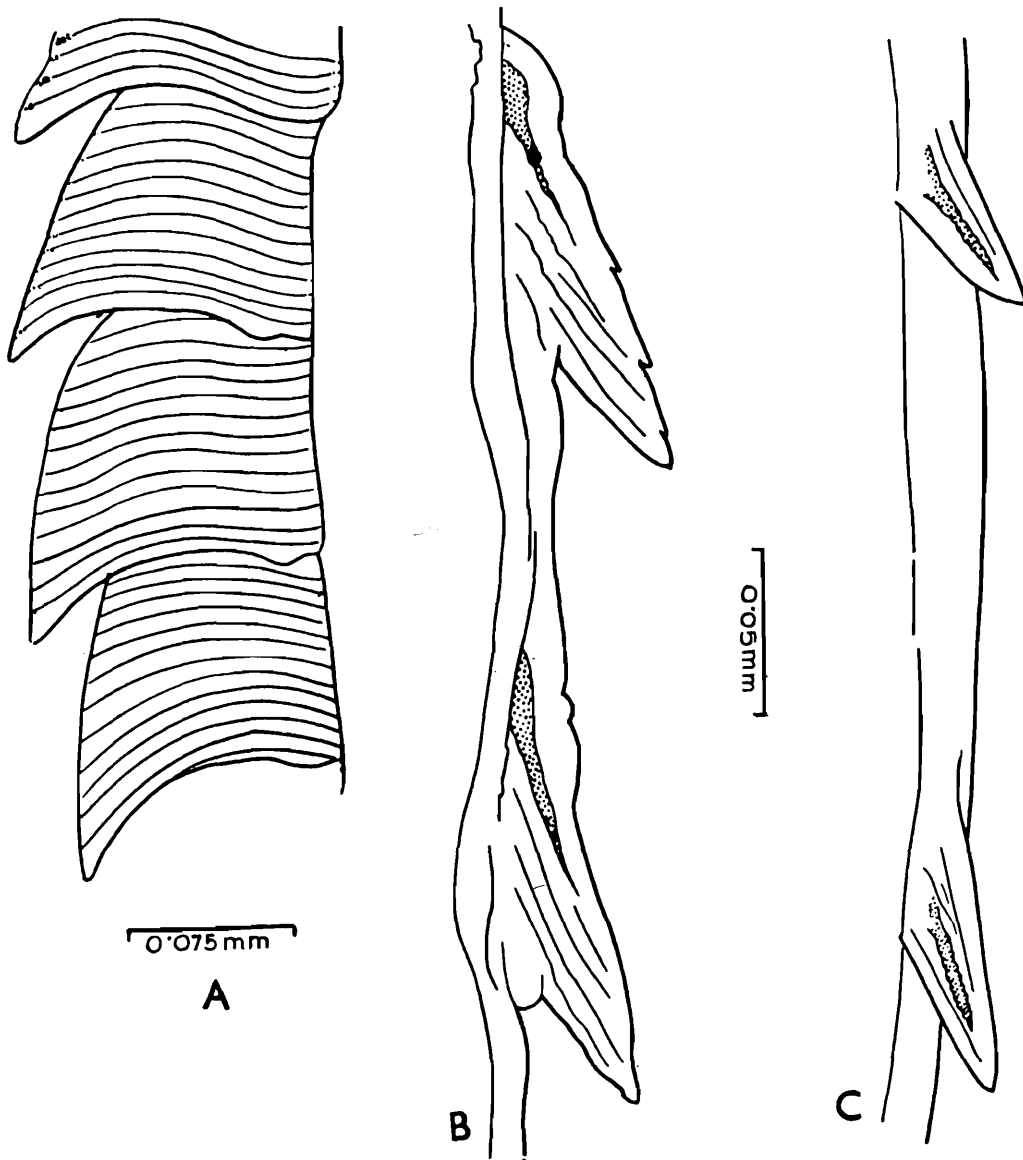


TEXT-FIG. 2. *Rictularia nicobarensis* Soota & Chaturvedi

(a) Anterior region (b) Body region showing vulva.

Description.—Female : Body 27.5-29.2 long, 0.82-0.88 wide ; buccal capsule 0.066-0.077 long and 0.099 wide ; wall of capsule, dorsal 0.044 and ventral 0.066 long ; oesophagus 3.85-4.0 long ; vulva 3.58-3.85 from anterior end and a little anterior to the junction

of the oesophagus and intestine ; two subventral rows from buccal capsule to cloacal region, each consisting of 90-92 combs and spines with 45-46 on either side of vulva, combs gradually narrowing behind the vulva and becoming more lengthened and spine-like, and spines more shortened from posterior fourth of body ; combs, prevulvar 0.16 x 0.11, spines, postvulvar 0.22 x 0.11, and posteriormost 0.033 x 0.022 in size ; tail 0.31-0.33 long ; eggs 0.055 x 0.044 in diameter.



TEXT-FIG. 3, *Rictularia nicobarensis* Soota & Chaturvedi (a) Combs of anterior region (b) Spines of middle region (c) Spines of posterior region,

Remarks.—Characters of 30 species of the above genus were tabulated by Dollfus and Desportes (1944-45). Subsequently Yamaguti (1961) listed 45 species under the genus. Out of these species only four viz., *R. cahirensis* Jägerskiöld, 1904, *R. elvirae* Porona 1889, *R. mjöbergi* Baylis, 1928, and *R. ratti* Khera, 1956, occur within Indian limits, and out of these in turn only the last one has been

recorded from a rat. But our species differs from it in body size, and in the number of combs and spines (57 in *ratti* vs. 92 in the new species). It also differs from the other three species in body size, in the number of combs and spines, and in the position of vulva.

Porrocaecum angusticolle (Molin, 1860), Baylis and Daubney, 1922.

Material examined.—Two ♂♂ and two ♀♀, Z. S. I. Reg. Nos. w 6906-7/1 host Crested—serpent eagle, location—stomach and intestine, locality—Burma Dera, Maya Bundar (Middle Andaman), collector—T. D. Soota, 27.iii.1969.

Male.—Body 47.4-52.8 long, 0.9-1.0 wide; head 0.2-0.22 long, 0.26-0.29 wide; oesophagus 3.4-3.47 long; ventriculus 0.9-0.94 long; intestinal caecum 2.2-2.3 long; tail 0.28-0.33 long; spicules equal, 0.77-0.88 long, with membrane narrowing towards tips; papillae, preanal 12-13, postanal 5-6 pairs clearly discernible.

Female.—Body 55-57 long, 1.2-1.5 wide; head 0.22-0.27 long and 0.3-0.33 wide; oesophagus 4.6-4.8 long; ventriculus 1.18-1.2 long; intestinal caecum 3.4-3.5 long; vulva 21-22 away from anterior end.

Remarks.—The genus forms the first locality record and the species first host record from these islands.

Contracecum haliaeti Baylis and Daubney, 1923.

Material examined.—a ♂ and a ♀, Z. S. I. Reg. No. w 6908/1, host—Crested serpent eagle, location—intestine, locality—Wrightmyo (South Andaman), collector—T. D. Soota, 3.iv.1969.

Male.—Body 28.5 long, 1.27 wide; head 0.11 long and 0.21 wide; dorsal lip 0.11 wide; interlabia 0.077 long; oesophagus 4.4 long; ventriculus 0.28 and appendix 0.8 long; intestinal caecum 3.3 long; spicules equal, 3.85 long; tail 0.39 long; papillae, preanal 7-8, postanal 5 pairs clearly discernible.

Female.—Body 26.4 long, 1.16 wide; head 0.11 long and 0.21 wide; dorsal lip 0.13 wide; interlabia 0.09 long; oesophagus 3.63 long; ventriculus 0.33 and appendix 0.6 long; intestinal caecum 2.53 long; vulva 12.1 away from anterior end; tail 0.33 long; eggs 0.044 × 0.055 in diameter.

Remarks.—The genus forms the first locality record and the species first host record from these islands.

Ascaridia ? galli (Schränk, 1788) Freeborne, 1923.

Material examined.—a ♂ and two ♀♀, Z. S. I. Reg. No. w 6909/1, host—Grey-headed parakeet, location—intestine, locality—Port Blair, collector—T. D. Soota, 1.iv.1969; two ♀♀, Z. S. I. Reg. No. w 6910/1, host and location—same as above, locality—Kalighat (North Andaman), 28.iii. 1969 three ♂♂ and five ♀♀, Z. S. I. Reg. No. w 6911/1, host Orange-cheeked parakeet 28.iii.1969. Other particulars as under two above.

Male.—Body 37.0-38.5 long, 1.2-1.35 wide; head 0.19-0.22 long and 0.24-0.34 wide; oesophagus 2.86-3.2 long; sucker 0.28-0.33

long and 0.28-0.33 away from cloaca ; spicules equal, 2.2-2.5 long ; tail 0.74-0.85 long ; papillae, preanal, three pairs and situated between sucker and cloaca, postanal, seven pairs.

Female.—Body 27.3-40.5 long, 1.1-1.4 wide ; head 0.16-0.18 long and 0.31-0.39 wide ; oesophagus 2.2-3.0 long ; vulva 14.6-22.0 away from anterior end ; tail 0.99-1.1 long.

Remarks.—The present specimens are doubtfully assigned to *A. galli* on the basis of caudal papillae and body measurements.

Diplotriaena sp.

Material examined.—Three ♀♀ (damaged), Z. S. I. Reg. No. w 6912/1, host—White-cheeked bulbul, location-body cavity, locality—South point, Port Blair, collector—T. D. Soota.

Female.—Body 35.0 long, 0.66 wide ; tridents 0.18 long, vulva 0.66 away from anterior end ; eggs 0.022×0.033 in diameter.

Remarks.—The genus forms the first locality record. Specific identification was not possible as the specimens represented were all females.

Hastospiculum macrophallos (Parona, 1889) Baylis, 1930.

Material examined.—a ♂ and two ♀♀ (damaged), Z. S. I. Reg. No. w 6913/1, host—*Varanus* sp., location-body wall, locality—Chuk-chukia, Car Nicobar, collector—T. D. Soota, 4.iii.1969.

Male.—Body 90.0 long, 0.72 wide ; oesophagus divided into two portions, anterior muscular 0.22, posterior glandular 15.6 long ; spicules alate, unequal, left 4.4 and right 0.55 long ; caudal alae well-developed and continuous round the posterior extremity ; papillae, preanal five pairs, of which anterior two lateral and posterior three subventral in position ; postanal three pairs, of which last two small.

Remarks.—Both the genus and the species form new locality records.

Tanqua tiara (Linstow, 1879) Blanchard, 1904.

Material examined.—a ♀, Z. S. I. Reg. No. w 6914/1, host—*Varanus* sp. location—stomach, locality—Car Nicobar, collector—T. D. Soota, 14.iii.1969.

Female.—Body 22.0 long, 0.66 wide ; head bulb 0.38 wide and with four swellings ; oesophagus 4.5 long ; nerve ring 0.6 away from anterior end ; vulva 9.13 away from posterior end ; tail 0.33 long.

Remarks.—All the measurements fall within the range given by Baylis (1939), excepting the situation of vulva which appears to be a little behind the middle instead of posterior quarter.

III—SUMMARY

The paper deals with eight species of nematodes from the Andaman and Nicobar Islands, out of which two viz., *Meteterakis andamanensis* Soota and Chaturvedi and *Rictularia nicobarensis* Soota

and Chaturvedi are described in detail and the remaining six show interesting hitherto unrecorded variations and form new locality records. It also includes some statistics bearing on the incidence and intensity of infection and host-parasite relationship.

IV—REFERENCES

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TABLE I.—A List of Helminths of Andaman and Nicobar Islands

Sl. No.	Species	Host	Location	Locality
Trematoda				
1.	<i>Pfenderius popillatus</i> (Cobbold, 1882).	<i>Elephas maximus indicus</i>	Large intestine	Andamans
2.	<i>P. heterocoeca</i> (Fukui, 1929).	„ „ „	Intestine	„
3.	<i>Cercariae indicae</i> Sewell, 1922.	—	—	„
4.	<i>Acanthoparyphium cambellensis</i> Soota et al. 1969.	<i>Plurialis dominica</i> (Golden plover)	Intestine	Cambell Bay, Great Nicobar ; and Maya Bundar, Middle Andaman.
5.	<i>A. lobatum</i> Soota et al, 1970.	(Plover)	„	Maya Bundar, Middle Andaman.
6.	<i>Brachylecithum andamanensis</i> Soota et al. 1970.	<i>Halcyon chloris</i> (White collared King-fisher)	„	„
7.	<i>Diacetabulum nicobarensis</i> Soota et al. 1970.	<i>Tringa</i> sp. (Sand piper)	„	Galathea Bay, Great Nicobar.
8.	<i>Maculifer spiralis</i> Soota et al. 1969.	(Marine fish)	„	Cambell Bay, Great Nicobar.
9.	<i>Neodiplostomum elongatum</i> Soota et al. 1969.	<i>Spilornis Cheela</i> (Crested Serpent eagle)	Rectum	Casurina Bay and Galathea Bay, Great Nicobar.
10.	<i>Eumegacetes</i> sp.	<i>Plurialis dominica</i> (Golden plover)	Intestine	Cambell Bay, Great Nicobar.

Table 1 (Contd.)

Sl. No.	Species	Host	Location	Locality
Nematoda				
11.	<i>Equinurbia sipunculiformis</i> (Baird, 1859)	<i>Elephas maximus indicus</i>	Large intestine	Andamans
12.	<i>Murshidia falcifera</i> (Cobbold, 1882)	„ „ „	Intestine	„
13.	<i>Oswaldocruzia filiformis</i> (Goeze, 1782) Trav. 1917.	<i>Bufo melanostictus</i>	Rectum	Nancowry, Nicobars.
14.	<i>Ascaridia ? galli</i> (Schrank, 1788) Freeborn 1923.	(Orange cheeked Parakeet) Grey headed Parakeet	Intestine	Port Blair, South Andaman ; and Kalighat, North Andaman
15.	<i>A. andamanensis</i> Soota and Chaturvedi, 1970.	<i>Haliaetus leucogaster</i> (White Bellied Sea Eagle)	„	South Andaman.
16.	<i>A. nicobarensis</i> Soota et al. 1969.	(Nicobar Parakeet)	„	Great Nicobar
17.	<i>Syngamus indicus</i> (Monning, 1932).	<i>Elephas maximums indicus</i>	Larynx	Andaman.
18.	<i>Ophidascaris filaria</i> (Duj., 1845) Baylis, -1921.	<i>Python</i> sp.	Intestine	Great Nicobar
19.	<i>Porrocaecum angusticolle</i> (Molin, 1860) Baylis and Daubney, 1922.	<i>Spilornis cheela</i> (Crested Serpent Eagle).	„	Maya Bundar, Middle Andaman.
20.	<i>Contraecum haliaeti</i> Baylis and Daubney, 1923.	„ „ „	„	Wrightmyo, South Andaman.
21.	<i>Meteterakis andamanensis</i> Soota and Chaturvedi, 1970.	<i>Bufo</i> sp.	Rectum	Maya Bundar, Middle Andaman

Table 1 (Contd.)

Sl. No.	Species	Host	Location	Locality
22.	<i>Rictularia nicobarensis</i> Soota and Chaturvedi, 1970.	<i>Rattus rattus</i>	Intestine	Car Nicobar
23.	<i>Hastospiculum macrophallos</i> (Parona 1889) Baylis, 1930.	<i>Varanus</i> sp.	Body Cavity	Car Nicobar
24.	<i>Tanqua tiara</i> (Linstow, 1879) Blanchard, 1904.	„ „	Stomach	Great Nicobar and Car Nicobar.
25.	<i>Abbreviata indica</i> Soota et al, 1969.	<i>Bufo</i> sp.	Rectum	Great Nicobar
26.	<i>Dracunculus medinensis</i> (Linnaeus, 1758) Gallandat, 1773.	Man	Connective tissue	Andaman.
27.	<i>Diplotriaena</i> sp.	<i>Pycnotus</i> sp. (White cheeked Bulbul)	Body cavity	Port Blair, South Andaman, Nicobar
28.	<i>Ornithostrongylus nicobaricus</i> Maplestone, 1940. Acanthocephala.	<i>Caloenas nicobarica</i>	—	
29.	<i>Mediorhynchus cambellensis</i> Soota et al., 1969.	<i>Oriolus</i> sp.	Intestine	Cambell Bay, Great Nicobar
30.	<i>Plagiorhynchus charadrii</i> (Yamaguti, 1939)	<i>Plurialis dominica</i> (Golden Plover)	„	„ „
31.	<i>Centrorhynchus andamanensis</i> Soota and Kansal, 1970.	<i>Spilornis cheela</i> (Crested-serpent eagle)	„	Wrightmyo, South Andaman and Maya Bundar, Middle Andaman.
32.	<i>Prosthorhynchus nicobarensis</i> Soota and Kansal, 1970.	<i>Zoothera</i> sp. (Ground thrush)	„	Nicobar Car.
33.	<i>Pseudoporrorchis indicus</i> , Das, 1957.	<i>Centropus andamanensis</i> (Crow Pheasant)	„	Port Blair, South Andaman.
34.	<i>Centrorhynchus</i> sp.	(King fisher)	„	Maya Bundar ,Middle Andaman.

TABLE 2—Host-Parasite list Showing the incidence and intensity of infection observed from the specimens collected by the Andaman and Nicobar Survey, 1969 (February—April).

Sl. No.	Host Examined.	Parasites.	Incidence of infection.	Intensity of infection
1.	<i>Funambulus pennanti</i> Northern palm squirrel	nil	nil	nil
2.	<i>Rattus rattus</i>	<i>Rictularia nicobarensis</i> (N)	1/5	low
3.	<i>Mus</i> sp.	nil	nil	nil
4.	Heron	nil	nil	nil
5.	<i>Haliaeetus leucogastor</i> white-bellied sea eagle	(N)	1/2	low
6.	<i>Spilornis cheela</i> Crested serpent eagle	<i>Porrocaecum angusticolle</i> (N)	1/2	Medium
6a.	„	<i>Contracecum haliaeti</i> (N)	1/2	Low
6b.	„	(C)	2/2	High
6c.	„	<i>Centrorhynchus andamanensis</i> (A)	2/2	High
7.	<i>Amaurornis phoenicurus</i> White breasted water hen	nil	nil	nil
8.	Plover			
8a.	„	(C)	2/6	High
8b.	„	<i>Acanthoparyphium cambellensis</i> (T) <i>A. lobaumt</i> (T)	1/6	Medium
9.	Water fowl.	nil	1/6	Medium
10.	<i>Capella</i> sp. Snipe	(C)	nil	nil
			1/1	High
11.	<i>Tringa</i> sp. Sand piper	nil	nil	nil

Table 2 (Contd.)

1	2	3	4	5
12.	<i>Calidris</i> sp. Stint	(T)	1/1	Low
13.	<i>Psittacula eupatria</i> Grey headed Parakeet.	<i>Ascaridia galli</i> (N)	3/9	Medium
14.	<i>Psittacula longicauda</i> Alexandrine Parakeet	nil	nil	nil
15.	Orange Cheeked Parakeet. Grey-headed Parakeet.	<i>Ascaridia galli</i> (N)	1/3	High
16.	<i>Treron</i> sp. Imperial Pigeon (grey)	(C)	1/2	High
17.	<i>Ducula</i> sp. Green Pigeon	(C)	1/3	High
18.	<i>Treron</i> sp. Imperial Pigeon (Bronz winged)	(C)	1/2	High
19.	Ringed Dove.	(C)	1/1	High
20.	<i>Streptopelia tranquebarica</i> Turtle Dove.	(C)	1/3	Medium
21.	<i>Centropus andamanensis</i> Crowpheasant	<i>Pseudoporrorchis indicus</i> (A)	1/3	High
21a.	„	(C)	1/3	Medium
22.	<i>Eurystomus orientalis</i> Broad billed Roller.	(N)	1/2	Low
23.	<i>Merops</i> sp. Chestnut headed Bee-eater	nil	nil	nil
24.	<i>Halcyon chloris</i> White collard Kingfisher	<i>Brachylecithum andamanensis</i> (T)	1/4	Medium

Table 2 (Contd.)

1	2	3	4	5
25.	<i>Halcyon smyrnensis</i> White breasted king fisher	<i>Centrorhynchus</i> sp. (A)	1/5	Medium
25a.	„	(C)	1/5	Medium
26.	<i>Dryocopus javensis hodgei</i> Ggreat Black wood pecker	nil	nil	nil
27.	Marhatta wood pecker	nil	nil	nil
28.	<i>Artomus</i> sp. Swallow shrike	(C)	1/2	High
29.	<i>Oriolus</i> sp. Oriole	(C)	2/8	High
30.	<i>Dicrurus anda manensis</i> Drongo	nil	nil	nil
31.	<i>Dicrurus paradiseus</i> Racket tailed drongo	nil	nil	nil
32.	Grey shrike. <i>Corocina</i> sp.	nil	nil	nil
33.	Cuckoo shrike	nil	nil	nil
34.	<i>Pericrocotus flammeus andamanensis</i> Scarlet minivet	nil	nil	nil
35.	<i>Hirundo rustica</i> Swallow	nil	nil	nil
36.	<i>Motacilla caspica</i> Grey wagtail	nil	nil	nil
37.	<i>Pycnotus</i> sp. White cheeked bulbul	<i>Diplotriaena</i> sp. (N)	1/1	Low

Table 2 (Contd.)

1	2	3	4	5
38.	<i>Pycnotus jocosus</i> Red whiskered bulbul	nil	nil	nil
39.	<i>Monticola solitarius pandoo</i> Blue rock thrush	nil	nil	nil
40.	<i>Capsychus saularis andamanensis</i> Magpie robin	(C) (N)	1/2 1/2	Medium low
41.	<i>Zoothera</i> sp. Ground thrush	<i>Prosthorhynchus nicobarensis</i> (A)	1/2	Medium
42.	<i>Aplonis panayensis</i> Glossy tree stare	(N)	1/9	Low
42a.	„	(C)	2/9	Medium
43.	<i>Acridotheris tristis</i> Common myna	(C)	1/1	High
44.	<i>Gracula religiosa andamanensis</i> Hill myna	nil	nil	nil
45.	<i>Sturnus erythropygius andamanensis</i> White headed myna	(C)	1/3	High
46.	<i>Corvus macrorhynchus andamanensis</i> Jungle crow	(C)	1/2	High
47.	Water snake	(C)	1/1	Very High
48.	Land snake	nil	nil	nil
49.	Marine snake	nil	nil	nil

Table 2 (Contd.)

1	2	3	4	5
50.	<i>Varanus</i> sp.	<i>Tanqua tiara</i> (N)	1/1	low
50a.	„	<i>Hastospiculum macrophallos</i> (N)	1/1	Medium
51.	<i>Calotes</i> sp.	nil	nil	nil
52.	Wall lizard	nil	nil	nil
53.	<i>Bufo</i> sp.	<i>Meteterakis andamanensis</i> (N)	1/2	Very High
54.	Marine fish	nil	nil	nil

Signs employed :

A—Acanthocephala ; C—Cestodes ; N—Nematodes ; T—Trematodes.