HOMALOPTERID FISHES FROM PENINSULAR INDIA.

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(Plate VIII.)

In 1920[1], attention was directed to the great confusion that prevailed in the taxonomy of the Indian species of the family Homalopteridae, and three distinct genera were recognised on the basis of the form of the pectoral fins and head, the nature of the lips and barbels, the general shape of the body and the number of rays in the pectoral fins. For the species found in Peninsular India, a new genus *Bhavania* was proposed but unfortunately at that time no attention was paid to the nature of its gill-openings, which in *Bhavania* are restricted above the bases of the pectorals, a feature unique among the Homalopterinae. In my[2] general revision of the Homalopteridae, *Bhavania* was treated as a synonym of *Homaloptera* van Hass., for I had then examined several species of *Homaloptera* in various collections in which the head was broad and rounded like that of *Balitora* and approached the condition found in *Bhavania*. However, in 1937[3], when examining a series of well preserved specimens collected from a stream on the road-side between Kottigehar and Balehonnur, Western Ghats, Mysore State, the gill-opening was found to be very small and restricted above the base of the pectoral fin. The earlier material referred to *Bhavania* was found to be of the same nature. This led me to revive the genus on this very important character.

Recently, Mr. S. Jones, at my request, sent me a small collection of freshwater fishes from Travancore, and in this lot, besides specimens of *Bhavania*, a number of specimens with the gill-openings extending to the ventral surface for a short distance were also found. These examples are remarkable in several respects and for their reception a new genus *Travancoria* is proposed in this paper.

At my request, the Superintendent, Government Museum, Madras, sent me the only specimen of the Homalopteridae in the collection under his charge. The small specimen was collected by Dr. F. H. Gravely at Sivasamudram (alt. 1,500-2,000 ft.), Mysore, in May 1921, and belongs to *Balitora* Gray. In fact, it is closely allied to *B. brucei* Gray, a species of the Assam Hills and the Eastern Himalayas; but the head is more pointed, the body is not so flattened and the number of unbranched rays in the pectoral fins is less. In these respects, it agrees with the Burmese variety[4] of the species, but till more material of this form becomes available for comparison I propose to describe it as a new variety of *B. brucei*.

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[1] Hora, S. L., *Rec. Ind. Mus.* XIX, pp. 195-207 (1920).
[2] Hora, S. L., *Mem. Ind. Mus.* XII, pp. 274-277 (1932).
[3] Hora, S. L., *Rec. Ind. Mus.* XXXIX, p. 11 (1937).
[4] Hora, S. L., *Mem. Ind. Mus.* XII, p. 291, pl. xi, fig. 6 (1932).

In view of considerable fresh material having been obtained of *Bhavania* from several parts of Peninsular India, a complete definition of the genus and a revision of its species is also included. In order to define the systematic position of the three South Indian genera, a key to all the known genera of the Homalopterinae is given below.

Key to the genera of the Homalopterinae.

I. Gill-opening small, situated entirely above base of pectoral. (Two anterior rays of pelvic fin simple.) — *Bhavania.*

II. Gill-opening of moderate size, extending to ventral surface for short distance.

A. Two anterior rays of pelvic fin simple.

1. Rostral groove in front of mouth absent or very poorly developed; rostral fold absent or very slightly developed (Lips simple, continuous and without papillae). .. .. .. — *Homaloptera.*

2. Deep rostral groove in front of mouth present, overhung by rostral fold.

a. Seven or more rostral barbels arranged in two series; lips simple, continuous at angles of mouth; lower lip with a separate median portion followed by two prominent papillae. — *Travancoria.*

b. Four rostral barbels in one row; lips, especially the upper strongly papillated; both lips continuous; lower lip not followed by medially situated papillae.

i. Two barbels at each angle of mouth; 7-8 anterior rays of pectoral simple; body subcylindrical with flattened ventral surface; snout pointed. .. .. .. — *Sinohomaloptera.*

ii. One barbel at each angle of mouth; 9-10 anterior rays of pectoral simple; body greatly depressed and flattened; snout rounded and trenchant. .. .. — *Balitora.*

B. Three or more anterior rays of pelvic fin simple.

1. Pelvics free from each other, not united to form a disc-like structure.

a. Tail long and slender; least height of caudal peduncle less than diameter of eye; lips fimbriated; 3 barbels at each angle of mouth. .. .. — *Lepturichthys.*

b. Tail stout and deep; least height of caudal peduncle greater than diameter of eye; lips papillated; 2 barbels at each angle of mouth. .. — *Hemimyzon.*

2. Pelvics united posteriorly to form a disc-like structure. .. .. — *Sinogastromyzon.*

Of the three genera known from Peninsular India, *Bhavania* is more widely distributed along the Western Ghats having been recorded from the Malabar Hills, Wynaad, Nilgiris, Mysore and Travancore. *Travancoria* is so far known only from the Travancore Hills; it has been found in streams within a radius of about 5 miles of Pampadampara, Peerumedu Taluq, Travancore. *Balitora* is known from the Mysore State, besides north-east Bengal, Chittagong Hill Tract, Assam and Burma.

As a group, the Homalopteridae are extensively distributed in the hills of south-eastern Asia, but in India proper they are found in the hills of Assam and Chittagong, in the Eastern Himalayas as far as the

Tista River System, and in the hills of Peninsular India. In 1932, I (*loc. cit.*, p. 288) was unable to explain how the Homalopteridae spread from the Assam Hills to the Western Ghats, but since then I[1] have adduced evidence to show that the torrential fauna of the north-east spread along the Satpura Trend to south-west. The discovery of another new genus of Homalopterid fishes from South India and the extension of the range of *Balitora* to Peninsular India lend additional support to a large-scale migration of the hill-stream fauna along the route stated above.

In describing a remarkable new genus of Schizothoracine fishes from the Periyar Lake, Travancore, Sundara Raj[2] made remarks on the zoo-geographical significance of his discovery. He has followed the views of Medlicott, Blanford and Oldham[3] and their conclusion that " The only remaining theory, to account for the existence of the same species of animals and plants on the Himalayas and the Hills of Southern India, is depression of temperature. " The glacial cold may have helped in the dispersal of the terrestrial fauna from the north to the south, but without direct water communications between the two areas it is difficult to believe that mere depression of temperature could influence the dispersal of aquatic fauna to such distant places as the Himalayas and the hills of Travancore. Moreover, for the dispersal of the torrential Homalopteridae we not only require direct water communication between the Eastern Himalayas (Homalopteridae are not found to the west of the Tista Drainage) and the southern portion of the Western Ghats, but also torrential waters between these two areas, for which one has to postulate a connected chain of hills. This condition is fully satisfied by the Satpura Trend theory advanced by me in recent years and referred to above.

Both *Bhavania* and *Travancoria* are *Balitora*-like in their general facies, nature of paired fins, and the characters associated with the mouth, such as rostral groove, rostral fold, etc. There would thus appear to be a close association of the South Indian forms, and it is probable that these three genera developed along independent lines from a common *Homaloptera*-like ancestral form. The isolation of the Peninsular forms from the main stock of the family for a sufficiently long time seems to have induced in some of them characters which are not found in any other member of the Homalopterinae but are only paralleled among the Gastromyzoninae, which spread more towards east and south from the central highlands of south-eastern Asia.

I wish to express my great indebtedness to Mr. S. Jones, Dr. C. C. John, Prof. A. Subba Rau and Mr. B. S. Bhimachar for their kindness in making collections of freshwater fish for me in Travancore and Mysore. Besides enriching the national collection at the Indian Museum; these have enabled me to describe several new and little known forms from among them. I am also grateful to the Superintendent, Government Museum, Madras, for the presentation of the specimen from

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[1] Hora, S. L., *Proc. Nat. Inst. Sci. India* IV, p. 405 (1938).

[2] Raj, B. Sundara, *Rec. Ind. Mus.* XLIII, pp. 213, 214 (1941).

[3] Medlicott, M. A. and Blanford, W. T., *A Manual of the Geology of India*, 2nd ed. (Revised by R. D. Oldham), pp. 13-16 (Calcutta : 1893).

Sivasamudram to the Indian Museum. My thanks are also due to Mr. K. K. Nair for drawing up the tables of measurements and to Messrs. R. Bagchi and B. N. Bagchi for preparing the illustrations.

Bhavania Hora.

1848. *Platycara*, Jerdon (*nec* McClelland), *Madras Journ. Litt. Sci.* XV, *p.* 333.
1868. *Homaloptera*, Günther (in part), *Cat. Fish. Brit. Mus.* VII, p. 340.
1872. *Homaloptera*, Day (in part), *Journ. As. Soc. Bengal* XLI, p. 28.
1877. *Homaloptera*, Day (in part), *Fish. India*, p. 525.
1889. *Homaloptera*, Day (in part), *Faun. Brit. Ind.* Fish. I, p. 242.
1920. *Bhavania*, Hora, *Rec. Ind. Mus.* XIX, p. 202.
1931. *Homaloptera*, Hora (in part), *Rec. Ind. Mus.* XXXIII, p. 68.
1932. *Homaloptera*, Hora (in part), *Mem. Ind. Mus.* XII, p. 274.
1937. *Bhavania*, Hora, *Rec. Ind. Mus.* XXXIX, p. 11.

The head and the anterior part of the body are greatly depressed, while the tail region is compressed from side to side. The ventral surface up to the anal opening is flattened. The snout is broadly pointed and is provided with more or less trenchant margins. The eyes are dorso-lateral, are provided with free orbital margins and are not visible from the ventral surface. The mouth is small, considerably less than half the width of the head, inferior, transverse and lunate. The lips are fleshy and leave the jaw free and partly uncovered ; they are continuous at the angles of the mouth but the lower lip is divided into one central and two lateral portions ; the middle part is followed by two prominent papillae. In front of the mouth, there is a narrow groove overhung by the rostral fold, from the front margin of which, forming indentations, arise four rostral barbels. Two lappets of the rostral fold curve inwards between the rostral and the maxillary barbels. The rostral groove is continuous with the grooves at the angles of the mouth. The jaws are sharp and covered with a horny substance. The gill-openings are small and restricted to the dorsal surface considerably above the bases of the pectoral fins. The body is covered with small scales which are absent on the ventral surface in front of the anal opening. The scales are provided with short, pointed keels which are continued on the head as series of tubercles. The dorsal and the anal fins are short ; the former commences slightly behind the pelvics. The paired fins are horizontal and extensive ; the pectoral commences slightly behind the eye and extends to the base of the pelvic which extends beyond the anal opening. Between the bases of the pectoral and ventral fins, the body extends outwards and is broadest in front of the bases of the ventrals. The pectoral is provided with 19 rays, of which 6-8 anterior rays are simple. The ventral is provided with 9 rays of which two are simple. The caudal fin is slightly emarginate and some of the outer rays are fused to form oar-like solid structures.

Genotype.—Platycara australis Jerdon (=*Bhavania annandalei* Hora).

Relationships.—Among the Homalopterinae, *Bhavania* is the only genus in which the gill-openings are restircted to the dorsal surface of the head and in this respect its development seems to be parallel to several genera of the Gastromyzoninae, such as *Protomyzon*, *Paraprotomyzon*, *Pseudogastromyzon*, *Sewellia*, *Beaufortia*, *Neogastromyzon* and *Gastromyzon*.

Bhavania australis (Jerdon).

Plate VIII, figs. 1-3.

1848. *Platycara Australis*, Jerdon, *Madras Journ. Litt. Sci.* XV, p. 333 (Walliar).
1867. *Homaloptera brucei*, Day (*nec* Gray), *Proc. Zool. Soc. London*, p. 348 (Wynaad).
1868. *Homaloptera brucei*, Günther (*nec* Gray), *Cat. Fish, Brit. Mus.* V, p. 340 (Wynaad : Mr. Day's Collection).
1872. *Homaloptera brucei*, Day (*nec* Gray), *Journ. As. Soc. Bengal* XLI, p. 28 (Wynaad).
1877. *Homaloptera maculata*, Day (*nec* Gray), *Fish. India*, p. 526, pl. cxxii, fig. 2 (Wynaad specimen figured).
1889. *Homaloptera maculata*, Day (*nec* Gray), *Faun. Brit. Ind.* Fish. 1, p. 243 (Wynaad, Nilgiris).
1909. *Homaloptera maculata*, Jenkins (*nec* Gray), *Rec. Ind. Mus.* III, p. 289 (Tenmalai, Western Ghats).
1920. *Bhavania annandalei*, Hora, *Rec. Ind. Mus.* XIX, p. 203, pl. x, figs. 1-3 ; pl. xi, figs. 5-7 (Travancore, Nilgiris and Malabar).
1920. *Bhavania australis*, Hora, *ibid.*, p. 205. pl. x, figs. 4-6, pl. xi, fig. 8.
1929. *Homaloptera maculata*, Pillay (*nec* Gray), *Journ. Bombay Nat. Hist. Soc.* XXXIII, p. 356.
1936. *Homaloptera maculata*, John (*nec* Gray), *ibid.*, XXXVIII, p. 710.
1937. *Bhavania annandalei*, Hora, *ibid.*, XXXIX, p. 11, text-fig. 4 (Western Ghats, Mysore State).

In 1867, Day recorded *Homaloptera brucei* from the Wynaad hills and assigned *Platycara australis* Jerdon to its synonymy. One of Day's specimens from the Wynaad later served for Günther's description of *H. brucei*[1]. However, in 1877, when Day[2] had obtained specimens of the real *Balitora brucei* Gray from the Darjeeling Himalayas and the hills of Assam, he regarded the Wynaad examples as *H. maculata*, but at the same time included all his earlier references, based on the Wynaad specimens, to *H. brucei* in the synonymy of the real *H. brucei*. Thus a great confusion was created by him in the systematic position and the geographical distribution of the Homalopterid fishes known from the Eastern Himalayas and Peninsular India respectively.

Vinciguerra[3] found considerable difficulty in determining his Burmese examples of *H. brucei*, for he found great discrepancies in Day's earlier and later descriptions of the species and pointed out that the specimens found in the Nilgiri Hills must be regarded as specifically different from the specimens described by Day in the *Fishes of India* as *H. brucei*. In 1920, it was shown by me[4] that Vinciguerra was correct in his analysis of Day's descriptions and a new genus *Bhavania* was proposed for the South Indian forms. Relying mainly on immature specimens, I recognised two species in this genus, but examination of further material has convinced me that the two species are identical, and the earlier name *australis* must, therefore, be used for them.

Unfortunately Jerdon's description of *Platycara australis* is rather vague and applicable to more than one species. He stated : —

" Muzzle depressed, snout somewhat pointed ; eyes approximated ; body greenish with irregular spots and blotches of brown and red, and a series of white spots along the sides ; fins greenish, tinged with sienna red and spotted ; caudal with the lobes pointed lower one much the longest ; 4 minute cirri at end of snout, and 2 somewhat fleshy short cirri, one in front of and the other behind the mouth. Length about 2½ inches—D.7, A. 6. "

[1] Günther's *Homaloptera maculata* from Assam is in reality *Balitora brucei* Gray.
[2] Day, F., *Fish India*, p. 526, pl. cxxii, fig. 1 (1877).
[3] Vinciguerra, D., *Ann. Mus. Civ. Stor. Nat. Genova* XXIX, pp. 320-335 (1890).
[4] Hora, S. L., *Rec. Ind. Mus.* XIX, pp. 195-207 (1920).

The nature of the barbels is the only character in the above description which enables this species to be distinguished from the new species described below, for the colouration is more or less similar in the two forms.

In view of considerable fresh material having been obtained from different parts of Peninsular India, the species may now be redescribed as follows :—

D. 2/7-9 ; A. 1/5-6 ; P. 6-8/9-11 ; V. 2/7-8 ; C. 17-18.

Bhavania australis is a *Balitora*-like fish in which the head and the anterior part of the body up to the anal opening are greatly depressed and the ventral surface is flat and horizontal. The tail is broad and compressed from side to side. The dorsal profile is gently arched, the greatest height of the body being in front of the dorsal fin. The head is broad, rounded and almost trenchant ; it is covered with series of short, hard, spine-like growths. The length of the head is contained from 4·37 to 5·42 times in the standard length and from 5·15 to 6·46 times in the total length ; the head is proportionately larger in smaller individuals. The head is almost as broad as long ; its breadth is contained from 1·05 to 1·28 times in its length. The eyes are of moderate size, approximated dorsally and situated in the posterior half of the head ; they are not visible from the ventral surface. The diameter of the eye is contained from 3·88 to 5·59 times in the length of the head, from 1·94 to 3·19 times in the length of the snout and from 1·38 to 2·00 times in the interorbital width ; the eyes are proportionately larger in smaller individuals. The nostrils are situated close to the anterior border of the eye ; the anterior nostril is situated in a flap which covers the posterior nostril. The mouth is small, inferior, semicircular and horizontal ; the gape of the mouth is about one-fifth of the width of the head. The lips are well developed and free from the jaws and leave a considerable portion of the jaws uncovered. Both the lips are continuous at the angles of the mouth but the median part of the posterior lip is separated off from the lateral parts and is followed by two prominent barbel-like papillae. The jaws are hard and covered by a horny substance ; the posterior jaw is rounded and shovel-like. Between the anterior lip and the rostral fold, there is a deep groove which is bifurcated near the origin of the maxillary barbel ; the inner branch is continued round the angles of the mouth while the outer branch is continued outwards and backwards. There are 6 short, stumpy barbels, 4 rostral and 2 maxillary. In between the rostral barbels, the rostral fold is produced into lobes and at the sides lappets are formed which cover parts of the rostral groove. The gill-openings are small, spout-like apertures which are restricted above the base of the pectoral fin. The gill-membranes are broad and thick.

The depth of the body is contained from 6·45 to 9·34 times in the standard length and from 8 to 11 times in the total length ; the body is proportionately more elevated in larger specimens. Between the bases of the pectoral and pelvic fins the body becomes broader posteriorly and is almost as wide as the width of the head. The caudal peduncle is well formed ; its least height is contained from 1·55 to 2·28 times in its length. The body is covered with small scales which are absent

Measurements in millimetres.

	Kottigehar, Mysore.	Sethumadai Hills, Mysore.				Kallar Stream, South Travancore.				Pampadampara, North Travancore.	
Standard length	27·1	38·1	46·2	71·0	71·6	67·4	71·8	74·2	77·9	54·9	84·2
Length of caudal	4·8	8·1	D.	D.	D.	14·9	16·2	16·2	16·6	D.	17·2
Length of head	6·2	8·4	9·4	13·1	14·1	14·0	14·8	15·1	14·9	11·2	15·7
Width of head	4·9	6·6	8·0	12·0	12·8	12·1	11·6	13·1	13·8	9·2	14·9
Height of head	3·0	3·9	4·8	7·1	6·7	7·1	6·9	6·8	7·4	5·1	8·0
Length of snout	3·1	4·0	5·2	7·8	7·5	7·9	7·9	8·6	8·4	6·2	9·0
Diameter of eye	1·6	1·9	2·0	2·9	2·9	2·6	2·5	2·7	3·0	2·4	3·1
Interorbital width	2·2	2·8	3·0	5·0	5·1	5·0	5·0	5·2	5·5	3·6	5·6
Depth of body	2·9	4·2	6·1	11·0	10·0	9·1	9·2	9·0	10·2	6·0	10·3
Width of body	4·0	5·6	7·9	13·2	12·4	12·9	10·9	12·3	13·1	9·1	13·9
Length of caudal peduncle	3·1	6·4	8·0	10·3	10·6	11·5	10·8	12·8	11·0	9·0	12·7
Least height of caudal peduncle	2·0	2·8	4·1	7·0	6·1	6·0	6·4	7·1	7·4	4·5	6·8
Length of pectoral	7·1	9·7	11·0	16·3	18·7	18·6	19·8	20·0	18·8	14·5	21·6
Length of ventral	4·2	8·2	9·0	15·2	15·9	16·0	17·7	17·8	16·1	12·1	19·3
Longest ray of dorsal	5·4	7·6	9·0	13·0	14·7	13·1	13·9	14·4	14·4	10·7	17·5
Longest ray of anal	3·6	5·6	5·9	9·8	10·0	9·6	10·0	10·8	11·5	8·6	12·4

on the head and on the ventral surface as far as the anal opening. There are about 70 to 75 scales along the lateral line. In some specimens, the scales in the anterior region are slightly keeled. The number of predorsal scales is about 30 and there are about 12 to 15 rows of scales above the lateral line and 9 to 10 below it to the base of the pelvic fins. The anal opening is situated in a shallow groove which runs in the mid-ventral line between the bases of the pelvic and anal fins.

The dorsal fin is short and commences slightly behind the pelvics; it is considerably higher than the depth of the body. The commencement of the dorsal fin is nearer to the tip of the snout than to the base of the caudal fin. The anal is similar to the dorsal and commences nearer to the base of the caudal than to that of the pelvic. The paired fins are broad, wing-like and horizontal. The pectorals commence just behind the eyes, are longer than the head and extend almost to the bases of the pelvics. The pelvic fins are similar to the pectorals and, except in very young specimens, are longer than the head; they may or may not extend as far as the anal opening but are separated from the anal fin by a considerable distance. The caudal fin is forked with the lower lobe considerably longer than the upper; except in the young examples, it is longer than the head.

The basipterygium (Pl. VIII, fig. 2) conforms to the Homalopterinae type; it is devoid of lateral horns and is provided with a lateral foramen. The pharyngeal teeth (Pl. VIII, fig. 3) are uniserial, those in the middle of the slender bone are larger. There are about 13 teeth.

The body and the fins are covered with spots which are irregularly distributed on the body while they form regular rows on the fins. In most of the specimens the dorsal surface is dark so the black spots do not show off well, but in the three specimens from Kallar Stream near Trivandrum the ground colour is considerably lighter and in consequence the spots are very prominent.

Distribution.—In the synonymy, localities from which this species has so far been recorded are given. I have now examined more specimens from the Sethumudai Hills, Mysore; Kallar Stream, near Trivandrum, Travancore, and from streams within a radius of 5 miles of Pampadampara, Travancore. It would thus appear that the species is so far known from the hills in the extreme south of Peninsular India.

Travancoria, gen. nov.

The head and the anterior part of the body are greatly depressed and the ventral surface in front of the anal fin is flattened. The snout is narrowly rounded in front and the fishes resemble the narrow-headed forms of *Balitora brucei* Gray described by me[1] from Burma. The eyes are small, dorso-lateral in position and are provided with free orbital margins; they are not visible from the ventral surface. The mouth is small, inferior, transverse and greatly arched. The lips are full, plain and continuous round the angles of the mouth; the middle part of the posterior lip is separated from the two lateral parts and is followed by two well-developed papillae which may appear as short barbels in

[1] Hora, S. L., *Mem. Ind. Mus.* XII, p. 291, pl. x, fig. 6; pl. xi, fig. 6 (1932).

certain specimens. The anterior jaw is covered by the lip, but the posterior jaw is naked, shovel-like, sharp, strong and covered with a horny substance. In front of the mouth there is a deep groove which is bordered anteriorly by the rostral fold and is continued backwards round the angles of the mouth as well as laterally to the sides of the head ; the portion of the groove between the maxillary barbel and the side of the head is partly covered by a hood-like extension of the rostral fold. There are four short and stumpy rostral barbels, and in between these the rostral fold is produced into 3 barbel-like projections. However, the form and arrangement of the barbel-like projections of the rostral fold varies considerably in the specimens examined by me. A pair of similar barbels (maxillary barbels) is situated at the angles of the mouth. The gill-opening is oblique and extends in front of the base of the pectoral fin to the ventral surface for a short distance. The body is covered with small scales which are absent on the head and on the ventral surface in front of the anal fin ; some of the anterior scales on the dorsal surface are provided with simple short keels which are continued forwards on the head as series of tubercles. The dorsal and the anal fins are short ; the former is almost opposite to the pelvic fins. The paired fins are broad and horizontal. The pectoral fin is pedunculate and commences considerably behind the eyes ; it almost reaches the pelvic which extends considerably beyond the anal opening. The body becomes broader posteriorly from behind the bases of the pectorals and is broadest just in front of the pelvics. The pectoral is provided with 15-16 rays of which 6 anterior rays are simple. The pelvic possesses 8-9 rays, of which 2 are simple. The caudal peduncle is well formed. The caudal fin is forked with the lower lobe considerably longer than the upper.

Genotype.—Travancoria jonesi, gen. *et* sp. nov.

Relationships.—This remarkable genus is intermediate in certain characters between *Homaloptera* van Hass. and *Balitora* Gray, while it has special features of its own which distinguish it from all the other genera of the Homalopterinae. In the form of the body it resembles certain varieties of *Balitora*, but fewer simple rays in the pectoral fins, simple lips, form of the rostral groove and the barbel-like projections on the anterior rostral fold help to distinguish the two genera. From *Homaloptera*, it differs in the possession of a rostral groove and the additional 3 barbels on the rostral fold. In having a posteriorly forked rostral groove, the new genus resembles *Parhomaloptera* Vaillant which belongs to the Gastromyzoninae. The only other genus of the Homalopterinae in which the pelvic fins are provided with two simple rays is *Sinohomaloptera* Fang ; it possesses a rostral groove but its lips are papillated, there are two barbels at each angle of the mouth and the pectoral fins are provided with 7-8 simple anterior rays. In the new genus, the structure of the lips, especially of the lower, the form of the rostral groove, lepidosis, tubercles on the head, and the presence of two papillae behind the lower lip are suggestive of *Bhavania* Hora, but in the latter the gill-openings are restricted above the bases of the pectoral fins, whereas in *Travancoria* they extend in front of the pectoral fin to the ventral surface for a short distance.

Travancoria jonesi, gen. *et* sp. nov.

Plate VIII, figs. 5-9.

D. 2/7-8 ; A. 1/4-5 ; P. 6/9-10 ; V 2/6-7 ; C. 17 ; L.l. 75-77.

Travancoria jonesi is a well-built loach of moderate size in which the head and the greater part of the body are depressed while the tail is somewhat compressed from side to side. The ventral surface is greatly flattened up to the commencement of the anal fin and thereafter the ventral profile rises gradually to the base of the caudal fin. The dorsal profile is gently arched, the greatest height of the body being in front of the dorsal fin. The head is broadly pointed anteriorly, and is covered with series of short, hard, spine-like growths ; its length is contained from 5·0 to 5·83 times in the standard length and from 5·93 to 6·83 times in the total length. The width of the head is contained from 1·09 to 1·33 times and its height at the occiput from 1·71 to 1·88 times in its length. The eyes are of moderate size, approximated dorsally and situated in the posterior half of the head ; they are not visible from the ventral surface. The diameter of the eye is contained from 4·13 to 5·00 times in the length of the head, from 2·42 to 2·68 times in the length of the snout and from 1·42 to 1·50 times in the interorbital width. The nostrils are situated close to the anterior border of the eye ; the anterior nostril is situated in a flap which covers the posterior nostril. The mouth is small, inferior, semicircular and horizontal ; the gape of the mouth is about one-fifth of the width of the head. The lips are well developed and free from the jaws ; the anterior lip covers the jaw while the posterior lip leaves a considerable part of the jaw bare. Both the lips are continuous at the angles of the mouth, but the median part of the posterior lip is pinched off and is followed by two prominent papillae. The jaws are hard and covered with a horny substance ; the posterior jaw is rounded and shovel-like. Between the anterior lip and the rostral fold there is a deep groove which becomes bifurcated near the base of the maxillary barbel ; the inner branch is continued round the corner of the mouth while the outer branch extends to the side of the head. There are 6 short stumpy barbels, 4 rostral and 2 maxillary, but in between the bases of the rostral barbels the rostral fold is produced into three barbel-like processes. At the side of the maxillary barbel, the rostral fold forms a lappet which is indented or crenulated. The gill-openings are small but extend to the ventral surface for a short distance ; the part of the gill-opening above the base of the pectoral fin is provided with a broad and thick gill-membrane.

The depth of the body is contained from 8·33 to 8·70 times in the standard length and from 9·87 to 10·15 times in the total length. The body is broadest in front of the pelvic fins where it is almost as broad as or somewhat broader than the width of the head. The caudal peduncle is strong and whip-like ; its least height is contained from 2·27 to 2·72 times in its length. The body is covered with small scales which are absent on the head and on the ventral surface as far as the anal opening. There are about 75-77 scales along the lateral line, 9 rows above it to the base of the dorsal fin and 9 rows of somewhat smaller scales below it to the base of the pelvic fin. There are about 20 predor-

sal scales. The dorsal and lateral scales in the anterior region are slightly keeled in the middle ; the keels become less prominent posteriorly. The anal opening is situated in a shallow groove which runs in the midventral line between the bases of the pelvic and anal fins.

The dorsal fin is short and commences almost opposite or slightly behind the pelvics ; it is considerably higher than the depth of the body. The commencement of the dorsal fin is considerably nearer to the tip of the snout than to the base of the caudal fin. The anal fin is similar to the dorsal and commences somewhat nearer to the base of the caudal fin than to that of the pelvic. The paired fins are broad, wing-like and horizontal ; the pectorals commence behind the eyes and are longer than the head ; they miss the bases of the pelvics by a short distance ; the pelvics are similar to the pectorals and are almost as long as the head ; they extend considerably beyond the anal-opening but are separated from the anal fin by a considerable distance. The caudal fin is almost as long as the head and is forked in the posterior third of its length ; both the lobes are rounded and the lower lobe is better developed and longer than the upper.

The form and structure of the basipterygium (Pl. VIII, fig. 8) and nature of the pharyngeal bone and teeth (Pl. VIII, fig. 9) are similar to those described above for *Bhavania australis.*

The body is dark above and pale below in the flattened part. Along the dorsal surface there is a series of 8-10 broad, saddle-shaped spots, while the head and the sides of the body are mottled with black spots of different sizes and pattern, some of which form a black band along the lateral line. All the fins are provided with series of spots, especially along the middle.

Type-specimen.—F. 13507/1, Zoological Survey of India (*Ind. Mus.*), Calcutta.

Locality.—Streams within a radius of 5 miles of Pampadampara, Peerumedu Taluq, Travancore.

I have great pleasure in associating the name of this remarkable new loach with that of Mr. S. Jones, who sent a fine collection of fish from Travancore to the Zoological Survey of India.

Measurements in millimetres.

Standard length	59·1	62·9	70·0	75·0	87·0
Length of caudal	10·6	11·1	12·0	14·0	14·5
Length of head	11·2	12·2	12·0	15·0	16·0
Width of head	9·4	9·6	11·0	13·0	12·0
Height of head	6·8	6·6	7·0	8·0	8·5
Length of snout	6·3	6·9	7·8	8·0	8·5
Diameter of eye	2·2	2·6	2·9	3·0	3·5
Interorbital width	3·6	3·9	4·2	4·5	5·0
Depth of body	7·0	7·9	8·3	9·0	10·0
Width of body	8·6	10·2	11·0	13·0	14·0
Length of caudal peduncle	10·1	11·0	12·1	12·5	15·0
Least height of caudal peduncle	3·8	4·1	4·6	5·5	5·5
Length of pectoral	12·2	14·6	14·2	16·5	19·0
Length of ventral	11·5	11·6	12·1	14·5	15·0
Longest ray of dorsal	10·9	11·9	12·3	12·5	14·0
Longest ray of anal	8·1	8·7	10·1	10·0	11·0

Balitora brucei var. **mysorensis,** nov.

Plate VIII, fig. 4.

D.3/9 ; A.2/5 ; P.9/12 ; V.2/9 ; C.19.

The new variety of *Balitora brucei* from the Mysore State is represented by a single specimen about 2 inches in length. In its slender body and more elongate head it shows great affinity to *B. brucei* var. *burmanicus* Hora[1], but as the material of the new variety is inadequate it is not possible to institute a detailed comparison between the two varieties. On geographical grounds alone, it has been considered advisable to keep the variety from Peninsular India separate from that of Burma, at least for the time being.

The head is contained 4·36 times in the standard length and 5·64 times in the total length. The width of the head is contained 1·41 times and its height at occiput 2·23 times in its length. The diameter of the eye is contained 5·56 times in the length of the head, 3·44 times in the length of the snout and 1·81 times in the interorbital width. The depth of the body is contained 7·61 times in the standard length and 9·84 times in the total length. The caudal peduncle is almost 3 times as long as high.

In general facies, lepidosis, form of fins, mouth, lips, etc. this variety agrees with the *forma typica* and other varieties of the species.

The colour in spirit is olivaceous above with a series of 7 short, broad, saddle-shaped bands of gray colour along the back. On the head between the eyes and the occiput there is a pear-shaped dark mark. Along the lateral line there is a diffuse gray band. The ventral surface is dirty white.

Locality.—Sivasamudram (alt. 1,500—2,000 ft.), Mysore State.

Type-specimen.—F. 13512/1, Zoological Survey of India (*Ind. Mus.*), Calcutta.

Measurements in millimetres.

Standard length	38·8
Length of caudal	11·4
Length of head	8·9
Width of head	6·3
Height of head	4·0
Length of snout	5·5
Diameter of eye	1·6
Interorbital width	2·9
Depth of body	5·1
Width of body	6·2
Length of caudal peduncle	6·2
Least height of caudal peduncle	2·1
Length of pectoral	10·2
Length of ventral	8·9
Longest ray of dorsal	8·0
Longest ray of anal	7·0

[1] Hora, S. L., *Mem. Ind. Mus.* XII, p. 291, pl. xi, fig. 6 (1932).