

## New Discolomidae (Coleoptera) from the Himalayas

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To cite this article: Wolfgang Schawaller (1989) New Discolomidae (Coleoptera) from the Himalayas, *Tropical Zoology*, 2:1, 45-58, DOI: [10.1080/03946975.1989.10539426](https://doi.org/10.1080/03946975.1989.10539426)

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Published online: 01 Aug 2012.



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## New Discolomidae (Coleoptera) from the Himalayas\*

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Received 8 February 1989, accepted 20 March 1989

New species of Discolomidae (Coleoptera) from the Himalayas (Pakistan: Swat and Hazara; India: Uttar Pradesh, Darjeeling, Assam; Nepal) are described: *Parmaschema loebli* n. sp., *Aphanocephalus assamensis* n. sp., *Aphanocephalus besucheti* n. sp., *Aphanocephalus ganganicus* n. sp., *Aphanocephalus himalayanus* n. sp. In *Aphanocephalus* Wollaston 1873 diagnostic characters for specific identification are found only in the male aedoeagus: the external features of different species from the same locality can be identical. In *Aphanocephalus himalayanus* n. sp. a sexually dimorphic head is described for the first time in this family. New collecting sites for *Parafallia johni* Geisthardt 1975 are reported and its aedoeagus is illustrated. All the Himalayan records are summarized in maps. Some additional remarks on the zoogeography, the microstructures of the cuticula and aedoeagi, the vertical distribution and biology are given.

KEY WORDS: Coleoptera, Discolomidae, new species, Himalaya, microstructure, zoogeography, vertical distribution.

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\* Results of the Himalaya Expeditions of J. Martens, No. 148. For number 147 see: Stuttgarter Beiträge zur Naturkunde (A) 432: 1-6, 1989. J. Martens sponsored by Deutscher Akademischer Austauschdienst and Deutsche Forschungsgemeinschaft.

## INTRODUCTION

After my first contribution on the Discolomidae of the Himalayas (SCHAWALLER 1987) I received further material from the museums in Basel and Geneva from this faunal region. In contrast to the specimens of the first contribution this new material comes not exclusively from Nepal but also from other regions of the Himalayas: Pakistan (Swat and Hazara), Uttar Pradesh, Nepal, Darjeeling and Assam (Figs 1, 2). In 1988, together with Prof. Dr J. Martens (Zoological Institute Mainz) I collected additional specimens in Eastern Nepal.

The examination of this new material revealed that, at least within the genus *Aphanocephalus* a safe identification is only possible when based on the form of the  $\delta$  genitalia. Hence, the descriptions given here are short to avoid repetition. Unfortunately SEM photographs could not be added for all species because of the shortage of material. In a single locality in Assam two species (*assamensis* n. sp., *himalayanus* n. sp.) were collected which cannot be distinguished by external characters but whose genitalia are completely different. Given this finding the discussion of relationships is inconclusive, because several species within the genus are described only on single  $\text{f}$

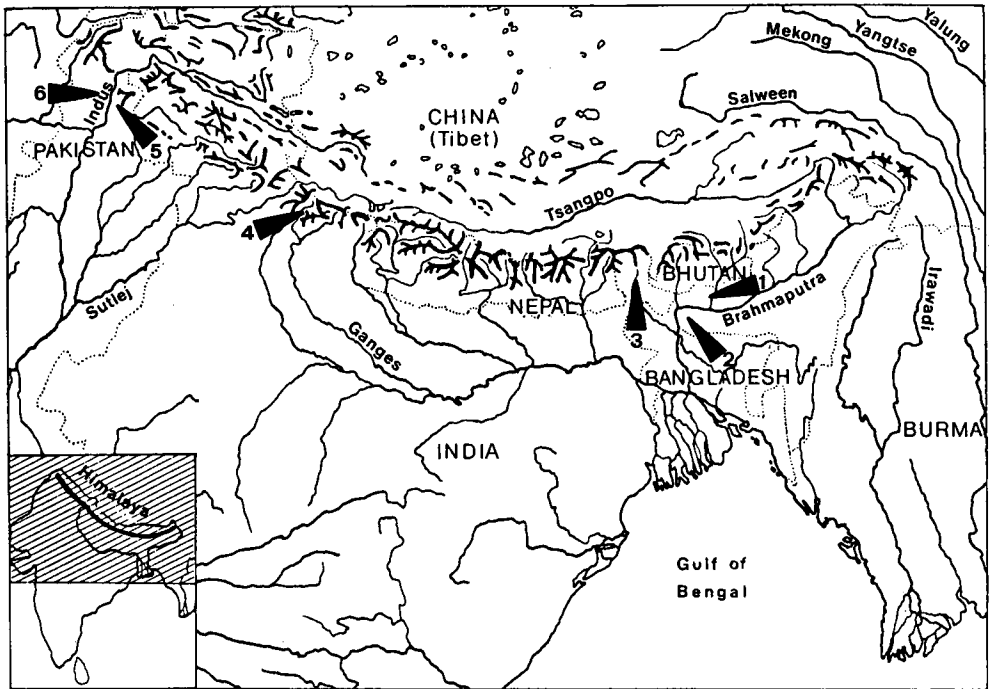


Fig. 1. — Localities of the Discolomidae in the Himalayas (for a detailed map of Nepal see Fig. 2). 1: Assam, Manas (*Parmaschema loebli* n. sp., *Aphanocephalus assamensis* n. sp., *A. besucheti* n. sp., *A. himalayanus* n. sp.); 2: Meghalaya, Garo Hills (*A. himalayanus* n. sp.); 3: Darjeeling (*A. himalayanus* n. sp.); 4: Uttar Pradesh, Gangani (*A. ganganicus* n. sp.); 5: Hazara, Balakot (*A. besucheti* n. sp.); 6: Swat, Hill of Karakar (*A. besucheti* n. sp.).

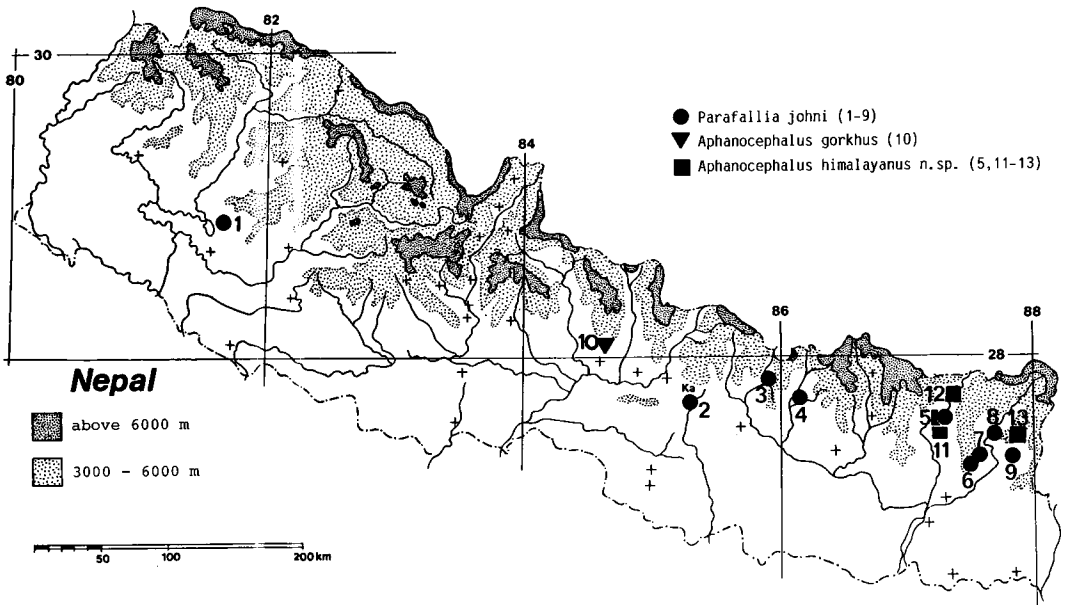


Fig. 2. — Distribution of the known records of the family Discolomidae in Nepal (new collections and after SCHAWALLER 1987). 1: Dailekh; 2: Kathmandu valley, Baneshwar and Godawari; 3: Barabise; 4: Shivalaya; 5: Num; 6: Nessum; 7: Dumhan; 8: Chirua; 9: Uyam; 10: Doreni; 11: Chichila; 12: Lamobagar; 13: Yamputhin. Ka: Kathmandu.

or on specimens of unknown sex. However as all these originate from other faunal regions, it seems legitimate to treat all the Himalayan records with hitherto unknown ♂ genitalia as valid species.

The treated material is deposited in the following collections:

MHNG = Muséum d'Histoire Naturelle Genève.

NHMB = Naturhistorisches Museum Basel.

SMNS = Staatliches Museum für Naturkunde Stuttgart.

#### SPECIES ACCOUNT

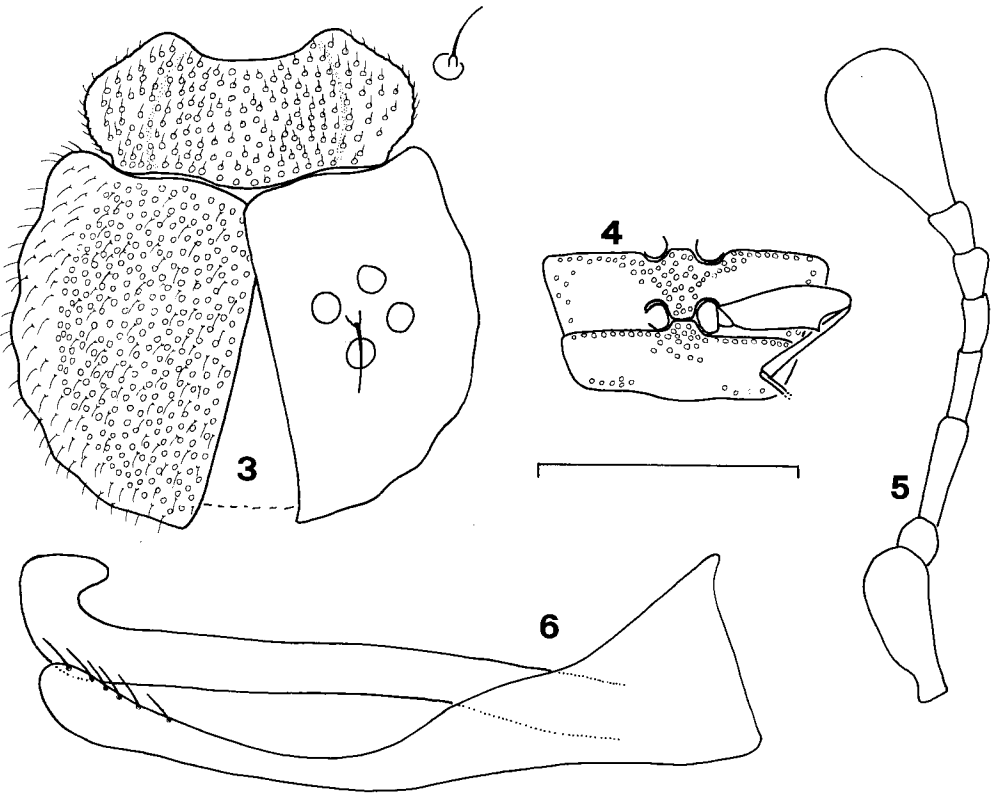
##### *Parmaschema loebli* n. sp. (Figs 3-6)

*Holotype* (♂). India, Assam, Manas, 200 m, 23.X.1978, leg. C. Besuchet & I. Löbl (MHNG).

*Paratypes*. Together with holotype, sex not examined, 2 ex. (MHNG), 1 ex. (SMNS).

*Derivatio nominis*. Named after Dr Ivan Löbl, the successful collector of Asiatic edaphic beetles.

*Description*. Entire animal unicoloured reddish brown (1 juvenile specimen yellowish brown), without a colour pattern, but partly with black cover of substrate. Antennae 8-jointed, for the relations of the length of the single joints see Fig. 5. Pronotum about 2.6× as wide as median length, maximal width in the middle,



Figs 3-6. — *Parmaschema loebli* n. sp., holotype ♂ (Assam). Fig. 3: dorsal view, bristles and pores of the pronotum and elytrae enlarged; Fig. 4: metasternum and «1st» sternite of the abdomen, posterior femur with tooth; Fig. 5: antennae; Fig. 6: aedoeagus. Scale: 1.2 mm (Figs 3-4), 0.3 mm (Figs 5-6).

margin rounded, anterior margin with distinct excavation, posterior angle prominent, disc uniformly dotted, nearly all points with a bristle on a basal granule (inset in Fig. 3). Lateral margin of the elytrae sinuate, lateral area without points, arched disc uniformly dotted with points as great as on pronotum, bristles with basal granules on the spaces between the pores, interspaces otherwise smooth (magnification 50×). Meta-sternum with coarse punctation in the middle between the coxae of the second and third pair of legs and at anterior and lateral margin, «first» abdominal sternite likewise pointed in front of the middle and at the anterior and posterior margin (Fig. 4). Second and third pair of legs with a femoral tooth. Aedoeagus Fig. 6. Body length: 2.20-2.45 mm.

*Relations.* The known (Asiatic) species of the genus *Parmaschema* Heller 1920 are listed by JOHN (1959), most of them (13 of 14) are described by the same author in earlier papers (JOHN 1940, 1942a, 1942b, 1952, 1954) including detailed figures.

According to these studies the following structures are recognized as specific characters:

- form of the aedoeagus;
- form of the antennal joints, in particular of the club;
- form of the pronotum;
- posterior femora with/without tooth;
- punctuation of the dorsal surface;
- punctuation of the sternites.

In the treated specimens from Assam these characters are developed in other combinations than in the hitherto known species (Table 1), therefore the existence of a valid species is to be assumed.

Table 1.  
The Asiatic species of *Parmaschema* and selected morphological characters.

Species (specimens of the type series)	Femoral tooth +/-	Aedoeagus illustrated by	Club of antennae round/long	Pronotum ratio of max. width/med. length
<i>acuticlava</i> John 1954	(32) —	JOHN 1954	l	2.92
<i>boettcheri</i> John 1952	(3) +	♀	r	2.31
<i>bouchardi</i> John 1952	(17) +	JOHN 1952	r	2.69
<i>defrictum</i> John 1942	(3) +	JOHN 1942a	r	2.77
<i>excisum</i> John 1940	(1) +	?	r	2.25
<i>hexagonale</i> John 1943	(1) —	♀	r	2.04
<i>karnyi</i> John 1940	(1) +	?	r	2.00
<i>latius</i> John 1943	(1) +	♀	r	2.18
<i>leviterimpressum</i> John 1952	(2) —	?	r	2.50
<i>loebli</i> n. sp.	(4) +	Fig. 6	r	2.59
<i>medium</i> John 1952	(1) +	?	r	1.89
<i>nodimargo</i> Heller 1952	(1) +	?	r	2.24
<i>rugosum</i> John 1952	(2) +	?	r	3.22
<i>saginatum</i> John 1952	(1) +	?	r	3.22
<i>tumidum</i> John 1954	(1)	paper not available		2.75

A comparative discussion within the genus is still impossible. For example only in 3 of the 14 described Asiatic species (Table 1) the aedoeagus is known. Concerning the genitalia great similarities (=relationships?) seem to exist between *loebli* n. sp. and *bouchardi* (Sumatra), but in the latter species for example the anterior excavation of the pronotum is not so deep and the punctuation on the elytrae is developed differently as in the new records from Assam. Also the probably specific punctuation of the «1» (originally 1-3, JOHN 1940) abdominal sternite is figured only in few species. Concerning this character some correspondences exist between *loebli* n. sp. and *rugosum* (Sumatra), but in the latter species the pronotum is distinctly broader.

*Zoogeography.* *Parmaschema loebli* n. sp. is the first species from continental Asia and the northernmost record of this genus. The hitherto known Asiatic species originate from the islands of New Guinea, Java, Sumatra and the Philippines. East of the Wallace-line the genus seems to be absent. It is to be assumed that up to the last glacial period a conjunct area of the genus has existed in which postglacially during

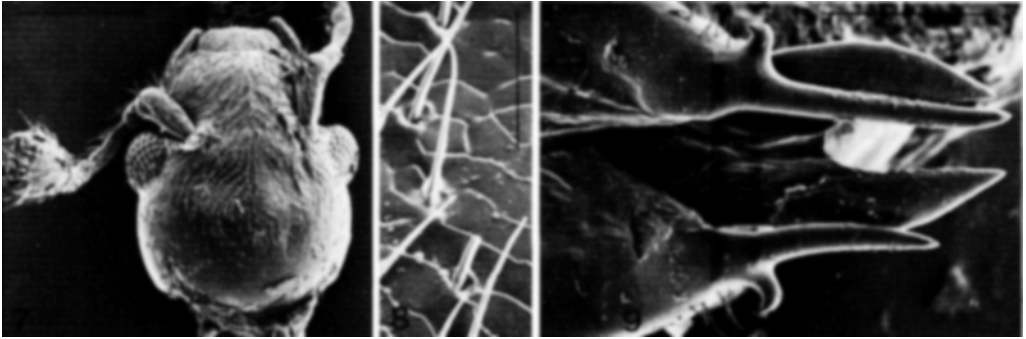
the disruption of the single islands and the separation from the continent, the recent species have evolved. The disjunct occurrence of *loebli* n. sp. in Assam is surely to be explained by the lack of collecting activity in Burma and Malaysia. The African species partly differ in the number of antennal joints (9) from all Asiatic ones (8). Therefore they do not belong to the monophyletic group of the Asiatic species of *Parmaschema*.

***Aphanocephalus assamensis* n. sp.** (Figs 7-9, 15-16)

*Holotype* (♂). India, Assam, Manas, 200 m, 22.X.1978, leg. C. Besuchet & I. Löbl (MHNG).

*Paratypes*. Together with holotype, 1 ♂ (MHNG), 1 ♂ (SMNS, head and aedoeagus prepared for SEM).

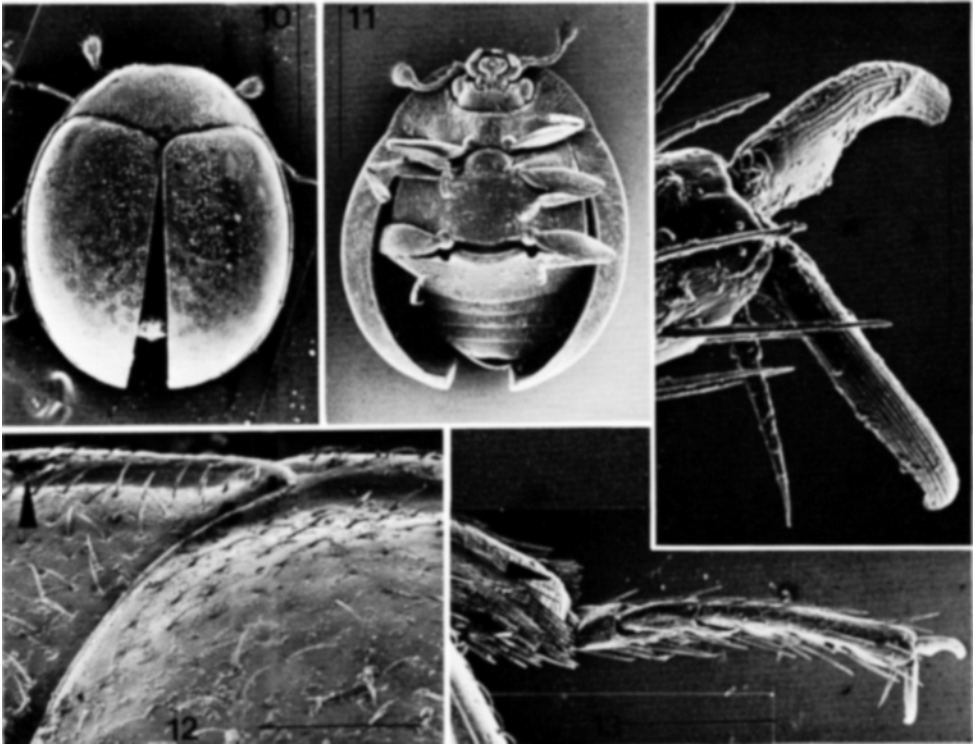
*Description*. Size and form of the body, bristles, colour and structure of the cuticula not different from *himalayanus* n. sp. Head of the ♂ dorsally without groove (Fig. 7), aedoeagus Figs 9, 15-16.



Figs 7-9. — *Aphanocephalus assamensis* n. sp., paratype ♂ (Assam). Fig. 7: head ♂ (scale 250 µm); Fig. 8: terrace structures on posterior part of the head (scale 20 µm); Fig. 9: tip of the aedoeagus in dorsal view (scale 100 µm).

*Relations*. The species cannot be separated from *himalayanus* n. sp. by external characters. It is not clear whether this conspicuous correspondence represents a close relationship. However significant differences exist in the structure of the ♂ genitalia: dorsally the end of the shaft of the penis in both *assamensis* n. sp. and *himalayanus* n. sp. has two tips, each tip laterally with identical barb, however the «tongue» in *assamensis* n. sp. is deeply indented and therefore consisting of two tips (Figs 9, 16), but in *himalayanus* n. sp. the «tongue» forms a broad spatula and is dorsodistally asymmetrical with a single spine inclined backwards (Figs 18, 36). Comparable structures of the aedoeagus in hitherto known species are not published (JOHN 1956). Moreover an essential difference exists in the structure of the ♂ head, which in *assamensis* n. sp. has no dorsal groove unlike the head of *himalayanus* n. sp.

*Remarks*. *A. assamensis* n. sp. and *himalayanus* n. sp. are to be found at least sympatrically in Assam (Manas), perhaps even syntopically. *A. himalayanus* n. sp. is much more numerous in the samples than *assamensis* n. sp., which probably points to



Figs 10-14. — *Aphanocephalus besucheti* n. sp., paratype (Swat). Fig. 10: dorsal view (scale 1 mm); Fig. 11: ventral view (scale 1 mm); Fig. 12: posterior angle of the pronotum with porus (arrow) and shoulders of elytrae (scale 100  $\mu$ m); Fig. 13: tarsus I and tibia I with comb of bristles (arrow) (scale 100  $\mu$ m); Fig. 14: claw of tarsus I with longitudinal ridges (scale 25  $\mu$ m).

different soil strata as biotopes. Possibly the collecting method (sifting) mainly covers only the biotope of *himalayanus* n. sp.

***Aphanocephalus besucheti* n. sp. (Figs 10-14, 19-21)**

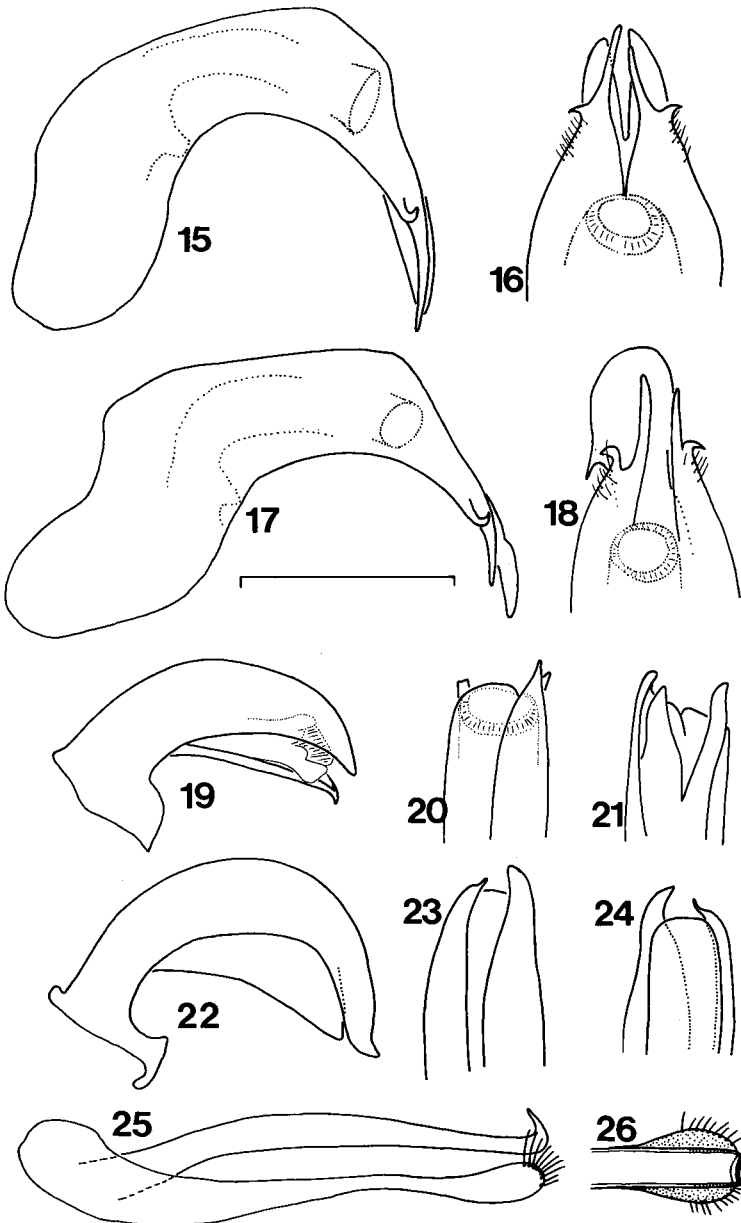
*Holotype* ( $\delta$ ). Pakistan, Swat, Hill of Karakar, 1300 m, 19.V.1983, leg. C. Besuchet & I. Löbl (MHNG).

*Paratypes*. Together with holotype, 9 ex. (MHNG), 1 ex (SMNS), 2 SEM preparations (SMNS). — Pakistan, Hazara, Balakot, 900 m, 4.VI.1983, leg. C. Besuchet & I. Löbl, 4 ex. (MHNG), 1 ex. (SMNS). — India, Assam, Manas, 200 m, 23.X.1978, leg. C. Besuchet & I. Löbl, 5 ex. (MHNG), 1 ex. (SMNS).

*Derivatio nominis*. Named after Dr C. Besuchet (Geneva), one of the collectors.

*Description*. Body unicoloured dark brown without a colour pattern, lateral and anterior parts of the pronotum somewhat lighter, body length: 1.6-1.8 mm. Head without particularities; antennae 9-jointed. Pronotum with maximal width at the base, bristles strong as in *ganganicus* n. sp. and *gorkebus* Schawaller 1987. Elytrae with





Figs 15-26. — Aedeagus shown laterally (Figs 15, 17, 19, 22, 25), dorsally (Figs 16, 18, 20, 23, 26), and ventrally (Figs 21, 24). Figs 15-16: *Aphanocephalus assamensis* n. sp.; Figs 17-18: *Aphanocephalus himalayanus* n. sp.; Figs 19-21: *Aphanocephalus besucheti* n. sp.; Figs 22-24: *Aphanocephalus ganganicus* n. sp.; Figs 25-26: *Parafallia jobni*. Scale 0.3 mm.

the same setation as on pronotum, lateral ledge basally with an excavation to include the posterior angles of the pronotum (Fig. 12). Aedoeagus Figs 19-21, no external sexual dimorphism.

*Relations.* From the structure of the  $\delta$  genitalia *besucheti* n. sp. belongs in the species group formed by *hemisphaericus* Wollaston 1873 (Japan), *formosanus* John 1954 (Taiwan) and *shirozui* John 1958 (Japan). Present knowledge does not allow more detailed decisions on species relationships. From *birmanus* Doderer 1900 (Burma) the new species differs by the form of the genitalia (aedoeagus of *birmanus* see JOHN 1956: table X) as well as from *gorkhus* (Nepal) which, according the  $\delta$  genitalia, comes from a completely different evolutionary line. It remains to be investigated whether the systematic grouping of the 80 or so nominal species of *Aphanocephalus*, some with very different genital structures, actually represent a single monophyletic taxon.

*Remarks.* I have hesitated a long time to ascribe the specimens from Pakistan and Assam to the same species. However the structure of the genitalia (and also the external characters) of both populations is identical, therefore this seems to be legitimate. Possibly the species has a wider distribution between the hitherto disjunct areas in the Himalayas, if confusion of the localities can be excluded.

***Aphanocephalus ganganicus* n. sp.** (Figs 22-24)

*Holotype* ( $\delta$ ). India, Uttar Pradesh, valley of river Yamuna, Gangani near Barkot, 1250 m, 13-20.VI.1981, leg. M. Brancucci (NHMB).

*Paratypes.* Together with holotype, 5  $\text{♀♀}$  (NHMB), 1  $\delta$  (SMNS).

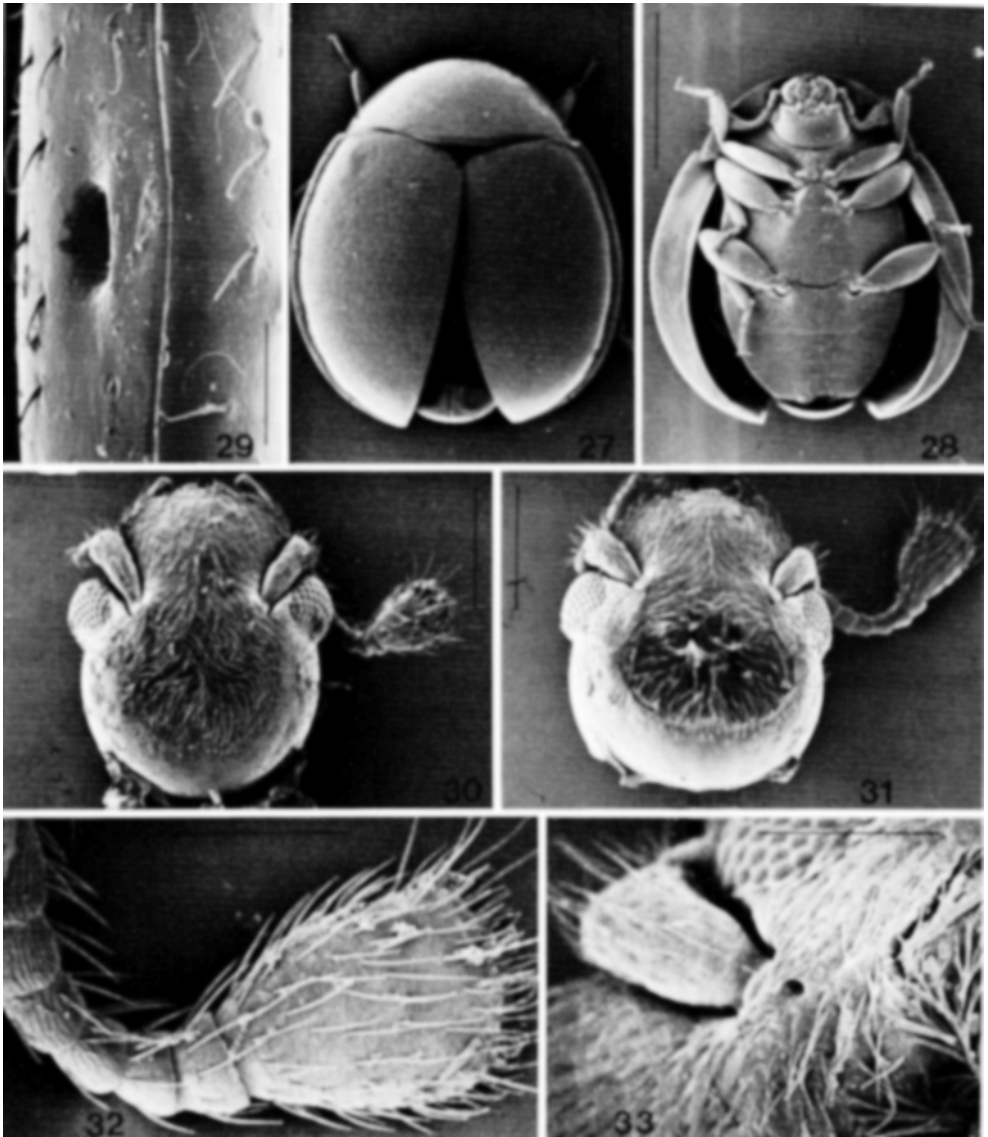
*Description.* Body unicoloured dark brown, without a colour pattern, lateral and anterior margin of pronotum somewhat lighter, body length: 1.9-2.4 mm. Head without particularities; antennae 9-jointed. Pronotum with maximal width at the base, anterior margin only with flat excavation, setation strong, the setae 2-3 $\times$  as long as diameter of the points. Elytrae with corresponding long and dense setation; maximal width of the elytrae in the anterior third, lateral ledge basally with an excavation to include the posterior angles of the pronotum. Aedoeagus Figs 22-24, no external sexual dimorphism.

*Relations.* This species is very similar to *gorkhus* Schawaller 1987 (Nepal). However the aedoeagus possesses a different construction: shaft of the penis in *ganganicus* n. sp. dorsally deeply split, both parts distally with differently formed tips and without bristles; in *gorkhus* the shaft of the penis is not split, but similar to a long convex spatula and distally equipped with bristles. Genitalia comparable with those of *ganganicus* n. sp. are not published within the genus (JOHN 1956).

***Aphanocephalus himalayanus* n. sp.** (Figs 17-18, 27-37)

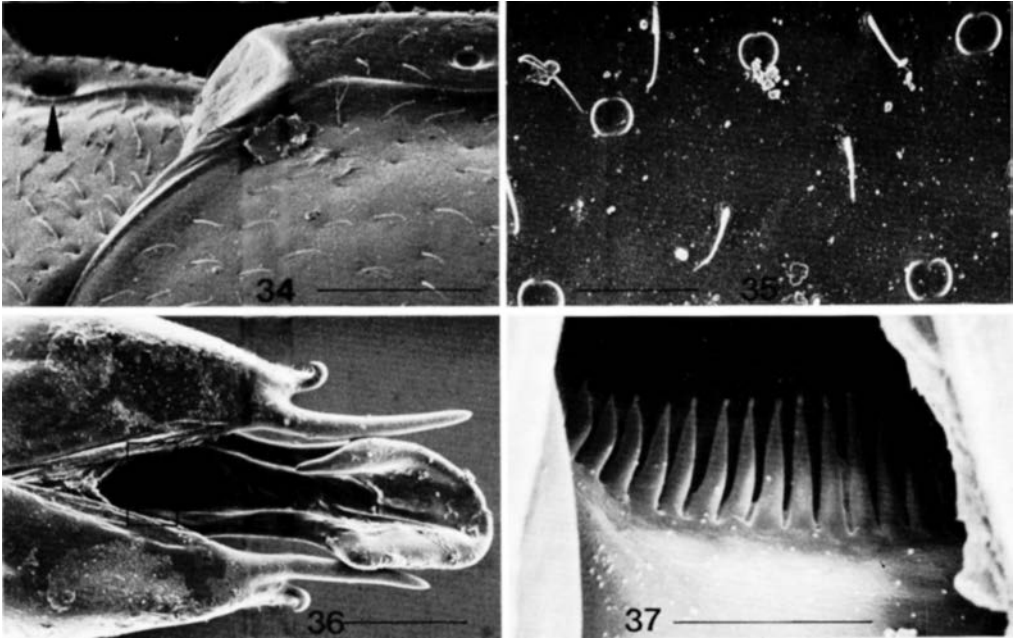
*Holotype* ( $\delta$ ). India, Assam, Manas, 200 m, 22.X.1978, leg. C. Besuchet & I. Löbl (MHNG).

*Paratypes.* Together with holotype, 5  $\text{♂♂}$  (MHNG), 1  $\delta$  (SMNS), 1 $\text{♂♀}$  SEM-preparations (SMNS). — India, Meghalaya, Garo Hills, Tura, 700-900 m, 1.XI.1978, leg. C. Besuchet & I. Löbl, 1  $\delta$  (MHNG). — India, Meghalaya, Garo Hills, Dainadubi, 250 m, 4.XI.1978, leg. C. Besuchet & I. Löbl, 7  $\text{♂♂}$  (MHNG), 1  $\delta$  (SMNS). — India, Darjeeling, Sukna, 200 m, 7.X.1978, leg. C. Besuchet & I. Löbl, 1  $\delta$  (MHNG). — India, Darjeeling, Teesta, 250 m, 10.X.1978, leg. C. Besuchet & I. Löbl, 1  $\delta$  (MHNG). — India, Darjeeling, Sakyong, 1000 m, 10-11.IV.1983, leg. B.



Figs 27-33. — *Aphanocephalus himalayanus* n. sp., paratypes ♂♀ (Assam). Fig 27: dorsal view (scale 1 mm); Fig. 28: ventral view (scale 1 mm); Fig. 29: porus on margin of the elytrae (scale 30  $\mu$ m); Fig. 30: head ♀ (scale 250  $\mu$ m); Fig. 31: head ♂ with dorsal groove (scale 250  $\mu$ m); Fig. 32: antenna with terrace structures (scale 100  $\mu$ m); Fig. 33: porus besides insertion of the antenna (scale 100  $\mu$ m).

Bhakta, 1 ♂ (NHMB). — Nepal, Taplejung distr., above Yamputhin, 1800-2000 m, 27-29.IV.1988, leg. J. Martens & W. Schawaller, 1 ♂ (SMNS). — Nepal, Sankhua Sabah distr., Arun valley, Chichila, 1900-2000 m, 18-20.VI.1988, leg. J. Martens & W. Schawaller, 2 ♂♂ (SMNS). — Nepal, Sankhua Sabah distr., Arun valley, Num, 1050 m, 22.IV.1984, leg. I. Löbl & A. Smetana, 1 ♂, 2 ex. (MHNG). — Nepal, Sankhua Sabah distr., Arun valley, Lamobagar Gao, 1400 m, 28-31.V.1980, leg. W. Wittmer, 1 ♂, 1 ex. (NHMB).



Figs 34-37. — *Apanocephalus himalayanus* n. sp., paratypes ♂ (Assam). Fig. 34: posterior angles of pronotum with porus (arrow) and shoulders of the elytrae (scale 100  $\mu$ m); Fig. 35: surface of the elytrae (scale 30  $\mu$ m); Fig. 36: tip of the aedeagus from dorsal view (scale 100  $\mu$ m); Fig. 37: section of the distal opening of the internal sac of the aedeagus (scale 20  $\mu$ m).

*Description.* Body unicoloured black with metallic shine, without a colour pattern, lateral and anterior margin of the pronotum somewhat lighter, body length: 2.0-2.5 mm. Head of the ♂ dorsally with a deep and long pilose groove, head of the ♀ without groove and setation shorter (♀: Fig. 30, ♂: Fig. 31). Antennae 9-jointed, form of the club as is usual in the genus (Fig. 32). Pronotum with maximal width at the base, setation shorter as in *ganganicus* n. sp. and *gorkehus* Schawaller 1987. Elytrae with setation (Fig. 35) as on the pronotum, maximal width of the elytrae in the anterior third, lateral ledge basally with an excavation to include the posterior angles of the pronotum (Fig. 34). Aedeagus Figs 17-18, 36; no further external sexual dimorphism can be recognized except the structure of the head.

*Relations.* Some similarities of external characters exist with *hemisphaericus* Wollaston (Japan), however the ♂ genitalia have a specifically different form; external characters identical (except the sexually dimorphic head) with *assamensis* n. sp., but the genitalia are different. JOHN (1956) raised *birmanus* Doderö (Burma) into a specific rank (described as subspecies of *hemisphaericus*) despite of the great correspondence with *hemisphaericus*, but this species again has different genitalia.

*Remarks.* The collection contains numerous ♀♀ from different localities of the type series (MHNG), but these could not be ascribed with confidence to either *himalayanus* n. sp. or *assamensis* n. sp.

*Aphanocephalus* spec. ♀♀

*Material.* India, Darjeeling, Pedong, 1200 m, 8-9.IV.1983, leg. B. Bhakta, 1 ♂ (NHMB). — India, Uttar Pradesh, Garhwal, 16 km from Srinagar, 550 m, 29.X.1979, leg. I. Löbl, 1 ♀ (MHNG). — Nepal, Dhankuta distr., Tamur valley near Dhankuta, 1150 m, 23.V.1983, leg. M. Brancucci, 1 ♀ (NHMB). — Nepal, Taplejung distr., Tamur valley, Hellok, 1700 m, 18.V.1988, leg. J. Martens & W. Schawaller, 1 ♀ (SMNS).

These ♀♀ can not be identified with confidence because of the lack of ♂♂ from the same locality. Even in this case the ascription of the ♀♀ is problematical (see *assamensis* n. sp. / *himalayanus* n. sp. from the same locality in Assam).

*Parafallia johni* Geisthardt 1975 (Figs 25-26)

*Material.* India, Assam, Gauhati, 200 m, 20.X.1978, leg. C. Besuchet & I. Löbl, 27 ex. (MHNG), 2 ex. (SMNS). — India, Uttar Pradesh, Garhwal, 16 km from Srinagar, 550 m, 29.X.1979, leg. I. Löbl; 10 ex. (MHNG), 2 ex. (SMNS). — Nepal, Dailekh distr., Dailekh, 650 m, 27.III.1980, leg. ?, 3 ex. (MHNG), 1 ex. (SMNS). — Nepal, Kathmandu distr., Godawari, 1600 m, 31.III.1984, leg. I. Löbl, 4 ex. (MHNG). — Nepal, Kathmandu distr., Baneshwar, 1400 m, 30.III-2.IV.1988, leg. J. Martens & W. Schawaller, 2 ex. (SMNS). — Nepal, Bagmati prov., Barabise, 1600 m, 1.V.1981, leg. I. Löbl & A. Smetana, 2 ex. (MHNG). — Nepal, Sankhua Sabah distr., Arun valley, Num, 2000 m, 29.III.1982, leg. A. & Z. Smetana, 6 ex. (MHNG). — Nepal, Sankhua Sabah distr., Arun valley, forest above Ahale, 2400 m, 25.III.1982, leg. A. & Z. Smetana, 2 ex. (MHNG). — Nepal, Sankhua Sabah distr., Arun valley, Sheduwa, 2100-2550 m, 9.IV.1982, leg. A. & Z. Smetana, 2 ex. (MHNG).

*Remarks.* Genital preparations have been studied from each locality series: the genitalia are identical and are illustrated for the first time (Figs 25-26). Whether or not the specific differences of the ♂ genitalia in *Parafallia* Allow 1939 are as prominent as in *Aphanocephalus*, remains to be investigated.

MICROSTRUCTURES IN *APHANOCEPHALUS* WOLLASTON 1873

In an earlier paper (SCHAWALLER 1987), I interpreted the microstructures of the cuticula, i.e. the terrace structures, as a possible mechanism for a reduction of adhesive forces. These terrace structures are also present on the body and on the appendages of the newly studied species (Fig. 8 head, Fig. 32 antennae). The claws possess longitudinal ridges (Fig. 14), which perhaps are also important for the minimization of the contact area with moist soil substrate. The tip of the tibia has a double comb of bristles (arrow in Fig. 13), which probably are used as a cleaning organ. The head bears dorsally, beside each insertion of the antenna, a single porus (Fig. 33), which could be an opening of a gland. The distal opening of the internal sac in the ♂ aedoeagus is surrounded by a garland of spines whose tips point to the middle of the circular opening.

## VERTICAL DISTRIBUTION

The hitherto known vertical distribution of the Discolomidae in the Himalayas is presented in Fig. 38, further records would be desirable. The greatest range is covered

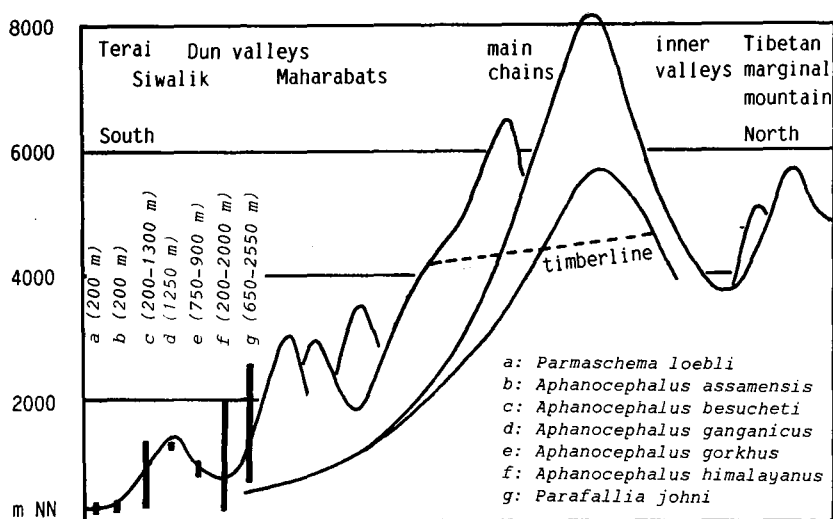


Fig. 38. — Vertical distribution of all known species of Discolomidae in the Himalayas according to the previously published records.

by *Aphanoccephalus himalayanus* n. sp. and *Parafallia johni*. Generally it can be seen that the family Discolomidae represents a tropical element in the Himalayas which only in single cases surpasses an altitude of 2000 m.

#### BIOTOPES

The biology of the Discolomidae is nearly unknown. From some records (leg. J. Martens & W. Schawaller 1983, 1988) particulars of the localities can be given:

- *Aphanoccephalus* spec. ♀: Hellok, 1700 m, in rotten wood of a living Banyan tree (*Ficus bengalensis*) near the border of the settlement.
- *Aphanoccephalus gorkhus* ♂♀: Doreni/Motar, 900-750 m, soil litter in forest of *Shorea robusta*.
- *Aphanoccephalus himalayanus* n. sp. ♂: Yamputhin, 1800-2000 m, under bark of a dead broadleaved tree in primary forest.
- *Aphanoccephalus himalayanus* n. sp. ♂: Chichila, 1900-2000 m, under bark of a dead broadleaved tree on cultivated land.
- *Parafallia johni* ♂♀: Kathmandu-Baneshwar, 1400 m, in a garden refuse heap in the town.
- *Parafallia johni* ♂♀: Terhathum distr., 800-1850 m, in soil litter of cultivated land with numerous trees.

#### ACKNOWLEDGEMENTS

For the loan of the valuable material I am obliged to Dr M. Brancucci (Basel) and Dr I. Löbl (Geneva). Special thanks are due to Prof. Dr J. Martens (Mainz) who enabled me to take part in the

Nepal expedition 1988. I thank Ms S. Fiechtner for technical help with the SEM and for preparing the photographs and Dr H. Schmalfuss (both of Stuttgart) for helping with the English draft of the manuscript.

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