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Reports of *Agathidium* from Himalaya: expeditions of Basel Natural History Museum and Prof. H. Franz (Coleoptera, Leiodidae)

by F. Angelini and L. De Marzo

Abstract: 63 species of *Agathidium* from India (Kashmir, Himachal Pradesh, Darjeeling, Sikkim, Assam and Meghalaya) from Nepal and from Bhutan are treated. Near *A. laevigatum* Er. following species are described as new: *abominabile*, *alatum*, *apterum*, *brancuccii*, *breve*, *brunneum*, *caelebs*, *castaneum*, *cinereum*, *circumflexum*, *concolor*, *crasum*, *dargharicum*, *darjeelingense*, *dingularicum*, *duofoveatum*, *eremita*, *fallax*, *francae*, *franzi*, *fulungense*, *fulvum*, *glaciale*, *goropanicum*, *gulmargense*, *gurka*, *hamanni*, *himalayanum*, *indicum*, *indistinctum*, *johnsoni*, *kashmirensense*, *kathmanduense*, *lebongense*, *meghalayanum*, *microreticulatum*, *minutissimum*, *montanum*, *nepalense*, *nivale*, *paria*, *phulchokiense*, *punctatum*, *pusillum*, *quaterfoveatum*, *raffaellae*, *seminigrum*, *semipunctatum*, *semireticulatum*, *semirufum*, *shermathangense*, *sherpa*, *singmaricum*, *subopacum*, *substriatum*, *testaceum*, *thochungense*, *transversum*, *uniforme*, *unumveciculatum*, *urbanii*, *wittmeri*. A key allows the determination of the species treated.

Introduction

At present only two records of *Agathidium* are reported in the literature from Himalayan Regions: *A. harmandi* Port. (PORTEVIN, 1905, from Sikkim) and *A. laevipenne* Port. (PORTEVIN, 1926, from Kashmir). Now the rich material taken in those regions by the Researchers of the Basel Museum and by Prof. H. Franz (Moedling, Austria) allows us to extend the present knowledge to further 63 species, of which 62 are here described as new.

They have been recognized on the basis of 411 specimens coming from 63 different localities in eight political regions: 5 loc. in Kashmir (3 spp.), 1 loc. in Himachal Pradesh (2 spp.), 27 loc. in Nepal (42 spp.), 4 loc. in Sikkim (1 spp.), 19 loc. in Darjeeling (20 spp.), 2 loc. in Bhutan (3 spp.), 1 loc. in Assam (1 spp.) and 4 loc. in Meghalaya (3 spp.).

Despite the vastness of the geographical area where the species come from, they show an homogeneity¹ so remarkable in the external

¹ All of them might be included in the subg. *Agathidium* s. str. on the basis of mesosternal characters; nevertheless, we have certain difficulties (now increased by the study of the Himalayan species) regarding subgeneric characters and are working to solve them.

features that necessarily the key to species is mostly based on new and minute characters. The introductory paragraphs are given to explain our terminology and other specifications.

For having entrusted to us the study of the important Himalayan material we must thank Prof. H. Franz (Moedling) and Dr. W. Wittmer (Basel). Many thanks also to other Researchers of the Himalaya Expeditions, Dr. C. Baroni Urbani, and to Dr. H. Daffner (Eching-Gunzenhausen), who gave us the material from Kashmir collected by Prof. H. Martens and Dr. W. Schawaller. Many thanks also to Mr. C. Johnson (Univ. Dept. Entom., Manchester) for his suggestions and criticisms about our manuscript; to Dr. N. Berti (Muséum National d'Histoire Naturelle de Paris) for her kindness in entrusting to us type specimens of *Agathidiini* from India; to the actual Head of the Entomology Department of the Natural History Museum of Basel, Dr. M. Brancucci, for the important advice in editing the present paper.

Diagnostic characters

Body length: Obtained by combining the midline length of head, pronotum and elytra, according to WHEELER (1979: 255).

Microsculpture: The dorsum of head, pronotum and elytra can be partly or entirely sculptured by more or less impressed lines arranged in grid (*microreticulation*), or by furrows nearly parallel one to another (*furrowing*) or sparse.

Puncturation: It can be more or less fine, uniform and impressed on the dorsum. We shall note also the approximate distance between punctures.

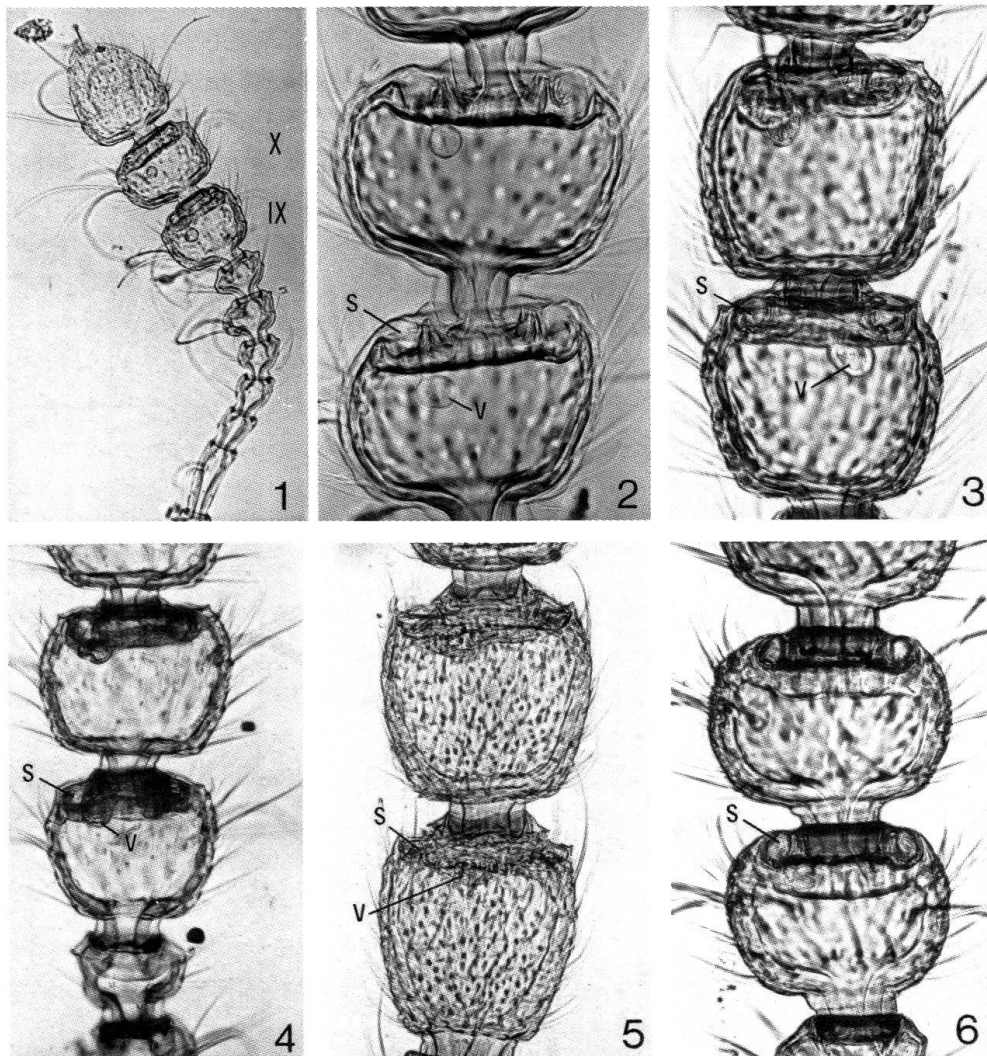
Shape of head: The lateral margins of the head behind eyes are nearly parallel, otherwise more or less clearly convergent backwards. On the basis of where the head is broadest there are two conditions: 1) head with *eyes bulging laterally*, when its greatest breadth is at level of eyes (e.g., Figs 31–37); head with *sunken eyes*, when the greatest breadth is behind eyes, at level of the “temporal angles” (e.g., Figs 14, 15, 30). Furthermore, we distinguish *globose eyes* (e.g., Figs 33, 35, 36) and *flattened eyes* (e.g., Figs 31, 32, 34, 37) on the basis of eye shape seen from a dorsal viewpoint.

Head dimples: In some species the dorsal surface of head at each side of the clypeus is undulate near the anterior margins, so that one or two constant *dimples* (for each side) are recognizable.

Length ratio among antennal segments: An important diagnostic character is the length of the third antennal segment, compared with the length of the second ($3^{\text{rd}}/2^{\text{nd}}$) or with the combined length of its two or three subsequent segments ($4^{\text{th}} + 5^{\text{th}}$ or $4^{\text{th}} + 5^{\text{th}} + 6^{\text{th}}$).

Hamann's organ: According to the general rule within the genus *Agathidium* (ANGELINI & DE MARZO, 1980), it consists of two Hamann's sensilla, one in both 9th and 10th antennal segments (Figs 1–6).

For each species we shall point out the presence or absence of vesicles (v) joining to the periarticular gutter (s) of each sensillum. If the vesicles are present, their number is always one (in the Himalayan



Figs 1–6: Hamann's organ of: 1, *Agathidium brancuccii* n. sp. 2, *A. quaterfoveatum* n. sp. 3, *A. lebonense* n. sp. 4, *A. duofoveatum* n. sp. 5, *A. urbanii* n. sp. 6, *A. circumflexum* n. sp.

species) in both the involved segments; their shape can be nearly spherical or flattened.

Pronotum: Referred to the holotype, we have noted the value of the ratio between breadth of head and pronotum (P/H) and, within the pronotum, between width and length (W/L) and between width and height (W/H ; i.e., convexity index). Furthermore we have considered the outline of the pronotal sides, which can be more or less *broadly rounded* (e.g., Figs 64, 67, 68, 71, 73, 75) or *nearly angulate* (e.g., Figs 65, 66, 69, 70, 72, 74). Figure 7 shows how length and height were taken.

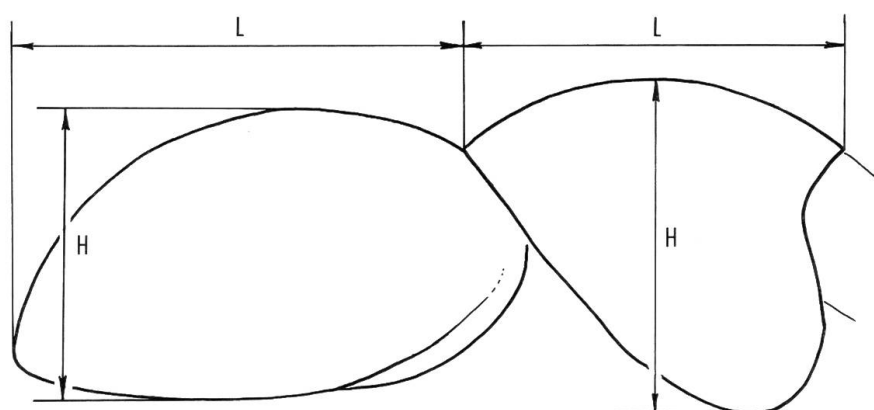
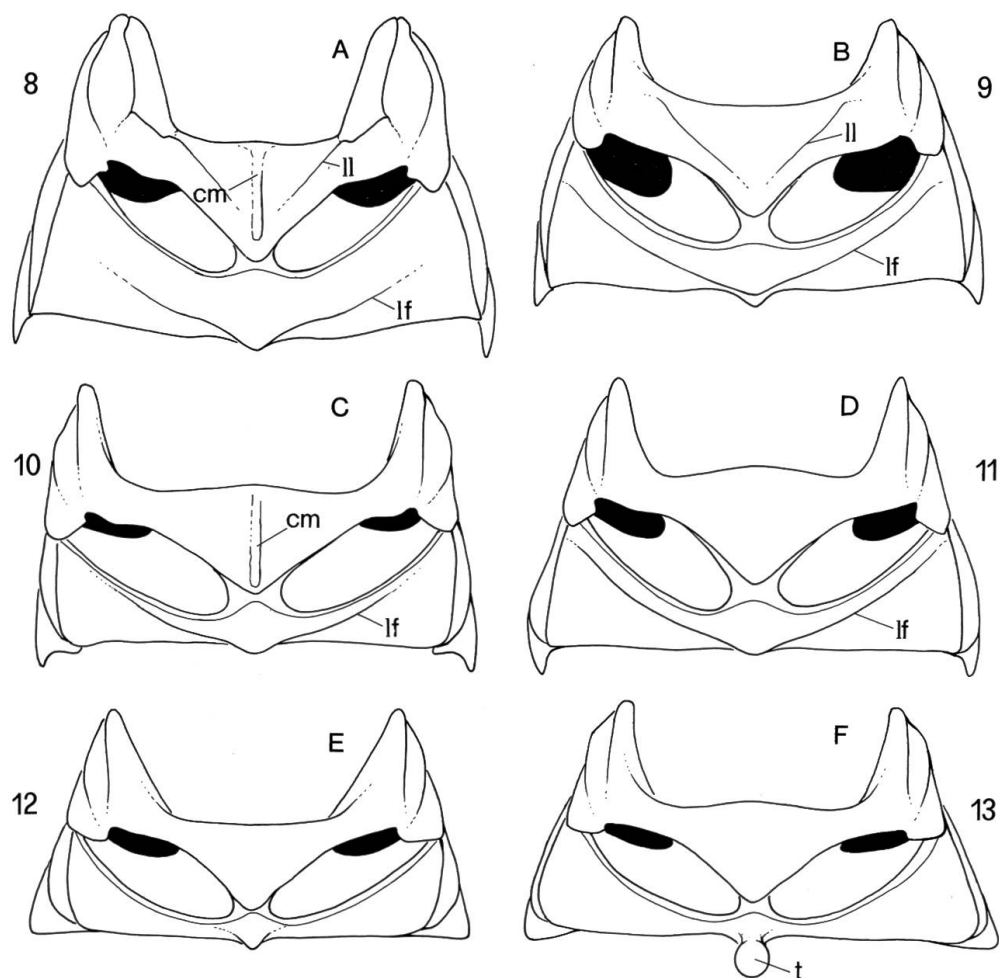


Fig. 7: Schema showing how length and height of pronotum and elytra are measured.

Elytra: As for the pronotum, we have noted the value (referred to the holotype) of the ratio between width and length (W/L) and between width and height (W/H ; i.e., convexity index), as well as presence and position of “humeral angle” along the lateral outline of elytra (Figs 16–19). Figure 7 shows how length and height were taken.

Meso- and metathoracic sterna: Figures 8–13 show six forms we find in considering together: a) presence or absence of *median carina (cm)* and *lateral lines (ll)* on the mesosternum; b) if the *femoral lines* of the metasternum (*lf*) are *complete* (i.e., they reach, or nearly reach, the lateral margins of the metasternum: Figs 9, 11) or *incomplete* (i.e., they become vague far from the lateral margins of the metasternum: Figs 8, 10); c) if the metasternum is so shortened that the mesocoxae are nearly in touch with metacoxae (Figs 12, 13; in this case the presence or absence of femoral lines is doubtful). *Form A* (Fig. 8): median carina present, lateral lines present, femoral lines incomplete.

Form B (Fig. 9): median carina absent, lateral lines present, femoral lines complete. *Form C* (Fig. 10): median carina present, lateral lines absent, femoral lines incomplete. *Form D* (Fig. 11): median carina absent, lateral lines absent, femoral lines complete. *Form E* (Fig. 12): median carina absent or slight, lateral lines absent, metasternum very shortened, femoral lines not evident. *Form F* (Fig. 13): differs from E only by the presence on the metasternum of a median tubercule (*t*). Other two forms not figured are: G) median carina present, lateral lines present, femoral lines complete; H) median carina present, lateral lines absent, femoral lines complete. Other specification on the characters of meso and metasternum are in ANGELINI & DE MARZO, 1980.



Figs 8–13: Forms of meso and metasternum in: 8, *Agathidium laevigatum* Er. 9, *A. semipunctatum* n.sp. 10, *A. wittmeri* n.sp. 11, *A. franzi* n.sp. 12, *A. caelebs* n.sp. 13, *A. brancuccii* in.sp. (*cm*: median carina; *ll*: lateral lines; *lf*: femoral lines; *t*: metasternal tubercule).

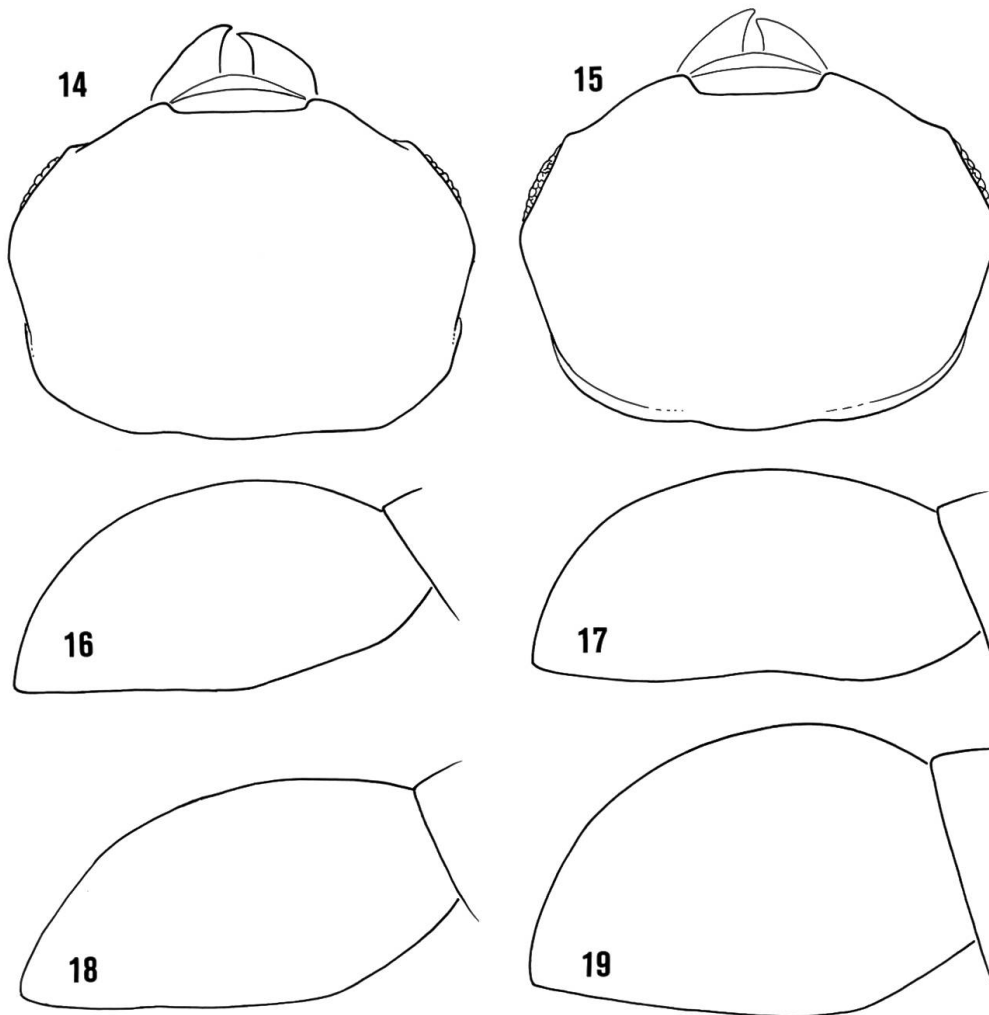
Male copulatory organ: Ordinarily it consists (Fig. 82) of a) a more or less slender aedeagus (*ed*) with proximal part simple (e. g., Figs 84, 90, 157, 160, 174) or twisted in different ways (hook-like, ring-like, spiral-like or winding), and a flattened ventral piece (*pv*), which is bifid in most species; b) a phallobase (*pb*) embracing the aedeagus more or less far from the proximal end of the latter; c) parameres (*pa*) usually slender, simple or grooved to fit for aedeagus sides. A very particular pattern of male copulatory organ is in *A. abominabile*: the phallobase is a subglobose capsule which contains the proximal half of the strong aedeagus (Figs 218–220); this is solded to the former at a dorsal point and joined vetrally to it by muscles; the ventral piece consists in two thin lamellae; the distal half of aedeagus is very complexly shaped, in part made to fit for parameres; these are very strong, widened and bifurcate at apex.

Spermatheca: Its shape is very variable in different species, but ordinarily constant in each of them. In describing it we distinguish an apical part and a basal part. Other specifications are given in ANGELINI & DE MARZO, (1980).

Key to species

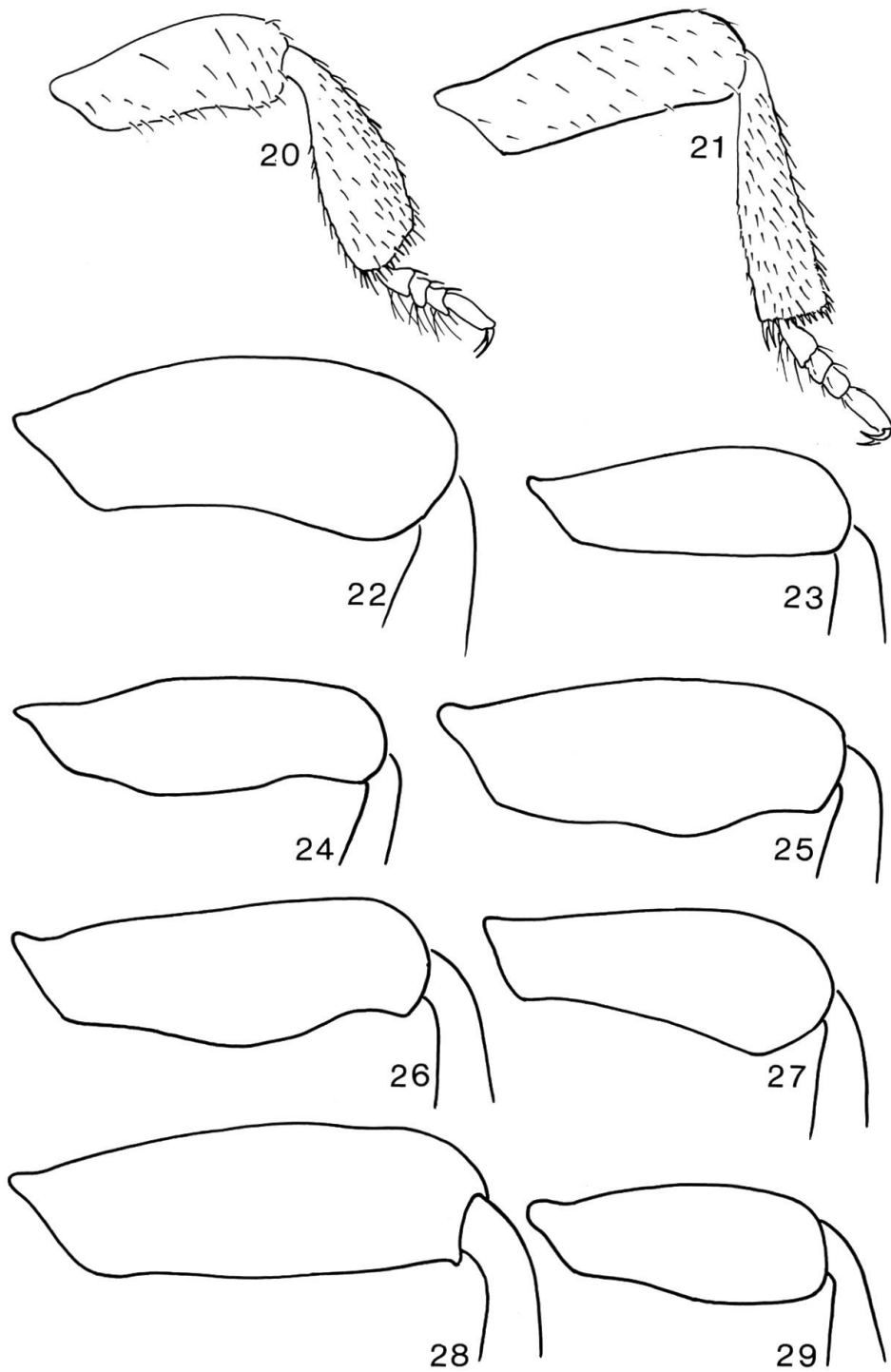
- | | |
|---|----|
| 1. Head widest behind eyes (Figs 14, 15, 30) | 2 |
| – Head widest at eyes (Figs 31–37) | 10 |
| 2. Apex of elytra with sutural striae | 3 |
| – Apex of elytra without sutural striae | 6 |
| 3. Dorsum at least partly microreticulate | 4 |
| – The whole dorsum lacking in microreticulation | 5 |
| 4. Elytra with very superficial microreticulation, shining. Head sparsely punctate. Length 2.1 mm. Male copulatory organ (Figs 82, 83). India (Himachal-Pradesh). testaceum n. sp. | |
| – Elytra with strong microreticulation, opaque. Head densely punctate. Length 2.1–2.4 mm. Spermatheca (Fig. 94). Nepal. semipunctatum n. sp. | |
| 5. Big size: length 3.4 mm. Eyes well evident from a dorsal viewpoint. Male hind femora as in figure 22. Lateral outline of elytra with humeral angle at middle length (Fig. 16). Membraneous wings present. Mesosternum carinate. Male copulatory organ (Figs 84, 85). Nepal. alatum n. sp. | |

- Small size: 2–2.1 mm. Eyes just a little evident from a dorsal viewpoint. Male hind femora as in figure 23. Lateral outline of elytra with humeral angle at the basal third (Fig. 17). Membraneous wings absent. Mesosternum without carina. Male copulatory organ (Figs 86, 87); spermatheca (Fig. 95). Kashmir. **gulmargense** n. sp.
- 6. Dorsum at least partly microreticulate 7
- Dorsum without microreticulation 9
- 7. Head strongly microreticulate and lacking in punctures. Length: 2.3 mm. Male copulatory organ (Figs 88, 89). Nepal. **himalayanum** n. sp.



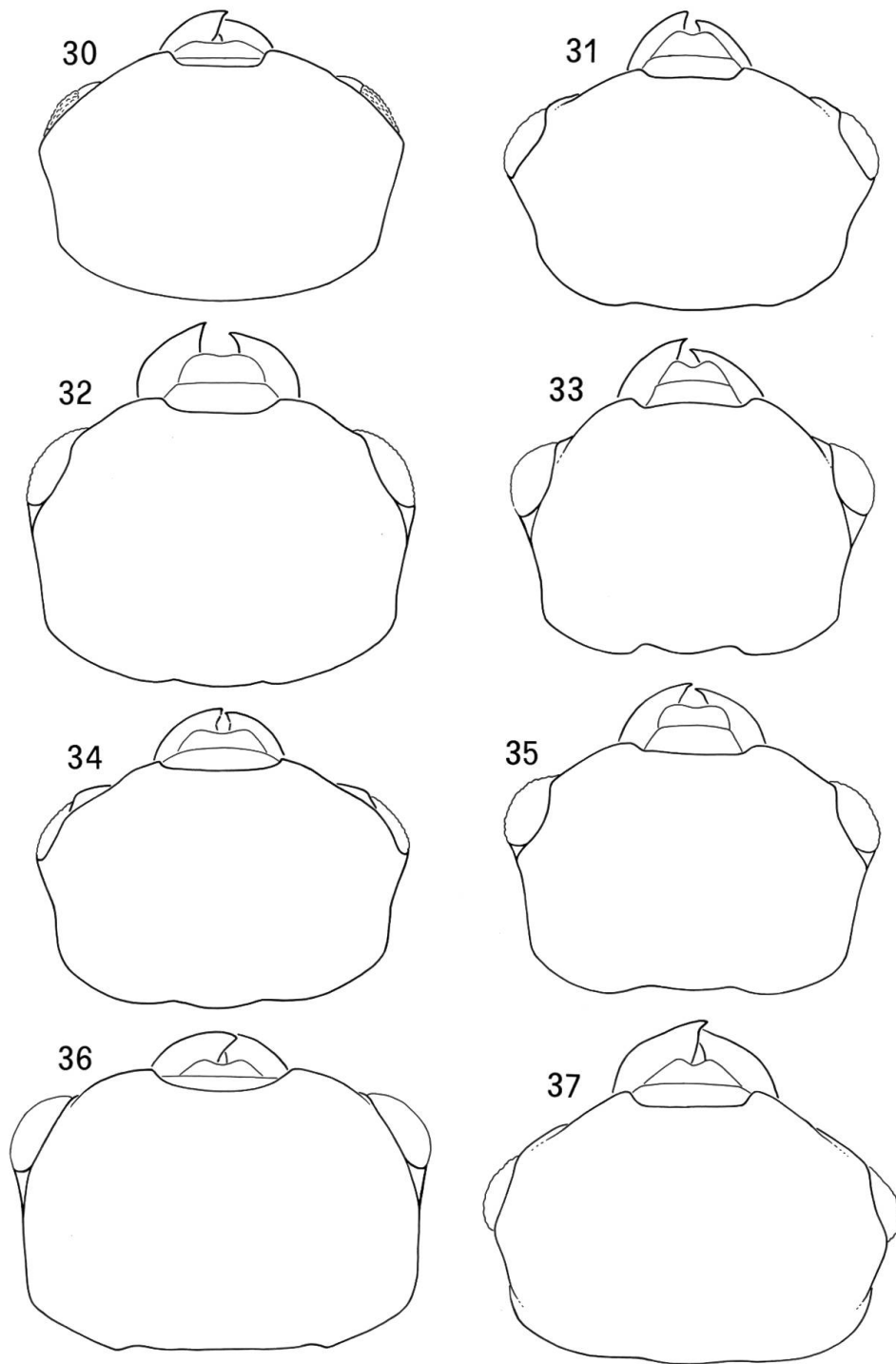
Figs 14–19: 14–15. Head of: 14, *Agathidium minutissimum* n. sp. 15, *A. nepalense* n. sp. 16–19. Lateral outline of elytra of: 16, *A. alatum* n. sp. 17, *A. gulmargense* n. sp. 18, *A. minutissimum* n. sp. 19, *A. nepalense* n. sp.

- Head with microreticulation very superficial or absent; puncturation of head very fine 8
- 8. Eyes just a little evident from a dorsal viewpoint (Fig. 14). Lateral outline of elytra as in figure 18. 3rd antennal segment longer than 4th + 5th. Length: 1.6–1.7 mm. Male copulatory organ (Figs 90, 91); spermatheca (Fig. 96). Nepal.
minutissimum n.sp.
- Eyes well evident from a dorsal viewpoint (Fig. 15). Lateral outline of elytra as in figure 19. 3rd antennal segment as long as 4th + 5th. Length: 2.1 mm. Spermatheca (Fig. 97). Nepal.
nepalense n.sp.
- 9. Lateral outline of pronotum much broadly rounded (Fig. 64). Hind tibiae broadly expanded (Fig. 20). Head (Fig. 30). Length: 1.7 mm. Spermatheca (Fig. 98). India (Darjeeling).
pusillum n.sp.
- Lateral outline of pronotum nearly angulate (Fig. 65). Hind tibiae not expanded (Fig. 21). Length: 2.1–2.4 mm. Male copulatory organ (Figs 92, 93); spermatheca (Fig. 99). India (Darjeeling).
wittmeri n.sp.
- 10. Apex of elytra with sutural striae 11
- Apex of elytra without sutural striae 32
- 11. Dorsum at least partly microreticulate or with furrows 12
- The whole dorsum lacking in microsculpture 26
- 12. Microreticulation on the whole dorsum, more or less impressed 13
- Head or pronotum or elytra lacking in microreticulation ... 19
- 13. Antennae uniformly testaceous 14
- Antennae with dark club. Male hind femora (Fig. 24). Length: 2.4–2.5 mm. Male copulatory organ (Figs 109–110); spermatheca (Fig. 100). Nepal. **castaneum** n.sp.
- 14. Head microreticulation very superficial or in traces 15
- Head microreticulation very strong, at least laterally 16
- 15. Head and pronotum clearly and regularly punctate. Male hind femora (Fig. 25). Length 2.2–2.4 mm. Male copulatory organ (Figs 111, 112); spermatheca (Fig. 101). Nepal.
dargharicum n.sp.
- Head and pronotum with fine and irregular puncturation. Length: 2.6–2.7 mm. Spermatheca (Fig. 102). Nepal.
thochungense n.sp.
- 16. Pronotum very superficially microreticulate and clearly



Figs 20–29: 20–21. Male hind femur, tibia and tarsus of: 20, *Agathidium pusillum* n. sp. 21, *A. wittmeri* n. sp. 22–29. Male hind femur of: 22, *A. alatum* n. sp. 23, *A. gulmargense* n. sp. 24, *A. castaneum* n. sp. 25, *A. dargharicum* n. sp. 26, *A. nivale* n. sp. 27, *A. semirufum* n. sp. 28, *A. francae* n. sp. 29, *A. kathmanduense* n. sp.

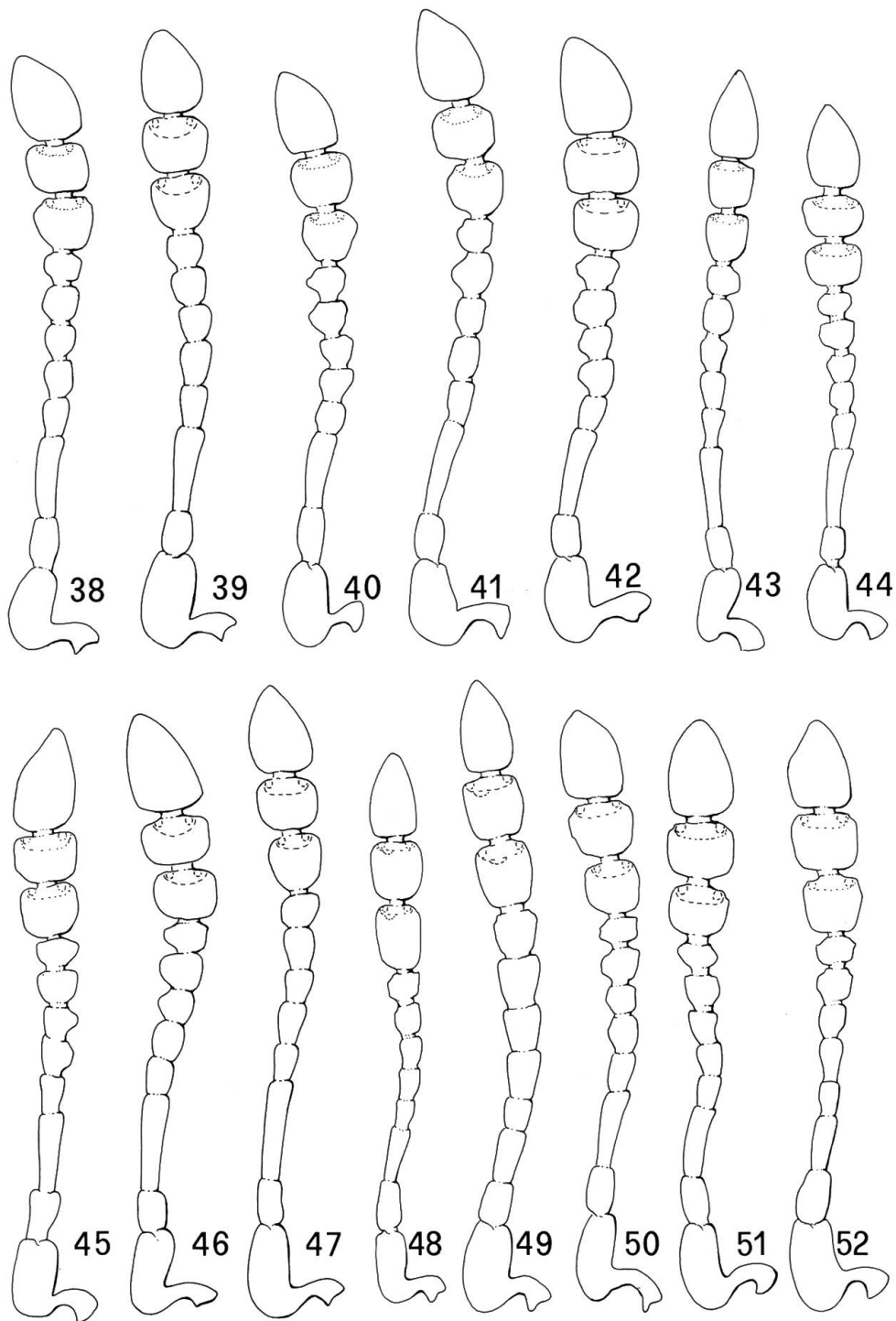
- punctate 17
- Pronotum with strong microreticulation and lacking in puncturation 18
17. 3rd antennal segment shorter than 4th + 5th (Fig. 38). Male hind femora with sinuate posterior margin (Fig. 26). Length: 2.5–2.6 mm. Male copulatory organ (Figs 113, 114); spermatheca (Fig. 103). Nepal. **nivale** n. sp.
- 3rd antennal segment as long as 4th + 5th (Fig. 39). Male hind femora with nearly rectilinear posterior margin (Fig. 28). Length: 3–3.1 mm. Male copulatory organ (Figs 115, 116); spermatheca (Fig. 104). Nepal. **francae** n. sp.
18. 3rd antennal segment a little longer than 2nd (Fig. 40). Length: 3.0 mm. Spermatheca (Fig. 105). Nepal. **microreticulatum** n. sp.
- 3rd antennal segment longer than twice the 2nd (Fig. 41). Length: 2.9–3 mm. Spermatheca (Fig. 106). Nepal. **subopacum** n. sp.
19. Head microsculptured laterally with parallel furrows 20
- Head without furrows or microreticulation 22
20. Elytra microreticulate 21
- Elytra not microreticulate. 3rd antennal segment longer than twice the 2nd. Length: 3.2 mm. Male copulatory organ (Figs 117, 118). Nepal. **punctatum** n. sp.
21. Elytra strongly microreticulate, opaque. 3rd antennal segment longer than twice the 2nd (Fig. 42). Length: 2.7 mm. Spermatheca (Fig. 107). Nepal. **substriatum** n. sp.
- Elytra with superficial microreticulation, shining. 3rd antennal segment shorter than twice the 2nd (Fig. 43). Length: 3–3.2 mm. Male copulatory organ (Figs 119, 120); spermatheca (Fig. 108). Nepal. **johnsoni** n. sp.
22. 3rd antennal segment longer than twice the 2nd (Fig. 44). Head and pronotum lacking in microreticulation, with punctures very sparse, small and superficial. Length: 2.8–3.2 mm. Spermatheca (Fig. 133). India (Darjeeling). **apterum** n. sp.
- 3rd antennal segment shorter than twice the 2nd (Fig. 45). Head and pronotum with clear puncturation 23
23. Antennae uniformly testaceous 24
- Antennae with darker or black club 25
24. Elytra strongly microreticulate, opaque. Head and pronotum with clear, regular and double puncturation and traces of



Figs 30–37: Head of: 30, *Agathidium pusillum* n.sp. 31, *A. kashmirensis* n.sp. 32, *A. hamanni* n.sp. 33, *A. semirufum* n.sp. 34, *A. kathmanduense* n.sp. 35, *A. duofoveatum* n.sp. 36, *A. urbanii* n.sp. 37, *A. abominabile* n.sp.

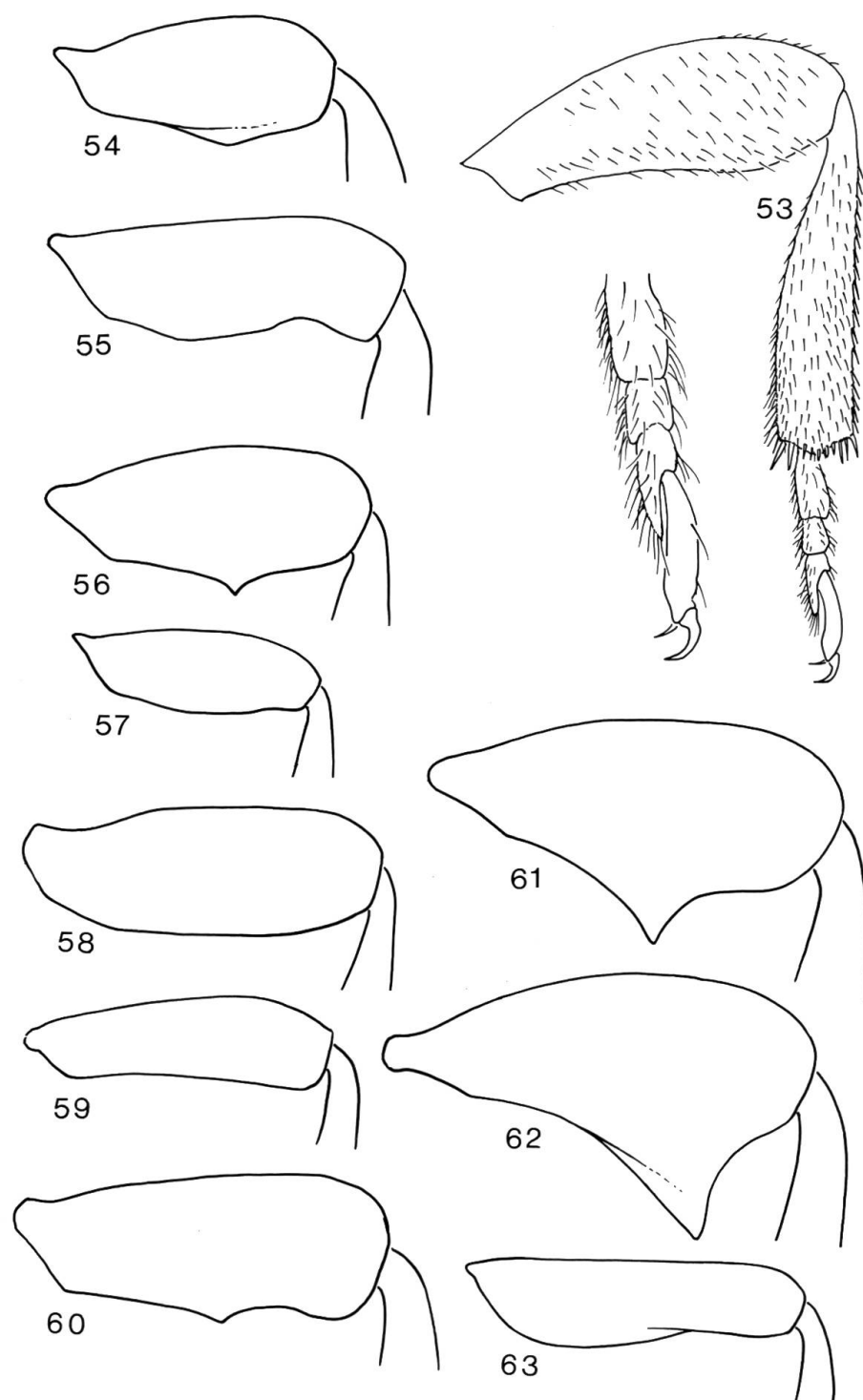
- microreticulation. Length: 2.7 mm. Spermatheca (Fig. 134). Nepal. **brunneum** n. sp.
- Elytra superficially microreticulate, shining. Head and pronotum with single puncturation: punctures small, differently spaced from each other. Length: 2.5 mm. Male copulatory organ (Figs 121, 122). Nepal. **indistinctum** n. sp.
25. Male copulatory organ as in figures 123, 124; spermatheca as in figure 135. Length: 2.6–2.9 mm. Nepal. **glaciale** n. sp.¹
- Male copulatory organ as in figures 125, 126; spermatheca as in figure 136; antennae (Fig. 45). Length: 2.5–2.9 mm. Nepal. **fulungense** n. sp.
26. 3rd antennal segment a little longer than 2nd 27
- 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.8$ or more; Figs 46, 47) 28
27. Head lateral margins strongly convergent backwards (Fig. 31); elytra with very sparse puncturation. Female tarsal formula: 4–4–4. Membraneous wings absent. Length: 2.3–2.8 mm. Male copulatory organ (Figs 127, 128); spermatheca (Fig. 137). Kashmir. **kashmirensis** n. sp.
- Head lateral margins nearly parallel (Fig. 32). Elytra with clear and regular puncturation. Female tarsal formula: 5–4–4. Membraneous wings present. Length: 2.8 mm. Spermatheca (Fig. 138). Nepal. **hamanni** n. sp.
28. Pronotum without puncturation. Length: 2.7–2.8 mm. Male copulatory organ (Figs 129, 130); spermatheca (Fig. 139). India (Darjeeling). **fallax** n. sp.
- Pronotum more or less finely punctate 29
29. Antennae uniformly testaceous. Head and pronotum with fine and sparse puncturation 30
- Antennae with dark club. Head and pronotum with dense puncturation. Length: 3.25 mm. Male copulatory organ (Figs 131, 132); spermatheca (Fig. 140). Nepal. **raffaellae** n. sp.
30. The whole dorsum reddish-brown. Head and pronotum with fine and sparse puncturation, elytra with very small punctures. Length: 2.9 mm. Male copulatory organ (Figs 147, 148). Nepal. **concolor** n. sp.

¹ *A. glaciale* differs from *fulungense* only by male copulatory organ and spermatheca, because other characters are variable.



Figs 38–52: Antennae of: 38, *Agathidium nivale* n.sp. 39, *A. francae* n.sp. 40, *A. microreticulatum* n.sp. 41, *A. subopacum* n.sp. 42, *A. substriatum* n.sp. 43, *A. johnsoni* n.sp. 44, *A. apterum* n.sp. 45, *A. fulungense* n.sp. 46, *A. indicum* n.sp. 47, *A. dinguaricum* n.sp. 48, *A. duofoveatum* n.sp. 49, *A. urbanii* n.sp. 50, *A. montanum* n.sp. 51, *A. phulcho-kiense* n.sp. 52, *A. darjeelingense* n.sp.

- The whole dorsum black. Head, pronotum and elytra with very small punctures 31
- 31. 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 2.5$) and as long as 4th + 5th + 6th (Fig. 46). Length: 2.9–3 mm. Male copulatory organ (Figs 149–150); spermatheca (Fig. 141). India (Darjeeling). **indicum** n. sp.
- 3rd antennal segment as long as twice the 2nd and shorter than 4th + 5th + 6th (Fig. 47). Length: 3–3.1 mm. Male copulatory organ (Figs 151, 152). Nepal. **dinguaricum** n. sp.
- 32. Dorsum at least partly microreticulate or with furrows 33
- The whole dorsum without microsculpture 43
- 33. The whole dorsum more or less superficially microreticulate 34
- Head or pronotum or elytra lacking in microreticulation ... 37
- 34. Antennae uniformly testaceous. 3rd antennal segment as long as twice the 2nd. Length: 2.75 mm. Spermatheca (Fig. 142). Nepal. **seminigrum** n. sp.
- Antennae with dark or black club 35
- 35. Head and pronotum lacking in puncturation; the whole dorsum reddish-brown. Metasternum very shortened: form E (Fig. 12). Length 2.2 mm. Spermatheca (Fig. 143). Nepal. **shermathangense** n. sp.
- Head and pronotum punctate. The whole dorsum black. Metasternum not very shortened: form A, B (Figs 8, 9) 36
- 36. Head, pronotum and elytra with strong and uniform microreticulation. Mesosternum carinate: form A, (Fig. 8). Female tarsal formula: 5–4–4. Length: 2.8–3.2 mm. Male copulatory organ (Figs 153, 154); spermatheca (Fig. 144). Nepal, India (Darjeeling, Himachal Pradesh), Bhutan. **laevigatum** Er.
- Head, pronotum and elytra with superficial microreticulation, nearly absent near the scutellum. Mesosternum without median carina: form B (Fig. 9). Female tarsal formula: 4–4–4. Length: 2.3–2.5 mm. Male copulatory organ (Figs 155, 156); spermatheca (Fig. 145). Nepal. **goropanicum** n. sp.
- 37. Head with microreticulation or furrows 38
- Head lacking in microsculpture 40
- 38. Pronotum microreticulate or with furrows. Antennae uniformly testaceous. No dimple near the anterior rims of head. Eyes flattened (Fig. 34). Membraneous wings lacking 39
- Pronotum without microsculpture. Antennae with black club



Figs 53–63: 53, male hind femur, tibia and tarsus of *Agathidium urbanii* n.sp. 54–63. Male hind femur of: 54, *A.semireticulatum* n.sp. 55, *A.montanum* n.sp. 56, *A.uniforme* n.sp. 57, *A.phulchokiense* n.sp. 58, *A.crassum* n.sp. 59, *A.darjeelingense* n.sp. 60, *A.eremita* n.sp. 61, *A.gurka* n.sp. 62, *A.paria* n.sp. 63, *A.abominabile* n.sp.

(segments 9–10). Head with one dimple at each side near the anterior rims. Eyes globose (Fig. 33). Membraneous wings present. Male hind femora (Fig. 27). Length: 2.6–2.8 mm. Male copulatory organ (Figs 157–159). Spermatheca (Fig. 146). Nepal, India (Darjeeling, Assam), Bhutan.

semirufum n. sp.

39. Small size, length 1.9–2 mm. Whole dorsum reddish-brown. Elytra with superficial microreticulation. 3rd antennal segment a little longer than 2nd. Head (Fig. 34). Metasternum not very shortened: form D (Fig. 11). Male hind femora (Fig. 29). Male copulatory organ (Figs 160, 161); spermatheca (Fig. 184). Nepal.

kathmanduense n. sp.

- Bigger size, length 2.6–2.8 mm. Whole dorsum black. Elytra without puncturation. 3rd antennal segment as long as twice the 2nd. Metasternum very shortened (as in figure 12). Male copulatory organ (Figs 162, 163). India (Darjeeling and Meghalaya).

singmaricum n. sp.

40. Antennae uniformly testaceous 41

- Antennae with dark club. Male hind femora (Fig. 54). Length: 2.1–2.5 mm. Male copulatory organ (Figs 164, 165); spermatheca (Fig. 185). Nepal. **semireticulatum** n. sp.

41. Elytra with strong microreticulation. Length: 2.3–2.6 mm. Male copulatory organ (Figs 166, 167); spermatheca (Fig. 186). Nepal.

circumflexum n. sp.

- Elytra with superficial microreticulation 42

42. Head and pronotum with clear and regular puncturation, elytral puncturation sparser. 3rd antennal segment a little longer than 2nd and as long as 4th + 5th. Mesosternum without carina (as in figure 11). Length: 2.4–2.7 mm. Male copulatory organ (Figs 168, 169); spermatheca (Fig. 187). Nepal.

franzi n. sp.

- Head and pronotum with very superficial and sparse puncturation. Elytra without puncturation. 3rd antennal segment nearly as long as twice the 2nd. Mesosternum carinate (as in figure 12). Length: 2.2 mm. Male copulatory organ (Figs 170, 171). Nepal.

breve n. sp.

43. Head with 1 or 2 dimples at each side of clypeus near the anterior margins 44

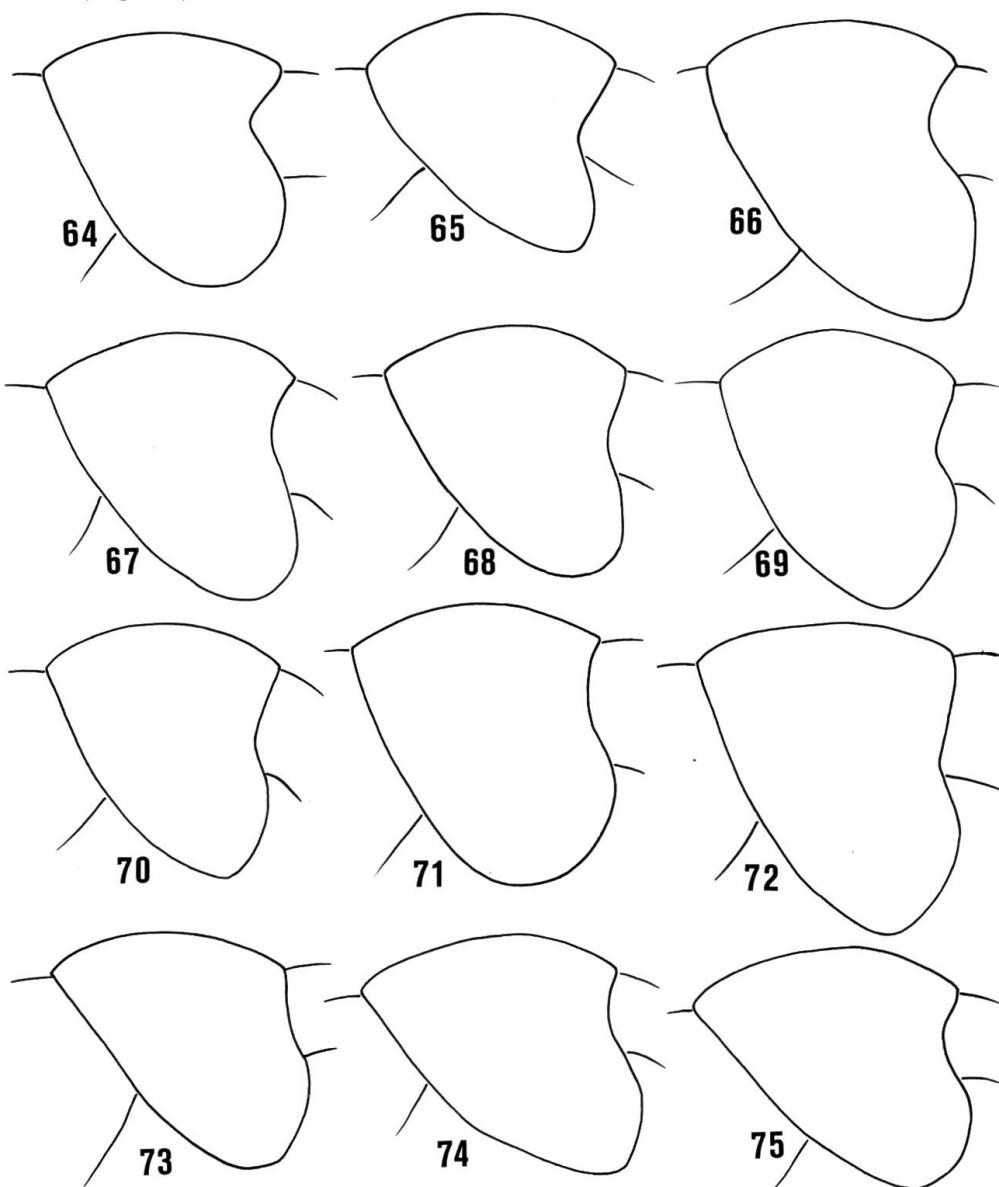
- Head without dimples 46

44. Metasternum very shortened (as in figure 13); head with 2

dimples at each side of clypeus near the anterior margins. Membraneous wings absent. Length: 3.1 mm. Spermatheca (Fig. 188). India (Darjeeling).

quaterfoveatum n. sp.

- Metasternum not very shortened (as in figure 10), membraneous wings present 45
45. Small size, length 2.2–2.3 mm. 3rd antennal segment well longer than the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.2$; Fig. 48). Eyes globose (Fig. 35). Antennae with darker club. Pronotum much



Figs 64–75: Lateral outline of the pronotum in: 64, *Agathidium pusillum* n.sp. 65, *A. wittmeri* n.sp. 66, *A. brancuccii* n.sp. 67, *A. sherpa* n.sp. 68, *A. montanum* n.sp. 69, *A. uniforme* n.sp. 70, *A. cinereum* n.sp. 71, *A. transversum* n.sp. 72, *A. eremita* n.sp. 73, *A. paria* n.sp. 74, *A. lebonense* n.sp. 75, *A. meghalayanum* n.sp.

- broader than long ($W/L = 1.54$) (Fig. 76). Male copulatory organ (Figs 172, 173); spermatheca (Fig. 189). Nepal, India (Darjeeling). **duofoveatum** n. sp.
- Bigger size, length: 3.35 mm. 3rd antennal segment as long as the 2nd (Fig. 49). Eyes globose (Fig. 36). Antennae uniformly testaceous. Pronotum not much broader than long ($W/L = 1.31$) (Fig. 77). Male hind femora (Fig. 53). Male copulatory organ (Figs 174, 175). India (Meghalaya). **urbanii** n. sp.
46. Antennae uniformly testaceous 47
- Antennae with darker or black club 61
47. Metasternum very shortened (Figs 12, 13) 48
- Metasternum not very shortened (Figs 9–11) 51
48. Big size, length: 2.8 mm. Whole dorsum black. Spermatheca: (Fig. 190). India (Darjeeling). **unumvesciculatum** n. sp.
- Smaller size, length: 2.7 mm or less. Whole dorsum reddish-brown 49
49. Elytra smooth, without punctures or furrows 50
- Elytra with sparse puncturation, made with large and superficial punctures, and short and superficial furrows interposed. Length: 2–2.3 mm. Male copulatory organ (Figs 176, 177). Nepal. **caelebs** n. sp.
50. Lateral outline of pronotum nearly angulate (Fig. 66). Female tarsal formula: 5–4–4. Length: 1.9–2.3 mm. Male copulatory organ (Figs 178, 179); spermatheca (Fig. 191). India (Sikkim and Darjeeling). **brancuccii** n. sp.
- Lateral outline of pronotum broadly rounded (Fig. 67). Female tarsal formula: 4–4–4. Length: 2.5–2.7 mm. Male copulatory organ (Figs 180, 181); spermatheca (Fig. 192). Nepal. **sherpa** n. sp.
51. Mesosternum without carina (Figs 9, 11) 52
- Mesosternum with carina more or less in relief (Figs 8, 10) . . . 56
52. Big size, length: 2.9–3 mm. The whole dorsum black. Male hind femora (Fig. 55). Female tarsal formula: 4–4–4. Antennae (Fig. 50). Lateral outline of the pronotum (Fig. 68). Male copulatory organ (Figs 182, 183); spermatheca (Fig. 193). India (Kashmir, Darjeeling). **montanum** n. sp.
- Smaller size, length: 2.6 mm or less 53
53. 3rd antennal segment as long as twice the 2nd. Dorsum redd-

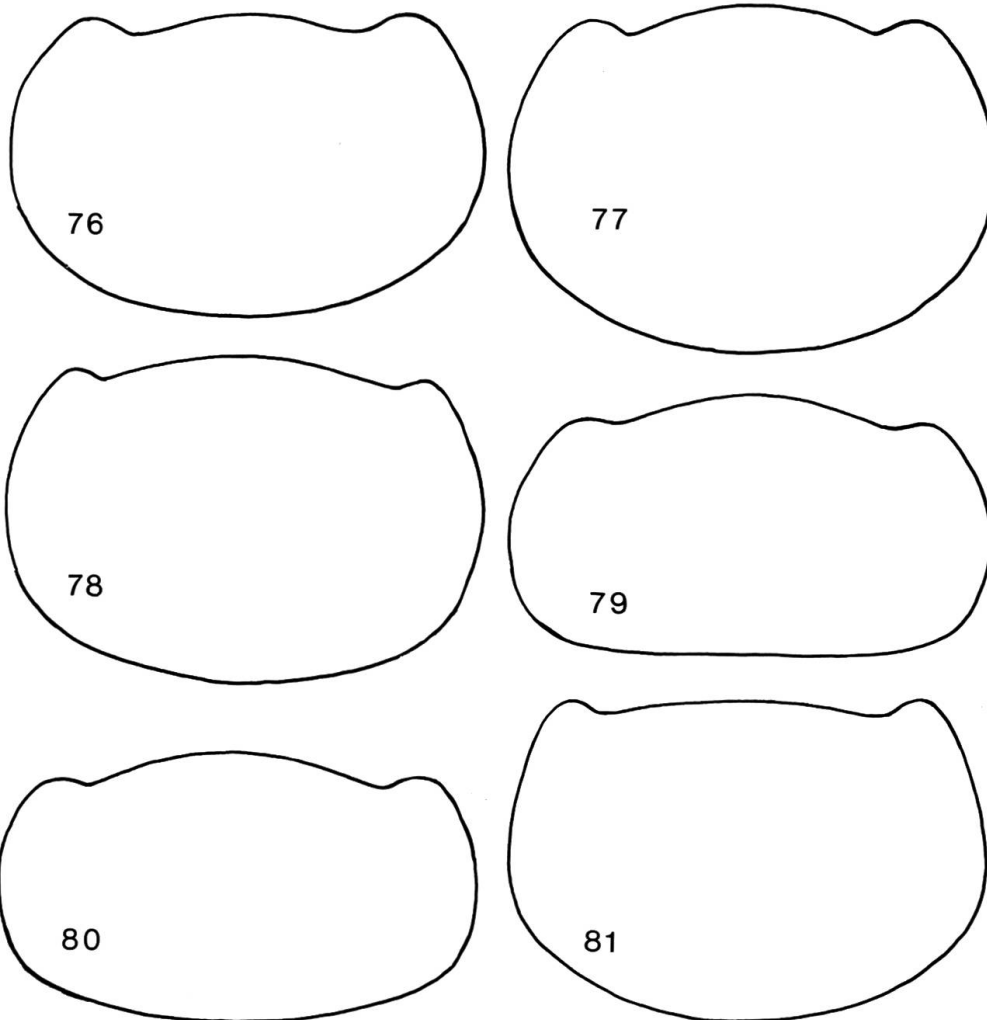
ish-brown. Male hind femora (Fig. 56). Female tarsal formula: 5-4-4. Lateral outline of the pronotum (Fig. 69). Length 2.2-2.6 mm. Male copulatory organ (Figs 200, 201); spermatheca (Fig. 194). Nepal. **uniforme** n. sp.

- 3rd antennal segment long less than 1.5 times the 2nd 54

54. Lateral outline of pronotum nearly angulate (Fig. 70). The whole dorsum black. Dorsal outline of pronotum (Fig. 78). Length: 2.15 mm. Male copulatory organ (Figs 202, 203). Bhutan. **cinereum** n. sp.

- Lateral outline of pronotum broadly rounded (Fig. 71) 55

55. Mesosternum without lateral lines (as in figure 11). Antennae (Fig. 51). Male hind femora (Fig. 57). Length: 2.1-2.2



Figs 76-81: Dorsal outline of the pronotum in: 76, *Agathidium duofoveatum* n. sp. 77, *A. urbanii* n. sp. 78, *A. cinereum* n. sp. 79, *A. transversum* n. sp. 80, *A. eremita* n. sp. 81, *A. paria* n. sp.

- mm. Male copulatory organ (Figs 204, 205); spermatheca (Fig. 195). Nepal. **phulchokiense** n. sp.
- Mesosternum with slight lateral lines (as in figure 9). Pronotum very much broader than long (Fig. 79); lateral outline (Fig. 71). Length: 2 mm. Male copulatory organ (Figs 206, 207). India (Darjeeling). **transversum** n. sp.
56. Anterior margins of head at sides of clypeus with strong rim 57
- Anterior margins of head at sides of clypeus with fine and uniform rim 58
57. Head and pronotum with clear and regular puncturation. 3rd antennal segment longer than 4th + 5th and nearly as long as twice the 2nd. Male hind femora (Fig. 58). Membraneous wings absent. Length: 2.8–3 mm. Male copulatory organ (Figs 208–209); spermatheca (Fig. 196). Nepal, India (Darjeeling). **crassum** n. sp.
- Head and pronotum only with very small and sparse punctures. 3rd antennal segment shorter than 4th + 5th and just a little longer than 2nd (Fig. 52). Male hind femora (Fig. 59). Membraneous wings present. Length: 2.9 mm. Male copulatory organ (Figs 210, 211). India (Darjeeling). **darjeelingense** n. sp.
58. 3rd antennal segment long more than twice the 2nd. Length at least 2.8 mm 59
- 3rd antennal segment long about 1.5 times the 2nd. Smaller size, length: 2.4 mm. Male copulatory organ (Figs 212, 213). Nepal. **fulvum** n. sp.
59. Elytra with fine and regular puncturation 60
- Elytra only with very small and sparse punctures. Male hind femora (Fig. 61). Length: 3.2 mm. Male copulatory organ (Figs 214, 215); spermatheca (Fig. 197). Nepal. **gurka** n. sp.
60. Lateral outline of pronotum nearly angulated (Fig. 72). Pronotum very much broader than long ($W/L = 1.64$): (Fig. 80). Male hind femora (Fig. 60). Length: 2.8 mm. Male copulatory organ (Figs 216, 217). India (Darjeeling). **eremita** n. sp.
- Lateral outline of pronotum broadly rounded (Fig. 73). Pronotum just a little broader than long ($W/L = 1.15$) (Fig. 81). Male hind femora (Fig. 62). Length: 3.2–3.3 mm. Male copulatory organ (Figs 221, 222); spermatheca (Fig. 198). Nepal. **paria** n. sp.
61. Head and pronotum with clear and regular puncturation.

- Elytral puncturation sparser. Anterior margins of head at sides of clypeus with strong rim. Metasternum not very shortened (as in figure 9) 62
- The whole dorsum impunctate. Anterior margins of head at sides of clypeus with fine and uniform rim. Metasternum very shortened (as in figure 12). Head (Fig. 37). Male hind femora (Fig. 63). Length: 2.7 mm. Male copulatory organ (Figs 218–220). India (Darjeeling). **abominabile** n. sp.
 - 62. Lateral outline of pronotum nearly angulate (Fig. 74). Membraneous wings present. Length: 2.7 mm. Male copulatory organ (Figs 223, 224); spermatheca (Fig. 199). India (Darjeeling). **lebongense** n. sp.
 - Lateral outline of pronotum broadly rounded (Fig. 75). Membraneous wings absent. Length: 2.3–2.5 mm. Male copulatory organ (Figs 225, 226). India (Meghalaya). **meghalayanum** n. sp.

Description of the species

Agathidium (s. str.) **testaceum** n. sp. Figs 82, 83.

Length: 2.1 mm (holotype and paratype). The whole dorsum light reddish-brown (both samples scarcely sclerotized); venter and appendages testaceous. Head with temporal angles. Microreticulation in traces on pronotum, superficial on elytra: puncturation irregular on head, very fine on elytra.

Head: lacking in microreticulation; puncturation very irregular and sparse: punctures very small and superficial, different in size and irregularly spaced from each other (by 1–5 times their own diameter). Eyes sunken, just a little evident from a dorsal viewpoint. 3rd antennal segment longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.4$) and shorter than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation in traces; puncturation as on head but sparser; well broader than head ($P/H = 1.5$), much broader than long ($W/L = 1.74$) and moderately convex ($W/H = 1.58$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.62 mm, width 1.08 mm, height 0.68 mm.

Elytra: superficially microreticulate, shining; punctures very small, superficial and sparse. Slightly broader than pronotum, a little broader

than long ($W/L = 1.12$) and scarcely convex ($W/H = 2.03$). Lateral outline with well defined humeral angle at the basal third. Sutural striae vague, limited within the apical third of elytra. Holotype: length 0.98 mm, width 1.10 mm, height 0.54 mm.

Membraneous wings absent. Meso and metasternum: median carina slight, lateral lines slight, femoral lines complete.

Legs: male hind femora with posterior margin a little sinuate distally (as in *A. dargharicum*, Fig. 25). Tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 82, 83): aedeagus slender, with ring-like proximal part, lateral margins very sinuate at apex, rounded tip and bifid ventral piece. Parameres slender, gently tapered towards apex.

Types: India: Himachal Pradesh, Rohtang Pass, south Hang, 2500–3500 m, 2 ♂, H. Franz (holotype Nr. 704 in coll. Franz, paratype Nr. 705 in coll. Angelini).

Discussion: In the ambit of the species with “temporal angles” (head widest behind the eyes), *A. testaceum* n.sp. is close related to *semipunctatum* n.sp. for habitus and body lateral outline. The material disposable at present does not allow to examine the differences in the genital organs, but we think to be in presence of two distinct species on the basis of elytral microreticulation (superficial or impressed), head puncturation (differently dense) and presence or not of the mesosternal lateral lines. Both of them differ from the other seven species with temporal angles (*A. alatum* n.sp., *gulmargense* n.sp., *himalayanum* n.sp., *minutissimum* n.sp., *nepalense*, n.sp. *pusillum* n.sp. and *wittmeri* n.sp.) by the presence of sutural striae and/or microreticulation on the elytra.

***Agathidium* (s. str.) *semipunctatum* n.sp.**

Figs 9, 94.

Length: 2.1–2.4 mm (holotype 2.1 mm). Dorsum uniformly reddish-brown; venter paler; antennae and legs dark testaceous. Head with temporal angles. Microreticulation in traces on head near the eyes, very superficial on pronotum, impressed on elytra; punctate only on head and pronotum.

Head: microreticulation in traces near the eyes; puncturation clear and regular: punctures small and rather impressed, spaced from each other by 2–4 times their own diameter. Eyes sunken. 3rd antennal segment longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.4$) and shorter than 4th + 5th; Hamann’s organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: very superficially microreticulate on the whole surface; puncturation very sparse: punctures small and superficial, spaced from each other by 1–6 times their own diameter; much broader than head ($P/H = 1.44$), much broader than long ($W/L = 1.61$) and scarcely convex ($W/H = 1.88$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.62 mm, width 1.00 mm, height 0.53 mm.

Elytra: strongly and regularly microreticulate on the whole surface, opaque; impunctate. As broad as the pronotum, a little longer than broad ($W/L = 0.96$) and moderately convex ($W/H = 1.7$). Lateral outline with evident humeral angle within the basal third. Sutural striae impressed, limited in the apical third of the elytra. Holotype: length 1.06 mm, width 1.02 mm, height 0.60 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: tarsal formula: ♀ 4–4–4.

Spermatheca (Fig. 94): basal part a little longer than the apical one, both of them nearly alike in caliber.

Types: West Nepal, Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 3 ♀, H. Franz, 18–20. IX. 1972 (holotype Nr. 707 and 1 paratype Nr. 706 in coll. Franz; 1 paratype Nr. 708 in coll. Angelini).

Discussion: see what noted for *A. testaceum* n. sp.

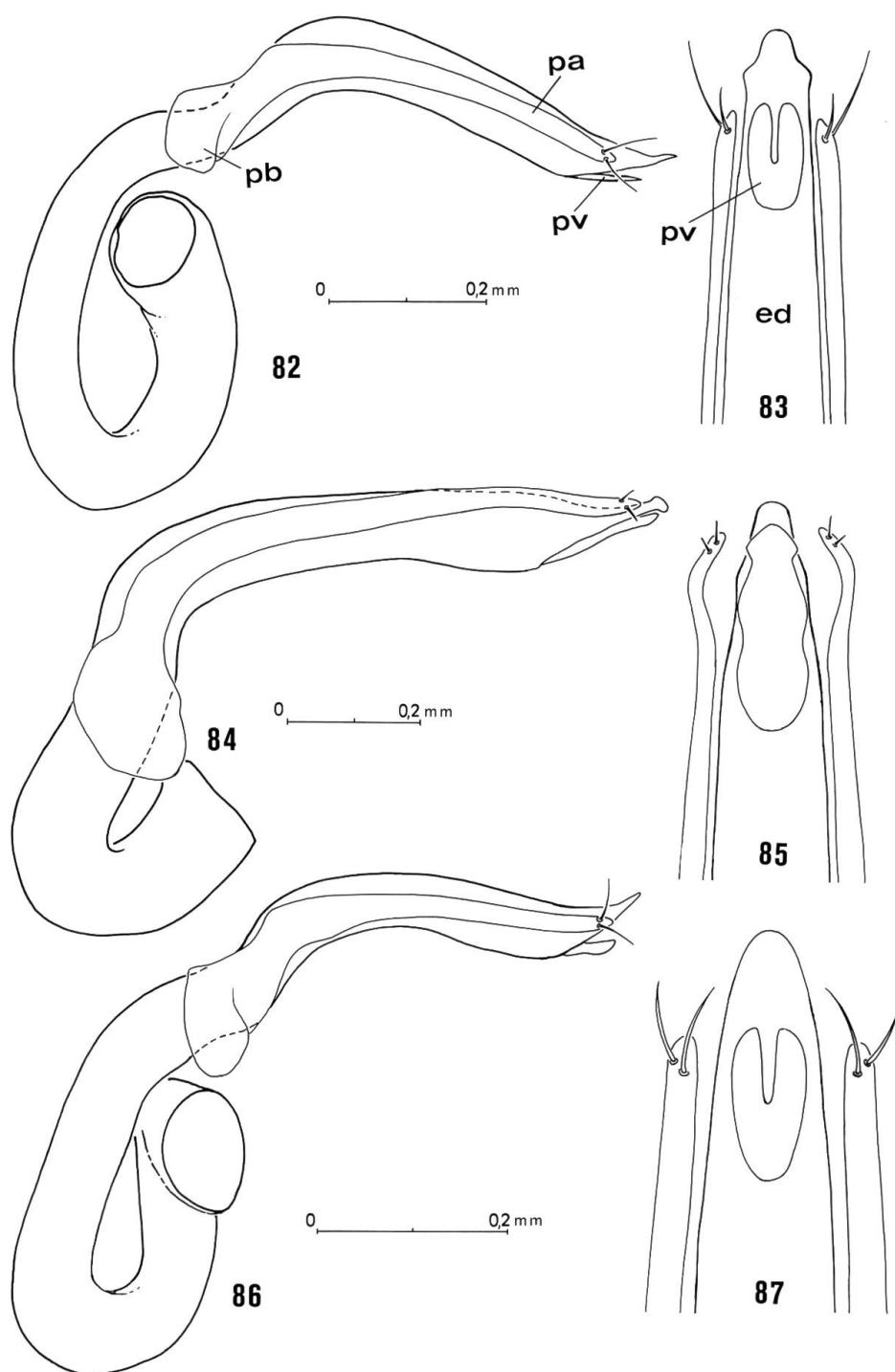
Agathidium (s. str.) **alatum** n. sp.

Figs 16, 22, 84, 85.

Length: 3.4 mm (holotype and paratype). Dorsum reddish-brown, elytra with several black veins; venter paler; antennae and legs testaceous. Head widest behind the eyes. Microreticulation lacking; puncturation conspicuous and regular.

Head: puncturation clear and fine: punctures small and rather impressed, spaced from each other by 2–4 times their own diameter. Eyes sunken. 3rd antennal segment longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.57$) and longer than 4th + 5th. Hamann's organ: one spherical vesicle in both 9th and 10th antennal segments.

Pronotum: puncturation clear, fine and sparse as on head; much broader than head ($P/H = 1.54$), much broader than long ($W/L = 1.47$) and scarcely convex ($W/H = 1.87$). Anterior margin well bent. Lateral outline much broadly rounded. Holotype: length 1.12 mm, width 1.65 mm, height 0.88 mm.



Figs 82–87: Male copulatory organ (lateral view and ventral view of the apex) of: 82–83, *Agathidium testaceum* n.sp. 84–85, *A. alatum* n.sp. 86–87, *A. gulmargense* n.sp.; (ed: aedeagus; pb: phallobase; pv: ventral piece; pa: parameres).

Elytra: superficially and regularly punctate: punctures nearly twice as large as on head, superficial and spaced from each other by 1–3 times their own diameter; short and superficial furrows are interposed; as broad as pronotum, as broad as long ($W/L = 1.1$) and scarcely convex ($W/H = 1.86$). Lateral outline with evident humeral angle at middle length (Fig. 16); sutural striae impressed and extended nearly in the whole apical half of elytra. Holotype: length 1.48 mm, width 1.64 mm, height 0.88 mm.

Membraneous wings present. Meso and metasternum: median carina present, lateral lines absent, as in figure 10 but with femoral lines complete.

Legs: male hind femora as in figure 22; tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 84, 85): aedeagus slender, with proximal part hook-like, lateral sides gradually approached towards apex, rounded tip and ventral piece not bifid; parameres slender, gradually tapered towards apex and here a little folded.

Types: West Nepal, Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 1 ♂, H. Franz, 18–20. IX. 1972 (holotype Nr. 549 in coll. Franz); Rarasees region, 3000 m, 1 ♂, H. Franz, 30. IX. 1972 (paratype Nr. 550 in coll. Angelini).

Discussion: In the ambit of the species with “temporal angles”, *A. alatum* n.sp. is clearly separated by the big size, Hamann’s organ with vesicles and presence of membraneous wings. It is related to *testaceum* n.sp., *semipunctatum* n.sp. and *gulmargense* n.sp. by the presence of sutural striae, but it differs from the first and second of them by lack of microreticulation and from the latter by the presence of median carina on mesosternum.

Agathidium (s. str.) **gulmargense** n.sp. Figs 17, 23, 86, 87, 95.

Length: 2.0–2.1 mm (holotype: 2.1 mm). Dorsum reddish-brown, anterior and posterior edges of the pronotum black, black veins on elytra; venter paler; antennae and legs testaceous. Head with temporal angles. Microreticulation in vague traces on the elytra. Punctuation fine and sparse on the whole dorsum.

Head: punctuation fine and sparse; punctures small and superficial, spaced from each other by 3–8 times their own diameter. Eyes sunken, scarcely evident from a dorsal viewpoint. 3rd antennal segment a little longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.3$) and as long as 4th + 5th. Hamann’s organ: periarticular gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation fine, regular and denser than on the head: punctures as large and impressed than on the head, but less spaced from each other (by 2–4 times their own diameter); slightly broader than head ($P/H = 1.25$), much broader than long ($W/L = 1.6$) and moderately convex ($W/H = 1.68$). Anterior margin very bent. Lateral outline broadly rounded. Holotype: length 0.61 mm, width 0.98 mm, height 0.58 mm.

Elytra: microreticulation in vague traces; puncturation very irregular and sparse: most punctures as large and impressed as on the head, but more irregularly spaced (by 2–15 times their own diameter); as broad as the pronotum, just a little longer than broad ($W/L = 0.98$). Scarcely convex ($W/H = 1.98$). Lateral outline with slight humeral angle (Fig. 17); sutural striae scarcely impressed, limited in the apical third of the elytra. Holotype: length 1.00 mm, width 0.98 mm, height 0.50 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: hind femora as in figure 23; tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 86, 87): aedeagus very slender, with ring-like proximal part, lateral margins gently approached towards apex, broadly rounded tip and bifid ventral piece; parameres slender, gradually tapered towards apex.

Spermatheca (Fig. 95): apical and basal parts nearly alike in length and shape, slender.

Types: India, Kashmir, Gulmarg, 2650–3000 m, 2 ♂ and 1 ♀, W. Wittmer, 1–3. VII. 1976 (1 ♂ holotype Nr. 281, 1 ♂ and 1 ♀ paratype Nr. 282 and 284 in coll. Basel Museum); Yusmarg, 2300–2400 m, 1 ♂, W. Wittmer, 5. VII. 1976 (paratype Nr. 283 in coll. Angelini); Tangmarg, Pir Panjal Mount., 2600 m, 2 ♂ and 1 ♀ Martens and Schawaller, 21–25. V. 1976 (2 ♂ paratypes Nr. 2157, 2158 in coll. Senckenberg Museum, Frankfurt-Main; 1 ♀ paratype Nr. 2162 in coll. Angelini); Pahalgam, 2 ♀, H. Franz, X. 1977 (paratype Nr. 2413 in coll. Franz, paratype Nr. 2414 in coll. Angelini).

Discussion: *A. gulmargense* n. sp. is similar to *testaceum* n. sp. and *semipunctatum* n. sp. in its habitus, but it differs from them by the absence of elytral microreticulation; in comparison to *alatum* n. sp. it differs in the male copulatory organ in add to the characters already noted.

Agathidium (s. str.) **himalayanum** n. sp.

Figs 88, 89.

Length: 2.3 mm (holotype). Dorsum uniformly light reddish-brown (specimen not perfectly sclerotized); venter and appendages a little paler; head with temporal angles. Dorsum uniformly microreticulate; impunctate.

Head: microreticulation clear and regular on the whole dorsal side; puncturation absent. Eyes scarcely evident from a dorsal viewpoint. Lateral margins behind the eyes convergent backwards. 3rd antennal segment longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.56$) and than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation conspicuous and regular, a little more impressed than on the head; slightly broader than head ($P/H = 1.31$), much broader than long ($W/L = 1.64$) and moderately convex ($W/H = 1.75$). Anterior margin well bent. Lateral outline broadly rounded. Holotype: length 0.64 mm, width 1.05 mm, height 0.60 mm.

Elytra: microreticulation alike than on pronotum; as broad as pronotum, longer than broad ($W/L = 0.92$) and scarcely convex ($W/H = 2$). Lateral outline with slight humeral angle within the basal quarter. Sutural striae absent. Holotype: length 1.13 mm, width 1.04 mm, height 0.52 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: hind femora with sinuate posterior margin (nearly alike than in *A. dargharicum*, Fig. 25); tarsal formula: ♂ 5-5-4.

Male copulatory organ (Figs 88, 89): aedeagus very slender, with hook-like proximal part, lateral margins subparallel towards apex and trilobed tip; ventral piece bifid, with arms thin and lobed at their apex; parameres slender, increased at apex and grooved to fit for aedeagus sides.

Type: West Nepal, outskirts Darghari Mount. near Maharigaon, Jumla region, 4000 m, 1♂, H. Franz, 23. XI. 1972 (holotype Nr. 700 in coll. Franz).

Discussion: On the whole, *A. himalayanum* n. sp. is related to *minutissimum* n. sp. and *nepalense* n. sp. From these species it differs by the strong microreticulation of head and pronotum, elytra scarcely convex and position of humeral angles vertex. In comparison to *A. minutissimum* there are in add differences in the male tarsal formula and male copulatory organ.

Agathidium (s. str.) **minutissimum** n. sp. Figs 14, 18, 90, 91, 96.

Length: 1.6–1.7 mm (holotype: 1.6 mm). Dorsum reddish-brown; venter paler; legs and antennae testaceous. Head with temporal angles. Whole dorsum superficially microreticulate and punctate.

Head: microreticulation superficial; puncturation superficial and sparse; punctures small, spaced from each other by 2–4 times their own diameter. Eyes sunken, slightly evident from a dorsal viewpoint (Fig. 14). Lateral margins of head behind the eyes convergent backwards. 3rd antennal segment a little longer than the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.36$) and than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation a little more impressed than on the head; puncturation as fine and superficial as on the head, but a little sparser; slightly broader than the head ($P/H = 1.33$), much broader than long ($W/L = 1.6$) and moderately convex ($W/H = 1.73$). Anterior margin rather bent. Lateral outline broadly rounded. Holotype: length 0.50 mm, width 0.80 mm; height 0.46 mm.

Elytra: microreticulation uniform and superficial as on pronotum but a little less dense; puncturation superficial: punctures a little larger than on the pronotum, spaced from each other by 2–3 times their own diameter; as broad as the pronotum, a little broader than long ($W/L = 1.14$) and moderately convex ($W/H = 1.73$). Lateral outline with slight humeral angle at the basal third (Fig. 18). Sutural striae absent. Holotype: length 0.70 mm, width 0.80 mm, height 0.45 mm.

Membranous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

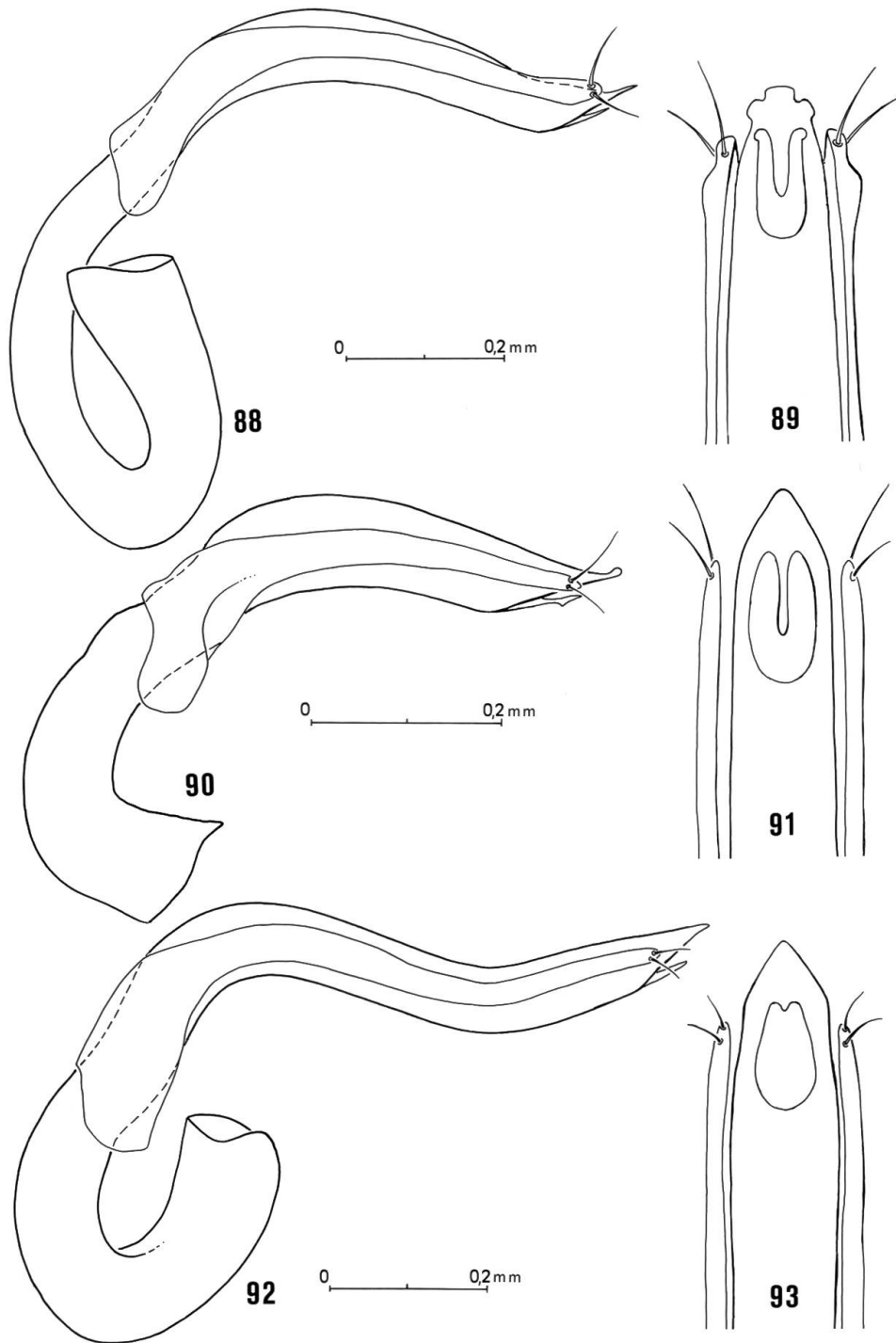
Legs: hind femora with rectilinear posterior margin (like in *A. wittmeri* n. sp., Fig. 21); tarsal formula: ♂ 4–4–4, ♀ 4–4–4.

Male copulatory organ (Figs 90, 91): aedeagus slender with proximal part just a little twisted, lateral margins parallel, abruptly approached at apex into an acute angle, and ventral piece bifid; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 96): basal part fat; apical part thin and gently tapered towards apex.

Types: Nepal, Phulchoki near Kathmandu, 2800 m, 3 ♂ and 2 ♀, H. Franz (holotype ♂ Nr. 564, 1 ♂ and 1 ♀ paratypes Nr. 465 and 467 in coll. Franz; 1 ♂ and 1 ♀ paratypes Nr. 466 and 568 in coll. Angelini).

Discussion: *A. minutissimum* n. sp. is close related to *himalayanum* n. sp. and *nepalense* n. sp. We have already referred about the differ-



Figs 88–93: Male copulatory organ (lateral view and ventral view of the apex) of: 88–89, *Agathidium himalayanum* n.sp. 90–91, *A. minutissimum* n.sp. 92–93, *A. wittmeri* n.sp.

ences from the former. The differences from *A. nepalense* chiefly consist in size, ratio $3^{\text{rd}}/4^{\text{th}} + 5^{\text{th}}$ in the antennae, presence or not of median carina on mesosternum, elytral convexity and shape of spermatheca.

Agathidium (s. str.) nepalense n. sp.

Figs 15, 19, 97.

Length 2.1 mm (holotype and paratypes). Dorsum reddish-brown; venter a little paler; antennae and legs testaceous. Head with temporal angles. Microreticulation only on pronotum (superficial) and elytra (impressed); fine and regular puncturation on the whole dorsum.

Head: microreticulation only in vague traces; puncturation fine and regular: punctures not very large, rather impressed, spaced from each other by 2–4 times their own diameter. Eyes sunken (Fig. 15). 3^{rd} antennal segment longer than the 2^{nd} ($3^{\text{rd}}/2^{\text{nd}} = 1.43$) and as long as $4^{\text{th}} + 5^{\text{th}}$. Hamann's organ: gutter without vesicles in both 9^{th} and 10^{th} antennal segments.

Pronotum: microreticulation very superficial and uniform; puncturation alike than on head; slightly broader than head ($P/H = 1.28$), broader than long ($W/L = 1.59$) and moderately convex ($W/H = 1.68$). Anterior margin slightly bent, lateral outline broadly rounded. Holotype: length 0.67 mm, width 1.07 mm, height 0.60 mm.

Elytra: microreticulation just a little more impressed than on pronotum in the holotype, much more impressed in the paratypes; holotype puncturation made with large and superficial punctures, spaced from each other by 1–2 times their own diameter; paratypes punctures scarcely evident; a little broader than pronotum, a little broader than long ($W/L = 1.2$) and scarcely convex ($W/H = 1.86$). Lateral outline (Fig. 19) with slight humeral angle at the basal third. Sutural striae absent. Holotype: length 0.91 mm, width 1.10 mm, height 0.59 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: tarsal formula: ♀ 4–4–4.

Spermatheca (Fig. 97): basal part L-shaped, apical part as long as the longer arm of the former.

Types: Central Nepal, outskirts of Goropani, west Pokhara, 2000–2500 m, 3 ♀, H. Franz, IX–X. 1971 (holotype Nr. 561 and 1 paratype Nr. 562 in coll. Franz; 1 paratype Nr. 563 in coll. Angelini).

Discussion: see what noted for *A. himalayanum* n. sp. and *minutissimum* n. sp.

Agathidium (s. str.) **pusillum** n. sp. Figs 20, 30, 64, 98.

Length: 1.7 mm (holotype). Dorsum uniformly light reddish-brown; venter a little paler; antennae and legs testaceous. Head with temporal angles. Whole dorsum without microreticulation, finely and sparsely punctate.

Head: puncturation fine and sparse: punctures very small, superficial and spaced from each other by 2–5 times their own diameter. Eyes sunken (Fig. 30). 3rd antennal segment long nearly twice the length of 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.8$) and a little shorter than 4th + 5th + 6th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation sparser than on head, i. e. nearly absent; slightly broader than head ($P/H = 1.39$), broader than long ($W/L = 1.6$) and moderately convex ($W/H = 1.61$). Anterior margin well bent. Lateral outline broadly rounded (Fig. 64). Holotype: length 0.59 mm, width 0.95 mm, height 0.59 mm.

Elytra: puncturation sparse, made with punctures larger than on pronotum but equally spaced from each other; as broad as pronotum, broader than long ($W/L = 1.25$) and scarcely convex ($W/H = 1.9$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 0.76 mm, width 0.95 mm, height 0.50 mm.

Membranous wings absent. Meso and metasternum: median carina present, lateral lines absent as in figure 10 but with femoral lines complete.

Legs: hind tibiae very enlarged (Fig. 20); tarsal formula: ♀ 4–4–4.

Spermatheca (Fig. 98): basal part fat, apical part slender and gently tapered towards apex.

Type: India, Darjeeling, Chim-Khona (Ghum), 2200 m, 1 ♀, W. Wittmer, 28.V.1975 (holotype Nr. 271 in coll. Basel Museum).

Discussion: Together with *A. wittmeri* n. sp., *A. pusillum* n. sp. differs from the other three species with temporal angles and lacking in sutural striae because of absence of microreticulation; in comparison to *wittmeri* the differences consist in size, lateral outline of pronotum and shape of hind tibiae.

Agathidium (s. str.) **wittmeri** n. sp. Figs 10, 21, 65, 92, 93, 99.

Length: 2.1–2.4 mm (holotype 2.3 mm). Dorsum uniformly reddish-brown; venter a little paler; antennae and legs testaceous. Microreticulation lacking; puncturation very fine and sparse on head and pronotum. Head with temporal angles.

Head: puncturation very fine and sparse. Eyes sunken but well evident from a dorsal viewpoint, lateral margins of head behind the eyes convergent backwards. 3rd antennal segment nearly as long as twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.8$) and slightly longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation as on head; slightly broader than head ($P/H = 1.27$), broader than long ($W/L = 1.4$) and moderately convex ($W/H = 1.46$). Anterior margin very bent. Lateral outline nearly angulate (Fig. 65). Holotype: length 0.83 mm, width 1.17 mm, height 0.80 mm.

Elytra: smooth with some small punctures; as broad as pronotum, widest behind their half length, rather broader than long ($W/L = 1.26$) and scarcely convex ($W/H = 1.93$). Lateral outline with slight humeral angles at middle length. Sutural striae absent. Holotype: length 0.92 mm, width 1.16 mm, height 0.60 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: hind femora with rectilinear posterior margin (Fig. 21); hind tibiae not expanded; tarsal formula: ♂ 4–4–4, ♀ 4–4–4.

Male copulatory organ (Figs 92, 93): aedeagus very slender with hook-twisted proximal part, lateral margins a little sinuate, abruptly approached at apex into an acute angle, and ventral piece not deeply bifid; parameres very slender, gently tapered towards apex.

Spermatheca (Fig. 99): apical and basal parts slender, a little different in length and caliber.

Types: India, Darjeeling, Chim-Khona (Ghum), 2200 m, 12 ♂ and 10 ♀, W. Wittmer, 28.V.1975 (holotype ♂ Nr.313, 7 ♂ and 8 ♀, paratypes Nr.311, 316, 500, 502, 503, 505, 507, 509, 306, 307, 309, 310, 312, 314, 315 in coll. Basel Museum; 4 ♂ and 2 ♀, paratypes Nr.501, 504, 508, 835, 308, 506 in coll. Angelini).

Discussion: see what noted for *A. pusillum* n.sp.

Derivatio nominis: dedicated to Dr. Walter Wittmer.

Agathidium (s. str.) **castaneum** n.sp. Figs 24, 100, 109, 110.

Length: 2.4–2.5 mm (holotype 2.4 mm). Head and elytra dark reddish-brown, nearly black; pronotum reddish-brown with paler sides; venter reddish-brown; antennae testaceous with dark club; legs testaceous. Microreticulation superficial on head and pronotum, impressed on elytra; puncturation very fine on head and pronotum.

Head: microreticulation superficial, more impressed towards sides; puncturation very fine and superficial: punctures small, spaced from each other by 1–3 times their own diameter. Eyes bulging laterally, flattened. Head lateral margins behind eyes abruptly convergent backwards. 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.77$) and as long as 4th + 5th. Hamann's organ: gutter without vasicles in both 9th and 10th antennal segment.

Pronotum: microreticulation superficial but more impressed than on head, a little stronger towards the sides; puncturation more superficial than on head. Slightly broader than head ($P/H = 1.38$), much broader than long ($W/L = 1.52$) and moderately convex ($W/H = 1.61$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.78 mm, width 1.18 mm, height 0.73 mm.

Elytra: microreticulation clear and strong; puncturation absent; as broad as pronotum, a little broader than long ($W/L = 1.15$) and scarcely convex ($W/H = 1.87$). Lateral outline with well defined humeral angle. Sutural striae scarcely impressed, limited in the apical third of the elytra. Holotype: length 1.02 mm, width 1.18 mm, height 0.63 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora as in figure 24; tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 109, 110): aedeagus slender with spiral-like proximal part, lateral margins very sinuate towards apex, truncate tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 100): basal part slender; apical part fat and a little shorter.

Types: Central Nepal, outskirts of Goropani, west Pokhara, 3000 m, 1 ♂ and 1 ♀, H. Franz, IX–X. 1971 (holotype ♂ Nr. 645 in coll. Franz, paratype ♀ Nr. 647 in coll. Angelini).

Discussion: In the ambit of the species without temporal angles, with sutural striae and microreticulate on the whole dorsum, *A. castaneum* n. sp. is easily separable on the basis of its dark antennal clubs; on the whole it is close related to *nivale* n. sp. and *francae*, n. sp. but differs from them because of the lower value of $3^{\text{rd}}/2^{\text{nd}}$ ratio in antennal segments.

Agathidium (s. str.) **dargharicum** n. sp. Figs 25, 101, 111, 112.

Length: 2.2–2.4 mm (holotype 2.2 mm). Dorsum reddish-brown, paler at pronotum sides; ventral part of head and prothorax light reddish-brown; meso, metathoracic and abdominal sterna darker; antennae and legs testaceous. Microreticulation superficial on head and pronotum, impressed on elytra; puncturation fine on head and pronotum.

Head: microreticulation superficial and vague; puncturation fine and regular: punctures very small, superficial, spaced from each other by 2–3 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.8$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation superficial and vague as on head; puncturation as on head; slightly broader than head ($P/H = 1.33$), much broader than long ($W/L = 1.57$) and scarcely convex ($W/H = 1.81$). Anterior margin very bent. Lateral outline broadly rounded. Holotype: length 0.76 mm, width 1.20 mm, height 0.66 mm.

Elytra: microreticulation strong and regular (in one paratype it is less impressed near the scutellum); as broad as pronotum; much broader than long ($W/L = 1.34$) and scarcely convex ($W/H = 1.83$). Lateral outline with well defined humeral angle. Sutural striae well impressed, limited in the apical third of elytra. Holotype: length 0.90 mm, width 1.21 mm, height 0.66 mm.

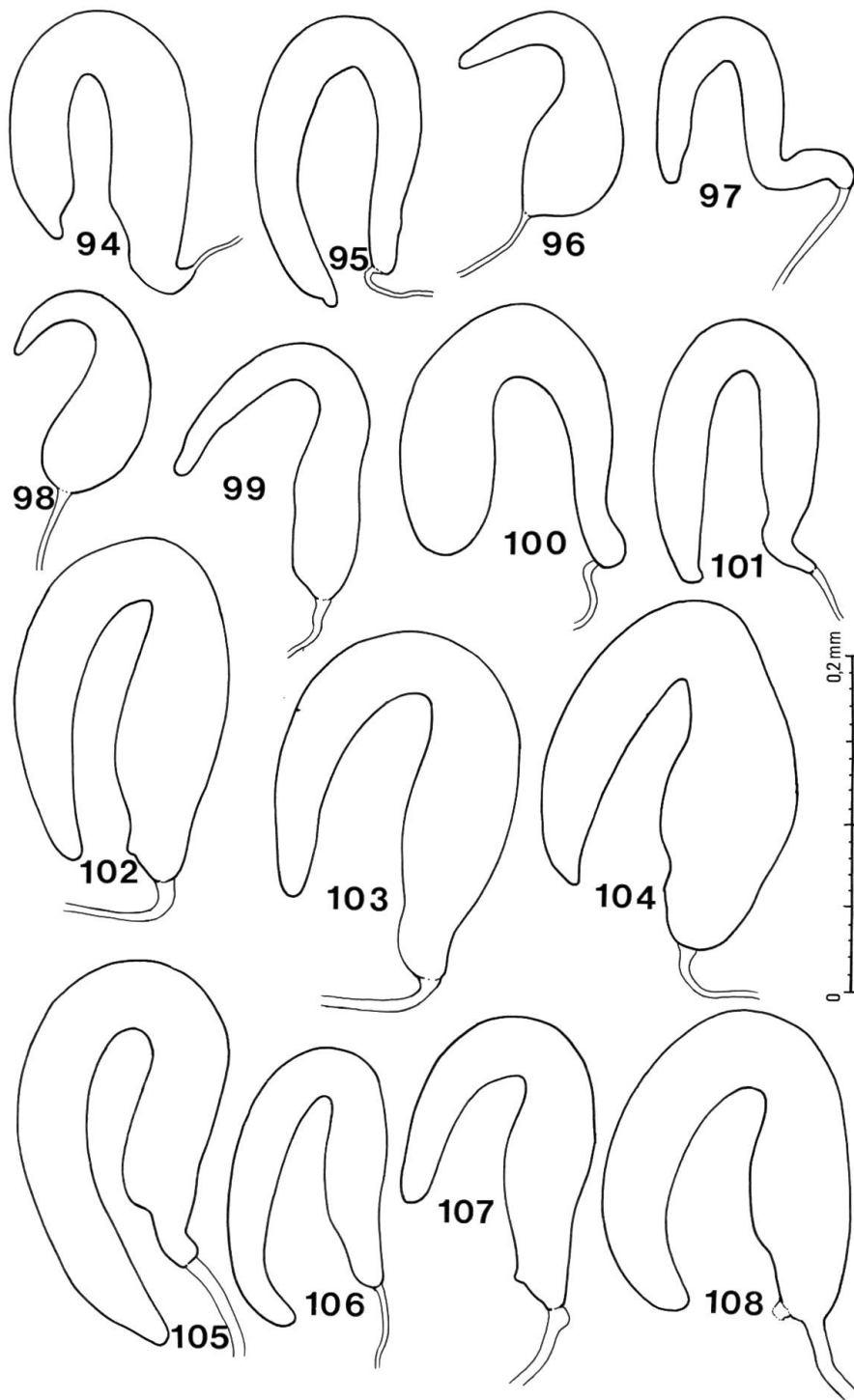
Membranous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: male hind femora with sinuate posterior margin (Fig. 25); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 111, 112): aedeagus slender with hook-like proximal part, lateral margins abruptly approached at apex into a rounded tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 101): basal and apical parts slender, alike in length and caliber; the basal one a little twisted.

Types: West Nepal, outskirts of Darghari Mount. near Mahari-gaon, Jumla region, 4000 m, 2 ♂ and 1 ♀, H. Franz, 23.IX.1972 (holotype ♂ Nr. 617, paratypes ♂ Nr. 618 and ♀ Nr. 619 in coll. Franz); Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 4 ♂ and 4 ♀, H. Franz, 18–20.IX.1972 (2 ♂ and 3 ♀ paratypes Nr. 621, 622, 626, 627, 631 in coll. Franz; 1 ♂ and 1 ♀ paratypes Nr. 623, 624 in coll.



Figs 94–108: Spermatheca of: 94, *Agathidium semipunctatum* n.sp. 95, *A. gulmargense* n.sp. 96, *A. minutissimum* n.sp. 97, *A. nepalense* n.sp. 98, *A. pusillum* n.sp. 99, *A. wittmeri* n.sp. 100, *A. castaneum* n.sp. 101, *A. dargharicum* n.sp. 102, *A. thochungense* n.sp. 103, *A. nivale* n.sp. 104, *A. francae* n.sp. 105, *A. microreticulatum* n.sp. 106, *A. subopacum* n.sp. 107, *A. substriatum* n.sp. 108, *A. johnsoni* n.sp.

Angelini, 1 ♂ paratype Nr. 625 in coll. Basel Museum); Dampa pass towards Chauta, Jumla region, 2500 m, 1 ♀, H. Franz, 2.X.1972 (paratype Nr. 628 in coll. Franz). Central Nepal, Taksang Mount. near Tukche, Takola, 3000 m, 1 ♂, H. Franz, IX–X.1971 (paratype Nr. 629 in coll. Franz); outskirts of Ainorasha near Marpha, Takola Mount., 3500 m, 1 ♂, H. Franz, IX–X.1971 (paratype Nr. 620 in coll. Franz).

Discussion. On the whole *A. dargharicum* n.sp. is close related to *A. thochungense* n.sp., from which it differs because of size, punctuation of head and pronotum, $3^{\text{rd}}/4^{\text{th}} + 5^{\text{th}}$ ratio in antennal segments and spermatheca.

Agathidium (s. str.) thochungense n.sp.

Fig. 102.

Length: 2.6–2.7 mm (holotype 2.6 mm). Dorsum dark reddish-brown on head and pronotum, the latter paler at sides; elytra dark reddish-brown or nearly black; venter paler; antennae, femura and tarsi testaceous, tibiae darker. Microreticulation in traces on head and pronotum, more evident on elytra; punctuation different on head, pronotum and elytra.

Head: microreticulation in traces; punctuation very irregular: punctures of different diameter, most of them small, well impressed, spaced from each other by 2–5 times their own diameter. Eyes bulging laterally, flattened. 3^{rd} antennal segment clearly longer than 2^{nd} ($3^{\text{rd}}/2^{\text{nd}} = 1.72$) and a little shorter than $4^{\text{th}} + 5^{\text{th}}$. Hamann's organ: gutter without vesicles in both 9^{th} and 10^{th} antennal segments.

Pronotum: microreticulation in traces, as on head; punctuation fine and regular: punctures not very small, well impressed, spaced from each other by 2–4 times their own diameter; slightly broader than head ($P/H = 1.35$), much broader than long ($W/L = 1.66$) and moderately convex ($W/H = 1.66$); anterior margin slightly bent. Lateral outline broadly rounded. Holotype: length 0.83 mm, width 1.38 mm, height 0.83 mm.

Elytra: Microreticulation in traces, more impressed than on head and pronotum; punctures very sparse, of different size; as broad as pronotum, a little broader than long ($W/L = 1.16$) and scarcely convex ($W/H = 1.97$). Lateral outline with humeral angle at middle length. Sutural striae very superficial, limited at the apical third of elytra. Holotype: length 1.81 mm, width 1.38 mm, height 0.70 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: tarsal formula: ♀ 4-4-4.

Spermatheca (Fig.102): basal and apical parts nearly alike in length, the former a little fatter.

Types: Nepal, Thochung near Jiri, 1 ♀, J.Martens (holotype Nr.636 in coll. Franz). Chordung near Jiri, 2900-3000 m, 1 ♀, J.Martens (paratype Nr.637 in coll. Angelini).

Discussion: Together with *A.dargharicum* n.sp., *A.thochungense* n.sp. differs from *nivale* n.sp., *francae* n.sp., *microreticulatum* n.sp. and *subopacum* n.sp. because its head is only vaguely microreticulate.

Agathidium (s.str.) **nivale** n.sp. Figs 26, 38, 103, 113, 114.

Length: 2.5-2.6 mm (holotype 2.6 mm). Dorsum and venter reddish-brown; antennae and legs testaceous. Whole dorsum microreticulate; punctate only on head and pronotum.

Head: microreticulation very superficial on discum, very strong at sides; puncturation fine and distinct on discum: punctures small, spaced from each other by 1-3 times their own diameter. Eyes bulging laterally, flattened. Lateral margins of head behind eyes much convergent backwards. 3rd antennal segment a little longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.21$) and longer than 4th + 5th (Fig.38). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation very superficial on discum, stronger at sides; puncturation very irregular: punctures very small or large, very superficial or well impressed, spaced from each other by 1-3 times their own diameter; slightly broader than head ($P/H = 1.32$), much broader than long ($W/L = 1.6$) and scarcely convex ($W/H = 1.85$). Anterior margin rather bent. Lateral outline much broadly rounded. Holotype: length 0.82 mm, width 1.32 mm, height 0.71 mm.

Elytra: microreticulation strong, everywhere present in the holotype and one paratype, lacking near scutellum in the other paratypes; as broad as pronotum, a little broader than long ($W/L = 1.14$) and moderately convex ($W/H = 1.65$). Lateral outline with slight humeral angle. Sutural striae conspicuous, limited in the apical half of elytra. Holotype: length 1.15 mm, width 1.32 mm, height 0.80 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig.11).

Legs: male hind femora with sinuate posterior margin (Fig.26); tarsal formula: ♂ 5-5-4, ♀ 4-4-4.

Male copulatory organ (Figs 113, 114): aedeagus very slender with spiral-like proximal part, lateral margins gently convergent towards a particularly shaped apex, semicircular tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 103): basal and apical parts a little different in length; the former a little fatter.

Types: Central Nepal, road from Gosaikunde to Monastery of Fulung, 3500 m, 1 ♂, H. Franz, IX–X. 1972 (holotype Nr. 638 in coll. Franz); outskirts of Fulung, 3500 m, 1 ♂ and 1 ♀, H. Franz, IX–X. 1971 (paratype ♀ Nr. 640 in coll. Franz; paratype ♂ Nr. 639 in coll. Angelini).

Discussion: On the whole *A. nivale* n. sp. is close related to *francae* n. sp., *microreticulatum* n. sp. and *subopacum* n. sp.; together with *francae* n. sp. it differs from the other two species by microreticulation and puncturation of the pronotum. Further, *A. nivale* differs from *microreticulatum* by the ratio between 3rd and 2nd antennal segments; from *subopacum* by size and dorsal colouring; from *francae* by size, dorsal colouring, male hind femora shape, male copulatory organ and spermatheca.

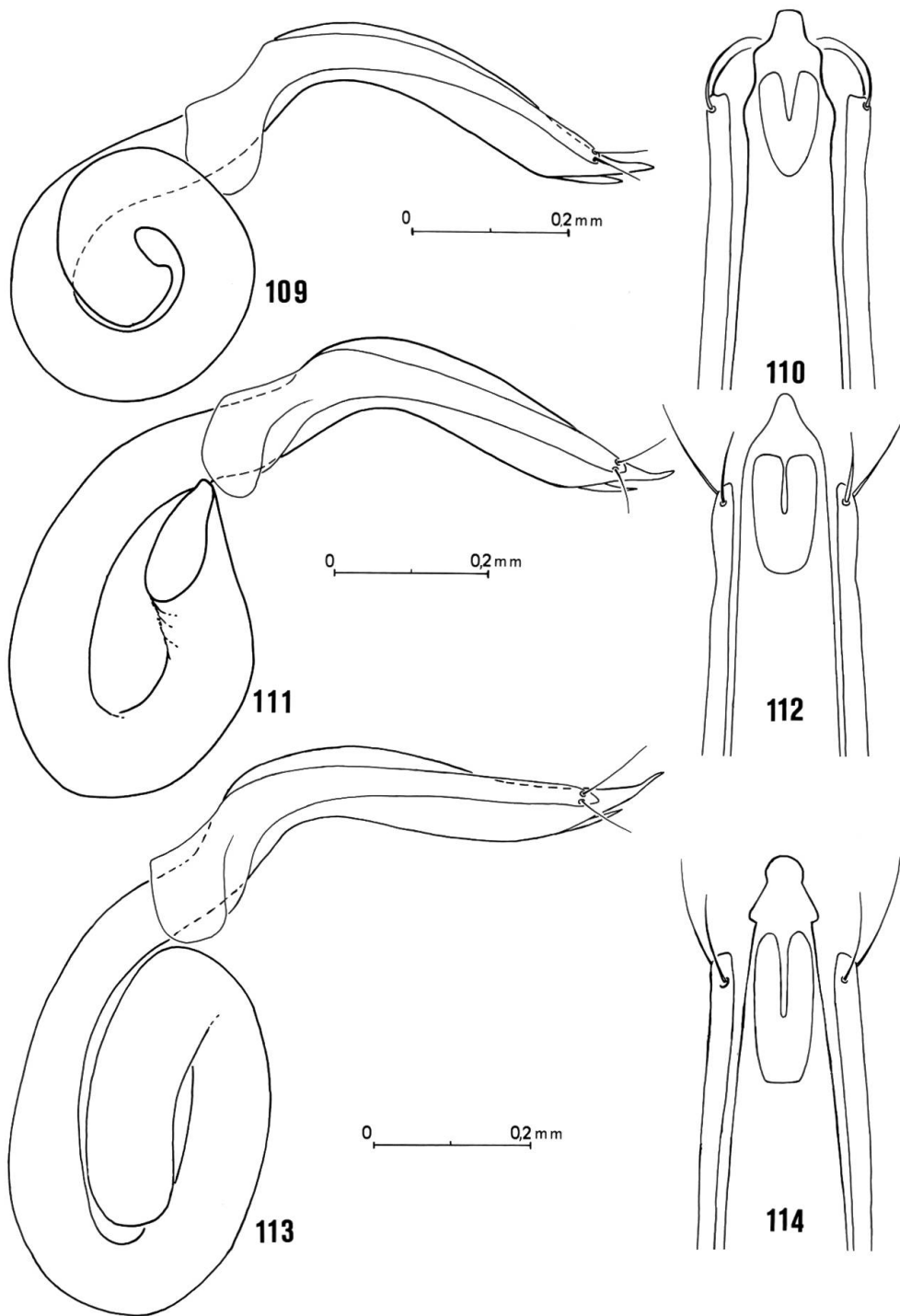
Agathidium (s. str.) **francae** n. sp. Figs 28, 39, 104, 115, 116.

Length: 3.0–3.1 mm (holotype: 3.0 mm). Dorsum of head and pronotum dark reddish-brown with black veins; elytra black; venter reddish-brown; antennae and legs testaceous. Whole dorsum microreticulate; puncturation superficial on head and elytra.

Head: microreticulation superficial on discum, strong at sides; puncturation clear on discum: punctures small and superficial, spaced from each other by 3–5 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment longer than twice the 2nd (3rd/2nd = 2.3) and as long as 4th + 5th (Fig. 39). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation superficial on discum, a little stronger at sides; punctate only on discum; slightly broader than head (P/H = 1.32), much broader than long (W/L = 1.48) and moderately convex (W/H = 1.72); anterior margin nearly rectilinear. Lateral outline much broadly rounded. Holotype: length 1.00 mm, width 1.48 mm, height 0.86 mm.

Elytra: uniformly microreticulate everywhere; as broad as pronotum, a little broader than long (W/L = 1.13) and scarcely convex



Figs 109–114: Male copulatory organ (lateral view and ventral view of the apex) of: 109–110, *Agathidium castaneum* n.sp. 111–112, *A. dargharicum* n.sp. 113–114, *A. nivale* n.sp.

(W/H = 1.97). Lateral outline with slight humeral angle. Sutural striae slight, limited in the apical half of elytra. Holotype: length 1.13 mm, width 1.48 mm, height 0.75 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora with nearly rectilinear posterior margin (Fig. 28); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 115, 116): aedeagus slender, with hook-like proximal part, lateral margins gently convergent towards a particularly shaped apex, rounded tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 104): basal and apical parts a little different in length, the former fatter.

Types: Nepal, Phulchoki near Kathmandu, 2800 m, 2 ♂ and 2 ♀, H. Franz (holotype ♂ Nr. 641 and 2 paratypes ♀ Nr. 643, 644 in coll. Franz; 1 paratype ♂ Nr. 642 in coll. Angelini); 2600 m, 1 ♀, W. Wittmer & C. Baroni Urbani, 12. VI. 1976 (paratype Nr. 288 in coll. Basel Museum).

Discussion: see what noted for *A. nivale* n. sp.

Derivatio nominis: dedicated to the wife of one of the authors (Angelini) as a token of gratitude for her help in editing the present paper.

Agathidium (s. str.) microreticulatum n. sp. Figs 40, 105.

Length: 3.0 mm. Dorsum of head dark reddish-brown, black at sides; pronotum nearly black, less dark at sides; elytra black; venter reddish-brown; antennae testaceous with a little darker club; legs testaceous. Whole dorsum microreticulate and without punctures.

Head: superficially and uniformly microreticulate, opaque. Eyes bulging laterally, flattened. Lateral margins behind eyes convergent backwards. 3rd antennal segment a little longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.31$) and less long than 4th + 5th (Fig. 40). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation uniform, more impressed and less dense than on head; slightly broader than head (P/H = 1.35), much broader than long (W/L = 1.57) and moderately convex (W/H = 1.77); anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.90 mm, width 1.42 mm, height 0.80 mm.

Elytra: microreticulation uniform, just a little denser and more impressed than on pronotum; a little broader than pronotum, as broad as long and scarcely convex ($W/H = 2.2$). Lateral outline with evident humeral angle. Sutural striae well impressed, limited in the apical half of elytra. Holotype: length 1.50 mm, width 1.50 mm, height 0.68 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: tarsal formula: ♀ 4-4-4.

Spermatheca (Fig. 105): apical part slender, a little longer than the basal one; the latter abruptly tapered near the connection of the spermathecal duct.

Type: West Nepal, Jumla region, 2000–2500 m, 1 ♀, H. Franz, IX.–X. 1972 (holotype Nr. 649 in coll. Franz).

Discussion: The shape of the spermatheca allowed us to recognize in *A. microreticulatum* n. sp. a species distinct from *A. nivale* n. sp., *francae* n. sp. and *subopacum* n. sp., which it is close related to for the external features. We have already referred about its differences from *nivale* and *francae*. From *subopacum*, they consist in size, head puncturation and ratio between 3rd and 2nd antennal segments.

Agathidium (s. str.) subopacum n. sp.

Figs 41, 106.

Length: 2.9–3.0 mm (holotype: 3.0 mm). Dorsum black, venter reddish-brown; antennae testaceous with a little darker club; legs testaceous. Whole dorsum strongly microreticulate, opaque, lacking in punctures.

Head: uniformly and strongly microreticulate, opaque; some very small punctures. Eyes bulging laterally, flattened. 3rd antennal segment as long as twice the 2nd and longer than 4th + 5th (Fig. 41). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation as on head; slightly broader than head ($P/H = 1.3$), much broader than long ($W/L = 1.68$) and moderately convex ($W/H = 1.76$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 1.0 mm, width 1.68 mm, height 0.95 mm.

Elytra: microreticulation as on head; broader than pronotum, broader than long ($W/L = 1.33$) and scarcely convex ($W/H = 2.12$). Lateral outline with slight humeral angle. Sutural striae well impressed, limited in the apical third of elytra. Holotypus: length 1.30 mm, width 1.74 mm, height 0.82 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: tarsal formula: ♀ 4-4-4.

Spermatheca (Fig. 106): apical part slender, a little longer than the basal one; the latter a little fat.

Types: Nepal, Phulchoki, 2600 m, 2 ♀, C. Baroni Urbani & W. Wittmer, 12. VI. 1976 (holotype Nr. 289 in coll. Basel Museum, paratype Nr. 650 in coll. Angelini).

Discussion: see what noted for *A. microreticulatum* n. sp.

Agathidium (s. str.) punctatum n. sp. Figs 117, 118.

Length: 3.2 mm (holotype). Dorsum black, sides of pronotum reddish-brown; venter reddish-brown; antennae and legs testaceous; microreticulate only on elytra, head with short furrows near the eyes. Whole dorsum punctate.

Head: clear furrows near the eyes; puncturation strong, made with punctures of two different sizes: punctures of big size well impressed and spaced from each other by 3–5 times their own diameter; punctures of small size (nearly $\frac{1}{6}$ of the former) scarcely evident, superficial and spaced from each other by 2–4 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment longer than twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 2.4$). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

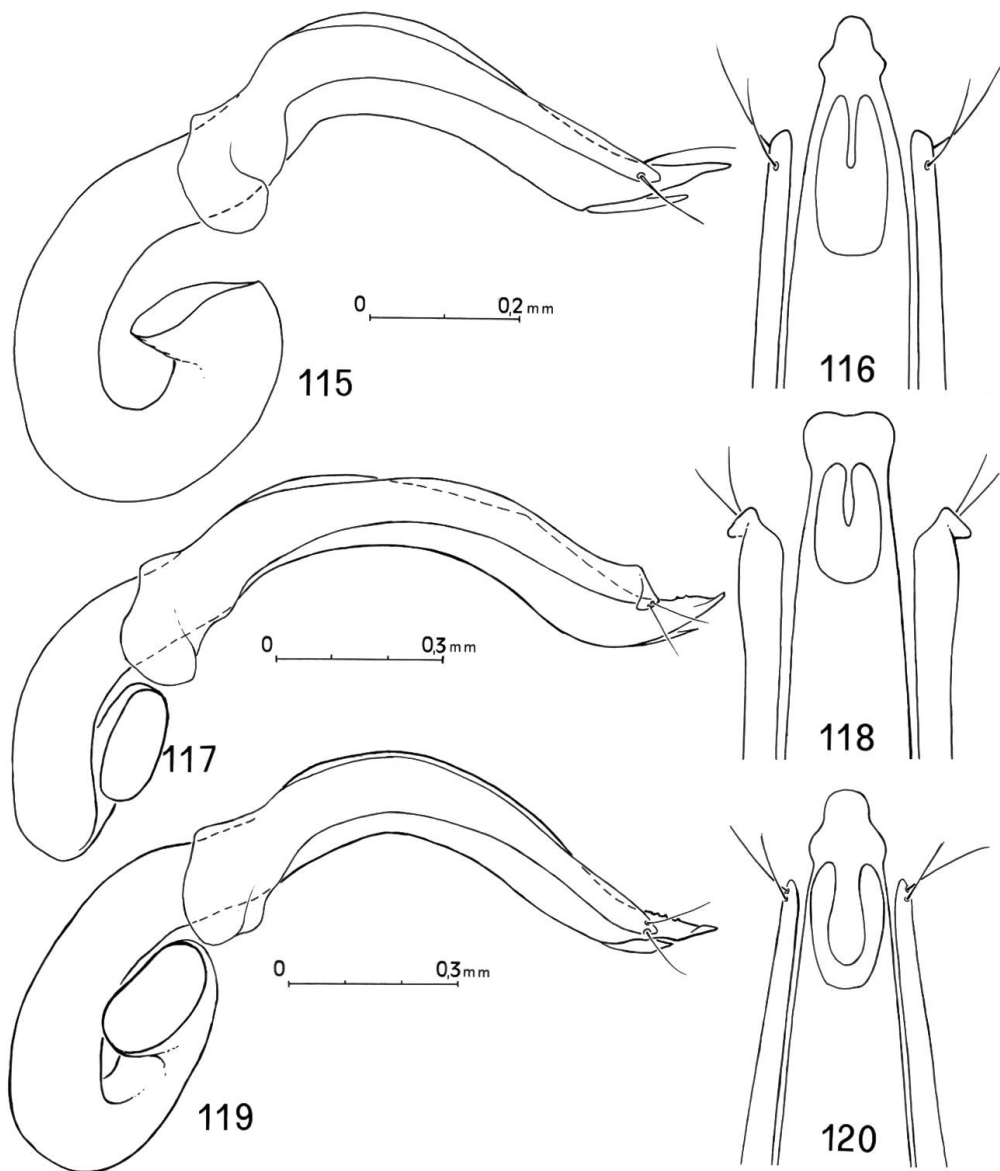
Pronotum: puncturation conspicuous and strong as on head; a little broader than head ($P/H = 1.35$), much broader than long ($W/L = 1.62$) and well convex ($W/H = 1.7$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 1.03 mm, width 1.67 mm, height 0.98 mm.

Elytra: microreticulation in traces; puncturation well defined: punctures at least twice larger than on head, but less impressed, spaced from each other by 1–3 times their own diameter; irregular and superficial furrows interposed to the punctures; slightly broader than pronotum, a little broader than long ($W/L = 1.24$) and scarcely convex ($W/H = 1.97$). Lateral outline with well defined humeral angle. Sutural striae slight, limited in the apical third of elytra. Holotype: length 1.40 mm, width 1.74 mm, height 0.88 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora shape as in *A. nivale* n.sp. (Fig. 26); tarsal formula: ♂ 5-5-4.

Male copulatory organ (Figs 117, 118): aedeagus slender with spiral-like proximal part, lateral margins sinuate near the abruptly



Figs 115-120: Male copulatory organ (lateral view and ventral view of the apex) of: 115-116, *Agathidium francae* n.sp. 117-118, *A. punctatum* n.sp. 119-120, *A. johnsoni* n.sp.

truncate tip, bifid ventral piece; parameres slender, with apex truncate and folded.

Type: Central Nepal, outskirts of Goropani, west Pokhara, 3000 m, 1 ♂, H.Franz, IX.–X.1971 (holotype Nr.691 in coll. Franz).

Discussion: On the whole of the external features, *A. punctatum* n.sp. is close related to *substriatum* n.sp. and *johnsoni* n.sp., from which it differs because it lacks microreticulation on elytra. Further, the big size allows to separate it from *substriatum* and the male copulatory organ shape from *johnsoni*.

Agathidium (s.str.) substriatum n.sp.

Figs 42, 107.

Length: 2.7 mm (holotype). Dorsum black with pronotum sides and humeri reddish-brown; venter dark reddish-brown; antennae and legs testaceous. Head with microfurrows at sides, elytra with microreticulation; only head and pronotum punctate.

Head: microfurrows subparallel from each other near the eyes; puncturation regular: punctures large and impressed, spaced from each other by 2–4 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment nearly as long as twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.8$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation finer, sparser and more superficial than on head; slightly broader than head ($P/H = 1.34$), much broader than long ($W/L = 1.64$) and scarcely convex ($W/H = 1.85$); anterior margin nearly rectilinear; lateral outline much broadly rounded. Holotype: length 0.90 mm, width 1.48 mm, height 0.80 mm.

Elytra: microreticulation superficial near the scutellum, more impressed elsewhere; broader than pronotum, broader than long ($W/L = 1.31$) and scarcely convex ($W/H = 1.97$). Lateral outline with slight humeral angle. Sutural striae well impressed, limited in the apical half of elytra. Holotype: length 1.20 mm, width 1.58 mm, height 0.80 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig.11).

Legs: tarsal formula: ♀ 4–4–4.

Spermatheca (Fig.107): apical part slender, clearly shorter than the basal one; the latter a little fat.

Type: Central Nepal, outskirts of Goropani, west Pokhara, 2000–2500 m, 1 ♀, H.Franz, IX.–X.1971 (holotype Nr.692 in coll. Franz).

Discussion: On the whole of the diagnostic characters, *A. substriatum* n.sp. is close related to *punctatum* n.sp. and *johnsoni* n.sp. The differences from *punctatum* have been already noted. From *johnsoni* it differs by size, more reduced furrowing of head, stronger elytral microreticulation, ratio between 3rd and 2nd antennal segments (Figs 42, 43) and spermathecal shape (Figs 107, 108).

Agathidium (s.str.) **johnsoni** n.sp. Figs 43, 108, 119, 120.

Length: 3.0–3.2 mm (holotype: 3.2 mm). Dorsum black, reddish at pronotum sides; venter dark reddish-brown; antennae and legs testaceous. Head with strong furrowing near the eyes. Elytra microreticulate. Whole dorsum punctate.

Head: strong furrows nearly parallel from each other near the eyes; puncturation fine and superficial: punctures small, spaced from each other by 2–4 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment longer than twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 2.2$) and than 4th + 5th (Fig. 43). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation fine and superficial as on head; slightly broader than head ($P/H = 1.35$), much broader than long ($W/L = 1.65$) and well convex ($W/H = 1.6$). Anterior margin very slightly bent; lateral outline much broadly rounded. Holotype: length 1.04 mm, width 1.65 mm, height 1.03 mm.

Elytra: microreticulation superficial, absent near the scutellum; puncturation sparse and irregular: punctures small and superficial as on head; a little broader than pronotum, a little broader than long ($W/L = 1.17$) and scarcely convex ($W/H = 1.9$). Lateral outline with slight humeral angle. Sutural striae slight, limited in the apical third of elytra. Holotype: length 1.43 mm, width 1.68 mm, height 0.88 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora shape like in *A. dargharicum* n.sp. (Fig. 25); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Fig. 119, 120): aedeagus slender, with spiral-like proximal part, lateral margins sinuate at apex, rounded tip and U-shaped ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 108): basal and apical parts nearly alike in length and caliber; the former a little fat.

Types: Central Nepal, Kali-Gandaki Valley, between Lete and Tukche, 2500–2800 m, 2 ♂ and 1 ♀, H. Franz, IX.–X. 1971 (holotype ♂ Nr. 693 and 1 paratype ♀ Nr. 695 in coll. Franz; 1 paratype ♂ Nr. 694 in coll. Angelini); Taksang Mount. near Tukche, Takola, 3000 m, 4 ♂ and 3 ♀, H. Franz, IX.–X. 1971 (2 ♂ and 2 ♀ paratypes Nr. 696, 2481–2483, in coll. Franz; 1 ♂ paratype Nr. 697 in coll. Basel Museum; 1 ♂ and 1 ♀ paratypes Nr. 2484, 2485 in coll. Angelini); Nawronkot near Larjung, Takola region, 2900–3000 m, 1 ♂, H. Franz (paratype Nr. 836 in coll. Franz).

Discussion: see what noted for *A. substriatum* n. sp.

Derivatio nominis: dedicated to Mr. Colin Johnson.

Agathidium (s. str.) **apterum** n. sp.

Figs 44, 133.

Length: 2.8–3.2 mm (holotype: 3.2 mm). Dorsum black, reddish-brown at the anterior margin of head and pronotum sides; venter reddish-brown; antennae and legs testaceous; microreticulate only on elytra; punctate on head and pronotum.

Head: punctures very small and superficial, spaced from each other by 2–6 times their own diameter. Eyes bulging laterally, flattened; 3rd antennal segment as long as twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 2.08$) and more than 4th + 5th (Fig. 44). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: punctures like those on head but denser (spaced from each other by 2–4 times their own diameter); slightly broader than head ($P/H = 1.37$), much broader than long ($W/L = 1.61$) and moderately convex ($W/H = 1.76$). Anterior margin very slightly bent. Lateral outline much broadly rounded. Holotype: length 1.04 mm, width 1.68 mm, height 0.95 mm.

Elytra: microreticulation strong, absent near the scutellum, where are punctures dense as on head, but more large and impressed, and short, superficial furrows; as broad as pronotum, slightly broader than long ($W/L = 1.14$) and moderately convex ($W/H = 1.76$). Lateral outline with very slight humeral angle. Sutural striae well impressed, limited in the apical half of elytra. Holotype: length 1.45 mm, width 1.66 mm, height 0.94 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: tarsal formula: ♀ 4–4–4.

Spermatheca (Fig. 133): apical part slender, a little longer than the basal one; the latter a little fatter.

Types: India, Darjeeling, Chim-Khona (Ghum), 2200 m, 2 ♀, W. Wittmer, 4. VI. 1975 (holotype Nr. 269 and 1 paratype Nr. 257 in coll. Basel Museum; 1 paratype Nr. 270 in coll. Angelini).

Discussion: *A. apterum* n.sp. is close related to *brunneum* n.sp. *indistinctum* n.sp., *glaciale* n.sp. and *fulungense* n.sp., from which it differs because of the ratio between 3rd and 2nd antennal segments, the fine puncturation of head and pronotum and the shape of spermatheca.

Agathidium (s. str.) brunneum n.sp.

Fig. 134.

Length: 2.7 mm (holotype). Dorsum reddish-brown, venter a little paler; antennae and legs testaceous. Microreticulation impressed on elytra, in vague traces on pronotum; whole dorsum with double puncturation.

Head: puncturation made with two sizes of punctures: the punctures of big size are well impressed and spaced from each other by 2–4 times their own diameter; the punctures of small size (4–5 times smaller) are less impressed and more numerous, spaced from each other by 2–6 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.53$) and slightly longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: vague traces of microreticulation; two sizes of punctures: the punctures of big size are larger than on head and spaced from each other by 1–3 times their own diameter; slightly broader than head ($P/H = 1.33$), much broader than long ($W/L = 1.58$) and rather convex ($W/H = 1.82$); anterior margin nearly rectilinear. Lateral outline broadly rounded. Holotype: length 0.84 mm, width 1.33 mm, height 0.73 mm.

Elytra: microreticulation superficial near the scutellum, strong at sides; puncturation superficial and irregular, made with two sizes of punctures: the punctures of big size are spaced from each other by 1–5 times their own diameter; rather broader than pronotum, nearly as broad as long ($W/L = 1.09$) and moderately convex ($W/H = 1.75$). Lateral outline with slight humeral angle at the basal third. Sutural striae very slight, limited in the apical third of elytra. Holotype: length 1.30 mm, width 1.42 mm, height 0.81 mm.

Membranous wings absent. Meso and metasternum: median

carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: tarsal formula: ♀ 4–4–4.

Spermatheca (Fig. 134): apical part slender, a little longer than the basal one; the latter a little fat and twisted near the duct connection.

Type: Central Nepal, outskirts of Goropani, west Pokhara, 3000 m, 1 ♀, H. Franz, IX.–X. 1971 (holotype Nr. 651 in coll. Franz).

Discussion: On the whole, *A. brunneum* n.sp. is close related to *indistinctum* n.sp., *glaciale* n.sp. and *fulungense* n.sp.; it differs from the former because of the puncturation of head and pronotum, the presence of microreticulation traces on pronotum and the strong elytral microreticulation. The difference from the other two species is in the colouring of the antennal club.

Agathidium (s. str.) indistinctum n.sp.

Figs 121, 122.

Length: 2.5 mm (holotype). Dorsum of head and pronotum reddish-brown, elytra nearly black; venter reddish-brown; antennae and legs testaceous; microreticulate only on elytra; punctate only on head and pronotum.

Head: puncturation very irregular: punctures superficial and very small, spaced from each other by 2–5 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment a little longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.38$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation very irregular: punctures of different sizes, most of them larger than on head, spaced from each other by 1–5 times their own diameter; slightly broader than head ($P/H = 1.38$), much broader than long ($W/L = 1.63$) and moderately convex ($W/H = 1.52$). Anterior margin scarcely bent. Lateral outline broadly rounded. Holotype: length 0.82 mm, width 1.34 mm, height 0.88 mm.

Elytra: microreticulation superficial, in traces near the scutellum; punctures very small; as broad as pronotum, slightly broader than long ($W/L = 1.23$) and scarcely convex ($W/H = 1.94$). Lateral outline with slight humeral angle with vertex a little before middle length. Sutural striae slight, limited in the apical third of elytra. Holotypus: length 1.10 mm, width 1.36 mm, height 0.70 mm.

Membranous wings absent. Meso and mesosternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: hind femora shape as in *A. dargharicum* (Fig. 25); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 121, 122): aedeagus slender, with hook-like proximal part, lateral margins gently convergent towards apex, rounded tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Type: Central Nepal, outskirts of Goropani, west Pokhara, 3000 m, 1 ♂, H. Franz, IX.–X. 1971 (holotype Nr. 709 in coll. Franz).

Discussion: see what noted for *A. brunneum* n.sp.

Agathidium (s. str.) glaciale n. sp. Figs 123, 124, 135.

Length: 2.6–2.9 mm (Holotype: 2.7 mm). Dorsal colouring very variable: holotype and some paratypes black with reddish pronotal sides; other paratypes reddish-brown with black veins; venter dark reddish-brown; antennae testaceous with darker, sometimes black, club; legs testaceous; microreticulate only on elytra; punctate only on head and pronotum.

Head: puncturation very superficial, irregular, variable in different specimens. Eyes bulging laterally, flattened, 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.72$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation irregular as on head; a little broader than head ($P/H = 1.38$), much broader than long ($W/L = 1.61$) and rather convex ($W/H = 1.7$); anterior margin nearly rectilinear. Lateral outline much broadly rounded. Holotype: length 0.90 mm, width 1.45 mm, height 0.85 mm.

Elytra: microreticulation of the holotype and some paratypes in traces near the scutellum (where are long, irregular furrows and punctures variable in size and depth), clear elsewhere; more uniform in other specimens; slightly less broad than pronotum, broader than long ($W/L = 1.38$) and scarcely convex ($W/H = 1.92$). Lateral outline with evident humeral angle. Sutural striae slight, variable in length, limited within the apical half of elytra. Holotype: length 1.08 mm, width 1.50 mm, height 0.78 mm.

Membranous wings absent. Meso and metasternum: median carina slight, lateral lines slight, as in Fig. 8 but with femoral lines complete.

Legs: male hind femora shape as in *A. indistinctum* n.sp. and *A. dargharicum* n.sp. (Fig. 25); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs. 123, 124): aedeagus slender, with spiral-like proximal part, lateral margins abruptly approached at apex, rounded tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 135): apical and basal parts slender, nearly alike in length and caliber.

Types: West Nepal, Dampa Pass towards Chauta, Jumla Region, 2500 m, 1♂ and 2♀, H. Franz, 2.X.1972 (holotype ♂ Nr. 669 and 2 paratypes ♀ Nr. 670, 847 in coll. Franz); Dampa Pass towards Chauta, outskirts of Rarasees, 3000 m, 2♀, H. Franz, 30.IX.1972 (paratypes Nr. 667, 668 in coll. Franz); Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 7♂ and 5♀, H. Franz, 18–20.IX.1972 (4♂ and 3♀ paratypes Nr. 657–660, 662–664 in coll. Franz; 2♂ and 2♀ paratypes Nr. 661, 666, 655, 665 in coll. Angelini; 1♂ paratype Nr. 656 in coll. Basel Museum); Damplek near Jumla, Jumla region, 3500 m, 2♀, H. Franz, 3.X.1972 (paratypes Nr. 671–672 in coll. Franz); outskirts Darghari Mount. near Maharigaon, Jumla region, 4000 m, 2♂ and 2♀, H. Franz, 23.IX.1972 (paratypes Nr. 675, 678 in coll. Franz). Central Nepal, Kali-Gandaki Valley, between Ghasa and Lethe, 2000–2500 m, 1♀, H. Franz, 25.IX.1971 (paratype Nr. 673 in coll. Franz); Pina, Rarasees region, 8 ♂ and 6 ♀, H. Franz, 29.IX–1.X.1972 (6 ♂ and 3 ♀ paratypes Nr. 2487–2495 in coll. Franz; 2 ♂ and 2 ♀ paratypes Nr. 2496–2499 in coll. Angelini; 1 ♀ paratype Nr. 2486 in coll. Basel Museum).

Discussion: On the whole, *A. glaciale* n. sp. is close related to *brunneum* n. sp. and *indistinctum* n. sp., from which it differs by the antennal club colouring. Compared with *fulungense* n. sp., there is no valuable difference in the external characters but in the male copulatory organ and spermatheca.

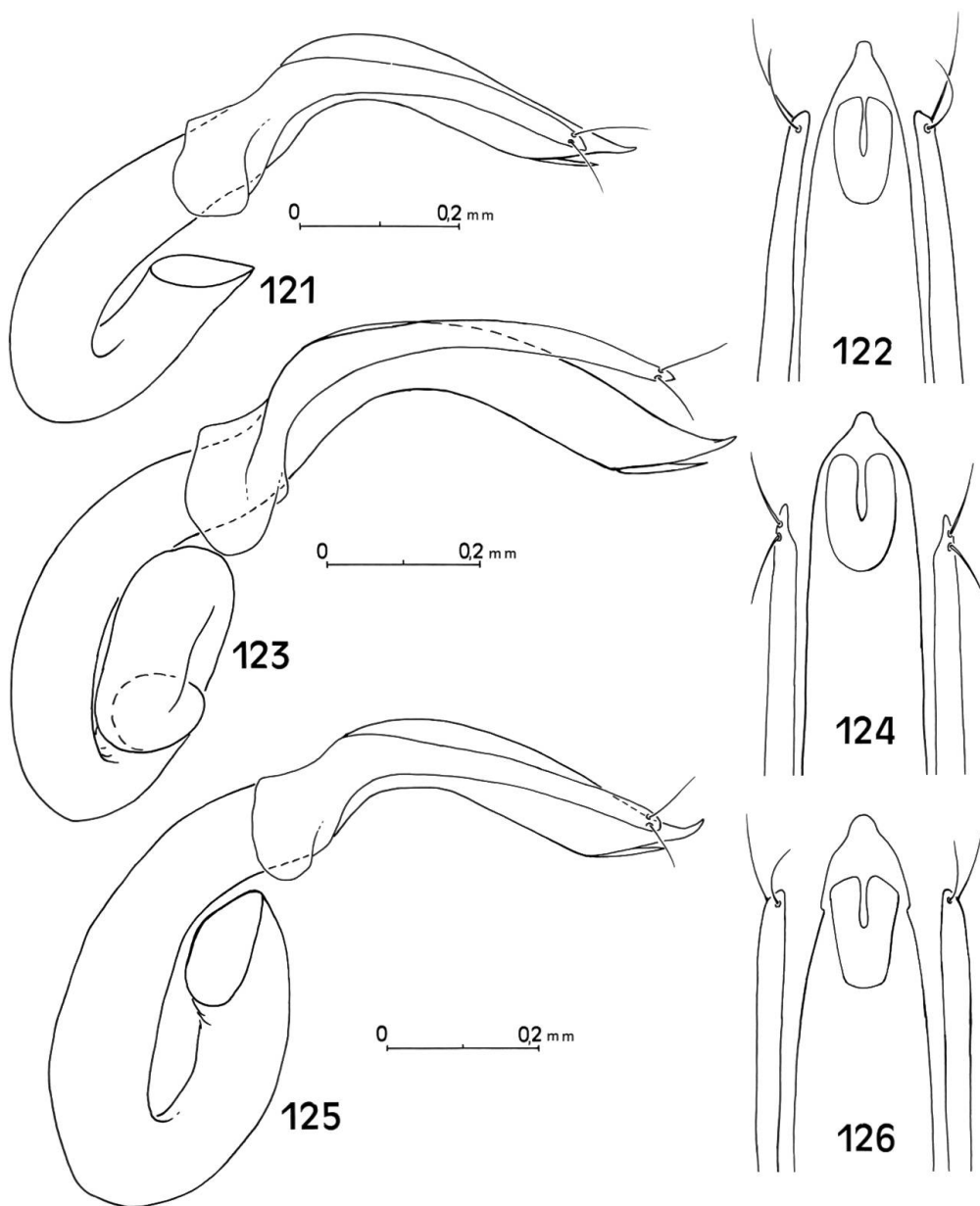
Agathidium (s. str.) fulungense n. sp. Figs 45, 125, 126, 136.

Length: 2.5–2.9 mm (holotype 2.9 mm). Dorsum uniformly reddish-brown or black; venter light reddish-brown; antennae testaceous with more or less darker club, black in one specimen; legs testaceous. microreticulate only on the elytra; puncturation conspicuous only on head and pronotum.

Head: puncturation variable in different specimens: punctures very small and rather impressed, spaced from each other by 1–3 times their own diameter in the holotype and some paratypes; punctures more superficial and sparser in other specimens. Eyes bulging laterally,

flattened. 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.68$) and as long as 4th + 5th (Fig. 45). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: punctate as on head; well broader than head ($P/H = 1.42$), much broader than long ($W/L = 1.66$) and rather convex ($W/H = 1.76$). Anterior margin scarcely bent. Lateral outline much



Figs 121–126: Male copulatory organ (lateral view and ventral view of the apex) of: 121–122, *Agathidium indistinctum* n.sp. 123–124, *A. glaciale* n.sp. 125–126, *A. fulungense* n.sp.

broadly rounded. Holotype: length 0.90 mm, width 1.50 mm, height 0.85 mm.

Elytra: microreticulation of the holotype and some paratypes in traces near the scutellum (where are long furrows and irregular puncturation), superficial elsewhere; in other specimens the microreticulation is more impressed and the smooth area near the scutellum is less large; as wide as pronotum, as broad as long and scarcely convex ($W/H = 2.02$). Lateral outline with slight humeral angle. Sutural striae slight, limited in the apical third of elytra. Holotype: length 1.36 mm, width 1.48 mm, height 0.73 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: male hind femora with slight tooth at the posterior margin; tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 125, 126): aedeagus slender, with ring-like proximal part, lateral margins sinuate at apex, and convergent into a rounded tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 136): basal and apical parts slender, nearly alike in length.

Types: Central Nepal, outskirts of Fulung, 3000–3500 m, 7♂ and 3♀, H. Franz, IX.–X. 1971 (holotype ♂ Nr. 684, 4♂ and 1♀ paratypes Nr. 679–681, 685, 687 in coll. Franz, 1♂ and 2♀ paratypes Nr. 682, 686, 688 in coll. Angelini, 1 Paratype ♂ Nr. 683 in coll. Basel Museum); West Nepal, Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 2♂, H. Franz, 18.–20. IX. 1972 (paratypes Nr. 689, 690 in coll. Franz).

Discussion: see what noted for *A. brunneum* n.sp. and *glaciale* n.sp.

Agathidium (s.str.) **kashmirensis** n.sp. Figs 31, 127, 128, 137.

Length: 2.3–2.8 mm (holotype: 2.8 mm). Dorsum uniformly reddish-brown; venter paler; antennae and legs testaceous. Microreticulation lacking; head and pronotum clearly punctate, elytra with sparse punctures.

Head: puncturation clear and irregular, made with two sizes of punctures: the larger punctures are well impressed, sparse; the smaller punctures (4 times less large) are more superficial and spaced from each other by 1–5 times their own diameter. Eyes bulging laterally,

flattened (Fig. 31). 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.7$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation clear and regular: punctures small, well impressed, spaced from each other by 4–6 times their own diameter; well broader than head ($P/H = 1.47$), much broader than long ($W/L = 1.51$) and well convex ($W/H = 1.58$). Anterior margin scarcely bent. Lateral outline broadly rounded. Holotype: length 0.88 mm, width 1.33 mm, height 0.84 mm.

Elytra: puncturation very superficial and sparse: punctures spaced from each other by 8–10 times their own diameter; slightly less broad than pronotum, nearly as broad as long and rather convex ($W/H = 1.75$). Lateral outline with slight humeral angle at the basal third. Sutural striae well impressed, limited in the apical third of elytra. Holotype: length 1.35 mm, width 1.30 mm, height 0.74 mm.

Membraneous wings absent. Meso and metasternum: median carina slight, lateral lines slight, as in figure 8 but with femoral lines complete.

Legs: male hind femora with a little tooth at the posterior margin, like in *A. gulmargense* n.sp. (Fig. 23); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 127, 128): aedeagus slender, with ring-like proximal part, lateral margins suddenly approached near apex into a rounded tip and bifid ventral piece; parameres slender, gently tapered towards apex and here a little bended.

Spermatheca (Fig. 137): apical and basal parts a little different in length, slender; the latter abruptly twisted near the connection of the duct.

Types: Kashmir, Chandanwari near Pahalgan, 2800–3100 m, 12♂ and 17♀, H. Franz, X. 1977 (holotype ♂ Nr. 698, 7♂ and 13♀ paratypes Nr. 837, 838, 841–843, 699, 848, 850–852, 2500–2509 in coll. Franz; 3♂ and 4♀ paratypes Nr. 839, 849, 2510–2514 in coll. Angelini; 1♂ paratype Nr. 840 in coll. Basel Museum); Pahalgam, 2400 m, 1♂, Martens and Schawaller, 14–20.V.1976 (paratype Nr. 1119 in coll. Senckenberg Museum, Frankfurt-Main), Aru, 9♂ and 13♀, H. Franz, X. 1977 (6♂ and 9♀ paratypes Nr. 2394, 2395, 2421–2424, 2396–2404 in coll. Franz; 3♂ and 3♀ paratypes Nr. 2406–2408, 2425–2427 in coll. Angelini; 1♀ paratype Nr. 2405 in coll. Basel Museum).

Discussion: Very similar to *A. hamanni* n.sp. for the habitus, *A. kashmirensis* n.sp. differs from it by shape of head (Figs 31 and 32),

finer elytral puncturation, lack of membraneous wings, female tarsal formula and shape of spermatheca.

Agathidium (s. str.) **hamanni** n. sp. Figs 32, 138.

Length: 2.8 mm (holotype and paratype). Dorsum reddish-brown with black veins on elytra; venter paler; antennae and legs testaceous. Dorsum lacking in microreticulation and with conspicuous puncturation.

Head: puncturation clear and fine: punctures small, well impressed, spaced from each other by 2–4 times their own diameter. Lateral margins behind eyes slightly convergent backwards (Fig. 32). Eyes bulging laterally, flattened. 3rd antennal segment a little longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.14$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segment.

Pronotum: puncturation conspicuous and fine as on head, but sparser; much broader than head ($P/H = 1.52$), much broader than long ($W/L = 1.45$) and scarcely convex ($W/H = 2$). Anterior margin scarcely bent. Lateral outline broadly rounded. Holotype: length 0.88 mm, width 1.28 mm, height 0.64 mm.

Elytra: puncturation very clear: punctures slightly larger than on head, less impressed; very superficial furrows are interposed; as broad as pronotum, nearly as broad as long and well convex ($W/H = 1.8$). Lateral outline with slight humeral angle. Sutural striae well impressed, limited within the apical half of elytra. Holotype: length 1.32 mm, width 1.30 mm, height 0.72 mm.

Membraneous wings present. Meso and metasternum: median carina present, well in relief, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: tarsal formula: ♀ 5–4–4.

Spermatheca (Fig. 138): basal part very fat, subglobose; apical part short, tapered towards apex.

Types: West Nepal, Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 2♀ H. Franz. 18.–20. IX. 1972 (holotype Nr. 551 in coll. Franz, paratype Nr. 552 in coll. Angelini).

Discussion: see what noted for *A. kashmirensis* n. sp. Together with the latter, in the key it is separated, from the other species with evident sutural striae and lacking in microreticulation, by the ratio between the 3rd and 2nd antennal segments.

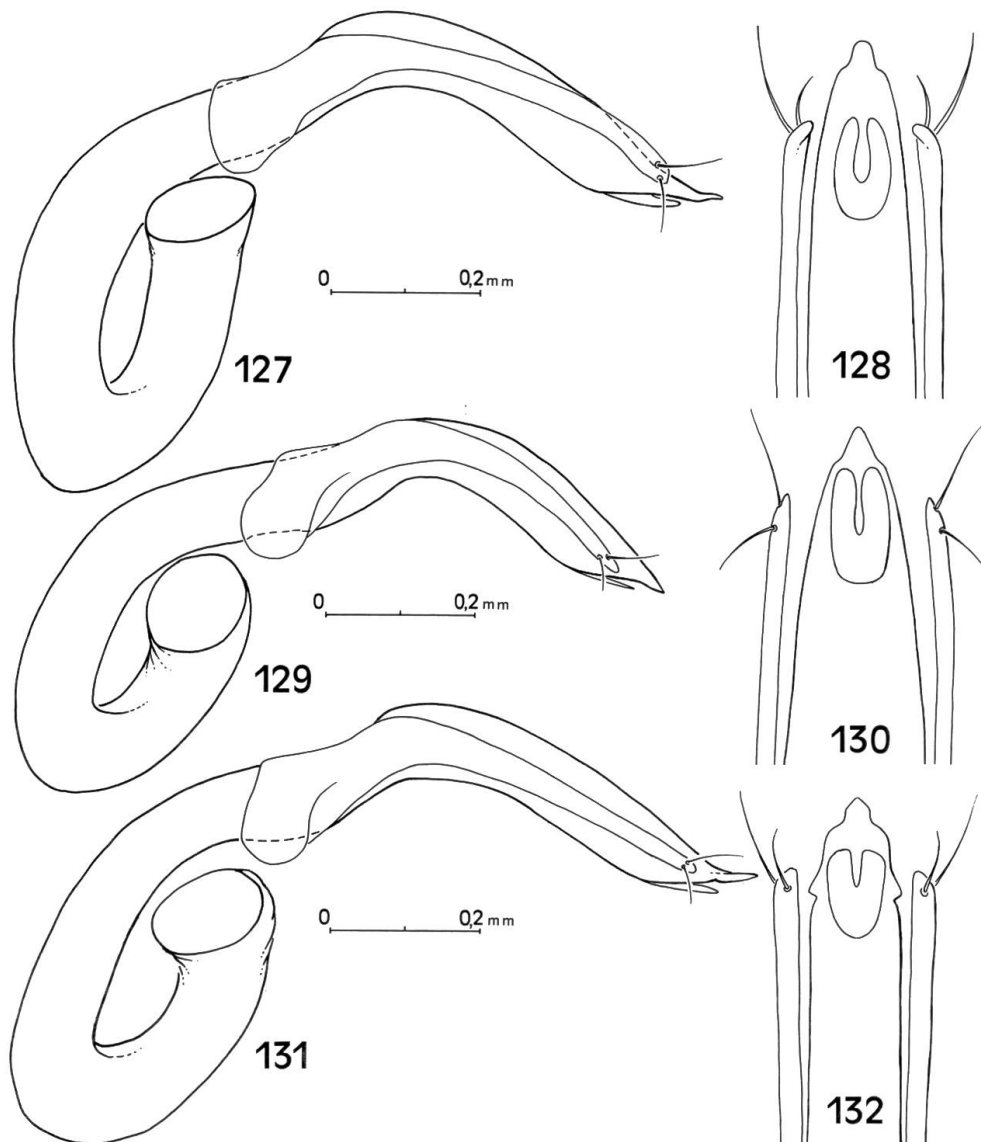
Derivatio nominis: dedicated to the Author who first described the antennal organ bearing his name.

Agathidium (s. str.) fallax n. sp.

Figs 129, 130, 139.

Length: 2.7–2.8 mm (holotype 2.8 mm). Head and pronotum dark reddish-brown with black veins, elytra black with apex and median margins reddish-brown; antennae and legs testacean. Microreticulation lacking; puncturation fine and sparse.

Head: punctures small, superficial, spaced from each other by 6–8 times their own diameter. Eyes bulging laterally, flattened. 3rd anten-



Figs 127–132: Male copulatory organ (lateral view and ventral view of the apex) of: 127–128, *Agathidium kashmirensis* n.sp. 129–130, *A. fallax* n.sp. 131–132, *A. raffaellae* n.sp.

nal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.8$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation finer and more superficial than on head; slightly broader than head ($P/H = 1.3$), much broader than long ($W/L = 1.65$) and moderately convex ($W/H = 1.7$): Anterior margin slightly bent. Lateral outline nearly angulate. Holotype: length 0.95 mm, width 1.57 mm, height 0.88 mm.

Elytra: puncturation irregular: punctures variable in size, depth and distance from each other; broader than pronotum, slightly broader than long ($W/L = 1.2$) and scarcely convex ($W/H = 2.24$). Lateral outline with slight humeral angle. Sutural striae slight, limited within the apical third of elytra. Holotype: length 1.17 mm, width 1.67 mm, height 0.70 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

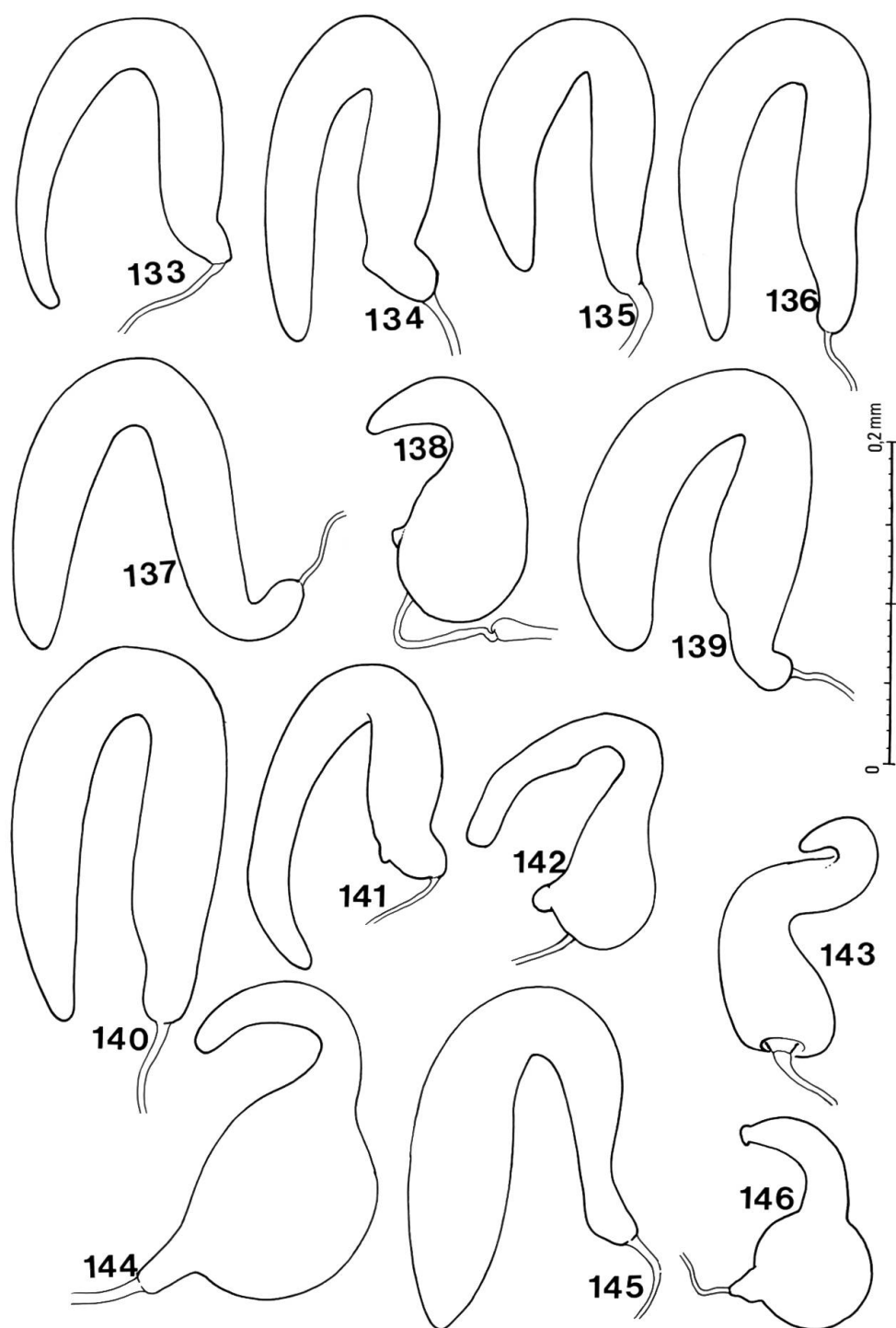
Legs: male hind femora with slight tooth at the posterior margin; the latter a little sinuate, as in *A. castaneum* n.sp. (Fig. 24); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 129, 130): aedeagus slender, with ring-like proximal part, lateral margins gently approached towards apex and a little sinuate near the subacute tip, ventral piece bifid; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 139): apical part slender, a little shorter than the basal one; the latter a little fat and twisted near the duct connection.

Types: India, Darjeeling, Chim-Khona (Ghum), 2200 m, 2♂ and 1♀, W. Wittmer, 28.V.1975 (holotype ♂ Nr.236 and 1 paratype ♀ Nr. 266 in coll. Basel Museum, 1 paratype ♂ Nr.237 in coll. Angelini); Tiger Hill, 2150 m, 1♂, W. Wittmer, 27.V.1975 (paratype Nr.235 in coll. Basel Museum); Darjeeling, 2150 m, 1♀, W. Wittmer, 30.V.1975 (paratype Nr.240 in coll. Basel Museum).

Discussion: On the whole, *A. fallax* n.sp. is close related to *raffaelae* n.sp., *concolor* n.sp., *indicum* n.sp. and *dingularicum* n.sp., from which it is separated chiefly by lack of fine puncturation on pronotum. In add it differs from *concolor* and *indicum* by size and ratio between 3rd and 2nd antennal segments; from *indicum* also by the colouring; from *dingularicum* by size and colouring.



Figs 133– 146: Spermatheca of: 133, *Agathidium apterum* n.sp. 134, *A. brunneum* n.sp. 135, *A. glaciale* n.sp. 136, *A. fulungense* n.sp. 137, *A. kashmirensense* n.sp. 138, *A. hamanni* n.sp. 139, *A. fallax* n.sp. 140, *A. raffaellae* n.sp. 141, *A. indicum* n.sp. 142, *A. seminigrum* n.sp. 143, *A. shermathangense* n.sp. 144, *A. laevigatum* Er. 145, *A. goropanicum* n.sp. 146, *A. semirufum* n.sp.

Agathidium (s. str.) **raffaellae** n. sp. Figs 131, 132, 140.

Length: 3.25 mm (holotype and paratypes). Dorsum black with sides of head and pronotum, apex and median margins of elytra reddish; venter reddish-brown; antennae testaceous with darker club; legs testaceous. Microreticulation lacking; head and pronotum with dense puncturation.

Head: puncturation dense and regular: punctures small, well impressed, spaced from each other by 1–2 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.8$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation less regular than on head: punctures variable in size, most of them smaller than on head, well impressed, spaced from each other by 1–2 times their own diameter; slightly broader than head ($P/H = 1.3$), much broader than long ($W/L = 1.52$) and scarcely convex ($W/H = 1.9$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 1.10 mm, width 1.68 mm, height 0.88 mm.

Elytra: puncturation very sparse: punctures as small as on head and more superficial, spaced from each other by 4–10 times their own diameter; long, irregular and superficial furrows interposed; a little less broad than pronotum, nearly as broad as long and scarcely convex ($W/H = 2$). Lateral outline with slight humeral angle. Sutural striae slight but well defined, limited within the apical half of elytra. Holotype: length 1.47 mm, width 1.60 mm, height 0.80 mm.

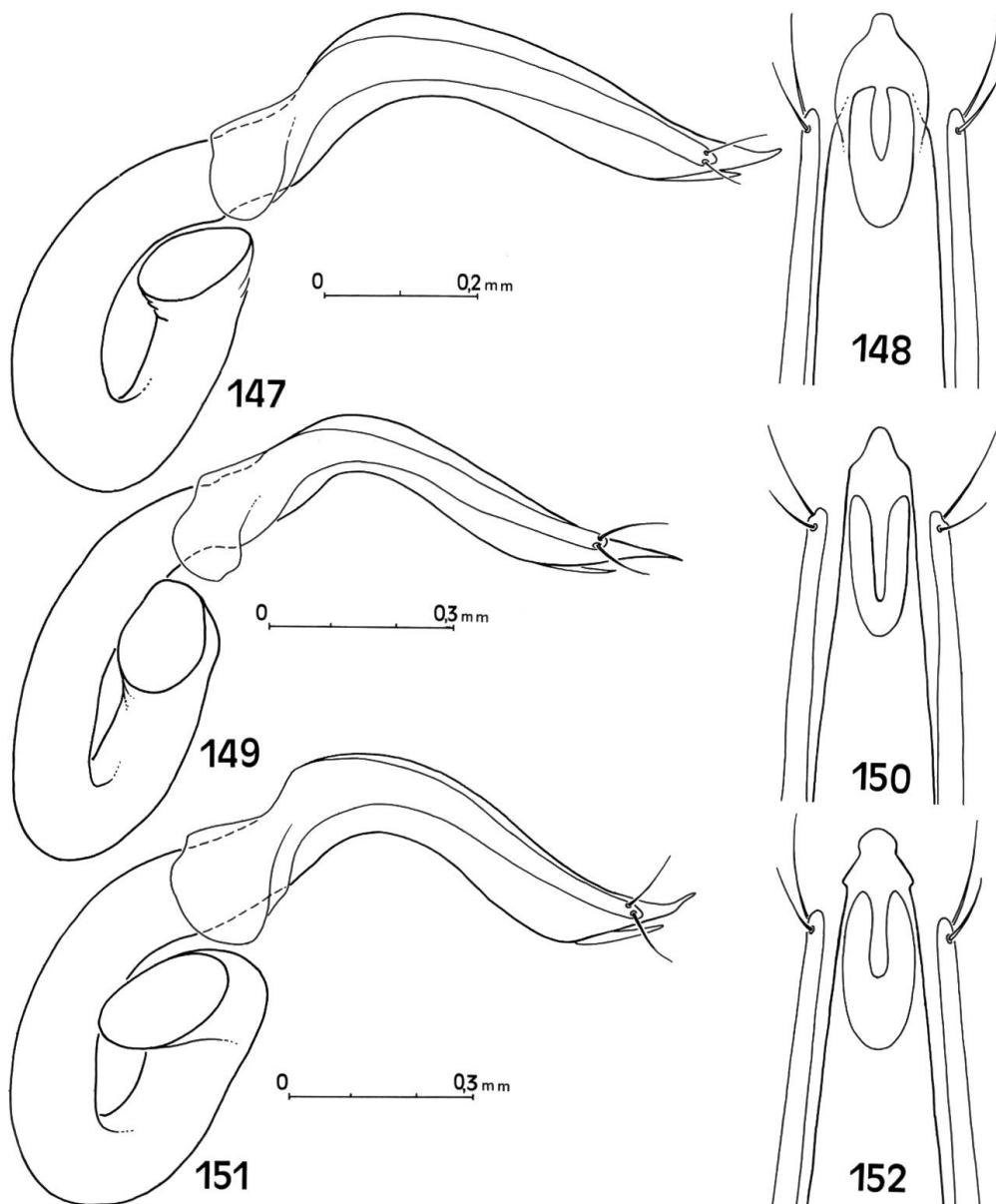
Membranous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: male hind femora with slight tooth at the posterior margin, like in *A. dargharicum* n.sp. (Fig. 25); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 131, 132): aedeagus slender, with ring-like proximal part, lateral margins very sinuate at apex, subacute tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 140): apical and basal parts slender, nearly alike in length and caliber.

Types: Central Nepal, road from Gosaikund to Monastery of Fulung, 3500–4200 m, 2♂, H. Franz, IX.–X. 1971 (holotype Nr. 557 in coll. Franz, paratype Nr. 558 in coll. Angelini). West Nepal, Dampa



Figs 147–152: Male copulatory organ (lateral view and ventral view of the apex) of: 147–148, *Agathidium concolor* n.sp. 149–150, *A. indicum* n.sp. 151–152, *A. dinguaricum* n.sp.

Pass towards Chauta, Jumla region, 2500 m, 1♀, H.Franz, 2.X.1972 (paratype Nr.559 in coll. Franz).

Discussion: On the whole, *A. raffaellae* n.sp. is close related to *fallax* n.sp., *concolor* n.sp., *indicum* n.sp. and *dinguaricum* n.sp., from which it differs by the big size and dark antennal club. The five species are indeed hardly separable on the basis of the external features. On

the contrary aedeagus and spermatheca give good diagnostic characters.

Agathidium (s.str.) **concolor** n.sp.

Figs 147, 148.

Length: 2.9 (holotype). Dorsum reddish-brown; venter a little paler; antennae testaceous with just a little darker club; legs testaceous. Microreticulation lacking; punctate on head and pronotum.

Head: puncturation clear and irregular: punctures small, superficial, variable in size, spaced from each other by 1–4 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment long more than twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 2.21$) and than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation denser and more impressed than on head; a little broader than head ($P/H = 1.31$), broader than long ($W/L = 1.39$) and moderately convex ($W/H = 1.66$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 1.12 mm, width 1.55 mm, height 0.93 mm.

Elytra: puncturation very sparse, superficial and irregular; many short, irregular and superficial furrows are interposed; as broad as pronotum, broader than long ($W/L = 1.31$) and scarcely convex ($W/H = 1.93$). Lateral outline with slight humeral angle. Sutural striae slight, limited within the apical half of elytra. Holotype: length 1.15 mm, width 1.55 mm, height 0.80 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora with slight tooth at the posterior margin, like in *A. castaneum* n.sp. (Fig. 26); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 147, 148): aedeagus slender, with ring-like proximal part, lateral margins very sinuate towards apex, rounded tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Type: West Nepal, Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 1♂, H. Franz, 18.–20.IX.1972 (holotype Nr. 560 in coll. Franz).

Discussion: see what noted for *A. raffaellae* n.sp. From *indicum* n.sp. and *dingularicum* n.sp., which it is close related to, *A. concolor* n.sp. differs by dorsal colouring, denser puncturation of head and pronotum, male copulatory organ; from *dingularicum* also by size and ratio between 3rd and 2nd antennal segments.

Agathidium (s. str.) **indicum** n. sp. Figs 46, 141, 149, 150.

Length: 2.9–3.0 mm (holotype 3.0 mm). Dorsum shining black, with lateral and posterior rims of pronotum reddish; venter reddish-brown; antennae and legs testaceous. Microreticulation lacking; puncturation sparse and superficial.

Head: puncturation sparse and superficial: punctures small, different in size and distance from each other. Eyes bulging laterally, flattened. 3rd antennal segment longer than twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 2.3$) and as long as 4th + 5th (Fig. 46). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation sparse and irregular, but denser than on head; a little broader than head ($P/H = 1.37$), much broader than long ($W/L = 1.65$) and rather convex ($W/H = 1.73$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 1.00 mm, width 1.65 mm, height 0.95 mm.

Elytra: puncturation superficial and irregular as on head: punctures a little larger, variable in size and distance from each other; just a little broader than pronotum, slightly broader than long ($W/L = 1.28$) and scarcely convex ($W/H = 2$). Lateral outline with evident humeral angle. Sutural striae slight, limited within the apical half of elytra. Holotype: length 1.32 mm, width 1.70 mm, height 0.85 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: male hind femora with slight tooth at the posterior margin; male pro- and mesotarsi with segments 1–3 expanded; tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 149, 150): aedeagus slender, with ring-like proximal part, lateral margins sinuate near the rounded tip and U-shaped ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 141): apical part slender, clearly longer than the basal one; the latter a little fat.

Types: India, Darjeeling, Chim-Khona (Ghum), 2200 m, 4♂, W. Wittmer, 28.V.1975 (holotype Nr.241 and 2 paratypes Nr.243, 244, in coll. Basel Museum; 1♂ paratype Nr.242 in coll. Angelini); Lopchu, Ghum, 2100 m, 1♂, W. Wittmer, 8.V.1975 (paratype Nr.238 in coll. Basel Museum); Lebong, 1600–1800 m, 2♀, W. Wittmer, 8.V.1975 (paratype Nr.247 in coll. Basel Museum, paratype Nr.256 in coll. Angelini).

Discussion: see what noted for *A. fallax* n.sp., *raffaellae* n.sp. and *concolor* n.sp. For habitus and puncturation *A. indicum* n.sp. is very similar to *dinguaricum* n.sp., from which it differs by ratio between 3rd and 2nd antennal segments as well as by aedeagus characters.

Agathidium (s.str.) **dinguaricum** n.sp. Figs 47, 151, 152.

Length: 3.0–3.1 mm (holotype 3.1 mm). Dorsum black, reddish at the lateral and posterior margins of pronotum; venter reddish-brown; antennae and legs testaceous. Microreticulation lacking; head and pronotum punctate.

Head: puncturation fine and irregular: most of punctures small, scarcely impressed and spaced from each other variably. Eyes bulging laterally, flattened. 3rd antennal segment nearly as long as twice the 2nd and longer than 4th+5th (Fig.47). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation fine and irregular as on head; a little broader than head ($P/H = 1.38$), much broader than long ($W/L = 1.59$) and rather convex ($W/H = 1.81$); anterior margin slightly bent. Lateral outline broadly rounded. Holotype: length 1.02 mm, width 1.63 mm, height 0.90 mm.

Elytra: puncturation very sparse: punctures superficial, as large as on head; some long, irregular and scarcely impressed furrows interposed; as broad as pronotum, slightly broader than long ($W/L = 1.23$) and scarcely convex ($W/H = 2.03$). Lateral outline with slight humeral angle at the apical third. Sutural striae slight but well evident, limited within the apical third of elytra. Holotype: length 1.32 mm, width 1.63 mm, height 0.80 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig.11).

Legs: male hind femora with slight tooth at the posterior margin; the latter rectilinear; tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 151, 152): aedeagus slender, with ring-like proximal part, lateral margins very sinuate at apex, rounded tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Types: Central Nepal, Dinguari Khola Valley over Trisuli Basar, 1000–1500 m, 4 ♂, H.Franz, IX.X.1971 (holotype Nr.553 and 2 paratypes Nr.554, 555 in coll. Franz; 1 paratype Nr.556 in coll. Angelini).

Discussion: see what noted for the four preceding species.

Agathidium (s. str.) **seminigrum** n. sp.

Fig. 142.

Length: 2.75 mm (holotype). Head dark reddish-brown, paler at the anterior part; pronotum black, reddish at the sides; elytra black, reddish at apex; venter reddish-brown; antennae and legs testaceous. Whole dorsum microreticulate, punctate only on head discum and on pronotum.

Head: microreticulation well impressed; puncturate only on discum, where the microreticulation is less impressed. Eyes bulging laterally, flattened. 3rd antennal segment as long as twice the 2nd and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation a little less impressed than on head; puncturation very fine and sparse: punctures small, very superficial, spaced from each other by 3–4 times their own diameter; well broader than head ($P/H = 1.4$), much broader than long ($W/L = 1.64$) and rather convex ($W/H = 1.76$); anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.91 mm, width 1.50 mm, height 0.85 mm.

Elytra: microreticulation uniform, more impressed than on head; impunctate; as broad as pronotum, broader than long ($W/L = 1.22$) and very convex ($W/H = 1.5$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.24 mm, width 1.52 mm, height 0.80 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: tarsal formula: ♀ 5–4–4.

Spermatheca (Fig. 142): apical part slender, clearly shorter than the basal one; the latter fat, pear-shaped, with a protruberant tubercle near the duct connection.

Type: Central Nepal, Dinguari Khola Valley over Trisuli Basar, 1000–1500 m, 1 ♀, H. Franz, IX. X. 1971 (holotype Nr. 569 in coll. Franz).

Discussion: *A. seminigrum* n. sp. has in common with *shermathangense* n. sp., *laevigatum* Er. and *goropanicum* n. sp. the uniformity of microreticulation; differs from them because it hasn't dark antennal club and by the ratio between 3rd and 2nd antennal segments; from *shermathangense* and *goropanicum* also by size.

Agathidium (s. str.) shermathangense n. sp.

Fig. 143.

Length: 2.2 mm (holotype). Dorsum reddish-brown; venter a little paler; antennae testaceous with black club; legs testaceous. Whole dorsum microreticulate, impunctate.

Head: the whole surface with microreticulation clear and regular; labrum and mandibulae particularly big. Eyes bulging laterally, flattened. 3rd antennal segment much thinner than 2nd, slightly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.2$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation as on head; slightly broader than head ($P/H = 1.25$), much broader than long ($W/L = 1.6$) and rather convex ($W/H = 1.79$). Anterior margin nearly rectilinear. Lateral outline broadly rounded. Holotype: length 0.68 mm, width 1.04 mm, height 0.58 mm.

Elytra: microreticulation as on head; just a little broader than head, as broad as long and moderately convex ($W/H = 1.8$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.08 mm, width 1.08 mm, height 0.60 mm.

Membraneous wings absent. Meso and metasternum: median carina well in relief, lateral lines absent, metasternum very shortened (meso and metacoxae nearly in touch, as in figure 12).

Legs: tarsal formula: ♀ 4–4–4.

Spermatheca (Fig. 143): apical part slender with twisted apex; basal part fat, with pitted duct connection.

Type: Nepal, Shermathang, Helambu, 3000 m, 1 ♀, H. Franz, X. 1980 (holotype Nr. 853 in coll. Franz).

Discussion: *A. shermathangense* n. sp. differs very well from *laevigatum* Er. and *goropanicum* n. sp. by the small size, uniform colouring, lack of microreticulation, thinness of the 3rd antennal segment, shortness of metasternum and shape of spermatheca.

Agathidium (s. str.) laevigatum Erichson

Figs 8, 144, 153, 154.

Material: India, Himachal Pradesh, Rohtang Pass south Hang, 2500–3500 m, 1 ♀, H. Franz, in coll. Franz; Darjeeling, Lebong, 1600–1800 m, 1 ♂, W. Wittmer, 2. VI. 1975, in coll. Basel Museum; Chim-Khona (Ghum), 2200 m, 1 ♂ and 1 ♀, W. Wittmer, 4. VI. 1975, in coll. Basel Museum and in coll. Angelini. Central Nepal, Phulchoki near Kathmandu, 2800 m, 1 ♂, H. Franz, in coll. Franz; outskirts of Goropani, west Pokhara, 3000 m, 1 ♂, H. Franz, IX.–X. 1971, in coll. Franz; Dinguari Khola Valley over Trisuli Basar, 1000–1500 m, 3 ♀, H. Franz, IX.–X. 1971, in coll. Franz; outskirts of Fulung, 3500 m, 2 ♀, H. Franz, IX.–X. 1971, in coll. Franz. Bhutan, Kharbandi, 1 ♂, D. Khandu, VIII. 1976, in coll. Basel Museum.

Length: 2.8–3.2 mm. Dorsum black, in some specimens sides of head and pronotum and elytral apex reddish; venter dark reddish-brown; antennae testaceous with a little darker antennal club; legs testaceous. Whole dorsum uniformly microreticulate; puncturation fine and sparse on head and pronotum.

Head: microreticulation uniform on the whole surface, superficial; puncturation sparse and superficial: punctures small, spaced from each other by 2–6 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment a little longer than 2nd and as long as 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments.

Pronotum: microreticulation as on head; puncturation more irregular and sparser; slightly broader than long and scarcely convex. Anterior margin well bent. Lateral outline much broadly rounded.

Elytra: microreticulation uniform and superficial as on head; puncturation absent; a little less broad than pronotum, a little broader than long and scarcely convex. Lateral outline with slight humeral angle. Sutural striae absent.

Membraneous wings absent. Meso and metasternum: median carina well in relief, lateral lines present, femoral lines incomplete (form A, Fig. 8).

Legs: tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 153, 154): aedeagus comparatively squat, abruptly depressed at apex, with simple proximal part, lateral margins gently approached towards apex into a subacute tip, ventral piece U-shaped; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 144): apical part slender, very short; basal part subglobose with a subconical production towards the duct connection.

Discussion: We have already noted the differences from *A. seminigrum* n.sp. and *shermathangense* n.sp. From *goropanicum*, *A. laevigatum* Er. differs by the big size, strong and uniform microreticulation, meso and metasternal features, male hind femora and copulatory organ shape, female tarsal formula.

Agathidium (s. str.) **goropanicum** n.sp.

Figs 145, 155, 156.

Length: 2.3–2.5 mm (holotype 2.5 mm). Dorsum black, reddish at the pronotum sides; venter dark reddish-brown; antennae testaceous with black club; legs testaceous. Microreticulation and puncturation superficial.

Head: microreticulation very superficial; puncturation superficial and regular: punctures small, spaced from each other by 1–4 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.5$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation a little more impressed than on head, puncturation sparser; well broader than head ($P/H = 1.43$), much broader than long ($W/L = 1.57$) and rather convex ($W/H = 1.77$). Anterior margin nearly rectilinear. Lateral outline much widely rounded. Holotype: length 0.83 mm, width 1.31 mm, height 0.74 mm.

Elytra: microreticulation very superficial in 2 paratypes, more impressed in the holotype and in the other 3 specimens; punctures very small and sparse; slightly broader than pronotum, broader than long ($W/L = 1.27$) and scarcely convex ($W/H = 2.15$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.10 mm, width 1.40 mm, height 0.65 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines present, femoral lines complete (form B, Fig. 9).

Legs: male hind femora with slight tooth at the posterior margin; the latter just a little sinuate; tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 155, 156): aedeagus slender, with spiral-like proximal part, lateral margins very sinuate at apex, semi-circular tip and bifid ventral piece; parameres slender, gently tapered towards apex.

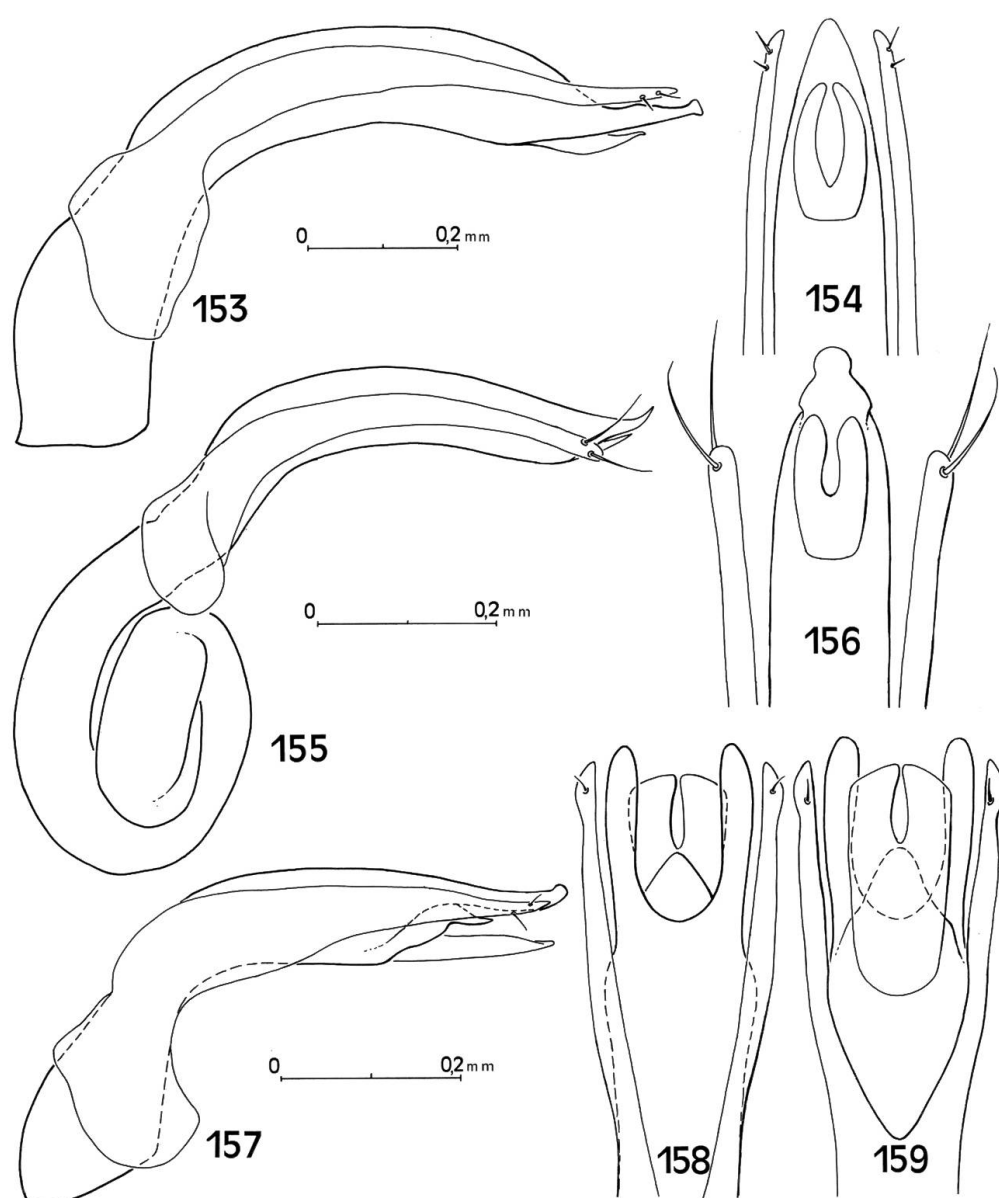
Spermatheca (Fig. 145): apical part bigger and longer than the basal one; the latter narrowed near the duct connection.

Types: Central Nepal, outskirts of Goropani, west Pokhara, 3000 m, 5 ♂ and 1 ♀, H. Franz, IX.–X. 1971 (holotype ♂ Nr. 586, 2 ♂ and 1 ♀ paratypes Nr. 589–591 in coll. Franz; 1 paratype ♂ Nr. 587 in coll. Angelini; 1 paratype ♂ Nr. 588 in coll. Basel Museum).

Discussion: see what noted for *A. seminigrum* n.sp., *shermathangense* n.sp. and *laevigatum* Er.

Agathidium (s.str.) **semirufum** n.sp. Figs 27, 33, 146, 157–159.

Length: 2.6–2.8 mm (holotype 2.6 mm). Head black, pronotum black with reddish sides, elytra reddish-brown with black veins; venter reddish-brown; antennae testaceous with segment 6–10 black; legs testaceous. Head with furrowing, with strong anterior rim and one



Figs 153–159: Male copulatory organ of: 153–154, *Agathidium laevigatum* Er. (lateral and ventral view of the apex). 155–156, *A. goropanicum* n. sp. (lateral and ventral view of the apex). 157–159, *A. semirufum* n. sp. (lateral view, dorsal and ventral view of the apex).

dimple at each side behind the latter. Pronotum and elytra punctate. Head much smaller than pronotum.

Head: the whole surface with transverse, superficial furrows; puncturation very sparse: punctures small, well impressed, spaced from each other by 3–5 times their own diameter. Eyes bulging laterally, globose (Fig. 33). 3rd antennal segment much longer than the 2nd (3rd/

2nd = 1.4) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation fine and regular: punctures small, superficial, spaced from each other by 1–6 times their own diameter; much broader than head ($P/H = 1.73$), broader than long ($W/L = 1.35$) and rather convex ($W/H = 1.88$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.96 mm, width 1.30 mm, height 0.69 mm.

Elytra: puncturation very sparse: punctures small and well impressed, spaced from each other by 2–20 times their own diameter; just a little broader than pronotum, broader than long ($W/L = 1.25$) and moderately convex ($W/H = 1.68$). Lateral outline with well defined humeral angle. Sutural striae absent. Holotype: length 1.08 mm, width 1.35 mm, height 0.80.

Membraneous wings present. Meso and metasternum: median carina present, lateral lines present, femoral lines incomplete (form A, Fig. 8).

Legs: male hind femora as in figure 27; tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 157–159): very particularly shaped; aedeagus comparatively squat, with simple proximal part, apex deeply trilobed (lateral lobes much longer than the median one); parameres gently tapered towards apex and here a little increased, connate at venter; phallobase embracing the aedeagus base.

Spermatheca (Fig. 146): apical part slender; basal part subspherical with protruberant tubercle where is the duct connection.

Types: Bhutan, Dorjula, 3100 m, 1 ♂ and 1 ♀, D. Khandu, 3.IX.1976 (holotype ♂ Nr. 293 in coll. Basel Museum; paratype ♀ Nr. 294 in coll. Angelini). Nepal, Hiataura, Therai, 2 ♀ H. Franz, 9.X.1972, (paratype Nr. 854 in coll. Franz, Nr. 855 in coll. Angelini); Langtang, 3350–3400 m, 1 ♀, Bhakta B. (paratype Nr. 2238 in coll. Basel Museum); Pankha Banglo, 1900 m, 1 ♂, Bhakta B., 9.VIII.1978 (paratype Nr. 2237 in coll. Basel Museum). East Nepal, Jubing, 1300 m, 1 ♂ and 1 ♀, Bhakta B., 20.VI.1979 (paratypes Nr. 2233, 2234 in coll. Basel Museum); Lukla, 2900 m, 1 ♂, Bhakta B., 14.VI.1979 (paratype Nr. 2235 in coll. Basel Museum); Poyan, 2700 m, 7 ♂ and 7 ♀, Bhakta B. (5 ♂ and 5 ♀ paratypes Nr. 2220–2224, 2229–2232, 2236 in coll. Basel Museum, 2 ♂ and 2 ♀, paratypes Nr. 2225–2228 in coll. Angelini). India, Darjeeling, Kalimpong, 1 ♂, Bhakta B., 18.VIII.1979 (paratype Nr. 2219 in coll. Basel Museum);

Lebong, 1600–1800 m, 1 ♀, W. Wittmer, 2. VI. 1975 (paratype Nr. 295 in coll. Basel Museum). Assam, Kaziranga, 75 m, 1 ♀, C. Baroni Urbani and W. Wittmer, 7.–9. V. 1975 (paratype Nr. 296 in coll. Basel Museum).

Discussion: *A. semirufum* n.sp. differs from *kathmanduense* n.sp. and *singmaricum* n.sp. by presence of head dimples and strong rim, eyes globose (Figs 33, 34), pronotum lacking in furrowing, antennae with black club, presence of membraneous wings, male femora and copulatory organ shape (Figs 27, 29, 157–163).

Agathidium (s.str.) **kathmanduense** n.sp. Figs 29, 34, 160, 161, 184.

Length: 1.9–2.0 mm (holotype: 1.9 mm). Dorsum reddish-brown, elytra with black veins; venter reddish-brown; antennae and legs testaceous. Head and pronotum with furrowing. Whole dorsum punctate. Eyes not globose.

Head: dorsum with transverse, superficial furrowing; puncturation very fine and sparse: punctures small, superficial, spaced from each other by 2–4 times their own diameter. Eyes bulging laterally, flattened (Fig. 34). 3rd antennal segment a little longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.4$) and than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: furrowing superficial as on head; puncturation as on head; slightly broader than head ($P/H = 1.28$), much broader than long ($W/L = 1.53$) and moderately convex ($W/H = 1.64$), Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.63 mm, width 0.97 mm, height 0.59 mm.

Elytra: puncturation very sparse, superficial: punctures twice as large as on head, spaced from each other by 2–3 times their own diameter; short, irregular and very superficial furrows interposed; as broad as pronotum, a little broader than long ($W/L = 1.24$) and well convex ($W/H = 1.7$). Lateral outline with well evident humeral angle at middle length. Sutural striae absent. Holotype: length 0.78 mm, width 0.97 mm, height 0.57 mm.

Membraneous wings absent. Meso and metasternum: median carina well in relief, lateral lines absent, as in figure 10 but with femoral lines complete.

Legs: male hind femora as in figure 29; tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 160, 161): aedeagus slender, with proximal part just a little twisted, lateral margins abruptly approached

at apex into a right angle and bifid ventral piece; parameres slender, grooved to fit for aedeagus sides.

Spermatheca (Fig. 184): apical part slender; basal part a little fat with slight tubercle near the duct connection.

Types: Central Nepal, Phulchoki near Kathmandu, 2800 m, 3 ♂ and 2 ♀, H. Franz (holotype ♂ Nr. 570, 1 ♂ and 1 ♀ paratypes Nr. 571, 574 in coll. Franz, 1 paratype ♂ Nr. 572 in coll. Angelini, 1 paratype ♀ Nr. 573 in coll. Basel Museum). Nepal, Shermathang, 3000 m, 2 ♂, H. Franz, X. 1980 (paratypes Nr. 844, 845 in coll. Franz).

Discussion: *A. kathmanduense* n. sp. differs from *singmaricum* n. sp. by several characters: size, colouring, ratio between 3rd and 2nd antennal segments, elytral puncturation, meso and metasternum features, Hamann's organ, male copulatory organ.

Agathidium (s. str.) singmaricum n. sp.

Figs 162, 163.

Length 2.6–2.8 mm (holotype 2.8 mm). Dorsum black, with anterior part of head, sides of pronotum, sides and median margins of elytra reddish; venter reddish-brown; antennae and legs testaceous. Microreticulate on head and pronotum. Whole dorsum punctate.

Head: microreticulation uniform, superficial but clear; puncturation fine and sparse (more impressed in one scarcely sclerotized paratype). Eyes bulging laterally, flattened. 3rd antennal segment as long as twice the 2nd and longer than 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments.

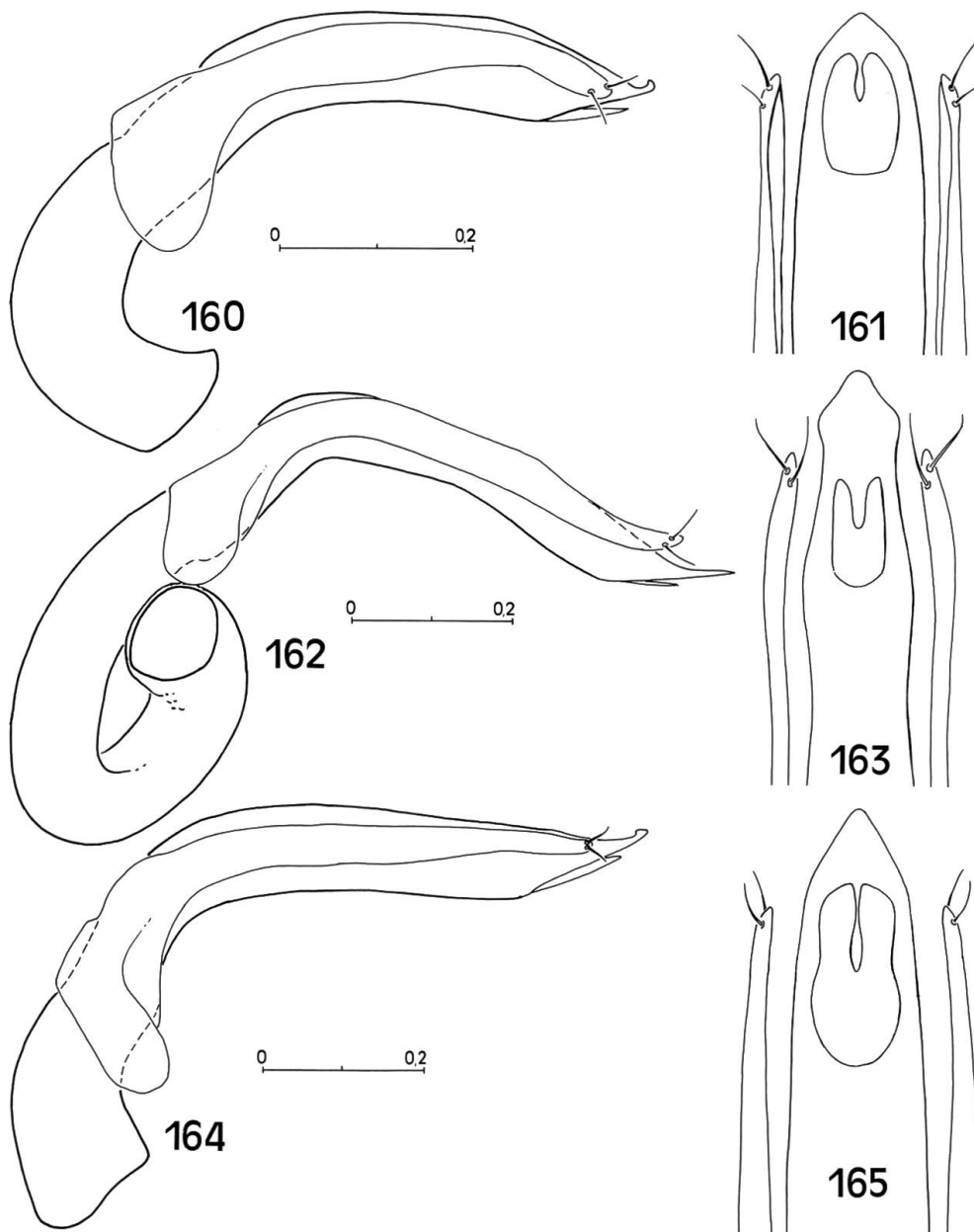
Pronotum: microreticulation superficial as on head, in traces on discum; puncturation fine and superficial: punctures small, spaced from each other by 1–10 times their own diameter; slightly broader than head ($P/H = 1.29$), much broader than long ($W/L = 1.74$) and rather convex ($W/H = 1.64$). Anterior margin nearly rectilinear. Lateral outline nearly angulate. Holotype: length 0.85 mm, width 1.48 mm, height 0.90 mm.

Elytra: puncturation very irregular: punctures differently impressed and large, spaced from each other by 1–10 times their own diameter; just a little less broad than pronotum, slightly broader than long ($W/L = 1.17$) and moderately convex ($W/H = 1.83$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.22 mm, width 1.43 mm, height 0.78 mm.

Membraneous wings absent. Meso and metasternum: median carina slight, lateral lines absent, metasternum very shortened (meso and metacoxae nearly in touch, as in figure 12).

Legs: male hind femora with slight tooth at the posterior margin; the latter just a little sinuate (like in *A. castaneum* n. sp., Fig. 24); tarsal formula: ♂ 5-5-4.

Male copulatory organ (Figs 162, 163): aedeagus slender, with ring-like proximal part, lateral margins sinuate and abruptly



Figs 160-165: Male copulatory organ (lateral view and ventral view of the apex) of: 160-161, *Agathidium kathmanduense* n.sp. 162-163, *A. singmaricum* n.sp. 164-165, *A. semireticulatum* n.sp.

approached at apex into a rounded tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Types: India, Darjeeling, Singmari-Bharapatea Bung, 1 ♂, W. Wittmer, 10.V.1975 (holotype Nr.272 in coll. Basel Museum); Darjeeling, 2150 m, 1 ♂, W. Wittmer, 30.V.1975 (paratype Nr.273 in coll. Basel Museum); Tiger Hill, 2150 m, 1 ♂, W. Wittmer, 12.V.1975 (paratype Nr.275 in coll. Basel Museum); Meghalaya, Darugiri, Garo Hills, 450 m, 1 ♂, W. Wittmer & C. Baroni Urbani, 19.V.1976 (paratype Nr.274 in coll. Angelini).

Discussion: see what noted for *A. kathmanduense* n.sp.

Agathidium (s.str.) **semireticulatum** n.sp. Figs 54, 164, 165, 185.

Length: 2.1–2.5 mm (holotype 2.1 mm). Dorsum light reddish-brown in the holotype (specimen not fully sclerotized), darker in the paratypes; venter paler; antennae testaceous with nearly black club; legs testaceous; microreticulate on elytra; punctate on head and pronotum.

Head: puncturation very sparse, superficial: punctures small, spaced from each other by 2–4 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.68$) and a little longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation alike than on head; slightly broader than head ($P/H = 1.25$), broader than long ($W/L = 1.42$) and very convex ($W/H = 1.42$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.70 mm, width 1.00 mm, height 0.70 mm.

Elytra: microreticulation uniform but superficial; as broad as pronotum, just a little broader than long ($W/L = 1.17$) and well convex ($W/H = 1.58$). Lateral outline with evident humeral angle; sutural striae absent. Holotype: length 0.88 mm, width 1.03 mm, height 0.65 mm.

Membranous wings absent. Meso and metasternum: median carina slight, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: male hind femora with large tooth at the posterior margin (Fig. 54); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 164, 165): aedeagus comparatively fat, with simple proximal part, lateral margins abruptly approached

towards apex into an acute angle and bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 185): apical part slender, a little shorter than the basal one; the latter fat with a tubercle near the duct connection.

Types: Central Nepal, road to Pokhara, 3000 m, 1 ♂, H. Franz, IX.–X. 1971 (holotype Nr. 593 in coll. Franz); between Mulkharka and Tare-Pati, 2000–2500 m, 1 ♂, H. Franz, IX.–X. 1971 (paratype Nr. 594 in coll. Angelini); Taksang Mount. near Tukche, Takola, 3000 m, 1 ♀, H. Franz, IX.–X. 1971 (paratype Nr. 595 in coll. Franz).

Discussion: *A. semireticulatum* n. sp. is easily separable from *A. circumflexum* n. sp., *franzi* n. sp. and *breve* n. sp. by its dark antennal club and aedeagus shape; in add, from *circumflexum* by its superficially microreticulate elytra; from *franzi* and *breve* by meso and metasternal characters.

Agathidium (s. str.) circumflexum n. sp. Figs 6, 166, 167, 186.

Length: 2.3–2.6 mm (holotype: 2.5 mm). Dorsum reddish-brown with black veins on elytra in the holotype and two paratypes, elytra black with apex and median margins reddish in the other paratype; venter light reddish-brown; antennae and legs testaceous; microreticulate on elytra; punctate on head and pronotum.

Head: puncturation clear and sparse, punctures rather large and impressed, spaced from each other by 4–6 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment much longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.72$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments (Fig. 6).

Pronotum: puncturation very sparse and irregular: punctures smaller and more superficial than on head, spaced from each other by more than 10 times their own diameter; slightly broader than head ($P/H = 1.32$), much broader than long ($W/L = 1.62$) and moderately convex ($W/H = 1.8$). Anterior margin slightly bent. Lateral outline broadly rounded. Holotype: length 0.80 mm, width 1.30 mm, height 0.72 mm.

Elytra: microreticulation uniform but scarcely impressed in the holotype, more impressed in the paratypes; as broad as pronotum, just a little broader than long ($W/L = 1.14$) and scarcely convex ($W/H = 1.94$). Lateral outline with defined humeral angle. Sutural striae absent. Holotype: length 1.15 mm, width 1.32 mm, height 0.68 mm.

Membraneous wings absent. Meso and metasternum: median

carina well in relief, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: male hind femora with one tooth at middle length of the posterior margin, as in *A. uniforme* n.sp. (Fig. 56); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 166, 167): aedeagus slender, with hook-like proximal part, lateral margins gently approached at apex into a rounded tip and U-shaped ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 186): apical part slender, much shorter than the basal one; the latter pear-shaped, with a tubercle near the duct connection.

Types: Nepal, Shermathang, Helambu, 1 ♂ and 1 ♀, H. Franz, X.1980 (holotype ♂ Nr.846 and paratype ♀ Nr.856 in coll. Franz); between Mulkharka and Tare-Pati, 2000–2500 m, 2 ♀, H. Franz, IX.–X.1971 (1 paratype Nr.703 in coll. Franz, 1 paratype Nr.702 in coll. Angelini).

Discussion: *A. circumflexum* n.sp. differs from *franzi* n.sp. and *breve* n.sp. by its strongly microreticulate elytra; in add, from *franzi* by the ratio between 3rd and 2nd antennal segments, from *breve* by characters of meso and metasternum.

***Agathidium* (s.str.) *franzi* n.sp.**

Figs 11, 168, 169, 187.

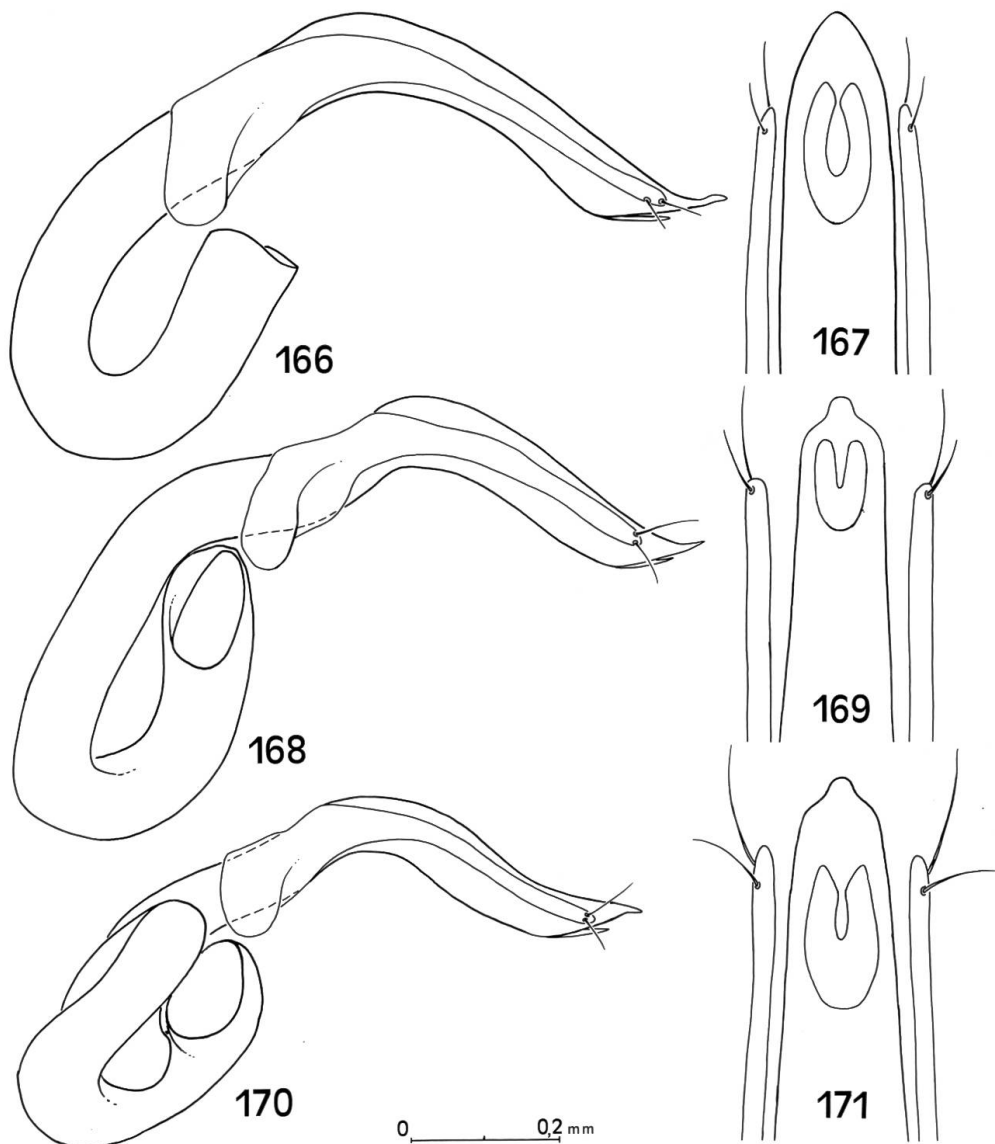
Length: 2.4–2.7 mm (holotype: 2.7 mm). The whole dorsum reddish-brown with black veins on elytra in the holotype and some paratypes; elytra black with reddish apex in the other specimens; venter light reddish-brown; antennae and legs testaceous; microreticulate on elytra; punctate on head and pronotum.

Head: puncturation clear and regular: punctures large and well impressed, spaced from each other by 4–5 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment as long as twice the 2nd and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation irregular: punctures a little smaller and more superficial than on head, variable in size, spaced from each other by 4–6 times their own diameter; slightly broader than head ($P/H = 1.31$), much broader than long ($W/L = 1.48$) and very convex ($W/H = 1.48$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.84 mm, width 1.25 mm, height 0.84 mm.

Elytra: microreticulation superficial, in traces near the scutellum; the whole surface with long, superficial and irregular furrows; a little broader than pronotum, nearly as broad as long and well convex ($W/H = 1.83$). Lateral outline with evident humeral angle. Sutural striae absent. Holotype: length 1.22 mm, width 1.34 mm, height 0.73 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).



Figs 166–171: Male copulatory organ (lateral view and ventral view of the apex) of: 166–167, *Agathidium circumflexum* n.sp. 168–169, *A. franzi* n.sp. 170–171, *A. breve* n.sp.

Legs: male hind femora with slight tooth at the posterior margin; the latter a little sinuate (as in *A. castaneum* n.sp. Fig. 24); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 168, 169): aedeagus slender, with ring-like proximal part, lateral margins abruptly convergent at apex into a semicircular tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 187): apical and basal parts very slender, nearly alike in length and caliber.

Types: Central Nepal, Kali-Gandaki Valley, between Lete and Ghasa, 2000–2500 m, 5 ♂ and 6 ♀, H. Franz, 25.IX.1971 (holotype ♂ Nr. 596, 2 ♂ and 4 ♀ paratypes Nr. 601, 603, 597, 598, 605, 606 in coll. Franz; 2 ♂ and 1 ♀ paratypes Nr. 599, 602, 604 in coll. Angelini; 1 paratype ♀ Nr. 600 in coll. Basel Museum); Kali-Gandaki Valley, between Lete and Tukche, 2000–2800 m, 2 ♀, H. Franz IX.–X.1971 (paratypes Nr. 607, 608 in coll. Franz); outskirts of Goropani, west Pokhara, 3000 m, 3 ♂, H. Franz, IX.–X.1978 (paratypes Nr. 609, 610, 611 in coll. Franz); Taksang Mount. near Tukche, Takola, 3000 m, 1 ♂ and 1 ♀, H. Franz, IX.X.1971 (paratypes Nr. 612, 613 in coll. Franz).

Discussion: We have already referred about the differences from *A. circumflexum* n.sp. and *A. semireticulatum* n.sp. In comparison with *breve* n.sp., *A. franzi* differs by punctuation of head and pronotum, lateral outline of pronotum, ratio between 3rd and 2nd antennal segments, meso and metasternal characters, as well as by aedeagus shape.

Derivatio nominis: dedicated to Prof. Herbert Franz, Moedling.

Agathidium (s. str.) **breve** n.sp.

Figs 170, 171.

Length: 2.2 mm (holotype and paratype). The whole dorsum reddish-brown; venter a little paler; antennae and legs testaceous; microreticulate on elytra; punctate on head and pronotum.

Head: punctuation fine and regular: punctures not very small, rather impressed, spaced from each other by 1–3 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.44$) and as long as 4th + 5th. Hamann's organ: one spherical vesicle in both 9th and 10th antennal segments.

Pronotum: punctuation fine and regular: punctures slightly larger and more impressed than on head, spaced from each other by 2–4 times their own diameter; broader than head ($P/H = 1.41$), much broader than long ($W/L = 1.55$) and moderately convex ($W/H =$

1.53). Anterior margin rather bent. Lateral outline nearly angulate. Holotype: length 0.72 mm, width 1.12 mm, height 0.73 mm.

Elytra: microreticulation uniform, regular and superficial; puncturation very sparse: punctures large and superficial; as broad as pronotum, just a little broader than long ($W/L = 1.17$) and scarcely convex ($W/H = 1.86$). Lateral outline with evident humeral angle at middle length. Sutural striae absent. Holotype: length 0.95 mm, width 1.12 mm, height 0.60 mm.

Membraneous wings absent. Meso and metasternum: median carina slight, lateral lines absent, metasternum very shortened (meso and metacoxae nearly in touch: form E, Fig. 12).

Legs: male hind femora broadly rounded distally; tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 170, 171): aedeagus slender, with windig proximal part, lateral margins abruptly convergent at apex into a semicircular tip and bifid ventral piece; parameres slender, gently tapered towards apex.

Types: Nepal, Chordung near Jiri, 2900–3100 m, 1 ♂, J. Martens, (holotype Nr. 614 in coll. Franz); outskirts of Fulung, 3500 m, 1 ♂, H. Franz, IX.–X. 1971 (paratype Nr. 615 in coll. Angelini).

Discussion: see what noted for *A. semireticulatum* n.sp. *circumflexum* n.sp. and *franzi* n.sp.

***Agathidium* (s.str.) *quaterfoveatum* n.sp.**

Figs 2, 188.

Length: 3.1 mm (holotype). Dorsum of head and pronotum dark reddish-brown, elytra black with reddish apex and lateral margins; venter reddish-brown; antennae and legs testaceous, lacking in microreticulation; punctate on head and pronotum. Head with 2 dimples at each side.

Head: puncturation fine and sparse: punctures small and superficial, spaced from each other by 3–10 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than the 2nd ($3^{rd}/2^{nd} = 1.58$) and longer than 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments (Fig. 2).

Pronotum: puncturation alike than on head: punctures spaced from each other by 1–10 times their own diameter; slightly broader than head ($P/H = 1.25$), nearly as broad as long ($W/L = 1.16$) and very convex ($W/H = 1.45$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 1.18 mm, width 1.38 mm, height 0.95 mm.

Elytra: only some punctures, variable in size and depth; short, irregular and superficial furrows; just a little broader than pronotum, as broad as long and well convex ($W/H = 1.57$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.32 mm, width 1.42 mm, height 0.90 mm.

Membraneous wing absent. Meso and metasternum: median carina slight, lateral lines absent, mesosternum well in relief, metasternum very shortened (meso and metacoxae in touch, as in figure 13); a short tubercle between the metacoxae.

Legs: tarsal formula: ♀ 5–4–4.

Spermatheca (Fig. 188): apical part slender and twisted at apex; basal part very fat.

Type: India, Darjeeling, Lebong, 1600–1800 m, 1 ♀, W. Wittmer, 2. VI. 1975 (holotype Nr. 265 in coll. Basel Museum).

Discussion: *A. quaterfoveatum* n.sp. is well separate from *duofoveatum* n.sp. and *baronii* n.sp. by size, number of head dimples, meso and metasternal features and absence of membraneous wings; further, from *duofoveatum* differs by the finer head rim, from *baronii* by its flattened eyes and the ratio between 3rd and 2nd antennal segments.

Agathidium (s.str.) duofoveatum n.sp.

Figs 4, 35, 48, 76, 172, 173, 189.

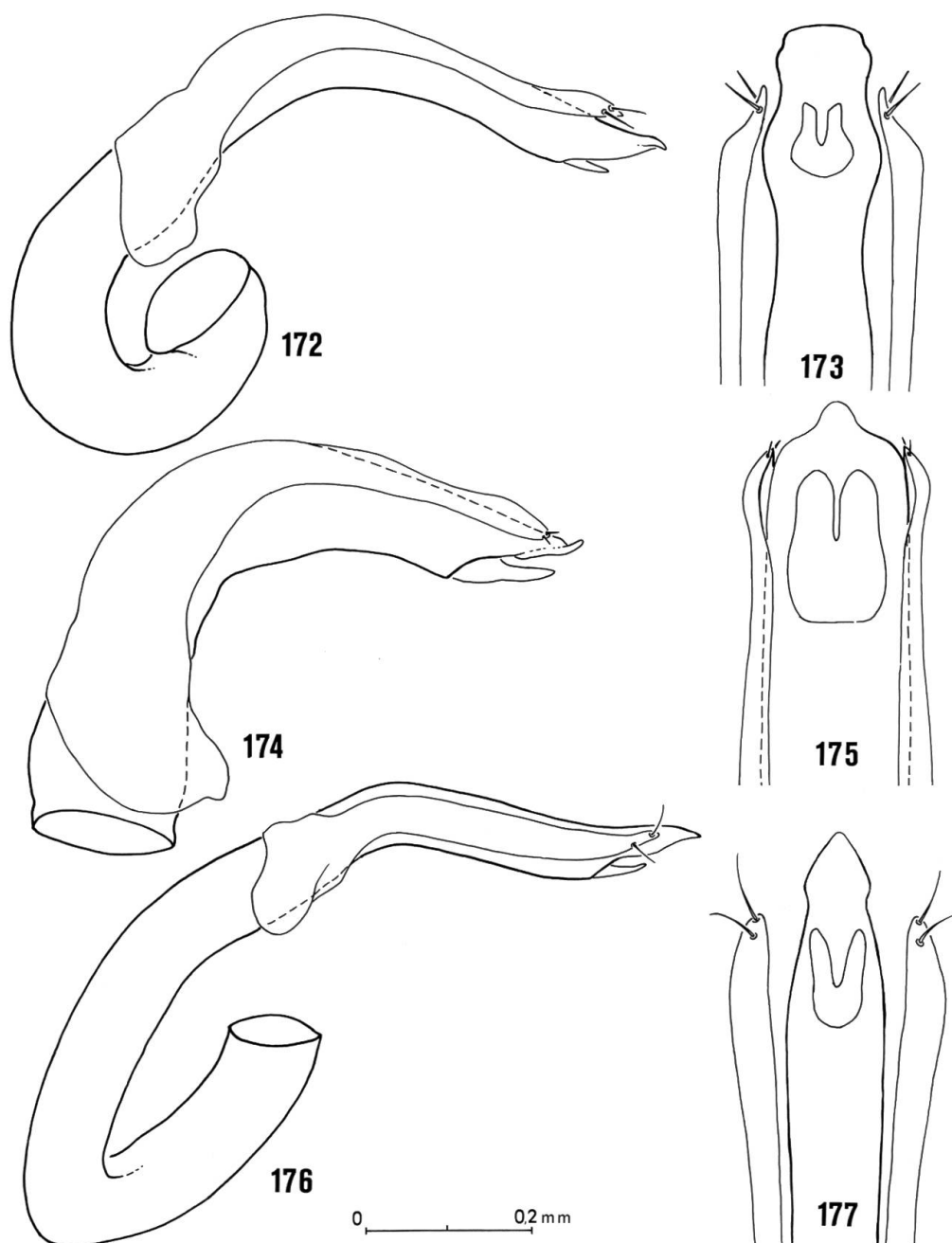
Length: 2.2–2.3 mm (holotype: 2.2 mm). Dorsum reddish-brown, with black veins on pronotum and elytra; venter paler; antennae testaceous with dark club, legs testaceous. Eyes globose. Head dorsal surface with one dimple at each side near the anterior rim. Microreticulation lacking; puncturation sparse.

Head: microreticulation in vague traces; puncturation sparse: punctures small, scarcely impressed, spaced from each other by 3–10 times their own diameter. Anterior margin well rimmed laterally to the clypeus, where are the dimples. Eyes bulging laterally, globose, lateral margins behind the eyes slightly convergent backwards (Fig. 35); much smaller than pronotum. 3rd antennal segment thin, clearly longer than the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.2$) and as long as 4th + 5th (Fig. 48). Hamann's organ: one flattened vesicle in both 9th and 10th antennal segments (Fig. 4).

Pronotum: vague traces of microreticulation; puncturation more superficial and sparse than on head; much broader than head ($P/H = 1.71$), much broader than long ($W/L = 1.54$) and rather con-

vex ($W/H = 1.8$). Anterior margin strongly bent (Fig. 76). Lateral outline nearly angulate. Holotype: length 0.70 mm, width 1.08 mm, height 0.60 mm.

Elytra: puncturation clear but sparse: punctures large, impressed, spaced from each other by 4–5 times their own diameter; as broad as



Figs 172–177: Male copulatory organ (lateral view and ventral view of the apex) of: 172–173, *Agathidium duofoveatum* n.sp. 174–175, *A. urbanii* n.sp. 176–177, *A. caelebs* n.sp.

pronotum, as broad as long and very convex ($W/H = 1.48$). Lateral outline with strong humeral angle at middle length. Sutural striae absent. Holotype: length 1.02 mm, width 1.10 mm, height 0.74 mm.

Membraneous wings present. Meso and metasternum: median carina well in relief, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: male hind femora well rounded distally, as in *A. phulchokiense* n.sp. (Fig. 57); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 172, 173): aedeagus slender, with hook-like proximal part, lateral margins strongly sinuate, truncate tip, ventral piece small and bifid; parameres slender, a little increased near their tip.

Spermatheca (Fig. 189): apical part slender, constant in caliber; basal part pear-shaped, increased where is the duct connection.

Types: India, Darjeeling, Chim-Khona (Ghum), 2200 m, 5 ♂ and 5 ♀, W. Wittmer, 4. VI. 1975 (holotype ♂ Nr. 332, 2 ♂ and 4 ♀ paratypes Nr. 331, 333, 336, 337, 515, 517 in coll. Basel Museum, 2 ♂ and 1 ♀ paratypes Nr. 334, 335, 516 in coll. Angelini). Central Nepal, Phulchoki near Kathmandu, 2600 m, 1 ♀, C. Baroni Urbani & W. Wittmer, 11.–14. VI. 1976 (paratype Nr. 857 in coll. Basel Museum).

Discussion: We have already noted the differences from *A. quaterfoveatum* n.sp.. From *urbanii* n.sp., *A. duofoveatum* n.sp. differs by size, eyes shape and ratio W/L of the pronotum, as well as by male copulatory organ.

Agathidium (s. str.) **urbanii** n.sp. Figs 5, 36, 49, 53, 77, 174, 175.

Length: 3.35 mm (holotype). Dorsum of head and pronotum nearly black, elytra black with reddish veins; venter light reddish-brown; antennae and legs testaceous. Microreticulation lacking; puncturation very superficial and sparse. Anterior margin of head strongly rimmed at sides of the clypeus. Head surface with one dimple at each side.

Head: puncturation very superficial and sparse: punctures small, spaced from each other by 8–10 times their own diameter. Eyes bulging laterally, globose (Fig. 36). Lateral margins behind the eyes nearly parallel. 3rd antennal segment nearly as long as the 2nd and longer than the 4th (Fig. 49). Hamann's organ: one flattened vesicle in both 9th and 10th antennal segments (Fig. 5).

Pronotum: puncturation more superficial and sparser than on head: punctures small; much broader than head ($P/H = 1.56$), slightly

broader than long ($W/L = 1.31$) and well convex ($W/H = 1.71$). Anterior margin slightly bent (Fig. 77). Lateral outline much broadly rounded. Holotype: length 1.37 mm, width 1.80 mm, height 1.05 mm.

Elytra: puncturation very irregular: punctures different in size and depth, variably spaced from each other; short and superficial furrows interposed; as broad as pronotum; broader than long ($W/L = 1.38$) and scarcely convex ($W/H = 1.87$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.30 mm, width 1.80 mm, height 0.96 mm.

Membraneous wings present. Meso and metasternum: median carina well in relief, lateral lines present, femoral lines complete.

Legs (Fig. 53): male hind femora with posterior margin well rounded distally; penultimate tarsal segment of each leg with a subconical process; tarsal formula: ♂ 5-5-4.

Male copulatory organ (Figs 174, 175): aedeagus comparatively squat, with simple proximal part, lateral margins nearly parallel, abruptly approached at apex into a semicircular tip, bifid ventral piece; parameres slender, gently tapered towards apex, grooved to fit for the aedeagus sides; phallobase embracing the aedeagus at base.

Type: India, Meghalaya, Songsak, Garo Hills, 450 m, 1 ♂, C. Baroni Urbani & W. Wittmer, 19.V.1976 (holotype Nr. 258 in coll. Basel Museum).

Discussion: see what noted for *A. quaterfoveatum* n.sp. and *A. duofoveatum* n.sp.

Derivatio nominis: dedicated to Dr. C. Baroni Urbani.

Agathidium (s. str.) **unumvesiculatum** n. sp. Fig. 190.

Length: 2.8 mm (holotype and paratypes). Dorsum black, sides of pronotum, apex and median margins of elytra reddish; venter reddish-brown; antennae and legs testaceous. Microreticulation lacking; puncturation fine and irregular.

Head: puncturation fine and sparse: punctures small and superficial, spaced from each other by 1-10 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segments nearly as long as twice the 2nd and longer than 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments.

Pronotum: puncturation as on head: punctures spaced from each other by 3-8 times their own diameter; slightly broader than head ($P/H = 1.28$), much broader than long ($W/L = 1.62$) and moderately

convex ($W/H = 1.74$). Anterior margin slightly bent. Lateral outline broadly rounded. Holotype: length 0.91 mm, width 1.48 mm, height 0.85 mm.

Elytra: puncturation irregular: punctures small and superficial, spaced from each other by 1–10 times their own diameter; short, irregular and superficial furrows interposed; as broad as pronotum, broader than long ($W/L = 1.25$) and well convex ($W/H = 1.74$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.18 mm, width 1.48 mm, height 0.85 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, metasternum very shortened (meso and metacoxae nearly in touch: form E, Fig. 12).

Legs: tarsal formula: ♀ 5–4–4.

Spermatheca (Fig. 190): apical part slender and twisted; basal part fat.

Types: India, Darjeeling, Bljanbari, 800 m, 1 ♀, W. Wittmer, 12.V.1975 (holotype Nr. 267 in coll. Basel Museum); Darjeeling, 2150 m, 1 ♀, W. Wittmer, 30.V.1975 (paratype Nr. 249 in coll. Basel Museum); Darjeeling, Lopchu, Ghum, 2100 m, 5 ♀, W. Wittmer, 9.V.1975 (3 paratypes Nr. 250–252 in coll. Basel Museum, 2 paratypes Nr. 253, 255 in coll. Angelini); Darjeeling, Chim-Khona, Ghum, 2200 m, 2 ♀, W. Wittmer, 4.VI.1975 (paratypes Nr. 248, 254 in coll. Basel Museum).

Discussion: In the ambit of the species with very shortened metasternum, *A. unumvesciculatum* n. sp. is separated by the dorsal colouring and the ratio between 3rd and 2nd antennal segments.

Agathidium (s. str.) **caelebs** n. sp.

Figs 12, 176, 177.

Length: 2.0–2.3 mm (holotype 2.3 mm). The whole dorsum dark reddish-brown; venter paler; antennae and legs testaceous. Microreticulation lacking; puncturation fine and sparse on the whole dorsum.

Head: punctures small, superficial, spaced from each other by 3–8 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment slightly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.36$) and as long as 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments.

Pronotum: puncturation sparser than on head; a little broader than head ($P/H = 1.27$), much broader than long ($W/L = 1.54$) and moderately convex ($W/H = 1.64$). Anterior margin slightly bent.

Lateral outline broadly rounded. Holotype: length 0.80 mm, width 1.20 mm, height 0.73 mm.

Elytra: puncturation finer, sparser and more superficial than on head; as broad as pronotum, slightly broader than long ($W/L = 1.31$) and scarcely convex ($W/H = 2$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 0.98 mm, width 1.20 mm, height 0.60 mm.

Membraneous wings absent. Meso and metasternum: median carina slight, lateral lines absent, metasternum very shortened (meso and metacoxae nearly in touch: form E, Fig. 12).

Legs: male hind femora with slight tooth at the posterior margin (as in *A. castaneum* n.sp., Fig. 24); tarsal formula: ♂ 5-4-4.

Male copulatory organ (Figs 176, 177): aedeagus slender, with hook-like proximal part, lateral margins sinuate at apex and here approached into an acute angle, ventral piece bifid; parameres comparatively short (phallobase inserted clearly behind middle length of aedeagus), gently tapered towards apex.

Types: Central Nepal, Phulchoki near Kathmandu, 2800 m, 5 ♂, H. Franz (holotype Nr. 521 and 2 paratypes Nr. 523, 525 in coll. Franz; 1 paratype Nr. 524 in coll. Angelini; 1 paratype Nr. 522 in coll. Basel Museum).

Discussion: We have already referred about the differences from *A. unumvesiculatum* n.sp.. From *brancuccii* n.sp. and *sherpa* n.sp., *A. caelebs* n.sp. differs by lacking in elytral furrowing and by male copulatory organ shape; from *sherpa* also by presence of Hamann's vesicles; on the whole the three species are very similar from each other.

Agathidium (s. str.) **brancuccii** n.sp. Figs 1, 13, 66, 178, 179, 191.

Length: 1.9–2.3 mm (holotype 2.3 mm). Dorsum reddish-brown with black veins on pronotum and elytra; venter paler; antennae and legs testaceous; lacking in microreticulation; punctate on head and pronotum.

Head: puncturation fine, superficial and sparse: punctures spaced from each other by 3–8 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.4$) and as long as 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments (Fig. 1).

Pronotum: puncturation sparser, finer and more superficial than on head (punctures hardly evident); slightly broader than head

($P/H = 1.25$), much broader than long ($W/L = 1.46$) and very convex ($W/H = 1.41$). Anterior margin slightly bent. Lateral outline nearly angulated (Fig. 66). Holotype: length 0.75 mm, width 1.10 mm, height 0.78 mm.

Elytra: only some superficial punctures, most of which near apex, where short, superficial and irregular furrows are interposed; a little broader than pronotum, slightly broader than long ($W/L = 1.24$) and scarcely convex ($W/H = 2.1$). Lateral outline with very slight humeral angle. Sutural striae absent. Holotype: length 0.95 mm, width 1.18 mm, height 0.56 mm.

Membraneous wings absent. Meso and metasternum: median carina slight, lateral lines absent; metasternum very shortened (meso and metacoxae nearly in touch: form F, Fig. 13) and tuberculate.

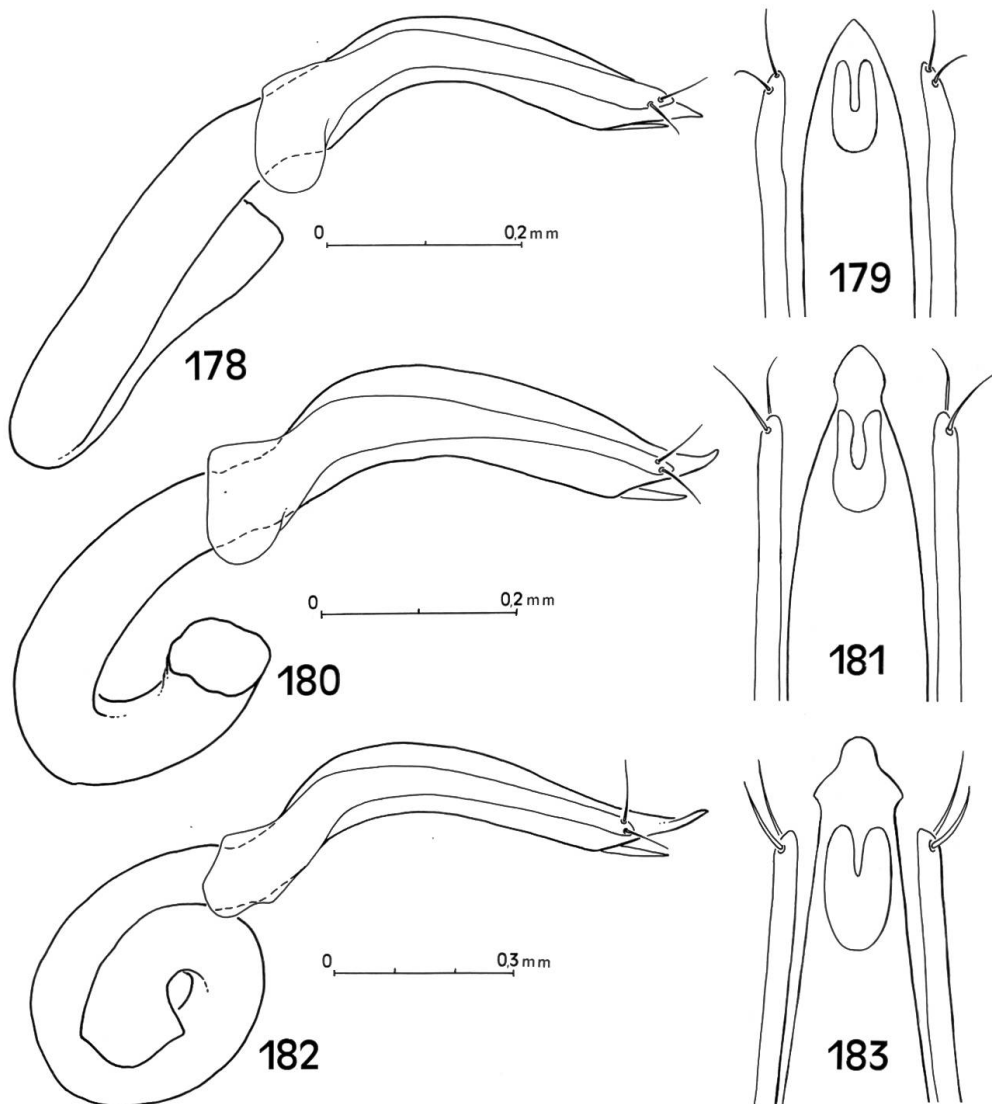
Legs: male hind femora with posterior margin broadly rounded distally (as in *A. wittmeri* n.sp. Fig. 21); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 178, 179): aedeagus slender, with hook-like proximal part, lateral margins gently approached towards apex, acute tip and bifid ventral piece; parameres comparatively short (phallobase inserted clearly behind middle length of aedeagus), gently tapered towards apex.

Spermatheca (Fig. 191): apical part slender and twisted; basal part fat, nearly spherical.

Types: India, Darjeeling, Lopchu-Ghum, 2100 m, 1 ♂ and 1 ♀, W. Wittmer, 9.V.1975 (holotype ♂ Nr.299 and paratype Nr.305 in coll. Basel Museum); Darjeeling, Tiger Hills, 2500 m, 1 ♂, W. Wittmer, 7.V.1975 (paratype Nr.297 in coll. Basel Museum); 2150 m, 1 ♀, W. Wittmer, 12.V.1975 (paratype Nr.298 in coll. Basel Museum); Singmari, Bharapatea Bung, 1 ♀, W. Wittmer, 10.V.1975 (paratype Nr.300 in coll. Basel Museum); Chim-Khona (Ghum), 2200 m, 2 ♂ and 2 ♀, W. Wittmer, 4.VI.1975 (1 ♂ and 1 ♀ paratypes Nr.302, 304 in coll. Basel Museum, 1 ♂ and 1 ♀ paratypes Nr.301, 303 in coll. Angelini); Budubara, 1600 m, 3 ♂ and 9 ♀, Bhakta B., 28.XI.1980 (3 ♂ and 8 ♀ paratypes Nr.2168–2178 in coll. Basel Museum, 1 ♀ paratype Nr.2179 in coll. Angelini); Alganah, 1700 m, 3 ♂ and 7 ♀, Bhakta B., 12.III.1980 (2 ♂ and 3 ♀ paratypes Nr.2180, 2182–2185 in coll. Basel Museum, 1 ♂ and 4 ♀ paratypes Nr.2181, 2186–2189 in coll. Angelini); Mirik, 2 ♂ and 1 ♀, Bhakta B., 22.XI.1980 (paratypes Nr.2190–2192 in coll. Basel Museum); Mangshong, 1160 m, 2 ♂ and 2 ♀, Bhakta B., 23.XI.1980 (1 ♂ and 2 ♀ paratypes Nr.2193, 2195,

2196 in coll. Basel Museum, 1 ♂ paratype Nr.2194 in coll. Angelini); Lava, 2035 m, 2 ♂ and 1 ♀, Bhakta B., 20.III.1980 (paratypes Nr.2201–2203 in coll. Basel Museum); Pedong, 1180 m, 2 ♂ and 9 ♀, Bhakta B., 3.XI.1980 (1 ♂ and 5 ♀ paratypes Nr.2205–2210 in coll. Basel Museum, 1 ♂ and 4 ♀ paratypes Nr.2204, 2211–2214 in coll. Angelini); Rosi Kola, 3 ♂ and 1 ♀, Bhakta B., 5.XII.1980 (1 ♂ and 1 ♀ paratypes Nr.2217, 2218 in coll. Basel Museum, 2 ♂ paratypes Nr.2215, 2216 in coll. Angelini). Sikkim, Bakkim, 3000 m, 1 ♂ and 1 ♀, Bhakta B., 28.VIII.1980 (paratypes Nr.2161, 2163 in coll. Basel Museum); Balawa Khani, 1800 m, 1 ♂, Bhakta B., 11.IX.1980 (para-



Figs 178–183: Male copulatory organ (lateral view and ventral view of the apex) of: 178–179, *Agathidium brancuccii* n.sp. 180–181, *A. sherpa* n.sp. 182–183, *A. montanum* n.sp.

type Nr.2159 in coll. Basel Museum); Malli, 460 m, 3 ♀, Bhakta B., 11.XII.1980 (paratypes Nr.2165–2167 in coll. Basel Museum); Soroong, 1 ♂, Bhakta B., 15.XI.1980, (paratype Nr.2164 in coll. Basel Museum).

Discussion: We have already noted the differences from *A. caelebs* n.sp. From *sherpa* n.sp., *A. brancuccii* n.sp. differs by size, lateral outline of pronotum (Figs 66, 67), male hind femura shape, female tarsal formula and Hamann's organ, as well as by male copulatory organ and spermatheca (Figs 191, 192).

Agathidium (s.str.) **sherpa** n.sp.

Figs 67, 180, 181, 192.

Length: 2.5–2.7 mm (holotype 2.65 mm). The whole dorsum reddish-brown; venter paler; antennae and legs testaceous. Microreticulation lacking; puncturation nearly absent.

Head: only some very small punctures, spaced from each other by more than 8 times their own diameter. Eyes bulging laterally, flattened; lateral margins clearly convergent backwards. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.6$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

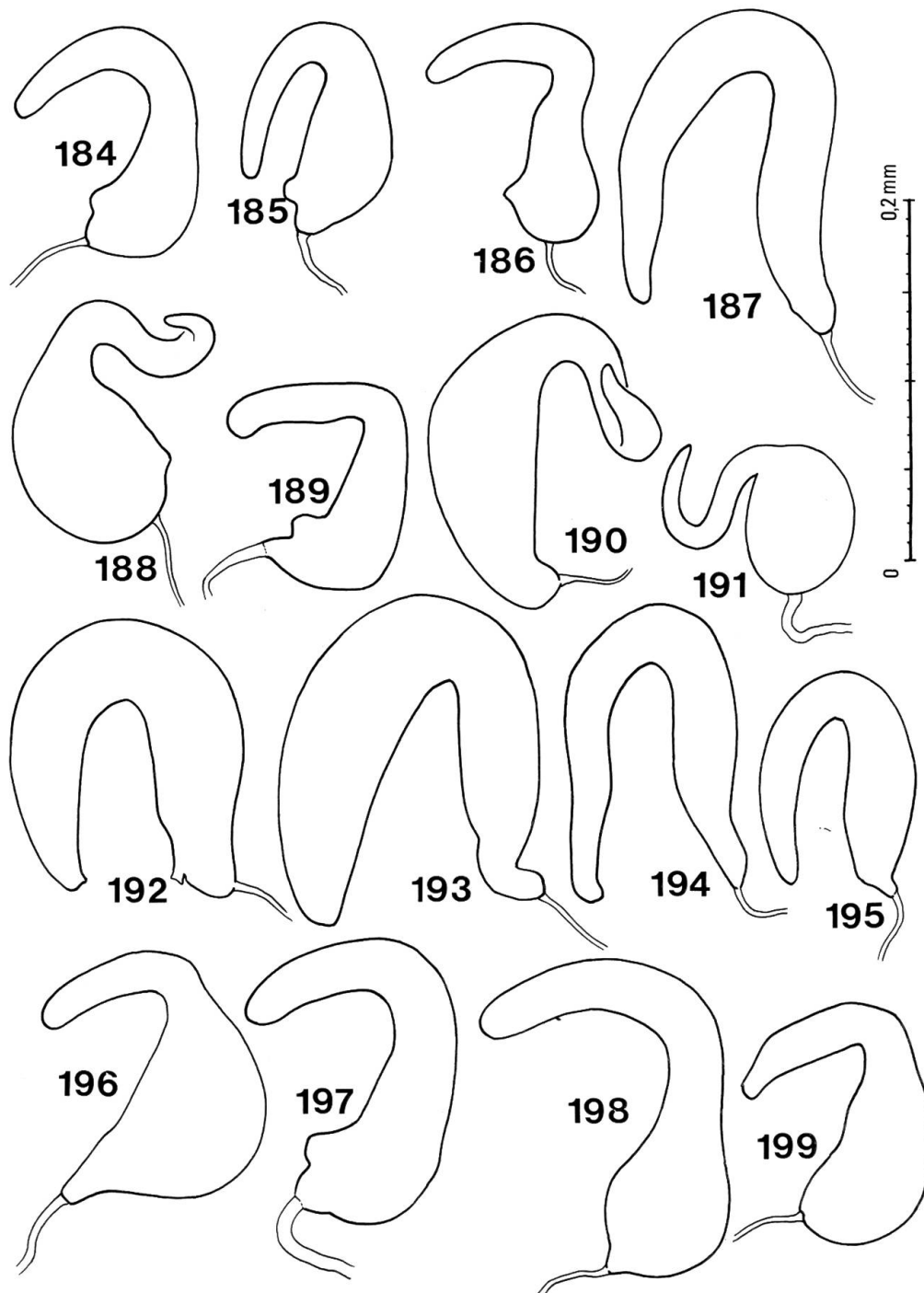
Pronotum: puncturation as on head; a little broader than head ($P/H = 1.35$), much broader than long ($W/L = 1.58$) and moderately convex ($W/H = 1.58$). Anterior margin slightly bent. Lateral outline much broadly rounded (Fig.67). Holotype: length 0.82 mm, width 1.30 mm, height 0.82 mm.

Elytra: puncturation as on head; as broad as pronotum, slightly broader than long ($W/L = 1.11$) and moderately convex ($W/H = 1.82$). Lateral outline with slight humeral angle a little before middle length. Sutural striae absent. Holotype: length 1.15 mm, width 1.28, height 0.70 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines absent, metasternum very shortened (meso and metacoxae nearly in touch: form E, Fig.12).

Legs: male hind femora with small tooth at the posterior margin (as in *A. nivale* n.sp., Fig.26); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 180, 181): aedeagus slender, with hook-like proximal part, lateral margins sinuate and abruptly approached near apex, bifid ventral piece; parameres slender, gently tapered towards apex.



Figs 184–199: Spermatheca of: 184, *Agathidium kathmanduense* n.sp. 185, *A. semireticulatum* n.sp. 186, *A. circumflexum* n.sp. 187, *A. franzi* n.sp. 188, *A. quaterfoveatum* n.sp. 189, *A. duofoveatum* n.sp. 190, *A. unumvesciculatum* n.sp. 191, *A. brancuccii* n.sp. 192, *A. sherpa* n.sp. 193, *A. montanum* n.sp. 194, *A. uniforme* n.sp. 195, *A. phulchokiense* n.sp. 196, *A. crassum* n.sp. 197, *A. gurka* n.sp. 198, *A. paria* n.sp. 199, *A. lebon-gense* n.sp.

Spermatheca (Fig. 192): apical and basal parts nearly alike in length and caliber.

Types: Central Nepal, Phulchoki near Kathmandu, 2800 m, 1 ♂ and 2 ♀, H. Franz (holotype ♂ Nr. 510 and 1 paratype ♀ Nr. 518 in coll. Franz; 1 paratype ♀ Nr. 519 in coll. Angelini).

Discussion: see what noted for *A. brancuccii* n. sp.

Agathidium (s. str.) **montanum** n. sp. Figs 50, 55, 68, 182, 183, 193.

Length: 2.9–3.0 mm (holotype 2.9 mm). Dorsum shining black, reddish at pronotum sides and apex of elytra; venter light reddish-brown; antennae and legs testaceous; lacking in microreticulation; head and pronotum punctate.

Head: puncturation fine and superficial: punctures small, spaced from each other by 8–10 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment as long as twice the 2nd and longer than 4th + 5th (Fig. 50). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: punctate as head; a little broader than head ($P/H = 1.31$), much broader than long ($W/L = 1.51$) and rather convex ($W/H = 1.76$). Anterior margin slightly bent. Lateral outline much broadly rounded (Fig. 68). Holotype: length 0.96 mm, width 1.45 mm, height 0.82 mm.

Elytra: some superficial punctures and irregular furrows; nearly as broad as pronotum, slightly broader than long ($W/L = 1.27$) and scarcely convex ($W/H = 1.92$). Lateral outline with evident humeral angle. Sutural striae absent. Holotype: length 1.18 mm, width 1.50 mm, height 0.78 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora with very sinuate posterior margin (Fig. 55); tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male couplatory organ (Figs 182, 183): aedeagus slender, with spiral-like proximal part, lateral margins very sinuate at apex and here approached into a semicircular tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 193): apical part fatter and a little longer than the basal one; the latter a little twisted towards the duct connection.

Types: Kashmir, Gulmarg, 2650–3000 m, 1 ♂, W. Wittmer, 1.–3. VII. 1976 (holotype Nr. 246 in coll. Basel Museum); Chandan-

wari near Pahalgam, 2800–3100 m, 4 ♂ and 3 ♀, H. Franz, X. 1977 (3 ♂ and 1 ♀ paratypes Nr. 860, 861, 872, 2383 in coll. Franz; 1 ♂ and 2 ♀ paratypes Nr. 859, 871, 2480 in coll. Angelini); Tangmarg, Pir Panjal, 2600 m, 1 ♀, J. Martens and Schawaller, 21.–25.V. 1976 (paratype Nr. 2160 in coll. Senckenberg Museum). India, Darjeeling, Rimbick, 2350 m, 1 ♀, W. Wittmer, 21.V. 1975 (paratype Nr. 264 in coll. Basel Museum).

Discussion: Within the five species lacking in median mesosternal carina (*montanum* n.sp., *uniforme* n.sp., *cinereum* n.sp., *transversum* n.sp., and *phulchokiense* n.sp.), *A. montanum* is separate because of its big size. It has in common with *uniforme* the ratio between 3rd and 2nd antennal segments; with *phulchokiense* the female tarsal formula.

Agathidium (s.str.) **uniforme** n.sp. Figs 56, 69, 194, 200, 201.

Length: 2.2–2.6 mm (holotype 2.6 mm). The whole dorsum reddish-brown; venter pale, darker on mesothorax; antennae and legs testaceous; microreticulation in traces on elytra; head and pronotum punctate.

Head: puncturation fine and regular: punctures small and superficial, spaced from each other by 4–6 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment as long as twice the 2nd and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation finer and sparser than on head: punctures spaced from each other by 1–8 times their own diameter; slightly broader than head ($P/H = 1.4$), much broader than long ($W/L = 1.62$) and rather convex ($W/H = 1.75$). Anterior margin just a little bent. Lateral outline nearly angulate (Fig. 69). Holotype: length 0.82 mm, width 1.33 mm, height 0.76 mm.

Elytra: vague traces of microreticulation; puncturation very sparse: punctures small and superficial as on head; irregular and superficial furrows interposed; as broad as pronotum, slightly broader than long ($W/L = 1.12$) and scarcely convex ($W/H = 1.98$). Lateral outline with slight humeral angle. Sutural lines absent. Holotype: length 1.18 mm, width 1.33 mm, height 0.67 mm.

Membranous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora with strong tooth at middle length of their posterior margin (Fig. 56); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 200, 201): aedeagus slender, with ring-like proximal part, lateral margins gently approached at apex into a subacute tip, U-shaped ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 194): apical and basal parts slender, nearly alike in length and caliber.

Types: Nepal, Thochung near Jiri, 2900–3100 m, 1 ♂, J. Martens (holotype Nr. 514 in coll. Franz); outskirts of Goropani, west Pokhara, 3000 m, 2 ♀, H. Franz, IX.–X. 1971 (1 paratype Nr. 542 in coll. Franz, 1 paratype Nr. 543 in coll. Angelini); outskirts of Fulung, 3500 m, 1 ♀, H. Franz, IX.–X. 1971 (paratype Nr. 520 in coll. Franz).

Discussion: *A. uniforme* n.sp. has in common with *montanum* n.sp. the ratio between 3rd and 2nd antennal segments and with *cinereum* n.sp. the pronotum lateral outline. It differs from *montanum* and *phulchokiense* n.sp. by femal tarsal formula and pronotum lateral outline.

Agathidium (s. str.) cinereum n.sp.

Figs 70, 78, 202, 203.

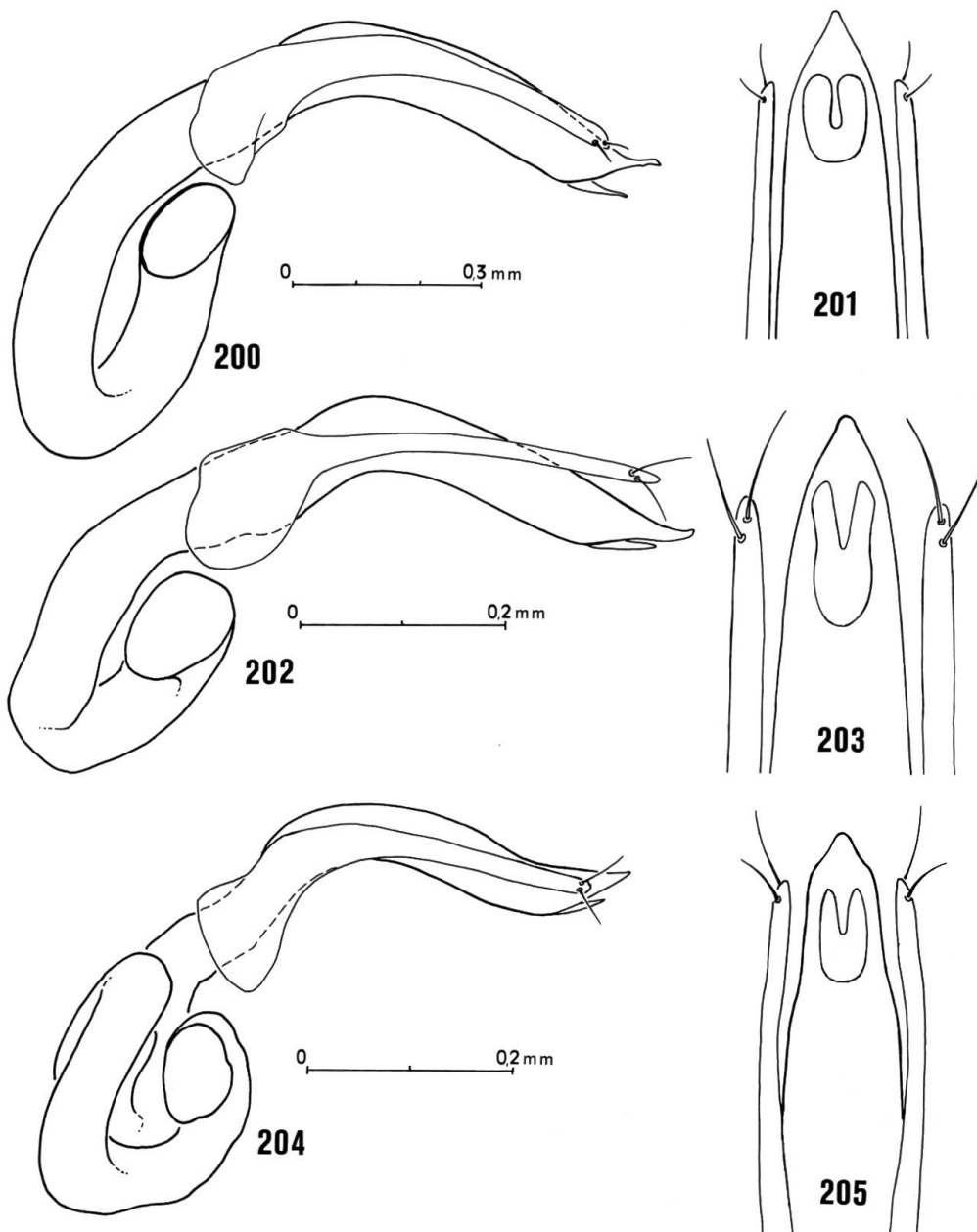
Length: 2.15 mm (holotype). Dorsum shining black, reddish at pronotal sides; venter paler; antennae and legs testaceous; lacking in microreticulation; head and pronotum punctate.

Head: puncturation regular and superficial: punctures very small, spaced from each other by 6–10 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.47$) and shorter than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation more superficial and sparser than on head; slightly broader than head ($P/H = 1.38$), much broader than long ($W/L = 1.47$) and very convex ($W/H = 1.47$). Anterior margin slightly bent (Fig. 78). Lateral outline nearly angulate (Fig. 70). Holotype: length 0.80 mm, width 1.18 mm, height 0.80 mm.

Elytra: only some superficial punctures and short irregular furrows; just a little broader than pronotum, much broader than long ($W/L = 1.51$) and scarcely convex ($W/H = 2.01$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 0.80 mm, width 1.21 mm, height 0.60 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).



Figs 200–205: Male copulatory organ (lateral view and ventral view of the apex) of: 200–201, *Agathidium uniforme* n. sp. 202–203, *A. cinereum* n. sp. 204–205, *A. phulchokiense* n. sp.

Legs: male hind femora with very sinuate posterior margin (as in *A. montanum* n. sp. Fig. 55); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 202, 203): aedeagus slender, with ring-like proximal part, lateral margins gently approached at apex into a rounded tip, bifid ventral piece; parameres slender, nearly constant in caliber.

Type: Bhutan, Kharbandi, 1 ♂, D.Khandu, VIII. 1976 (holotype Nr. 260 in coll. Basel Museum).

Discussion: *A. cinereum* n.sp. is related to *transversum* n.sp. and *phulchokiense* n.sp. by the low ratio between 3rd and 2nd antennal segments, but differs from them by the lateral outline of pronotum.

Agathidium (s.str.) **phulchokiense** n.sp. Figs 51, 57, 195, 204, 205.

Length: 2.1–2.2 mm (holotype 2.1 mm). Dorsum reddish-brown, elytra with black veins in the holotype and some paratypes; venter reddish-brown with mesosternum paler; antennae and legs testaceous. Microreticulation lacking; puncturation sparse on the whole dorsum.

Head: puncturation uniform and superficial: punctures small, well impressed, spaced from each other by 6–8 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment slightly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.3$) and as long as 4th+5th (Fig. 51). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation as on head, a little more superficial; slightly broader than head ($P/H = 1.3$), much broader than long ($W/L = 1.54$) and very convex ($W/H = 1.48$). Anterior margin slightly bent. Lateral outline much broadly rounded. Holotype: length 0.72 mm, width 1.11 mm, height 0.75 mm.

Elytra: puncturation sparse: punctures large and scarcely impressed, different in size, spaced from each other by 8–12 times their own diameter; short and irregular furrows, more or less impressed, interposed; as broad as pronotum, a little broader than long ($W/L = 1.26$) and scarcely convex ($W/H = 2.12$). Lateral outline with very slight humeral angle. Sutural striae absent. Holotype: length 0.88 mm, width 1.11 mm, height 0.52 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete (form D, Fig. 11).

Legs: male hind femora as in figure 57; tarsal formula: ♂ 5–5–4, ♀ 4–4–4.

Male copulatory organ (Figs 204, 205): aedeagus slender, with winding proximal part, lateral margins sinuate and abruptly approached near apex into a rounded tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 195): apical and basal parts slender, nearly alike in length; the latter a little fat.

Types: Central Nepal, Phulchoki near Kathmandu, 2800 m, 10 ♂ and 6 ♀, H.Franz (holotype ♂ Nr.526, 6 ♂ and 5 ♀ paratypes Nr.527–532, 536–540 in coll. Franz; 2 ♂ and 1 ♀ paratypes Nr.534, 535, 541 in coll. Angelini; 1 ♂ paratype Nr.533 in coll. Basel Museum); between Mulkharka and Tare-Pati, 2000–2500 m, 1 ♂ and 2 ♀, H.Franz, IX.–X.1971 (paratypes Nr.511–513 in coll. Franz).

Discussion: *A. phulchokiense* n. sp. has in common with *montanum* n. sp. the pronotum lateral outline and the female tarsal formula; by the same characters it differs from *uniforme* n. sp. Furthermore, it is separate from *uniforme* by the ratio between 3rd and 2nd antennal segments.

Agathidium (s. str.) **transversum** n. sp. Figs 71, 79, 206, 207.

Length: 2.0 mm (holotype). The whole dorsum reddish-brown, venter paler; antennae and legs testaceous. Microreticulation lacking; whole dorsum with sparse puncturation.

Head: puncturation very sparse; punctures small and superficial, spaced from each other by 2–8 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.44$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation sparser than on head; much broader than head ($P/H = 1.6$), very much broader than long ($W/L = 1.9$) and scarcely convex ($W/H = 1.87$). Anterior margin well bent (Fig. 79). Lateral outline much broadly rounded (Fig. 71). Holotype: length 0.63 mm, width 1.20 mm, height 0.64 mm.

Elytra: puncturation very irregular, sparse and superficial: the smallest punctures are as large as on pronotum, the biggest nearly twice; short, superficial and irregular furrows interposed; a little less broad than pronotum, much broader than long ($W/L = 1.27$) and rather convex ($W/H = 1.83$). Lateral outline with evident humeral angle. Sutural striae absent. Holotype: length 0.86 mm, width 1.10 mm, height 0.60 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines slight, femoral lines complete (form B, Fig. 9).

Legs: male hind femora with scarcely sinuate posterior margin (as in *A. phulchokiense* n. sp., Fig. 57); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 206, 207): aedeagus slender, with spiral-like proximal part, lateral margins abruptly approached at apex

into a rounded tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Type: India, Darjeeling, Lopchu-Ghum, 2100 m, 1 ♂, W. Wittmer, 9.V.1975 (holotype Nr.279 in coll. Basel Museum).

Discussion: see what noted for *A.cinereum* n.sp.. A particular diagnostic character of *A.transversum* n.sp. is the dorsal outline of its pronotum.

Agathidium (s.str.) **crassum** n.sp. Figs 58, 196, 208, 209.

Length: 2.8–3.0 mm (holotype 3.0 mm). Dorsum reddish-brown, with anterior margin of pronotum black; venter paler; antennae and legs testaceous; anterior margins of head well rimmed. Microreticulation lacking; whole dorsum punctate.

Head: puncturation clear and regular: punctures well impressed, spaced from each other by 3–5 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment long nearly twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.91$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation as on head, but more irregular: punctures spaced from each other by 1–6 times their own diameter; well broader than head ($P/H = 1.5$), much broader than long ($W/L = 1.43$) and moderately convex ($W/H = 1.64$). Anterior margin slightly bent. Lateral outline broadly rounded. Holotype: length 1.09 mm, width 1.56 mm, height 0.95 mm.

Elytra: puncturation regular: punctures as large as on pronotum, spaced from each other by 6 times their own diameter; just a little broader than pronotum, much broader than long ($W/L = 1.43$) and scarcely convex ($W/H = 1.95$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.25 mm, width 1.60 mm, height 0.82 mm.

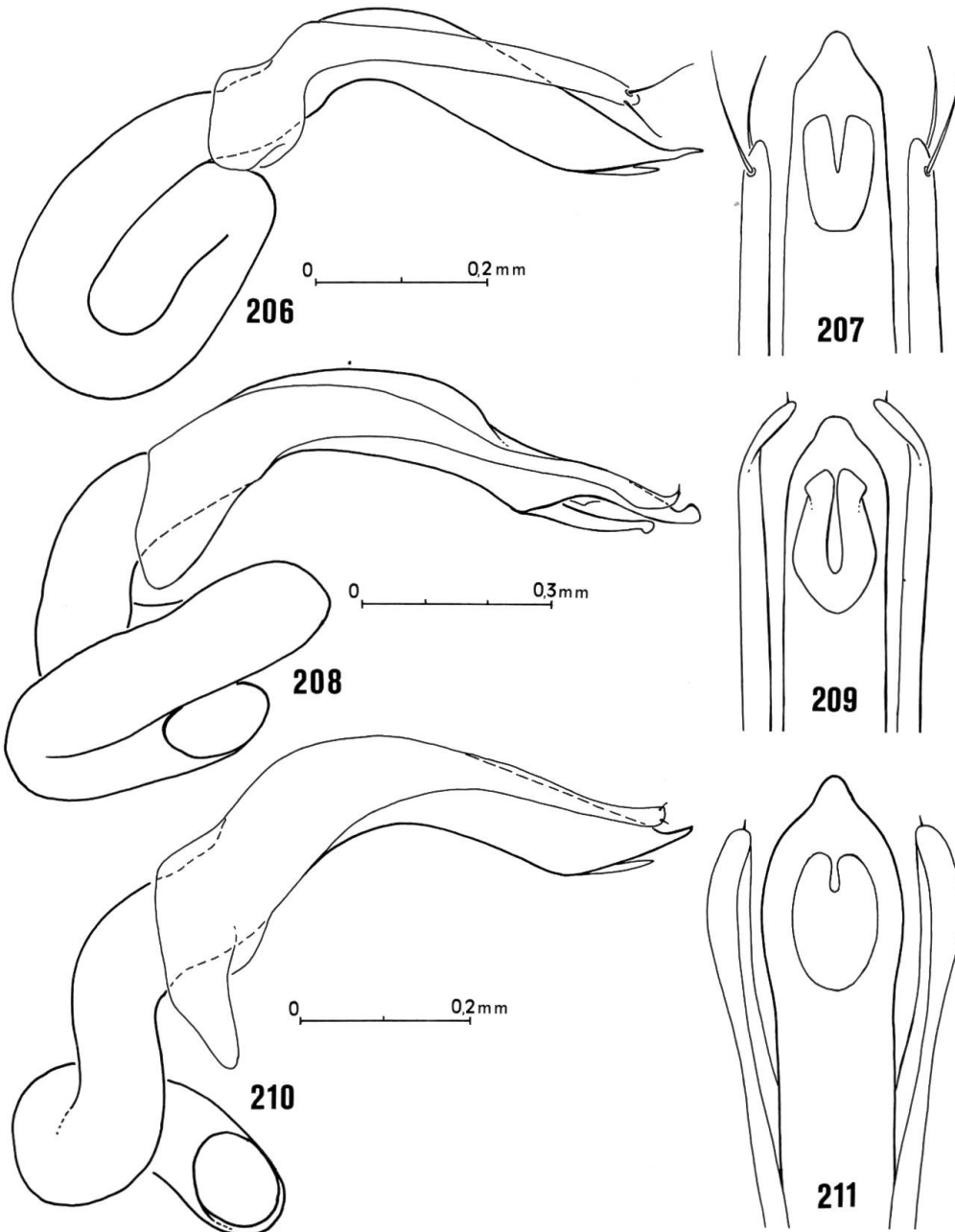
Membraneous wings absent. Meso and metasternum: median carina present, lateral lines present, femoral lines complete.

Legs: male hind femora as in figure 58; tarsal formula: ♂ 5–5–4, ♀: 5–4–4.

Male copulatory organ (Figs 208, 209): aedeagus slender, with spiral-like proximal part, very sinuate lateral outline at apex, lateral margins gently approached into a rounded tip and U-shaped ventral piece; parameres slender, gently tapered towards apex and here a little folded.

Spermatheca (Fig. 106): apical part short and slender; basal part fat, with long production where is the duct connection.

Types: India, Darjeeling, Lopchu-Ghum, 2100 m, 1 ♂, W. Wittmer, 9.V.1975 (holotype Nr.275 in coll. Basel Museum); Tiger Hill, 2150 m, 1 ♂, W. Wittmer, 12.V.1975 (paratype Nr.276 in coll. Basel Museum); Lebong, 1600–1800 m, 2 ♂, W. Wittmer, 2.VI.1975



Figs 206–211: Male copulatory organ (lateral view and ventral view of the apex) of: 206–207, *Agathidium transversum* n.sp. 208–209, *A. crassum* n.sp. 210–211, *A. darjeelingense* n.sp.

(1 paratype Nr.277 in coll. Basel Museum, 1 paratype Nr.278 in coll. Angelini); Pedong, 1180 m, 2 ♂ and 1 ♀, Bhakta B., 3.IX.1980 (1 ♂ and 1 ♀ paratypes Nr.2153, 2156 in coll. Basel Museum, 1 ♂ paratype Nr.2152 in coll. Angelini). Nepal, Langtang, 3350–3400 m, 1 ♂ and 2 ♀, Bhakta B., 24.VI.1979 (1 ♂ and 1 ♀ paratypes Nr.2151, 2154 in coll. Basel Museum, 1 ♀ paratype Nr.2155 in coll. Angelini).

Discussion: Within the six species with carinate mesosternum (*crassum* n.sp., *darjeelingense* n.sp., *fulvum* n.sp., *gurka* n.sp., *eremita* n.sp. and *paria* n.sp.) *A.crassum* is separate, together with *darjeelingense*, by the well rimmed anterior margins of head. From *darjeelingense* it differs by the stronger head puncturation, the ratio between 3rd and 2nd antennal segments, the lateral outline of pronotum, lack of membraneous wings, male hind femora (Figs 58, 59) and aedeagus shape (Figs 208–211).

Agathidium (s.str.) **darjeelingense** n.sp. Figs 52, 59, 210, 211.

Length: 2.9 mm (holotype). Dorsum reddish-brown, elytra with black veins; venter paler; antennae and legs testaceous. Microreticulation lacking; whole dorsum with sparse puncturation.

Head: puncturation very fine and sparse: punctures small and superficial, spaced from each other by 8–10 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment thinner and nearly as long as the 2nd, shorter than 4th+5th (Fig.52). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation finer and sparser than on head; much broader than head ($P/H = 1.57$), much broader than long ($W/L = 1.45$) and very convex ($W/H = 1.38$). Anterior margin slightly bent. Lateral outline nearly angulate. Holotype: length 1.00, width 1.45 mm, height 1.05 mm.

Elytra: puncturation very sparse and irregular: punctures differently sized, impressed and spaced from each other; short, superficial and irregular furrows are interposed; well broader than pronotum, a little broader than long ($W/L = 1.2$) and rather convex ($W/H = 1.83$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.20 mm, width 1.56 mm, height 0.85 mm.

Membraneous wings present. Meso and metasternum: median carina present, lateral lines absent, femoral lines incomplete (form C, Fig.10).

Legs: male hind femora with slight tooth at the distal end (Fig.59); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 210, 211): aedeagus slender, with very twisted proximal part, lateral margins sinuate and approached near apex into a rounded tip, not deeply bifid ventral piece; parameres comparatively strong, truncate at apex and grooved to fit for aedeagus sides.

Type: India, Darjeeling, 2150 m, 1 ♂, W. Wittmer, 30.V.1975 (holotype Nr.261 in coll. Basel Museum).

Discussion: see what noted for *A. crassum* n. sp.

Agathidium (s. str.) **fulvum** n. sp.

Figs 212, 213.

Length: 2.4 mm (holotype and paratype). The whole dorsum reddish-brown; venter paler; antennae and legs testaceous. Microreticulation lacking; whole dorsum punctate.

Head: puncturation fine and regular: punctures moderate in size, superficial, spaced from each other by 4–5 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.6$) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: punctures alike than on head, spaced from each other by 1–4 times their own diameter; well broader than head ($P/H = 1.34$), much broader than long ($W/L = 1.68$) and scarcely convex ($W/H = 1.9$). Anterior margin slightly bended. Lateral outline much broadly rounded. Holotype: length 0.75 mm, width 1.26 mm, height 0.66 mm.

Elytra: puncturation very sparse and irregular: punctures very small and much spaced from each other; as broad as pronotum, slightly broader than long ($W/L = 1.18$) and scarcely convex ($W/H = 1.85$). Lateral outline with slight humeral angle at middle length. Sutural striae absent. Holotype: length 1.06 mm, width 1.26 mm, height 0.68 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines complete.

Legs: male hind femora with slight tooth at middle length of the posterior margin (as in *A. uniforme* n. sp., Fig. 56); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 212, 213): aedeagus slender, with hook-like proximal part, lateral margins gently approached into a sub-acute tip and U-shaped ventral piece; parameres slender, gently tapered towards apex.

Types: Central Nepal, between Mulkharka and Tare Pati, 2000–2500 m, 1 ♂, H. Franz, IX.–X.1971 (holotype Nr.547 in coll.

Franz); outskirts of Fulung, 3500 m, 1 ♂, H. Franz, IX.–X. 1971 (paratype Nr. 548 in coll. Angelini).

Discussion: On the whole, *A. fulvum* n. sp. is close related to *gurka* n. sp., *eremita* n. sp. and *paria* n. sp., from which it differs by the small size and the ratio between 3rd and 2nd antennal segments.

Agathidium (s. str.) **gurka** n. sp. Figs 61, 197, 214, 215.

Length: 3.2 mm (holotype and paratypes). The whole dorsum dark reddish-brown, paler in one paratype scarcely sclerotized; venter light reddish-brown; antennae testaceous with little darker club; legs testaceous; lacking in microreticulation; punctate only on head and pronotum.

Head: puncturation fine and sparse: punctures small and superficial, spaced from each other by 3–6 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment clearly longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.77$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation fine and superficial as on head, but sparser: punctures spaced from each other by 6–8 times their own diameter; a little broader than head ($P/H = 1.29$), much broader than long ($W/L = 1.46$) and moderately convex ($W/H = 1.75$). Anterior margin nearly rectilinear. Lateral outline much broadly rounded. Holotype: length 1.10 mm, width 1.61 mm, height 0.92 mm.

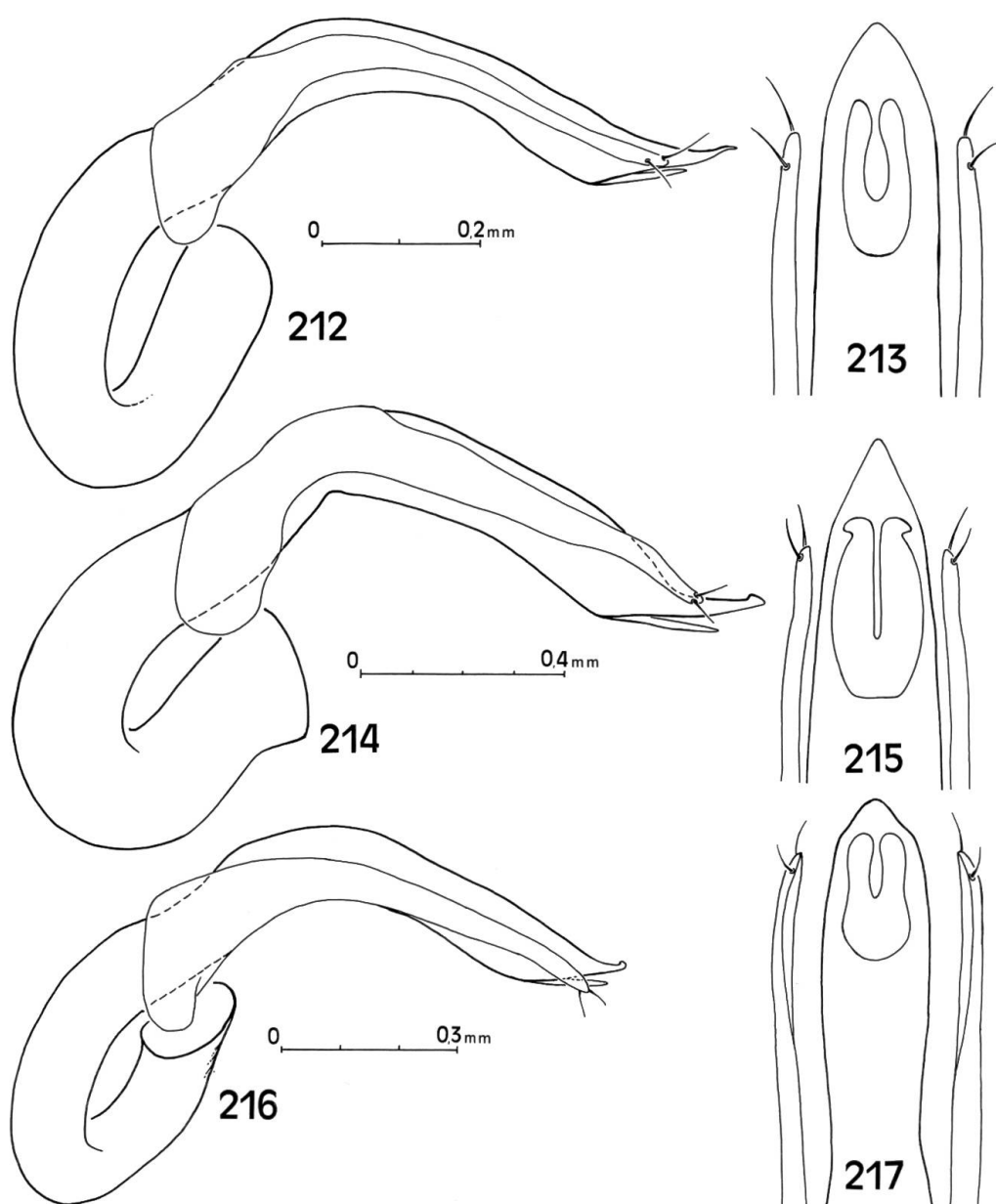
Elytra: puncturation very sparse: punctures small, superficial, spaced from each other by 2–10 times their own diameter; broader than pronotum, slightly broader than long ($W/L = 1.14$) and scarcely convex ($W/H = 2.15$). Lateral outline with very slight humeral angle. Sutural striae absent. Holotype: length 1.50 mm, width 1.72 mm, height 0.80 mm.

Membranous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: male hind femora with strong tooth at middle length of the posterior margin (Fig. 61); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 214, 215): aedeagus slender, with hook-like proximal part, lateral margins abruptly approached at apex into an acute angle, ventral piece bifid and with arms a little expanded at their apex; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 197): apical part short and slender; basal part pear-shaped, fatter where is the duct connection.



Figs 212–217: Male copulatory organ (lateral view and ventral view of the apex) of: 212–213, *Agathidium fulvum* n. sp. 214–215, *A. gurka* n. sp. 216–217, *A. eremita* n. sp.

Types: West Nepal, Damplek near Jumla, Jumla region, 3500 m, 1 ♂, H. Franz, 28.IX.–3.X.1972 (holotype Nr.544 in coll. Franz); Dzunda Khola Valley near Talphi, Jumla region, 3000–3500 m, 1 ♂, H. Franz, 18.–20.IX.1972 (paratype Nr.545 in coll. Angelini); outskirts of Darghari Mount. near Maharigaon, Jumla region, 4000 m, 1 ♀, H. Franz, 23.IX.1972 (paratype Nr.546 in coll. Franz).

Discussion: On the whole, *A. gurka* n.sp. is close related to *eremita* n.sp. and *paria* n.sp. from which it differs by elytral puncturation, male hind femora (Figs 60–62) and aedeagus shape (Figs 214–222).

Agathidium (s.str.) **eremita** n.sp. Figs 60, 72, 80, 216, 217.

Length: 2.8 mm (holotype). Dorsum shining black, reddish at sides of pronotum and elytra; venter reddish-brown; antennae and legs testaceous. Microreticulation lacking; whole dorsum punctate.

Head: puncturation uniform: punctures rather large and impressed, most of which alike in diameter, spaced from each other by 2–5 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment as long as twice the 2nd and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation uniform: punctures more superficial and smaller than on head, nearly alike in diameter, spaced from each other by 1–4 times their own diameter; slightly broader than head ($P/H = 1.3$), much broader than long ($W/L = 1.64$) and rather convex ($W/H = 1.64$). Anterior margin nearly rectilinear (Fig. 80). Lateral outline nearly angulate (Fig. 72). Holotype: length 0.93 mm, width 1.53 mm, height 0.93 mm.

Elytra: puncturation very irregular: punctures different in size and distance from each other; some short, superficial furrows interposed; just a little less broad than pronotum, slightly broader than long ($W/L = 1.28$) and scarcely convex ($W/H = 2.12$). Lateral outline with very slight humeral angle. Sutural striae absent. Holotype: length 1.20 mm, width 1.49 mm, height 0.70 mm.

Membranous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines incomplete (form C, Fig. 10).

Legs: male hind femora with clear tooth at middle length of the posterior margin (Fig. 60); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 216, 217): aedeagus slender, with ring-like proximal part, lateral margins abruptly approached at apex into a rounded tip, bifid ventral piece; parameres slender, gently tapered towards apex, grooved to fit for aedeagus sides.

Type: India, Darjeeling, Lopchu-Ghum, 2100 m, 1 ♂, W. Wittmer, 9.V.1975 (holotype Nr. 245 in coll. Basel Museum).

Discussion: see what noted for *A. gurka* n.sp.; from *paria* n.sp.,

A. eremita n.sp. differs by male hind femora (Figs 60, 62) and aedeagus shape (Figs 216, 217, 221, 222).

Agathidium (s.str.) **paria** n.sp. Figs 62, 73, 81, 198, 221, 222.

Length: 3.2–3.3 mm (holotype 3.3 mm). Dorsum black, reddish at pronotum sides; venter reddish-brown with mesosternum paler; antennae and legs testaceous. Microreticulation lacking; whole dorsum punctate.

Head: two size of punctures: punctures very small and punctures 3–4 times larger, spaced from each other by 2–8 times their own diameter. Eyes bulging laterally, flattened. 3rd antennal segment long more than twice the 2nd ($3^{\text{rd}}/2^{\text{nd}} = 2.3$) and longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation as on head: punctures spaced from each other by 1–5 times their own diameter; well broader than head ($P/H = 1.44$), a little broader than long ($W/L = 1.15$) and rather convex ($W/H = 1.6$). Anterior margin slightly bent (Fig. 81). Lateral outline much broadly rounded (Fig. 73). Holotype: length 1.50 mm, width 1.73 mm, height 1.08 mm.

Elytra: puncturation irregular: punctures rather large and superficial, spaced from each other by 2–10 times their own diameter; slightly less broad than pronotum, much broader than long ($W/L = 1.54$) and well convex ($W/H = 1.71$). Lateral outline with very slight humeral angle at middle length. Sutural striae absent. Holotype: length 1.11 mm, width 1.71 mm, height 1.00 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines complete.

Legs: male hind femora with strong tooth at middle length of the posterior margin (Fig. 62); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 221, 222): aedeagus very slender, with hook-like proximal part, lateral margins sinuate a little far from apex, ventral piece slender with arms a little increased at their apex; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 198): apical part slender, nearly constant in caliber; basal part pear-shaped.

Types: Nepal, Shermathang, Helambu, 1 ♂ and 1 ♀, H. Franz, X. 1980 (holotype ♂ Nr. 862 in coll. Franz, paratype ♀ Nr. 873 in coll. Angelini).

Discussion: see what noted for *A. gurka* n.sp. and *eremita* n.sp.

Agathidium (s. str.) **abominabile** n. sp. Figs 37, 63, 218–220.

Length: 2.7 mm (holotype). The whole dorsum black; venter reddish-brown; antennal segments 1–3 testaceous, 4–7 darker, club black; legs testaceous; lacking in microreticulation and puncturation.

Head: only some very small punctures; anterior margins at sides of the clypeus with fine and uniform rim. Eyes bulging laterally, globose (Fig. 37). 3rd antennal segment thinner and clearly longer than 2nd, longer than 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: only some very small punctures; a little broader than head ($P/H = 1.35$), slightly broader than long ($W/L = 1.21$) and moderately convex ($W/H = 1.56$). Anterior margin slightly bent. Lateral outline broadly rounded. Holotype: length 1.11 mm, width 1.35 mm, height 0.86 mm.

Elytra: only some very small punctures; less broad than pronotum, much broader than long ($W/L = 1.42$) and moderately convex ($W/H = 1.56$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 0.90 mm, width 1.28 mm, height 0.82 mm.

Membraneous wings absent. Meso and metasternum: median carina slight, lateral lines absent; metasternum very shortened (meso and metacoxae nearly in touch, as in figure 12).

Legs: male hind femora as in figure 63; tarsal formula: ♂ 5–5–4.

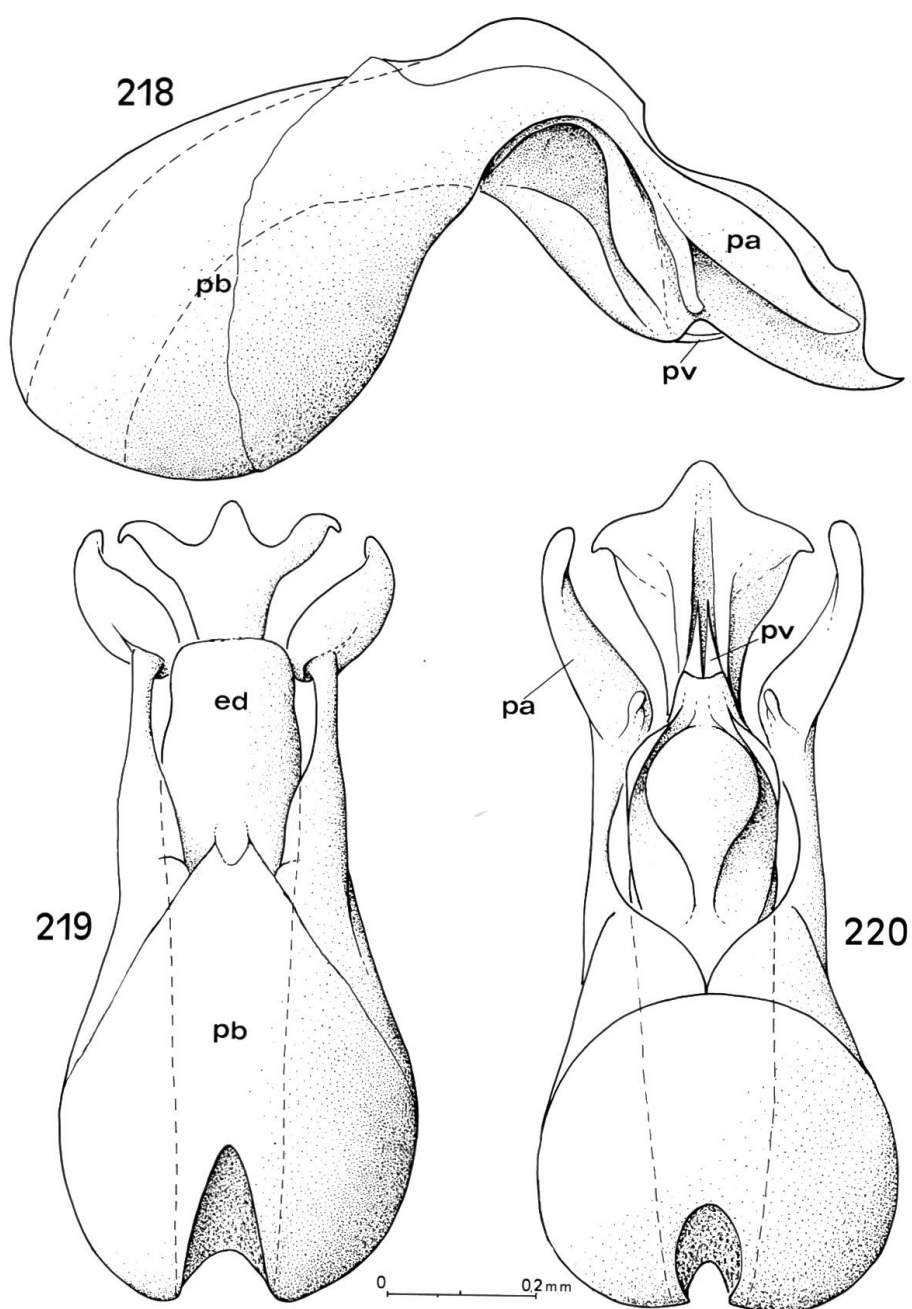
Male copulatory organ (Figs 218–220): very particularly shaped; phallobase subglobose, containing the proximal half of the strong aedeagus; free part of aedeagus very complexly shaped, in part so made to fit for parameres; ventral piece made with two thin lamellae; parameres strong, widened and bifurcate at apex.

Type: India, Darjeeling, Raman, 2450 m, 1 ♂, W. Wittmer, 19.V.1975 (holotype Nr. 259 in coll. Basel Museum).

Discussion: *A. abominabile* n. sp. is well separate from *lebongense* n. sp. and *meghalayanum* n. sp. because of the fine anterior rim of head, metasternum very shortened and lack of puncturation; furthermore, the male copulatory organ is very characteristic; from *lebongense* it differs also by the lateral outline of pronotum; from *meghalayanum* by size.

Agathidium (s. str.) **lebongense** n. sp. Figs 3, 74, 199, 223, 224.

Length: 2.7 mm (holotype and paratype). Head and pronotum dark reddish-brown, elytra nearly black, pronotum reddish at sides;



Figs 218–220: *Agathidium abominabile* n. sp., male copulatory organ: 218, lateral view. 219, dorsal view. 220, ventral view. (*ed*: aedeagus; *pv*: ventral piece; *pb*: phallobase; *pa*: parameres).

venter paler; antennae testaceous with a little darker club; legs testaceous. Microreticulation lacking; whole dorsum punctate.

Head: puncturation regular: punctures rather large and impressed, spaced from each other by 3–6 times their own diameter; anterior

margins well rimmed at sides of clypeus. Eyes bulging laterally, nearly globose. 3rd antennal segment thinner and longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.36$), shorter than 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments (Fig. 3).

Pronotum: puncturation regular as on head: punctures just a little larger, spaced from each other by 4–8 times their own diameter; much broader than head ($P/H = 1.43$), much broader than long ($W/L = 1.48$) and moderately convex ($W/H = 1.53$). Anterior margin nearly rectilinear. Lateral outline nearly angulate (Fig. 74). Holotype: length 0.87 mm, width 1.29 mm, height 0.84 mm.

Elytra: puncturation regular: punctures a little larger and superficial than on pronotum but sparser, spaced from each other by 6–12 times their own diameter; slightly broader than pronotum, nearly as broad as long and rather convex ($W/H = 1.6$). Lateral outline with evident humeral angle at the apical third. Sutural striae absent. Holotype: length 1.23 mm, width 1.33 mm, height 0.80 mm.

Membraneous wings present. Meso and metasternum: median carina present, lateral lines present, femoral lines incomplete (form A, Fig. 8).

Legs: male hind femora increased distally, as in *A. semirufum* n.sp. (Fig. 27); tarsal formula: ♂ 5–5–4, ♀ 5–4–4.

Male copulatory organ (Figs 223, 224): aedeagus slender, with hook-like proximal part, lateral margins abruptly approached at apex into a rounded tip, ventral piece bifid and very slender; parameres slender, gently tapered towards apex.

Spermatheca (Fig. 199): apical part slender and short; basal part pear-shaped.

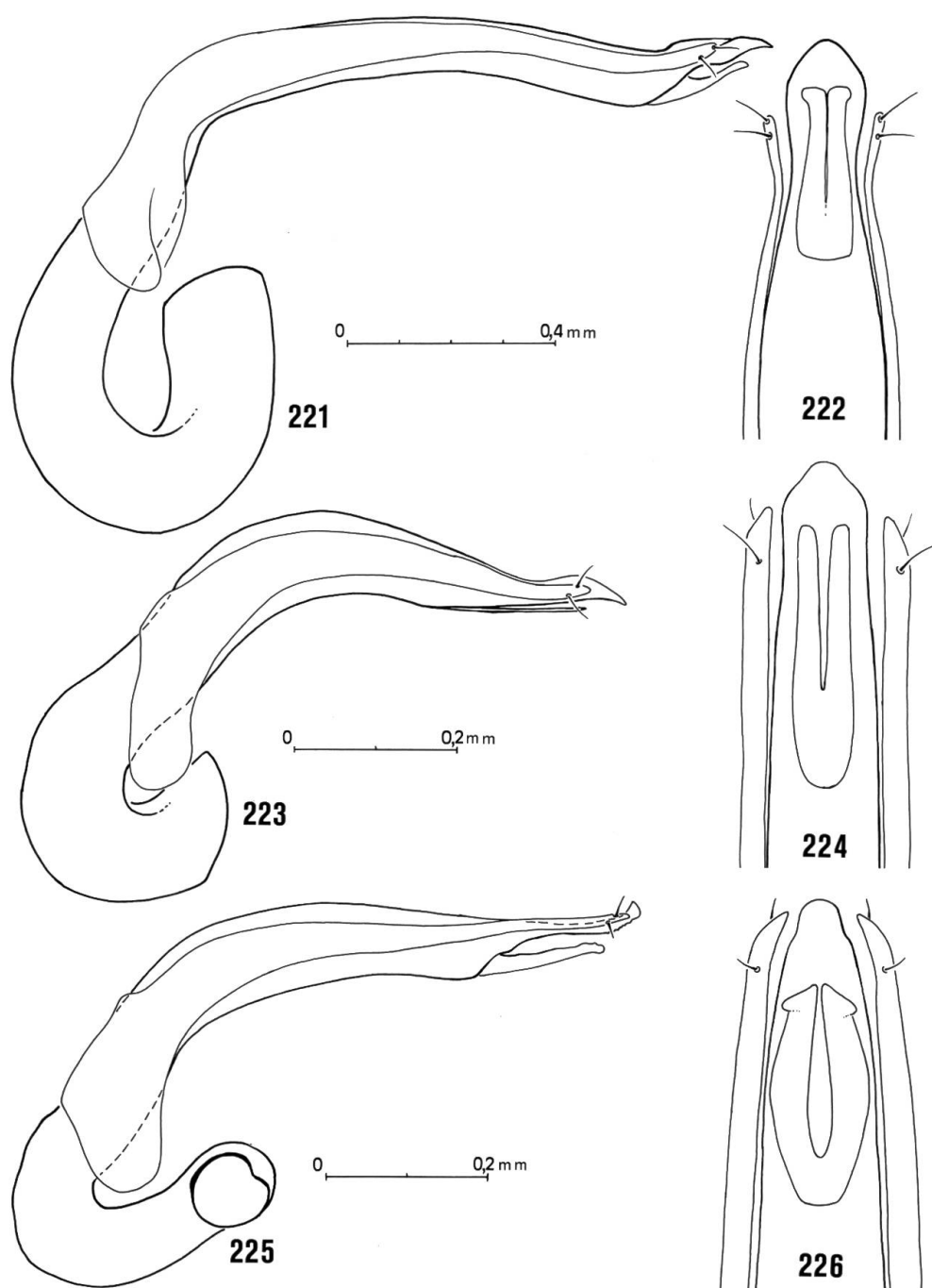
Types: India, Darjeeling, Lebong, 1600–1800 m, 1 ♂ and 1 ♀, W. Wittmer, 2. VI. 1975 (holotype ♂ Nr. 262 in coll. Basel Museum, paratype ♀ Nr. 263 in coll. Angelini).

Discussion: On the whole *A. lebongense* n.sp. is close related to *meghalayanum* n.sp., from which it differs by presence of membraneous wings, ratio between 3rd and 2nd antennal segments and lateral outline of pronotum, as well as by male copulatory organ.

Agathidium (s.str.) meghalayanum n.sp.

Figs 75, 225, 226.

Length: 2.3–2.5 mm (holotype 2.5 mm). Holotype colouring: head reddish-brown, pronotum darker reddish-brown, paler at sides, elytra nearly black, paler at apex; paratype colouring: the whole dorsum reddish-brown with black veins; antennae testaceous with darker



Figs 221–226: Male copulatory organ (lateral view and ventral view of the apex) of: 221–222, *Agathidium paria* n.sp. 223–224, *A. lebongense* n.sp. 225–226, *A. meghalayanum* n.sp.

club; legs testaceous; lacking in microreticulation; the whole dorsum punctate.

Head: puncturation fine and regular: punctures rather impressed, spaced from each other by 4–5 times their own diameter; lateral margins at sides of clypeus with slight rim. Eyes bulging laterally, flattened. 3rd antennal segment a little longer than 2nd ($3^{\text{rd}}/2^{\text{nd}} = 1.33$) and as long as 4th + 5th. Hamann's organ: one subspherical vesicle in both 9th and 10th antennal segments.

Pronotum: punctate as on head; well broader than head ($P/H = 1.47$), broader than long ($W/L = 1.4$) and moderately convex ($W/H = 1.58$). Anterior margin nearly rectilinear. Lateral outline much broadly rounded (Fig. 75). Holotype: length 0.91 mm, width 1.28 mm, height 0.81 mm.

Elytra: puncturation much sparser than on head: punctures spaced from each other by more than 8 times their own diameter; short, superficial and irregular furrows interposed, some of them very close from each other; as broad as pronotum, broader than long ($W/L = 1.3$) and rather convex ($W/H = 1.77$). Lateral outline with very slight humeral angle. Sutural striae absent. Holotype: length 0.98 mm, width 1.28 mm, height 0.72 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines present, as in figure 8 but with femoral lines complete.

Legs: male hind femora with posterior margin rounded distally (as in *A. crassum* n.sp., Fig. 58); tarsal formula: ♂ 5–5–4.

Male copulatory organ (Figs 225, 226): aedeagus slender, with hook-like proximal part, lateral margins gently approached into a rounded tip and ventral piece bifid, with arms a little increased at their apex; parameres slender, gently tapered towards apex.

Types: India, Meghalaya, Manophlang, 1850 m, 1 ♂, C. Baroni Urbani & W. Wittmer, 5.V.1976 (holotype Nr. 286 in coll. Basel Museum); Upper Shillong, 1900 m, 1 ♂, C. Baroni Urbani & W. Wittmer 13.V.1976 (paratype Nr. 285 in coll. Angelini).

Discussion: see what noted for *A. abominabile* n.sp. and *lebongense* n.sp.

Conclusive remarks

It is still not possible to deduce if the remarkable homogeneity we find in the Himalayan *Agathidium* depends upon the hunting methods,

or upon the altitude where the species come from, or if the *Agathidium* fauna of the explored regions is really homogeneous. Therefore at present we point out only what is notable in comparison with the European species.

A. The European species belong to four different subgenera: they are about 70 in total, of which a thirty of the subgenus *Agathidium* s.str. On the contrary, the Himalayan species, now nearly alike in number to the former, have been found belonging to an unic subgenus.

B. An heiger percentage of species lacking in membraneous wings is in Himalaya.

C. Many *Agathidium* s.str. from Europe possess clypeal lineage, but all Himalayan *Agathidium* do not.

D. In two Himalayan species it appears for the first time the tarsal formula 4-4-4 in males; this is a very interesting event in considering that in Europe we find only 5-5-4 and 5-4-4 in males, and only in females of the subg. *Neocele* there is tarsal formula 4-4-4.

E. No Himalayan species possesses very strong puncturation on the dorsum.

F. The situation "head with temporal angles" is very infrequent in *Agathidium* s.str. from Europe; on the contrary, we find it as well as in 9 Himalayan species.

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