

On Some Bees of the Family Megachilidae (Hymenoptera, Apoidea) from Afghanistan

By G. A. MAVROMOUSTAKIS, Limassol, Cyprus

The bees recorded and described below were submitted to me for study by the Hungarian Natural History Museum, Budapest, through the kindness of Dr. LÁSZLÓ MÓCZÁR and collected from Afghanistan by J. KLAPPERICH.

Megachilidae

Anthidiinae

Anthidium s. str.

Anthidium montanum F. MOR., subsp. *reichardti* Guss.

Anthidium reichardti V. GUSSAKOVSKIJ (in Abh. d. Pamir Exped. II. Zoologie, 1928, p. 69–70).

Anthidium montanum F. MOR. subsp. *pamirensis* J. D. ALFKEN (in Mitt. Zool. Mus. Berlin, 16, 6. H., 1931, p. 843).

GUSSAKOVSKIJ described *Anthidium reichardti* Guss., from Pamir (1928), as a species related to *Anthidium comatum* F. MOR., and *Anthidium montanum* F. MOR., and separated it from the two species mostly by cuticular colour differences. GUSSAKOVSKIJ in his description of the male wrote as follows: "Segmento ultimo ut in *A. montano* F. MOR., configurato, lobis lateralibus externe rotundatis, angustioribus quam in *A. comato* F. MOR., lobo mediano spiniformi." I examined 1 ♀ 1 ♂ *Anthidium reichardti* Guss., from Pamir: Karankul, 17. VII. 1928 (paratypes) collected by REICHARDT, determined and given to me by the late V. GUSSAKOVSKIJ. Both paratypes of *Anthidium reichardti* Guss., are to be considered a subspecies of *Anthidium montanum* F. MOR., and it may be called *Anthidium monranum reichardti* Guss. The males of *Anthidium montanum* F. MOR., and *Anthidium reichardti* Guss. have sixth and seventh tergites and six sternite similar, their main differences being the colour only of pilosity, integument and punctuation.

Anthidium reichardti Guss., female and male (paratypes). Head with shining white hairs; vertex, occiput, mesoscutum and scutellum with dense, erect, pale yellowish white hairs (GUSSAKOVSKIJ described the pilosity "in vertice et thoracis disco ferruginato-fuscescenti piloso"), with rich pale yellow cuticular markings; punctuation of abdomen less strong or dense than in *Anthidium montanum* F. MOR. *Anthidium montanum* F. MOR., female and male. Pilosity yellow white, abdominal tergites entirely black. The variety *Anthidium montanum flavomaculatum* FRIESE (Termész. Füzet., 20, p. 440, 1897) is similar to *Anthidium montanum* F. MOR., with some only minute pale yellow spots on abdomen.

A synonym of *Anthidium reichardti* Guss., is *Anthidium montanum pamirensis* ALFKEN (1931) syn. n., both described from Pamir.

Anthidium comatum F. MOR., male is very different from *Anthidium montanum* F. MOR., or *Anthidium montanum reichardti* Guss. (material examined from Transbaikalia;

Pestshanka near Troitz Kozavsk, 10. VIII. 1926, compared with the type by V. GUSSAKOVSKIY). This species has the abdomen entirely black, the lateral lobes of seventh tergite very broad and rounded, the median emargination between the lobes shallow, the median spine in middle of the emargination short and thick, not pointed at the apex and its top with the level of the apical margin of the lateral lobes (Ann. Mag. Nat. Hist. 10, xix, p. 152, fig. 2, 1937).

Afghanistan: Badakschan (Sarekarda Mts) 4000 m., 2 ♀ ♀, 31. VII. 1953 (J. KLAPPE-RICH). Both females from Afghanistan are similar to *Anthidium montanum reichardti* Guss., with some differences of minor importance in the cuticular colour of the abdominal tergites.

***Anthidium afghanisticum* sp. nov. (Fig. 1—2).**

Male. — Length 10.5. to 11.0 mm.

Related to *Anthidium taschenbergii* F. MOR. (Hor. Soc. Ent. Ross., XXVIII, p. 52, 1894) from Turkestan; black; clypeus yellow, shining, shallowly and somewhat densely punctured, with a polished; very slight median keel reaching basal margin, more densely and more finely punctured at sides, very densely and very finely punctured at lower sides, apical margin narrowly black, very slightly concave on the whole margin and with slight, well separated convexly edged undulations; supraclypeal plate very densely and somewhat finely punctured, lower margin narrowly yellow; mandibles tridentate, long and narrow, yellow, black brown at the apex: paraocular marks to level insertion of antennae yellow; a large yellow spot above top of eyes: antennal space with a yellow line in front; third antennal joint longer than second, nearly as long as joints 4+5 (better seen from in front): all face transversely below frons with shining white hairs not hiding the surface; vertex and occiput with somewhat long, erect, dull yellowish white hairs; pilosity on ckeeks somewhat sparse, white mostly on outer side; vertex densely and mostly rugosely punctured, the intervals between the punctures shining; occiput slightly concave in middle (better seen from in front). Mesoscutum shining, densely somewhat strongly and mostly rugosely punctured, more densely laterally with somewhat long, erect yellow white hairs; tegulae very finely and sparsely punctured, brownish black, broadly in front and narrowly behind yellow; tubercles yellow; mesepisternum covered with long white hairs; scutellum pro-

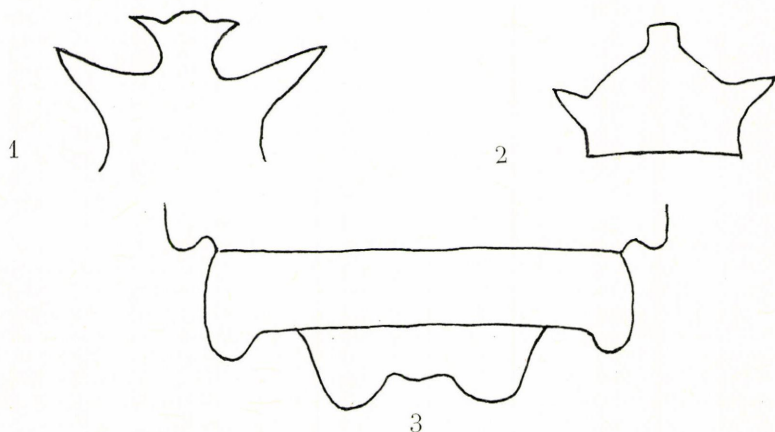


Fig. 1. Sixth sternite of *Anthidium afghanisticum* sp. nov., ♂ — Fig. 2. Sixth sternite of *Anthidium taschenbergii* F. Mor., ♂ — Fig. 3. Tergites 5 to 7 of *Anthidium klapperichi* sp. nov., ♂

jected as in members of *Anthidium* s. str., middle of disk with sparse, broader and shallower punctures than in mesoscutum, with somewhat long, erect yellowish white hairs, apical margin very slightly emarginate in middle, narrowly yellow (the yellow interrupted in middle); axillae marked with yellow; propodeum shining, anterior half with somewhat sparse shallow punctures, denser at sides, lower half polished, impunctate and shining coxae, trochanters and femora black; tibiae brownish black beneath and yellow above; tarsi with basitarsi yellow, small joints light reddish brown (last joint darker); claws brownish black at the apex; hind spurs yellowish brown; anterior femora with dense shining white hairs on outer side; middle and hind femora with sparse and short shining white hairs; tibiae with shining white hairs, denser and larger on anterior and middle ones on outer side; tarsi covered with shining white hairs above; arolia absent; wings very slightly infuscate; marginal cell infuscated anteriorly and pterostigma brownish black; second recurrent vein interstitial with the line of the apex of second transverse cubital vein; distance between lateral ocelli shorter than same to the top of eyes. First tergite with a lateral pale yellow mark covering sides, with basal half somewhat sparsely and shallowly punctured (the punctures denser at sides), subapical area densely and somewhat finely punctured, apical margin narrowly polished, impunctate, shining and black; second tergite with a pale yellow mark covering sides, the yellow projected inside as a narrow stripe not reaching the middle, with similar punctures as the preceding, the punctures of subapical area somewhat finer; third tergite with a transverse, broad pale yellow stripe notched in middle anteriorly, with similar punctures to the preceding; fourth tergite with transverse pale yellow stripe slightly notched in middle anteriorly; fifth tergite nearly pale yellow, with a small, subapical median black area, very slightly convex laterally, without lateral tooth; sixth tergite pale yellow, with a small subapical median black area, toothed at each side, teeth narrowly black at base; seventh tergite with a lobe at each side, longer than broad, parallel sided and bluntly edged at the apex, between the lateral lobes an emargination and in its middle a bluntly edged produced spine not reaching the apex of lateral lobes and with a longitudinal carina from base to apex in middle; seventh tergite black, lateral teeth yellow slightly suffused with reddish brown in middle; pilosity on tergites white, somewhat long and sparse, denser at sides and not forming apical bands; sixth sternite broad, shining, longitudinally and broadly polished in middle, remainder of disk somewhat densely punctured, with a large triangular projection at each anterior side, anterior margin with a short, somewhat broad, longitudinal convex projection in middle and its sides triangularly projecting (Fig. 1); pilosity of sternites dense, dull yellowish white.

Afghanistan: Sanglitsch-Pass (Minjan Mts) 3700 m., 1 ♂ (type), 2 ♂♂ (paratypes), 3. VIII. 1952 (J. KLAPPERICH), type and one paratype in Hungarian Natural History Museum, paratype in my collection.

This species may be compared with *Anthidium taschenbergii* F. MOR. (Hor. Soc. Ent. Ross., XXVIII, 1894, p. 52), male from Turkestan. I have examined 1 ♂ *Anthidium taschenbergii* F. MOR., from Kondara Valley (Hissar Mts) 1100 m. (V. GUSSAKOVSKIY) and it differs from *Anthidium afghanisticum* sp. nov., as follows:

Anthidium taschenbergii F. MOR., male length 13–14 mm. First tergite shining, basal margin very narrowly densely punctured, remainder very sparsely and finely punctured, with a polished area between the sides and the polished apical margin; fifth tergite with a small lateral tooth; sixth tergite with a large lateral tooth; seventh tergite with a broad, parallel sided, bluntly edged lateral spines, between the spines with an emargination and with a produced spine not reaching the apex of apical margin of the lateral spines; sixth sternite very different from the same in *Anthidium afghanisticum* sp. nov., ♂, somewhat broad, densely punctured, with a longitudinal polished area in middle of disk and with tooth-like projection at each lower side, anterior margin produced and edentate, with a short, median longitudinal bluntly edged narrow projection (fig. 2).

Anthidium afghanisticum sp. nov., male, differs from *Anthidium terminale* F. MOR. (Hor. Soc. Ent. Ross., 27, 1894 p. 50), from Turkestan, female, in many details. The latter has the axillae rounded (in *A. afghanisticum* sp. nov., regular), distance between lateral ocelli equal to that from top of eyes; mesoscutum and scutellum finely and very densely punctured, dull; propodeum shining, dull above.

Anthidium trispinosum FRIESE, male (Deutsch. Ent. Zeitschr., I. 1917 pp. 52–53) may be compared with *Anthidium afghanisticum* sp. nov., male and the former differs as it is exteriorly rather similar to *Anthidium pubescens* F. MOR., but clypeus as long as broad, anal segment small, with three small acute teeth: sixth tergite with large, curved yellow tooth at each side: sixth sternite red, ending in a big black tooth on either side which is also visible from above.

Anthidium klapperichi sp. nov. (Fig. 3).

Male. — Length 14.0 mm.

Black; clypeus as long as broad, creamy yellow, with a shallowly and sparsely punctured longitudinal, broad area in middle, remainder finely and densely punctured, apical margin straight, with two or three well separated undulations towards the sides, basal margin very narrowly transversely polished; paraocular area somewhat strongly and densely punctured, to level of insertion of antennae creamy yellow; occiput with a yellow mark at each side; mandibles long, tridentate, yellow, teeth brownish black, antennae brownish black; fourth antennal joint brown in front; third antennal joint longer than broad, longer than fourth or fifth, a little shorter than joints 4+5; fourth or fifth joints as long as broad, nearly equal (all better seen from in front); hairs of lower half on head and of all cheeks white; those of vertex and occiput denser and greyish white. Mesoscutum strongly rugosely punctured, shining, with greyish white hairs not hiding the surface; mesepisternum densely covered with erect white hairs; tegulae yellow, disk brown in middle; tubercles yellow; mesoscutum with a longitudinal yellow stripe at each side; scutellum slightly produced over propodeum, shining, strongly and densely punctured, with somewhat dense greyish white hairs; apical margin of scutellum rounded at sides, very slightly depressed in middle, yellow (interrupted by black in middle); axillae united with scutellum, their margin yellow, not convex; propodeum dullish, basal area transversely very broadly densely punctured, remainder leather-like (coriaceous); wings nearly clear or subclouded, marginal cell more clouded transversely anteriorly; second recurrent vein interstitial with the line of the apex of second transverse cubital vein; basal vein originating considerably basal of transverse median vein; femora black, yellow at apex; anterior tibiae yellow above, brownish black and suffused with reddish brown towards the apex beneath; middle and hind tibiae yellow above and brownish black, below; femora and tibiae with dense white hairs: basitarsi yellow and covered with shining white hairs above; hind basitarsi with short, very dense, light golden-white hairs on inner side; small tarsal joints reddish brown, last one black brown at the apex; arolia absent; hind spurs pale yellow. Abdomen shining; first tergite with base somewhat strongly punctured, remainder sparsely punctured broadly in middle, densely and broadly at sides, apical margin polished, very broadly in middle and very narrowly towards the sides; second tergite with base very sparsely and very finely punctured, disk finely and sparsely punctured, transversely and broadly in middle (densely at sides), subapical area very finely punctured (densely at sides), apical margin polished, very broadly in middle and narrowly towards sides; first tergite with transverse yellow stripe attenuated and broadly interrupted in middle; tergites 2 to 5 with very broad, transverse yellow stripes, slightly notched anteriorly in middle; sixth tergite yellow except a triangular mark to-

wards middle of apical margin; seventh tergite yellow, longitudinally black in middle; fifth tergite with a small lateral tooth; sixth tergite with a stout lateral tooth; seventh tergite short, with a broad apically rounded lobe at each side and between the lobes a shallow wide, rounded emargination and having a somewhat broad convexity in middle of its apical margin (Fig. 3); pilosity of tergites very sparse and white, denser at sides; sixth sternite broad and shining, brownish black, basal area broadly deep reddish brown, with a short tooth towards its lower sides, with a median, longitudinal, somewhat deep and broad furrow starting from anterior margin and narrowing to the middle of disk; sternites with apical bands of dense greyish white hairs.

Female. — Length 12.0 mm.

Similar to the male; black; clypeus as long as broad, shining, a little overlapping labrum, apical margin black, straight, with ten small bluntly edged crenulations, otherwise clypeus yellow, with sparse white hairs; antennae black brown, fourth and fifth joints brown in front; second antennal joint longer than broad, shorter than third, but longer than fourth or fifth; third antennal joint longer than broad; fourth and fifth joints as long as broad, equal; paraocular area to level insertion of antennae yellow; occiput with a transverse, broad yellow stripe; pilosity of head below frons white; cheeks with sparse white hairs; occiput with silky white hairs. Mesoscutum shining, strongly, densely rugosely punctured; scutellum little produced over propodeum, apical margin slightly incised in middle, yellow except the basal half; axillae nearly entirely yellow; mesoscutum with a broad yellow stripe at sides reaching axillae and extended a little anteriorly, yellow; tubercles yellow; anterior femora light reddish brown on inner side, black and tinged with light reddish brown on outer side; middle and hind femora reddish brown on inner and outer side, black and tinged with reddish brown below, with an apical yellow mark at the apex (smaller in hind ones); anterior tibiae yellow, light reddish brown on outer side; middle tibiae yellow, light reddish brown on inner side, black on outer side; hind tibiae yellow, black on inner side, light reddish brown on outer side; basitarsi pale yellow, with shining white hairs on outer side; small tarsal joints reddish brown; femora with white hairs; tibiae with shining white hairs at sides, hind tibiae with dense, short, apical shining white hairs fringe. Abdomen shining; first tergite with a transverse yellow stripe attenuated in middle, the black subapical area somewhat finely and sparsely punctured, apical margin polished; second and third tergites with nearly the anterior half pale yellow, somewhat sparsely punctured, the black disk sparsely and finely punctured; fourth and fifth tergites yellow sparsely punctured, the black subapical area sparsely and finely punctured, apical margin black and impunctate; subapical area and apical margin of fifth tergite tinged with reddish brown; sixth tergite yellow, with small, sparse shining white hairs denser towards the apical margin, short and broad (much broader than long), apical margin neither convex nor rounded, nearly straight towards the middle; fifth tergite convex at sides; tergites almost bare, with very sparse white hairs on the last ones; ventral scopa white.

Afghanistan: Larki (Sareka-Tal) 2300 m. 1 ♂ (type), 1 ♀ (allotype), 2 ♂♂ (paratypes), 3. VIII. 1953 (J. KLAPPERICH). Type, allotype, paratype in Hungarian Natural History Museum, paratype in my collection.

Anthidium klapperichi sp. nov., male is related to *Anthidium taschenbergii* F. MOR., and *Anthidium afganisticum* sp. nov., males, but the three species differ in many details.

Anthidium klapperichi sp. nov., male has fifth tergite dentate at each side, lateral lobes of seventh tergite broad and rounded at the apex and without a produced spine in middle. *Anthidium taschenbergii* F. MOR., male, has fifth tergite dentate at each side, seventh tergite with narrow, parallel sided and bluntly edged lateral spines, with a produced, long spine in middle of the emargination reaching the tip of the lateral spines. *Anthidium afganisticum*

sp. nov., male, has fifth tergite convex only at sides, seventh tergite with two lateral lobes, longer than broad, between the lobes with an emargination in the middle of which a short produced spine not reaching tip of the lateral spines. Besides this the three species have very different form of sixth sternite (see my previous descriptions of *Anthidium afghanisticum* sp. nov.).

Anthidium terminale F. MOR., female, from Turkestan differs from *Anthidium klapperichi* sp. nov., female, in having mesoscutum and scutellum finely and densely punctured, dull (in *A. klapperichi* sp. nov., strongly and densely rugosely punctured, shining), axillae rounded (in *A. klapperichi* sp. nov., apical margin straight).

Summary

The writer treated *Anthidium reichardti* Guss., from Pamir a subspecies of *Anthidium montanum* F. MOR. (*Anthidium montanum* F. MOR. subsp. *reichardti* Guss), and he placed *Anthidium montanum* F. MOR. subsp. *pamirensis* ALFKEN from Pamir, a synonym of *Anthidium montanum reichardti* Guss., the later having priority. Besides he described two new species from Afghanistan, *Anthidium afghanisticum* sp. nov., male, related to *Anthidium taschenbergii* F. MOR., and *Anthidium klapperichi* sp. nov., male and female, related to *Anthidium taschenbergii* F. MOR., and *Anthidium afghanisticum* sp. nov. The types and allotype, paratype are placed in Hungarian Natural History Museum, Budapest, one paratype is in the collection of the author,