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NEW ANTHIDIINAE (HYMENOPTERA, APOIDEA, MEGACHILIDAE) FROM
THE MEDITERRANEAN AREA AND FROM THE NEAR EAST

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Preparing the revision of the Anthidiinae of the Old World, we had the opportunity to study the main collections of the official Musea but also some, private but extensive collections.

The present part of our work is devoted to the description of new species from Greece, Bulgaria, Turkey, Lebanon, Israel, Egypt, Arabia and North Africa. Another part is a comprehensive generic and subgeneric revision which is presently published elsewhere (Pasteels, 1969). The justification of some unusual generic attributions should be found in this reference. In a third part (a fauna actually in preparation) the species here described will be included and keyed into the general pattern of European, Mediterranean and Near East fauna.

The species described here belong to the following collections:

British Museum (Natural History), London. (B.M.)
Museum National d'Histoire Naturelle, Paris. (M.N.H.N.P.) National Museum,
Wien.
Senckenberg Museum, Frankfurt a/Main Smithsonian
Institute; Washington Prof. H. Bytinski-Salz, Tel-Aviv
Dr. J. Gusenleitner, Linz M. Kocourek, Vyskov
(Czecho-Slovakia)
Dr. Linsenmaier, Luzern Dr. M.
Schwarz. Linz

We address our heartfelt thanks to the Curators of those official collections and mostly to those private Collectors who very kindly afforded us the opportunity to study an extensive material.

Our dear Colleague Prof. H. Bytinski-Salz has to be one of them and It is a great pleasure to us to contribute to this Volume edited for his 65th birthday.

(All types of the new species have been returned to the collections to whom they belonged; eventual paratypes have been placed in the Institut Royal des Sciences Naturelles de Belgique; abbrev.: I.R.Sc.N.B.).

Genus Bellanthidium PASTEELS

Bellanthidium exsectum n. sp.

♀-Structure: Mandibles 4-dentate (only both inferior teeth being acute), elongated, reticulated, somewhat enlarged at the apex (fig. 1, 1). Clypeus (fig. 1, b) very convex. Eyes converging. Genal area more narrow than the eye. Vertex not carinate, short (the distance between the hind ocellae and the preoccipital margin being 2/3 of the distance between both ocellae). Joints of the antennal flagellum quadrate. Pronotal lobes with a narrow lamella. Mesepisterna not carinate. Scutellum slightly emarginate in the middle, very produced laterally, the margin being slightly carinate. Basitarsi III thin and elongate. Margins of tergites strongly depressed, the intermediate part of tergites very convex laterally. 6th tergite with a very deep, angulate emargination (fig. 1, c and d), showing dorsally the triangular and excavate 6th sternite.

Puncturation: Very shining with deep impressed punctures, entirely close on the head, with the exception of a little unpunctured area on the upper middle of the clypeus. Mesonotum with a tiny but regular reticulation. Tergites with punctures well separated by the intervals are inferior to the diameter of the punctures.

Pubescence: White, erect, rather scarce, but dense around the antennae and the basis of the wings. Very fine yellow pubescence on the mesonotum (only seen in profile). Scopa white anteriorely, reddish on the two last sternites.

Color: Mostly black. Golden yellow: base of the mandible, sides and apex of clypeus, the para-clypeal and para-ocular areas, an ovale spot under the front ocellus, a preoccipital stripe along the whole vertex and genal areas; the pronotal lobes, the upper and anterior part of the mesepisternae, the anterior angles of the mesonotum, the axillae and a broad stripe at the back of the scutellum. Tergites 1-5 each with two laterobasal black spots, very close to the middle; tergite 6 yellow with two laterobasal black spots. Legs black until the middle of femora, the apex of femora, tibiae and tarsi yellow at the outside, reddish at the inside. Tegulae yellow with a red central spot. Nervures mostly black, but reddish at the base. Wings very infuscated, almost black. Antennae black, but the second joint of the flagella red.

Size: 7,5 mm.

Only known by the holotype (B.M.): Turkey; Rafahiye-Erzincam, 3000 ft., 10.VIII.1960 (GUICHARD and HARVEY).

Genus Axillanthidium PASTEELS

Axillanthidium axillare n. sp.

♀-Structure: Mandibles dull, chagreened, enlarged apically with 4 blunt teeth (fig. 2, a). Clypeus transversally convex, very broad, the sides straight and oblique at 45° , the margin horizontal but very irregularly crenulate (fig. 2, b). Eyes converging. Genae somewhat broader than the eye. Vertex elongate, the postocello-preoccipital distance somewhat longer than the interocellar. Flagellar joints as broad as long. Mesepisterna not carinate. Scutellum with posterior margin regularly curved, subcarinate and somewhat crenulate; axillae deeply emarginate and angulate behind (fig. 2, c). Basitarsi III, three times as long as broad (fig. 2, d). Abdomen short, broader than long (10/9), with a maximum at the tergites 2-4, abruptly narrowing at the level of t.5. T.6 very short, almost transversal, with a little median emargination (fig. 2, e).

Puncturation: Moderately shining. Head and thorax with deep close punctures, the linear interspaces being subacute; with the exception of a very narrow impunctate area just above the clypeus. Tergites with deep but narrow punctures, the interspaces being linear but not acute at the sides, larger in the middle although always inferior to the diameter of the punctures. Last tergites dull and finely chagreened.

Pubescence: White, erect and long, but scarce on face and sides of thorax. Short, yellowish cilia on vertex and mesonotum (only conspicuous in profile). Tergites with a very fine whitish ciliation only conspicuous in profile. Scopa clear yellow.

Color: Mostly black. Golden yellow: the sides of clypeus, the para-clypeal and paraocular areas, an oval spot under the anterior ocellus a transversal stripe on the vertex and upper half of the genae, the pronotal lobes, two angular marks on front of mesonotum, two little spots on front and in the middle of mesepisterna, the axillae, a continuous stripe on the scutellum. Tergites 1-5 with broad yellow marks, extending progressively and rejoining near the middle line, being separated only on t.4, t.5 by a very narrow bridge. T.6 black. Margins of sternites broadly reddish. Legs orange-yellow. Flagellum brown. Tegulae orange with a median brown spot. Nervures brown, wings moderately infuscated.

Size: 10 mm.

Color variation: The above description is made from two specimens from Greece. A third specimen from Spain is darker: the clypeus, the mesepisterna and axillae

are entirely black. Mesonotum and scutellum have only a very narrow yellow border-line. But tergites and legs are conform to the type.

Greece: 1 ♀ Kalamata, 12.V.1964 (leg. JOS. SCHMIDT) (type in I.R.Sc. N.B.); 1 ♀ : Melissa, 11.V.1962 (paratype in coll. LINSENMAIER, Luzern).
Spain: 1 ♀ Soria 12.VI.64 (paratype in coll. LINSENMAIER).

Genus Eoanthidium (POPUV)

Eoanthidium judaeense (MAVROMOUSTAKIS) nov. stat.

(MAVROMOUSTAKIS, 1945, Ann. Mag. Nat. Hist. (11), 12, p.114, ♂ ♀ ; subsp. of elongatum FRIESE)

The comparison of the type of elongatum FRIESE with specimens of judaeense named by their author, allows us to conclude that both species are entirely distinct.

In the ♂ sex (the ♀ of elongatum being not known):

- a) the clypeus of elongatum is broader, (fig. 3, a & 3, b)
- b) the vertex of elongatum is longer, the postocello-preoccipital distance 1,5 times the interocellar (shorter than the interocellar in judaeense).
- c) elongatum bears at the basis of the 7th tergite a tubercle which is entirely lacking in judaeense (fig. 3, g & 3, h).

Eoanthidium anale n. sp.

This species belongs to the elongatum group, characterized by the absence of carinae between the antennae and on the outside of third tibiae et basitarsi.

♀ - Structure: differs from judaeense by the following characters:

1. the margin of the clypeus is deeply emarginate (fig. 3, d. compared to 3, c)
2. the hind tergite fig. 3, i compared with fig. 3, j.

Punctuation: very near to judaeense, but on the mesonotum, the linear intervals are not sharp (judaeense shows a definite sharp-edged reticulation).

Pubescence: cf. judaeense

Color: Mostly black, golden-yellow: the sides of clypeus, supraclypeal, paraclypeal and paraocular areas; a tiny spot under the anterior ocellus, a preoccipital stripe, a tiny spot under the anterior ocellus, a preoccipital stripe, very narrow in the middle, larger laterally where it extends up to the upper-third of the genae; the pronotal lobes; the anterior angles of mesonotum; the axillae and a transversal stripe at the back of the scutellum. Tergites 1 to 4 with broad lateral marks, farther apart on t.1, very near to each other on t.2 to t.4; t.5 with an entire stripe narrowed in the middle; t.6 black, but reddish laterally. The yellow marks of the tergites are surrounded by a narrow reddish halo. Base of the legs black, yellow at the apex and underside of femora; tibiae and tarsi yellow, with red suffusions. Tegulae yellow in front, black in the middle, red at the back. Wings more infuscated at the apex.

Size: 10,5 to 11 mm.

5♂ Turkey: Mut, Pannukale and Kusadasi, collected between 8.VI and 13.VI (1964 & 1965) by J. GUSENLEITNER. Type (Mut) at the I.R.Sc.N.B.; paratypes in GUSENLEITNER's Collection.

Note: This might be the unknown ♀ of elongatum. But in the absence of a definite proof, we have preferred the risk of synonymy rather than confusion!

Eoanthidium nasiculum n.sp.

♀ - Belongs to the typical insulare group, with carinae surrounding the inner side of the antennal sockets and on the outer side of hind tibiae and tarsi.

Structure: very near to nasicum FRIESE, the 6th tergite and sternite being identical. Differs by the clypeus which bears only a minute and rather acute tubercle (fig. 3, e and 3, f); besides, the lamellae of the pronotal lobe are more narrow than the margin of the tegulae.

Puncturation Coarse, deep and very close everywhere on the head and thorax; the intervals being linear but not acute. On the tergites, the punctures are more shallow, the intervals being flat but inferior to the diameter of the punctures. On the yellow parts of tergites 3 to 5, which are very shining, the intervals are larger.

Color: Black. Golden-yellow: base of mandible, clypeus (with the exception of the brown margin), the side of supra-clypeal area; paraclypeal and paraocular areas, a spot under the anterior ocellus; a broad preoccipital stripe descending till the middle height of the genae; the pronotal lobes; the antero-superior angle of mesepisternae; the anterior angles of the mesonotum; the axillae; a large stripe interrupted in its middle on the scutellum. Tergite 1 with lateral marks; t.2-5 each with two large marks only separated by a very

narrow black bridge; t. 6 mostly black with two minute yellow spots. Coxae and trochanters black; femora black with an external yellow stripe; tibiae and basitarsi yellow, the apex of the tarsi brown. Tegulae red with an anterior yellow mark; wings heavily infuscate. Antennae brown, their base being reddish.

Size: 8 mm.

1 ♀ Turkey: Mut 10.VI.1965 (leg. Dr. M. SCHWARZ); holotype in Dr. SCHWARZ Collection (Linz).

Genus Icterantheidium MICHENER

Icterantheidium tergale n. sp.

♀ - Structure: close to ferrugineum LEP., but: the vertex is long, the post-ocello-preoccipital distance being slightly superior to the interocellar; the tergites 2 and 3 bear a convex notch which concerns mainly the punctate part of the tergite, the margin being not enlarged (unlike the ferrugineum group where the prolongation of the tergites is due to the enlargement of the margin only).

Puncturation: Head very shining, with a very close and deep puncturation, the punctures being rather small, the intervals linear but not acute. Mesonotum and scutellum dull, the punctures more shallow, separated by flat intervals, but inferior to the diameter of punctures, with a tiny microsculpture. Tergites very shining, the punctures larger than those of the head, separated by shining intervals, flat but inferior to the diameter of the punctures.

Pubescence: White, but orange on the legs. On the head, the hairs are dense only around the antennal sockets. On the thorax, there is a very dense white spot on the pronotal lobes; the mesonotum bears a thin and flat but very dense pubescence in front, more sparse (although conspicuous from above), in the middle and at the back; on the scutellum the hairs are erected, longer and more abundant and yellowish; the metanotum bears a dense and short fringe; the sides and ventral face of the thorax bear only very scattered long hairs. The middle of the three first tergites is practically naked, but their sides and the entire three last tergites bear thin and flat hairs whose density increases backwards. Scopa whitish to yellow, but reddish along the sides of the last sternite.

Color: Head mostly black; the base of the mandible, two spots on the clypeus and the basal half of the antennae being red. Thorax black, only the carina of the pronotal lobes being reddish. Abdomen red with lateral yellow marks on the tergites: very small and entirely lateral on t.1 and t.2; large with a posterior emargination and more median on t.3 and t.4; smaller and paramedian

and more median on t.3 and t.4; smaller and paramedian on t.5 and t.6. Legs black up to the base of femora, further, orange-red. Tegulae black at the base, with a central brown-reddish spot, the periphery being yellow. Nervures black. Wings heavily infuscated, more black at the apex and at the anterior part of marginal cell.

Size: 8,5 mm.

♂ - Structure: same as ferrugineum LEP., but: the vertex is longer, the postocello-preoccipital distance being equal to the interocellar. The coxae are only carinate and the base of femora is devoid of any spine.

Puncturation and pubescence: same as ♀.

Color: Head black, base of mandible and clypeus bright yellow. Scape and basal three flagellar joints orange-red, the remaining of the antenna brown. Thorax black, with pronotal lobes and tegulae partly red. t.1 with bright yellow lateral marks and two paramedian red spots. t.2-4 with complete orange yellow stripes, straight in front, sinuous at the back, t.5 and t.6 with quadratic and large clear yellow marks; t.7 black, the sides reddish. Coxae and trochanter black, femora, tibia and tarsi orange, but clear yellow on the underside of femora I and II.

Size: 10.5 mm.

1 ♀, 1 ♂ Greece: Pyrgos 14 and 17.VI.67 (leg. LINSSENMAIER). Type and allotype in LINSSENMAIER's Collect. (Luzern).

Icteranthidium sinuatum n.sp.

♂ - Structure: Vertex short, the postocello-preoccipital distance being $\frac{3}{4}$ of the interocellar. Scutellum subtriangular (fig. 4, a) with a narrow translucent margin. No lateral spine on t.6 which is, however, very crenulated. t.7 (fig. 4, b) with a medial quadratic appendage, the truncated margin being translucent. Lateral spines on st.5 shorter and less distinct on st.4. Coxae III with an acute spine, a little longer than broad, base of femora with an elevated carina.

Puncturation: Shining with minute but deep punctures. In the middle of the clypeus, the interspaces are equal to the punctures or somewhat larger. Everywhere else on the head and thorax, the punctures are very close, the intervals being linear and subacute. On the tergites the interspace are equal to the punctures.

Pubescence: Silvery white. Long and very dense (concealing the integument) on face, pronotum, front of mesonotum, posterior facee of scutellum. Long but less dense (puncturation visible, but not clearly) on sides of the thorax;

still less dense (but conspicuous from above) on the middle of mesonotum. The three last tergites bear only tiny and sparse cilia in their middle; the sides of all tergites, mostly on their premarginal parts, bear very long and dense pilosity. Sternites naked in the middle, with interspaced long hairs on their sides.

Color: Head mostly yellow; black: the apex of mandibles, the underside of genae, a large facial area from above the clypeus to the back of the ocellae and spreading lateralwards in the direction of the eyes. Antennae yellow at the base, otherwise, reddish. Thorax mostly black; yellow: pronotal lobes, the antero-superior part of mesepisterna and a thin line surrounding the sides of mesonotum and the hind border of axillae and scutellum. Tergites black at the base, further yellow with a large discolored and translucent margin through which the black basis of the following tergite is perceived (cf. ferrugineum discoidale LATR.!). Legs yellow with black spots on trochanters, coxae and base of femora. Wings subhyaline at their base and with a moderately infuscated marginal stripe.

Size: 11,5 mm.

Two ♂♂, Chad (Tibesti) Zouar II-III 1953 (leg. K.M. GUICHARD) Types at the B.M.

Icteranthidium bilobatum n. sp.

♀ - **Structure:** same as ferrugineum LEPEL. but the marginal notch of the 2d tergite is larger, bilobate, both lobes covering almost the whole length of the 3d tergite; the marginal notch of the 3d tergite is poorly developed (fig. 4, c).

Punctuation: Same as ferrugineum. Differs only in the clypeus: the punctures are coarse but equally distributed without any irregularity or impunctate area in the middle - which is characteristic for ferrugineum and other species of this group.

Color: orange-yellow. Black-brownish: the apex of the mandible, a facial triangular mark between the antennal sockets and the upper extremity of the eyes, its base passing at the back of the ocelli; this mark being fenestrated by a tiny yellow spot under the anterior ocellus; the middle of pronotum; the lateral and ventral faces of the thorax (but not the upper mesepisterna); the mesonotum (its anterior and lateral margins excepted); the base of scutellum; the propodaeum; the base of the tergites and the margins of t.1-4, both black stripes being connected in the middle by a black triangle; the margin of t.5 is only slightly infuscated. Wings moderately infuscated with a maximum at their apex.

Size: 7 mm

1 ♀ Egypt: Wadi Turrel Rachid 24. IV. 1916. In collection ALFIERI at the Smithsonian Institute of Washington (has been previously determined as Anthidium lituratum Panz. !)

Genus Stelis PANZER

Subgenus Stelis s. str.

Stelis genalis n. sp.

♀ - Structure: Mandibles flat, non convex, parallel-sides, finely reticulated (with the exception of a smooth zone at the height of the inferior tooth); 3-dentate (fig. 5, a). Clypeus flat, broadly hexagonal (fig. 5, b) with a slightly undulated margin. Eyes slightly converging. Genal area much enlarged almost twice as broad as the eye seen in profile (fig. 5, c); the transition between the lateral and inferior faces of the genae is very smooth without any angle. Vertex much excavate at the back, the preoccipital zone showing a postero-superior concavity (fig. 5, d). Joints of flagellum slightly longer than broad. Pronotal lobes simply carinate without any lamella. Mesepisterna slightly subcarinate only above. Scutellum convex, without any angle between upper and hind faces and without any median emargination; axillae with a very blunt spine (fig. 5, e). A complete row of pits along upper margin of propodaeum. Sides of tergites 2-5 irregularly convex. 6th tergite with paired lateral depression, the hind border rounded without any emarginations, carinae nor crenulations (fig. 5, f). Sternites 1-5 truncate without any membranous margin nor ciliated fringe; sternite 6 with a posterior angle. Basitarsi III elongate and narrow.

Puncturation: Clypeus densely but finely chagreened. Head and thorax shining with very coarse punctures separate by flat and very shining intervals (without any microsculpture), always inferior to the diameter of the punctures. Same coarse punctures on the tergites but the intervals are broader, distinctly larger than the diameter of the punctures; however on the convex lateral parts of the tergites, the punctures are more close to one another. A triangular area at the base of the last tergite is impunctate.

Pubescence: White, short and rather woolly; only dense around the antennal sockets, on pronotal lobes and on the sides of propodaeum. The mesonotum bears only very thin cilia, conspicuous only in side view. Abdomen naked.

Color: black. Margins of tergites 1-4 yellow, discolored and translucent. Mandibles with a brown-reddish spot near the apex. Margins of sternites reddish. Antennae and legs brownish. Tegulae brown in the middle with a black margin. Wings moderately but evenly infuscated.

Size: 9 mm.

1 ♀ Lebanon: Xara VI-VII 1924 (the label bears: Cremona S.D. WERNER).
Holotype at the Nat. Mus. of Wien.

Subgenus Protostelis MORAWITZ

Stelis (Protostelis) bicornuta n. sp.

♂ - **Structure:** Mandible narrow, 3-dentate (as in nasuta). Clypeus with two overhanging lobes (but not so produced as in nasuta) and with a distinct thickened margin (fig. 6, a). Eyes very converging. Genae as broad as the eye seen in profile. Vertex very elongate, the postocello-preoccipital distance twice as long as the interocellar. Antennal flagellar joints quadrate. Pronotal lobes with a thin lamella. Mesepisterna not carinated. Scutellum (fig. 6, b) clearly emarginate in the middle, the lateral lobes very produced, their margin prolonged by a crenulate lamella; axillae rounded without any spine. No pits along the upper margin of propodeum, but a deep sulcus behind each spiracle. Abdomen elongate, parallel-sides, only narrowing at the level of the 5th segment. 6th and 7th tergites similar to nasuta, but the crenulate margin of 6th is rounded (transverse in nasuta and aegyptiaca). Sternites (fig. 6, c): the fourth is truncate (emarginate in other species of the subg.) and bears a pair of paramedial spines (entirely absent in all other sp. of the genus). The comb of the fifth sternite is broader than in the other sp. of the subg., is fan-shaped and bears 20 teeth.

Punctuation: Shining without any microsculpture. Clypeus with shallow punctures, the intervals linear except in the middle, where there is a thin, somewhat elevated impunctate line. Vertex with dense, fine and shallow punctures lateral to the ocelli, bigger and clearly separate between ocelli and backwards. Mesonotum with coarse punctures, very dense, the intervals linear but non acute. Scutellum with very coarse, strictly apposed punctures. Tergites with deep punctures, very densely and regularly arranged.

Pubescence: White. Very dense and woolly on the sides of the face, with a dense fringe around the antennal sockets. Very disperse on the clypeus. Vertex with short erect hairs, less dense above than beneath. Mesonotum with very short hairs, only conspicuous from profile. Sides of thorax covered

moderately by short and oppressed hairs, longer and more dense on the sides of propodaeum. Tergites with a thin ciliar fringe at their base, otherwise, bearing only very thin cilia only conspicuous in profile.

Color: Black, golden-yellow are: base of mandible, paraclypeal and paraocular areas, a large quadrangle mark above the genae (surrounded by a reddish margin), the pronotal lobes, the anterior angles of mesonotum, the axillae and two large marks on the scutellum. Tergites 1-6 bearing each a pair of large marks only separate in the middle by a narrow black bridge, the base of the tergite being black, the posterior part being red. Clear red: the antennae, the 7th tergite and all sternites. The coxae, trochanters and femora are red, the tibia and tarsi golden yellow. Tegulae red in the middle, surrounded by a yellow margin. Wing heavily infuscated (almost brown), mostly at the anterior margin.

Size: 9,5 mm.

1 ♂ Southern Israel, Sde Boker 2.VI.1953 (O. THEODOR). Holotype in Bytinski-Salz' collection.

Diagnosis: This species, a true Protostelis (clypeus and last tergites!) differs from the three hitherto know other species by the golden yellow and red marks (pale creamy yellow in the other species) and is also recognizable among every other Stelis by the two long spines of the fourth sternite.

Genus Anthidium FABR.

Subgenus Anthidium s. str.

Anthidium obtusispinum n.sp.

♀ - Structure: Very near to manicatum L. Differs only by the following characters: (1) the margin of clypeus is thicker and without the lateral angles of manicatum (fig. 7, a and 7, b); (2) the spines of t.6 and t.7 are obtuse, rounded at their end, the lateral spines of t.7 being also marginate (fig. 7, c); (3) St.7 presents acute spines at its latero-posterior angles; (4) the hind trochanters bear a very shallow tubercle (which is more pronounced in manicatum.)

Puncturation: Shining. Clypeus with dense punctures on its side, and with an impunctate area in the middle; vertex and mesonotum with dense but tiny puncturation, the intervals linear but not acute. On the tergites, the intervals are flat, equal to the punctures, or somewhat larger.

Pubescence: Same as manicatum.

Color: Mostly black. Yellow with red suffusions: base of mandibles, paraclypeal area, vertex and upper part of genae, a thin stripe on front of mesonotum, pronotal lobes, axillae, scutellum (its base excluded), lateral marks on t.1, broad transversal stripes on t.2 - t.6. The spines of t.6 and t.7 and the outer side of tibiae are bright pure yellow. The antennal scape bears anteriorly a yellow stripe. Tegulae with a central brown spot surrounded by a reddish yellow-margin. Nervures brown, wings lightly infuscated, more at the apex than at their base.

Size: 13 mm.

1 ♂ Iran (without any indication of locality nor date!) leg. AUCHER. Holotype in M.N.H.N.P.

Anthidium frontevillosum n. sp.

♂ - Structure: Mandibles with three acute teeth, the upper being simple but looking upwards (fig. 8, a). Clypeus (fig. 8, b) narrow, sides straight, transversally convex, its margin entirely but slightly emarginate, smooth, thin and reddish. Eyes much converging. Genae narrower than the eye seen in profile. Vertex short, the postocello-preoccipital distance shorter than the interocellar. Pronotal lobes feebly carinate. Scutellum short, convex, feebly overhanging with a little median emargination. Abdomen elongate and oval. t.6 with a triangular enlarged margin in its middle, produced backwards, and with not very large lateral spines (fig. 8, c). t.7 with two rounded lateral lobes and a medial spine as long as the lobes, (fig. 8, c). Sternites 1-4 simply truncate; 5th sternite entirely emarginate; 6th sternite subtruncate but with a minute angle in its middle, the lateral produced and carinate (but without any spine!) (fig. 8, d). No spine nor tubercle at the base of hind legs.

Puncturation: Head and thorax moderately, abdomen very shining, Clypeus with a very dense but fine puncturation, the punctures everywhere close to one another, the intervals linear but not acute. Vertex and mesonotum reticulate, the intervals acute, the pits being larger on mesonotum. Tergites with fine and close puncturation, the intervals linear; but on the yellow parts of t.2-3, the intervals are larger, equal to the punctures.

Pubescence: Whitish, fine and not very conspicuous on face under the level of antennae, but the frons between antennae and ocelli is covered by a very dense silvery cloth concealing entirely the puncturation. Antennal scape with a tuft of long white hairs. The long white pubescence of the genae is very sparse. A tuft of long golden erect hairs on vertex. Mesonotum with a rather thick yellow-red tomentum, very dense at the periphery, less dense in the middle but quite conspicuous from above. Scutellum with long and erect cilia. Mesepisterna entirely covered by dense white hairs. Tergites

with very fine white cilia, more dense laterally; the emargination of t.7 bears a conspicuous fringe of white cilia. White ciliation on the legs, very dense on the apex of tibia III and on all tarsi.

Color: Mostly black. Bright yellow: base of mandible, clypeus, paraclypeal area, anterior face of antennal scape, an oval mark above each eye, pronotal lobes, a thin stripe along the sides of mesonotum, the hind margin of axillae and scutellum. Tergites 1-2 with 4 yellow marks; t.3-4 with two large marks only separate in the middle by a black narrow bridge. T.5 with a continuous stripe but emarginate in its middle. T.6 entirely black. Sternites brown-reddish. Legs black, yellow at the outer side of tibiae and basitarsi, the remaining of the tarsi black with a red ring at the apex of each joint. Tegulae black at base, yellow in front, reddish-brown at the back. Nervures black. Wings evenly grey.

Size: 10 mm.

1) ♀ Bulgaria: Sandanski 24.VII.1966 (leg. M. KOCOUREK). Holotype in KOCOUREK's collection (Vyskov, Czecho-Slovakia).

Belongs to the variegatum group; may be easily identified by clypeus and last tergites.

Anthidium labrosum n. sp.

♀ - Structure: Mandibles with 5 conical teeth. Clypeus (fig. 9, a) characterized by an unusual protruded margin, taking up 1/4th of the total height of the clypeus, elevated, bright and shining, black with vertical flattened columns. Last tergite rounded posteriorly with particularly broad margin (more or less concealed by a dense and long pubescence) (fig. 9, b). The other characters: form of the head and scutellum, as in manicatum.

Puncturation: Rather shining, with feeble microsculpture. Unpunctate areas occur in the middle of clypeus (from above to beneath) and at the outside of lateral ocelli. With those exceptions, everywhere, on head and thorax the punctures are not very big and close to one another, the intervals acute on mesonotum but not on the head. The base and middle of tergites have a very shallow and dispersed puncturation, the intervals being larger than 2 to 3 diameters of punctures, but the premarginal zones are very densely punctured.

Pubescence: White. Long and dense around the antennae, on the genae and sides of thorax. On the vertex the erect hairs are yellow. Scopa yellow in front, brown at the back.

Color: Mainly black. Golden yellow: base of mandibles, clypeus, paraclypeal area, inferior part of supraclypeal area, a large preoccipital stripe along the vertex and upper part of genae, pronotal lobes, a mark at each anterior angle of mesonotum, large marks on axillae and scutellum. Coxae, trochanters and basal third of femora black; the remaining of legs, yellow but brownish at the inside of tibiae and femora. T.1-3 with large lateral marks, nearer to the middle from 1-3. T.4 with a continuous yellow stripe; t.5 and t.6 entirely yellow. Tegulae with a red center surrounded by a yellow margin. Nervures brown. Wings plainly infuscated.

1 ♀ Turkey: Ankara, Dikmen, 3000 ft. 5.VII.1959 (K.M. GUICHARD).
Holotype at the B.M.

Quite distinct by the clypeus, which is unique, but the affinities with other species remain unknown until the discovery of the male sex.

Subgenus Proanthidium FRIESE

Anthidium (Proanthidium) minimum n. sp.

♀ - **Structure:** Mandibles, last tergite as in oblongatum. Scutellum identical to wuestneii (fig. 10, b). Distinct by the higher clypeus, which margin is thin, red, entirely smooth and even (fig. 10, a).

Punctuation: Very close everywhere, the intervals linear but not acute. The punctures are small, smaller on tergites than on head and thorax.

Pubescence: White and erect. Dense on the whole face, but not conspicuous from above. The tergites bear in front of the margins a thin fringe of erect cilia. Scopa white.

Color: Golden-yellow: base of mandibles, clypeus (except two brown spots), paraclypeal area, innermost paraclypeal area, innermost paraocular area, a complete preoccipital stripe extending to the base of mandibles. Antennae orange. The remaining of the head dark brown. On the thorax, yellow: pronotal lobes, two narrow stripes on sides of mesonotum, axillae, a stripe at the back of scutellum; the remaining parts black. Tergites 1-5 clear red with two large yellow marks, very close to one another on the middle line: the margin being red, but with a brown stripe in the middle of t.1-3. T.6 red with two yellow marks, the margin being brown. Legs yellow, suffused with brown at the upper side of femora and tibiae; tarsi red. Tegulae red with a yellow mark in front. Nervures red at the base, brown at the apex. Wings subhyaline.

Size: 6,5 mm.

1 ♀ Egypt: Assuan 10. III. 1910 (JACQUET). Holotype (bearing the label S.M. F.H. 1561) at the Senckenbergisches Museum (Frankfurt).

Subgenus Morphanthidium PASTEELS

Anthidium (Morphanthidium) bifidum n. sp.

♂ - Structure: Mandibles 3-dentate. Clypeus (fig. 11, a) slightly convex with a thin, even, smooth brown margin. Subantennal sutures slightly curved, concave at their outside. Eyes very converging. Genae equal to the eyes seen on profile. Vertex with postocello-preoccipital distance equal to interocellar. Flagellar joints, 1,5 as long as broad. Pronotal lobes with a distinct lamella which is however narrower than the translucent margin of tegulae. Scutellum round, slightly emarginate in its middle, laterally, with a finely subcarinate margin (fig. 11, b). Abdomen oval. Last tergites: cf. fig. 11, c. St. 5 entirely emarginate; st. 6 with a convex margin and with a tiny round tubercle at its angles.

Puncturation: deep and very close on head and thorax, but the punctures not large; on vertex and mesonotum the intervals are acute. On the tergites, the punctures are more shallow, the finely chagreened intervals being always inferior to the diameter of the punctures.

Pubescence: Long and very dense white hairs on the face (including clypeus), the genae, the lateral and ventral faces of the thorax. Vertex and mesonotum covered with long yellow erect hairs, very conspicuous from above but not concealing the puncturation. Tergites with a white fringe at the base of t. 1 and the sides of the following, their middle bearing yellow cilia, long but sparse, appressed with a tendency to constitute a discrete fringe in front of the margins. Long and dense white fringes on the sternites, their density decreasing in an antero-posterior direction.

Color: Mainly black; golden-yellow with some red suffusions: base of mandible, clypeus, a narrow preoccipital stripe, pronotal lobes, the anterior angles of mesonotum, the axillae, a large stripe at the back of scutellum, large stripes on all tergites (although interrupted in their middle on t. 1-4). The margins of the tergites are discoloured into reddish. Sternal face of abdomen entirely light red. Three first joints of antenna, red, the remaining dark brown. Legs almost entirely yellow with minute black spots on both sides of femora and at the outer side of tibiae. Tegulae red. Nervures black; wings heavily infusate with a maximum at their outer 2/3d.

Size: 8,5 to 12 mm.

♀ - Structure: Mandibles with about 10 parallel, equal, conical teeth (fig.11, d) (characteristic of the subg.!). Clypeus (fig. 11, e) with a thin, even, brown margin. The carinae of pronotal lobes are almost lacking. Last tergite short and flat, depressed with a crenulate round margin (fig. 11, f).

Puncturation and pubescence: cf. male, however, the lateral fringes on the tergites are lacking. Scopa white, with a brown spot at the back and middle.

Color: Mostly black. Yellow: base of mandible, clypeus, latero-clypeal area, a thin stripe at the back of each eye, two tiny spots on front of mesonotum, pronotal lobes, part of axillae, two marks on scutellum. On the tergites, the broad oval marks (which are emarginate in front) are always completely separate in the middle. Legs and wings, as in the male.

Size: 9,5 mm.

5 specimens from Chad: Tibesti; 2 ♂ (type and paratype), 1 ♀ (allotype): Emeri Kudi 23. III, 1935 (all. coll. by K.M. GUICHARD). Types at the B.M., 1 paratype at the I.R.Sc.N.B.

Very distinct from the two other sp. of the subg. (undulatiforme FRIESE and ardens SM.).

Subgenus Gulanthidium PASTEELS

Anthidium (Gulanthidium) arabicum n. sp.

♂ - Structure: Very near to anguliventre MORAWITZ. Differs only by the following characters (1) the clypeus is not emarginate but truncate; (2) the vertex is shorter (the postocello-preoccipital distance having 1,5 the value of the interocellar); (3) the preoccipital margin is not carinate (the upper part being carinate in anguliventre); (4) the scutellum, which has the same general shape, is neither carinate nor crenulate laterally, being entirely round; (5) the 7th tergite is emarginate in its middle (fig. 12, a).

Puncturation: Head and abdomen shining, thorax dull. Clypeus with very close little punctures at the sides, but with narrow unpunctate vertical stripe in the middle. Vertex and mesonotum with close tiny puncturation, the linear intervals not acute. Tergites also with tiny punctures but the intervals are flat, generally inferior to the punctures, but somewhat larger on the sides of the two first tergites.

Pubescence: Entirely white. Dense on face (clypeus excepted), mesosternum and tarsi. Less dense but quite conspicuous on genae and sides of thorax.

The mesonotum is covered by long appressed hairs tending to conceal the puncturation.

Color: Mainly lemon yellow. Black: the ocellar area, middle of mesonotum, base of tergites 1-3 (This base is covered by the subhyaline tergite, the black colour being seen by transparency). Brown; apex of mandibles, a central spot on the tegulae and broad stripes in front of each femur. Antennal scape yellow, flagellum brown red. Nervures brown, wings slightly infuscated at the apex.

Size: 10,5 mm.

♀ - Structure: Mandibles with 6 equal conical teeth. Clypeus (fig. 12, b) slightly curved above and on its sides; its margin bears a big irregular swelling, limited above by a deep sulcus. This swelling is lemon-yellow above, its crenulated inferior border being orange-red. Flagellar joints shorter than broad. The last tergite is the same as in anguliventre.

Puncturation and pubescence: same as ♂. Scopa white.

Color: Almost entirely clear yellow. Black: apex of mandibles, a quadrangular mark from antennal socket to the back of posterior ocelli, on the mesonotum three longitudinal stripes connected at the back by a transversal bar; also the base of the 3 first tergites black.

Size: 10,5 mm.

Arabia: 4 ♂ 2 ♀ (types), Oman: Felidj Ma'ald IV.1943 (D.V. FITZGERALD); 1 ♂ 3 ♀ Saudi: Summan Plateau, 3.IV.1945. Types at the B.M. except a couple of paratypes at the I.R.Sc.N.B.

Anthidium (Gulanthidium) intermedium n. sp.

♂ ♀ - Structure: Intermediate between arabicum and anguliventre: the pre-occiput is not carinate (cf. arabicum) but the scutellum bears a definite carina on its sides (cf. anguliventre); the last tergite is emarginate, but this emargination is shallower than in arabicum, and its angles are rounded (fig. 12, c); the margin is more distinct than in other species.

All other characters of puncturation, pubescence, color are the same as in anguliventre, but the enlarged margins of tergites are black (reddish in anguliventre).

S.W. Iran and W. Pakistan: 5 ♂ and 7 ♀: Quetta 6.IV. (types); 1 ♀ S.W. Iran (without date or locality). All types at the B.M. with the exception of one couple of paratypes at the I.R.Sc.N.B.

Genus Pseudoanthidium FRIESE

Subgenus Carinellium PASTEELS

Pseudoanthidium (Carinellium) rubellulum n. sp.

♀ - This species has the same structure as the subgeneric type: ochrognathum ALFKEN and differs only by its puncturation and colour.

Puncturation: Very smooth and shining as in ochrognathum, differs by the greater density of punctures on the mesonotum, the flat intervals being always narrower than the diameter of punctures.

Color: Black and red. Orange-red: base of mandibles, paraclypeal area (clypeus being black), a preoccipital stripe, narrow at the vertex, broadening behind the eyes where it ends at the middle height of the genae, pronotal lobes, anterior angles or mesonotum, axillae, two spots on the scutellum. All tergites with a posterior broad red band, broadening at their sides where they include a yellow-orange spot. Legs black till the end of femora, tibiae and tarsi being yellow-orange. Tegulae red. Venation black. Wings greyish, darker at the submarginal cell.

Size: 6 mm.

2 ♀ (Type and paratype): Israël : Urim, 17. IV. 1956 (leg. BYTINSKI-SALZ). Type in collect. Bytinski-Salz, paratype at the I.R.Sc.N.B. Those two specimens are pinned with the remains of their nests, showing that the cells are made of vegetal fibers.

Remark: there could be some doubt about the validity of this species. We have decided not to consider it as a subsp. form of ochrognathum for the following reasons: 1) both forms are sympatric with no intermediates; 2) they differ not only by their colour but also, very definitely by the puncturation of the thorax.

Genus Mesanthidium POPOV

Mesanthidium nigratum n. sp.

♂ - Structure: Clypeus (fig. 13, a) very broad with tuberculate red margin, with a pair of bigger tubercles on the middle. Genae somewhat broader than the eye in their middle but as broad as the eye above. Vertex very long, the postocello-preoccipital distance twice as long as the postocellar. Pronotal lobes with a very narrow lamella. Scutellum regularly curved backwards

(fig. 13, b), the margin being but slightly crenulate. 6th tergite (fig. 13, c) denticulate in front of its margin with tiny lateral spines. 7th tergite (same fig.) with four very shallow undulations. Lateral spines of 6th sternite, tiny but sharp. Genitalia: (fig. 13, d)

Puncturation: Moderately shining. Very fine but deep puncturation, close everywhere but, in the middle of 2d tergite where some intervals are equal to the punctures. Otherwise, the intervals are linear, but only acute on mesonotum.

Pubescence: White, erect. Long and rather thick on the face but without concealing the puncturation. On the mesonotum the rather long cilia are conspicuous from above. Tergites almost naked. Sternites with long fringes, but not very dense.

Color: Mostly black. Yellow: base of mandible, clypeus (but with a red margin), paraclypeal area, pronotal lobes, two elongated stripes on scutellum (the axillae being black). T.1 with two lateral yellow marks, on t.2 and t.3 those marks extend to the middle line, t.4 and t.5 with complete thin yellow stripes, t.6 and t.7 being entirely black. Apex of femora, reddish. Tibiae with broad marks at the outside. Antennal flagellum brownish. Tegulae with a yellow spot. Veins red at the base, otherwise black. Wings greyish with a darker stripe on the marginal cell.

Size: 7-8 mm.

4 ♂ Israëli: Beit-Gubrin 9.IV.66 (BYTINSKI -SALZ). Type and two paratypes in BYTINSKI -SALZ collection; 1 paratype at the I.R.Sc.N.B. Species near Schulthessi FRIESE (from Spain); differs by the more rounded lobes of the 7th tergite and the broad clypeus (which occurs also in lividum BENOIST). The very long vertex is unique in the genus.

Mesanthidium lividum flavissimum subsp. nov.

♀ - **Structure:** Same as in lividum BENOIST (very broad clypeus, postocello-preoccipital distance equal to interocellar; lamellae of pronotal lobes as broad as the margin of tegulae, scutellum with a median emargination, the lateral lobes strongly carinate and with a translucent lamella; 6th tergite depressed with a regular crenulate margin and a slight median emargination).

Puncturation: same as lividum, (very tiny regular and close puncturation, the intervals linear but non acute on head and thorax; on tergites the tiny punctures are separated by flat intervals smaller than the punctures).

Pubescence: Entirely white, including the scopa; dense only above the antennal sockets and on the sides of thorax.

Color: Entirely straw yellow, with the exception of the antennal flagellum and the middle of tegulae which are orange. The bases of tergites are light brown but covered by the broad translucent margin of the following tergites. Wings subhyaline.

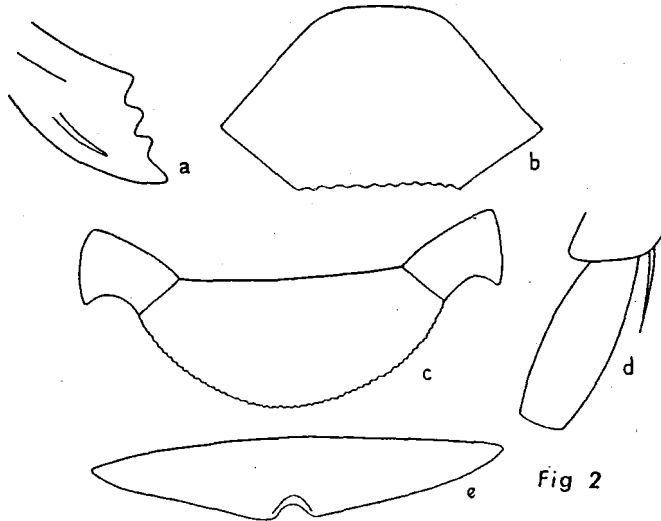
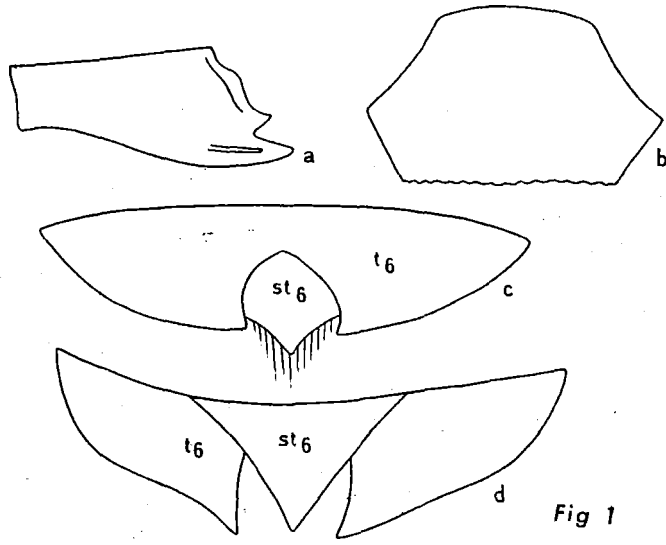
Size: 6,5 mm.

2 ♀ Saudi Arabia: El Riyadh, 22.V.1929 (Dr. DIEHL). Type in collection LINSENMAIER (Luzern), paratype at the I.R.Sc.N.B.

The complete similarity (light color exclusive) with lividum BENOIST from Morocco induces us, with some doubt, to consider this form as subspecific. However further knowledge (♂ and more about geographical distribution) might raise this from to the rank of a true species.

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1. - Bellanthidium exsectum n.sp.: (a) mandible; (b) clypeus; (c) hind of abdomen, seen from above (t.6: 6th tergite; st.6: 6th sternite); (d) same seen in ventral view.

2. - Axillanthidium axillare n.sp. ♀: (a) mandible; (b) clypeus; (c) scutellum; (d) hind basitarsus; (e) 6th tergite.

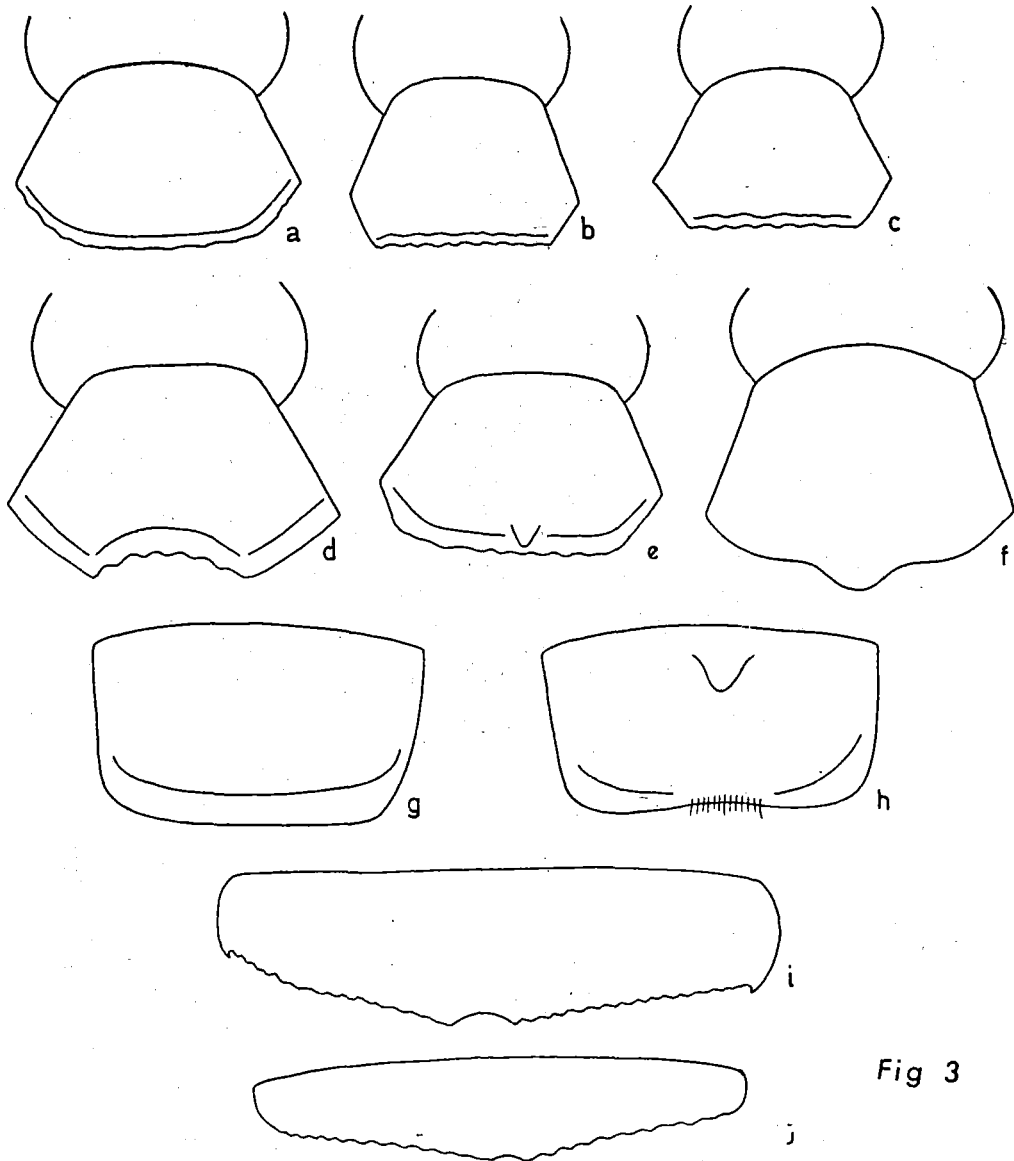


Fig 3

3. - Genus Eoanthidium: (a) clypeus of elongatum FR., ♂ ; (b) clypeus of judaeense (MAVROMOUSTAKIS) ♂ ; (c) clypeus of judaeense (MAVROM.), ♀ ; (d) clypeus of anale n. sp., ♀ ; (e) clypeus of nasiculum n. sp., ♀ ; (f) clypeus of nasicum FR., ♀ ; (g) 7th tergite of judaeense (MAVROM.) ; (h) 7th tergite of elongatum FR., ♂ ; (i) 6th tergite of anale n. sp. ; (j) 6th tergite of judaeense (MAVROM.), ♀ .

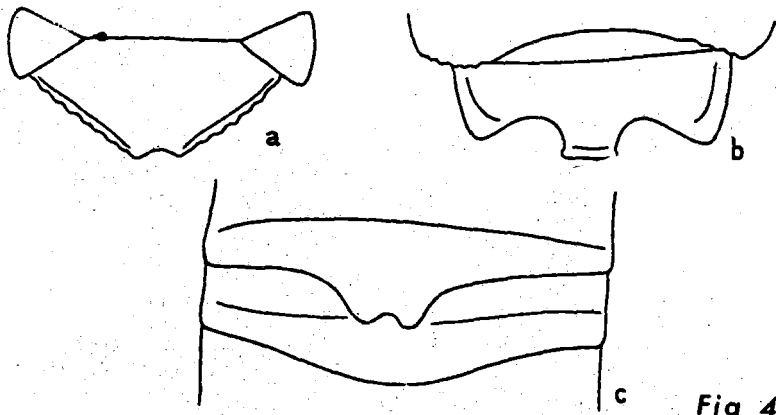


Fig 4

4. - Genus Icteranthidium: (a) sinuatum n.sp., ♂, scutellum; (b) sinuatum ♂ 6th and 7th tergites; (c) bilobatum n.sp., ♀, 2d and 3d tergites.

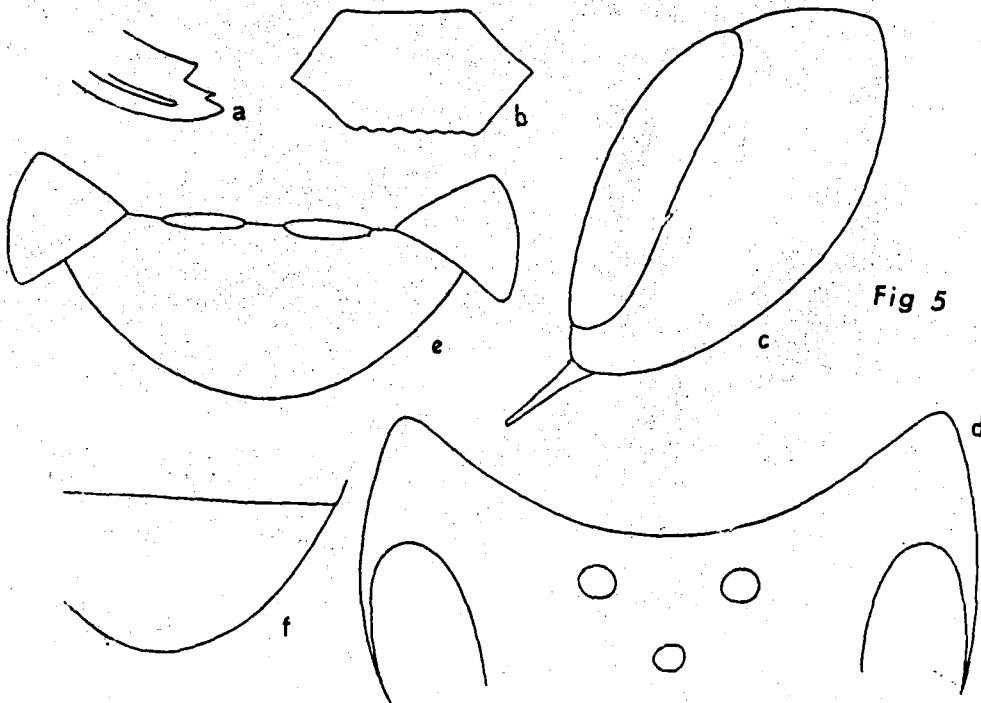


Fig 5

5. - Stelis genalis n.sp., ♀: (a) mandible; (b) scutellum; (c) head on side view; (d) hind of the head seen from above; (e) scutellum; (f) last tergite.

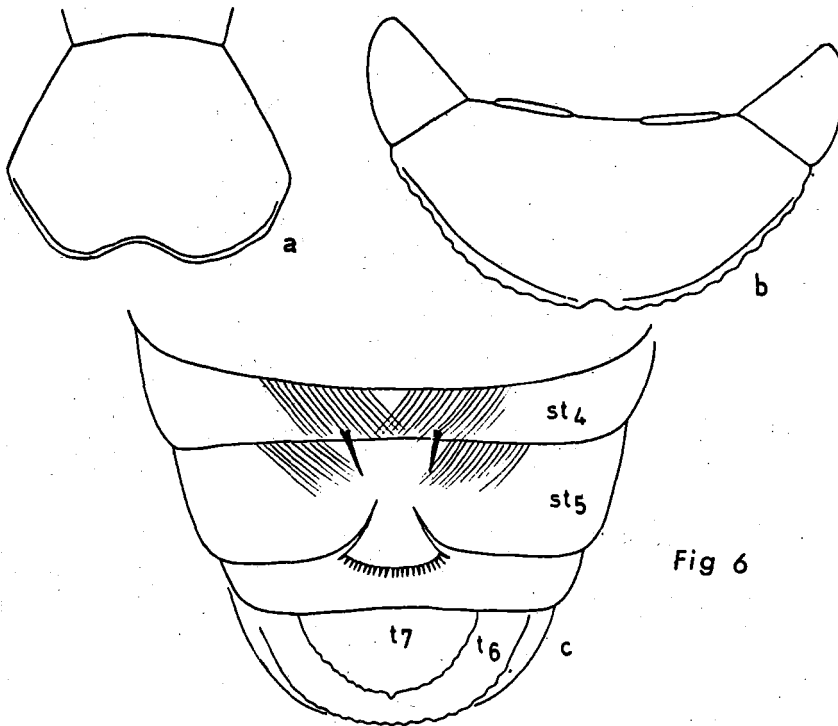


Fig 6

6. - Stelis (Protostelis) bicornuta n. sp., ♂. (a) clypeus; (b) scutellum; (c) ventral view of abdomen (st. 4, st. 5: 4th and 5th sternites; t. 6, t. 7: 6th and 7th tergites).

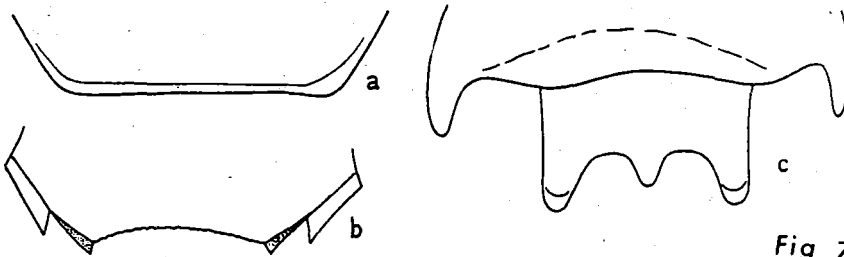
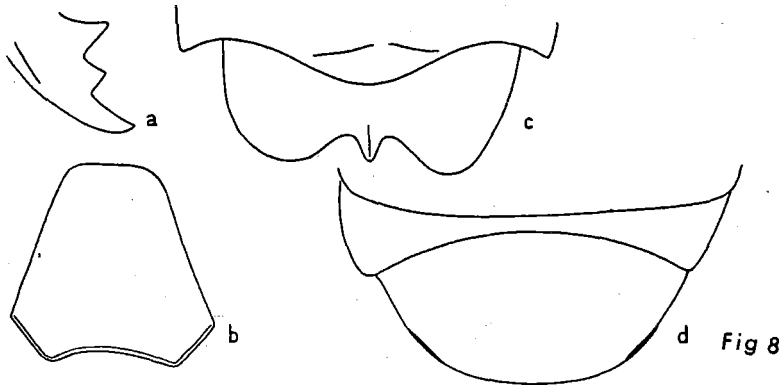
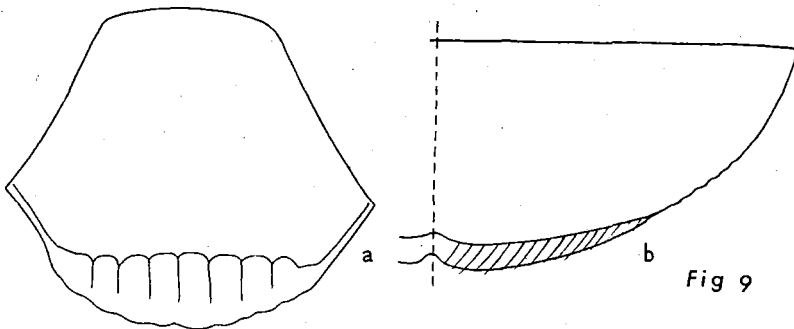


Fig 7

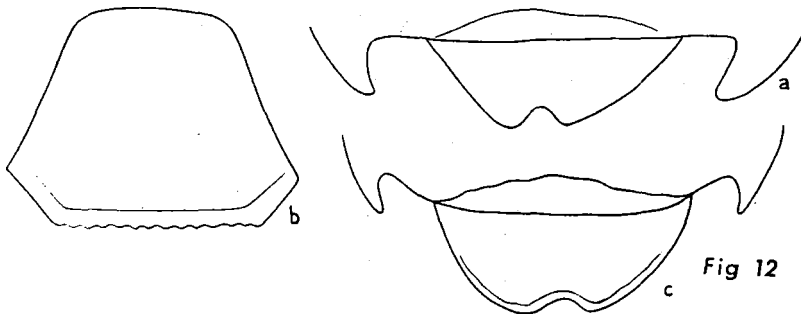
- 7 - Anthidium obtusispinum n. sp., ♂. (a) margin of clypeus; (b) idem of A. manicatum L.; A. obtusispinum, ♂: 6th and 7th tergites.



8. - Anthidium frontevillosum n. sp., ♂. (a) mandible; (b) clypeus; (c) last tergites; (d) last sternites.



9. - Anthidium labrosum n. sp., ♀. (a) clypeus; (b) last tergite (the right half only represented).



12. - Anthidium (Gulanthidium) arabicum n. sp. (a) last tergites, ♂; (b) idem, clypeus, ♀; (c) A. (Gulanthidium) intermedium n. sp. ♂: last tergites.

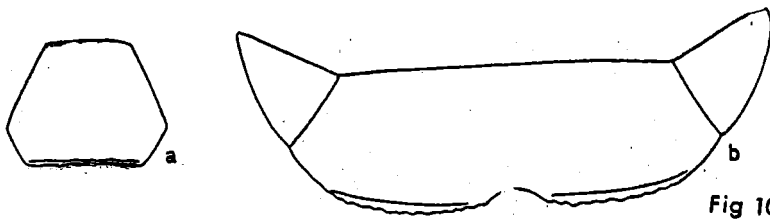


Fig 10

10. - Anthidium (Proanthidium) minimum n. sp., ♀, (a) clypeus; (b) scutellum.

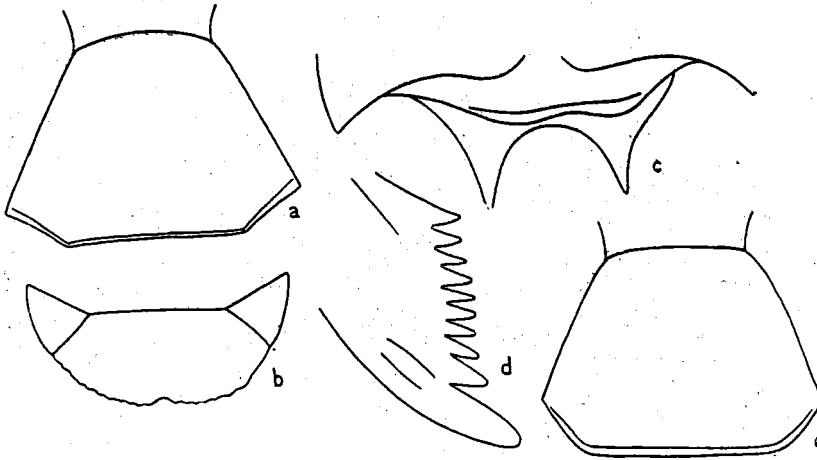


Fig 11

11. - Anthidium (Morphanthidium) bifidum n. sp. (a) clypeus, ♂; (b) scutellum, ♂; (c) hind tergites, ♂; (d) mandible, ♀; (e) clypeus, ♀; (f) 6th tergite, ♀.

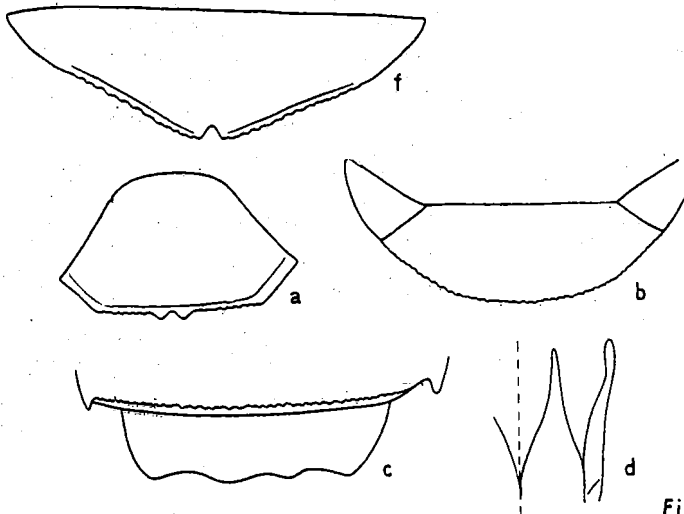


Fig 13

13. - Mesanthidium nigratum n. sp., ♂. (a) clypeus; (b) scutellum; (c) last tergite; (d) right half of genitalia (the base still in situ not represented).