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Digger Wasps of the Tribe Gorytini (Hymenoptera, Sphecidae) of the USSR *Gorytes*, *Pseudoplisus*, and *Kohlia**

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The tribe Gorytini includes more than 400 species in 31 genera (Bohart and Menke, 1976) and is represented in all zoogeographical regions. Twelve genera have been found in the USSR; their faunistics and systematics still need considerable study. Keys to their species for the European USSR are available (Pulavskiy, 1978) and for the Central Asia and Kazakhstan (Kazenas, 1978).

In the preparation of the contribution, we have used the collections of the Zoological Institute of the USSR Academy of Sciences (ZIAN), the Zoological Museum of Moscow State University, the Soil Science Biological Institute of the Far Eastern Branch of the USSR Academy of Sciences (Biologo-Pochvennyy Institut, BPI), and our collections from eastern Siberia and the Far East. We extend our sincere gratitude to V. L. Kazenas, A. V. Antonov, and E. P. Budris for submitting material for study. A total of 550 specimens have been studied.

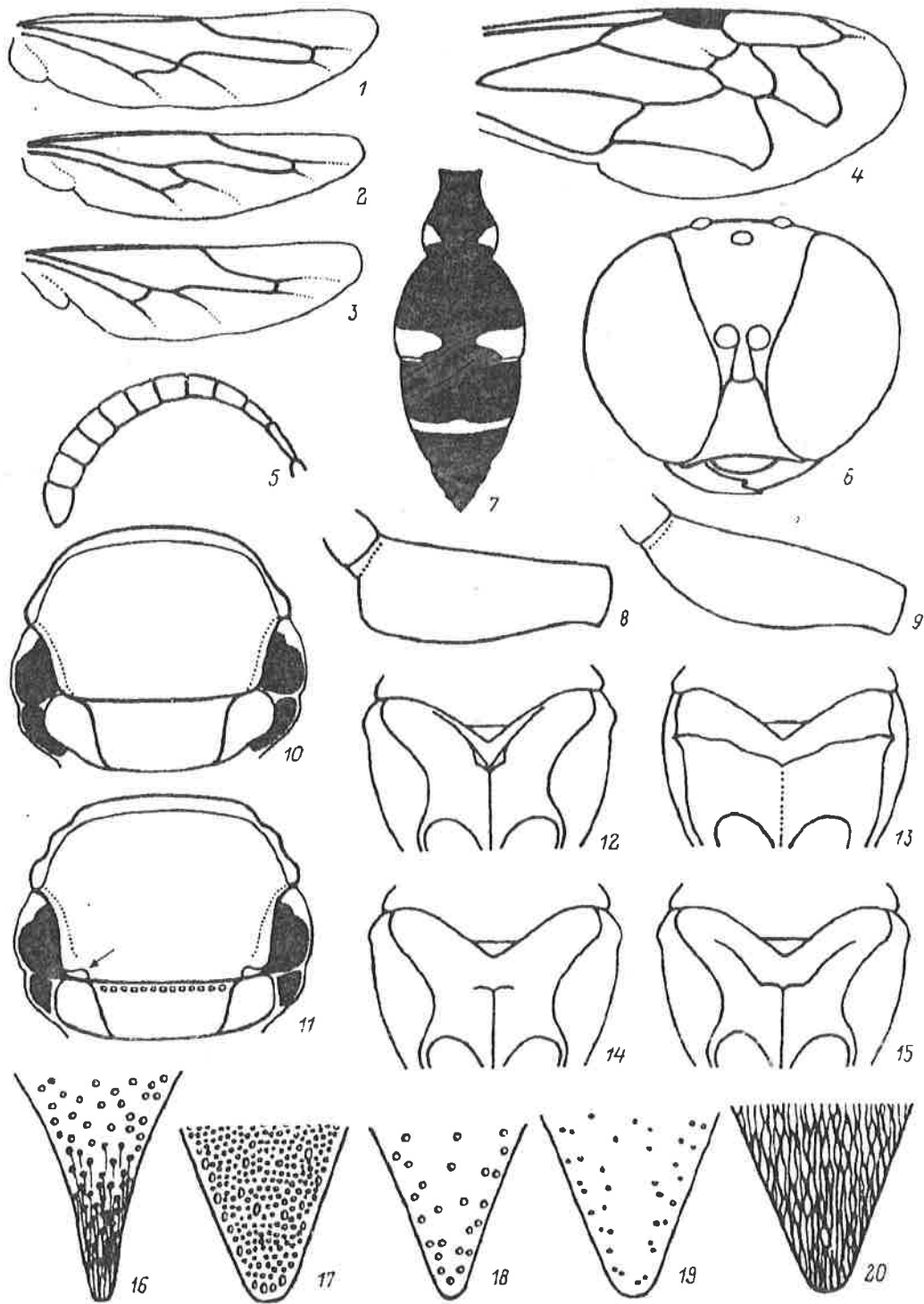
The following abbreviations are here used: Od - diameter of anterior ocellus, POD - distance between posterior ocelli, OOD - shortest distance between ocellus and eye (ocular-ocellar distance), WAS - diameter of antennal cavity, OAD - shortest distance between eye and antennal cavity, IAD - distance between antennal cavities, IOD - least distance between inner eye margins, AZ (13) L:W - ratio between 3rd (13th) antennal segment length and width. An asterisk (*) is used to indicate species or subspecies newly recorded for the USSR.

Holotypes of new species are deposited in ZIAN; paratypes in ZIAN, BPI, and the Institute of Zoology of the Kazakh SSR, Academy of Sciences, Alma-Ata.

KEY TO PALEARCTIC GENERA OF GORYTINI

- 1(6). Hindwing with vein *M* originating beyond tip of anal cell at distance 1.5-3 times Od (Fig. 3).
- 2(3). Posterior corner of mesoscutum with small separately depressed concave area (Fig. 11)..... *Harpactus* Shuck.
- 3(2). Posterior corner of mesoscutum without separately depressed concave area.
- 4(5). Width of face at 3/4 height of eye greater than at level of posterior ocelli; posterior corner of mesoscutum rounded (Fig. 10); acetabular carina developed, joined with omalulus; abdominal sternite II basally more or less angularly projecting; ♀ with scutellum centrally with flat depression; claws with basal denticle..... *Argogorytes* Ashm.

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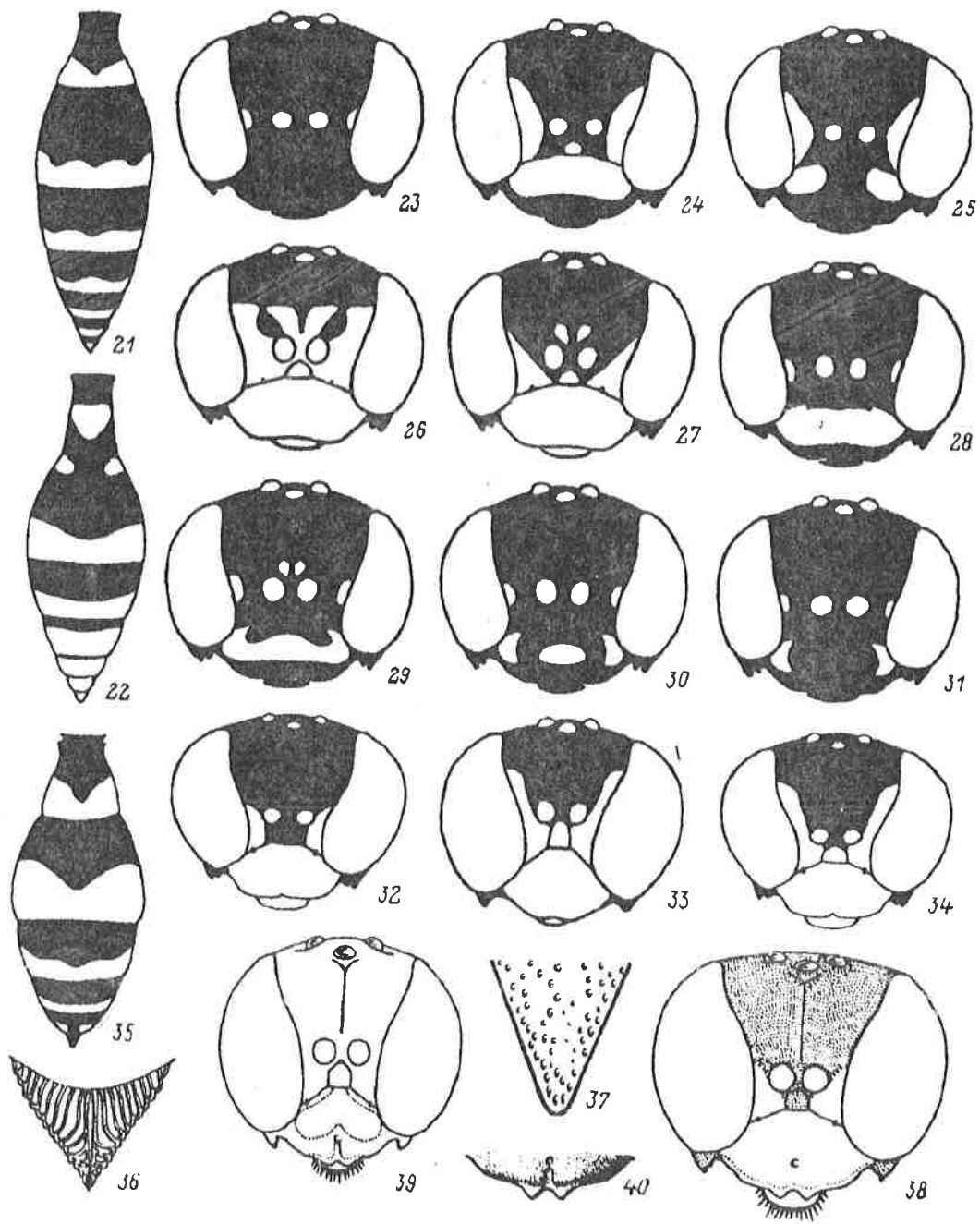


Figs. 1-20. Gorytini. 1-3) Hindwing: 1) *Oryttus* sp., 2) *Eogorytes fulvohirtus* [sic] (Tsun.), 3) *Harpactus* sp.; 4) forewing, *Kohlia pavlovskii* (Guss.); 5, 6) *Ammatomus* sp. (5 - antenna, 6 - head); 7) *Lestiphorus bilunulatus* Costa, abdomen; 8, 9) forefemur: 8) *Gorytes pleuripunctatus* (Costa), 9) *G. laticinctus* (Lep.); 10, 11) dorsal view of thorax: 10) *Arrogorytes* sp., 11) *Harpactus* sp.; 12-15) ventral view of thorax: 12) *Psammaecius* sp., 13) *Hoplisoides punctuosus* (Ev.), 14) *Gorytes laticinctus* (Lep.), 15) *G. pleuripunctatus* (Costa); 16-20) pygidial area: 16) *G. procrustes* Handl., 17) *G. hebraeus* Beaum., 18) *G. quinquefasciatus* (Pz.), 19) *G. pieli* Yasum., 20) *G. quinquecinctus* (F.). After Bohart and Menke (1976); Beaumont (1953, 1954); and original.

- 5(4). Face at 3/4 height of eye narrower than at level of posterior ocelli; posterior corner of mesoscutum acute; acetabular carina not developed; omaulus far from reaching mid-ventral line of thorax; sternite II basally not projecting angularly; ♀ scutellum with depressions; claws without denticle.....*Olgia* Rad.
- 6(1). Vein *M* of hindwing before, at, or beyond tip of anal cell by distance less than *Od* (Figs. 1, 2).
- 7(8). Mesoscutum with 2 deep, wide longitudinal stripes, closely approximated, with a carina between them, extending from anterior margin.....[*Afrogorytes* Menke]¹
- 8(7). Mesoscutum without longitudinal carina, stripes extending from anterior margin shallow and narrow, separated by rather wide interval, sometimes indistinct.
- 9(10). Mesopleuron without omauli; face very narrow (Fig. 6); antennae distinctly thickened apically (Fig. 5).....*Ammatomus* A. Costa.
- 10(9). Mesopleuron with omaulus; face wider; antennae toward apex not or only slightly thickened.
- 11(14). Mesopleuron without traces of sternaulus.
- 12(13). Episternal suture in lower part of mesopleuron joined with omaulus; forewing with tip of cell *R* a little removed from anterior margin and furnished with small accessory cell (Fig. 4).....*Kohlia* Handl.
- 13(12). Episternal suture not reaching omaulus, but turning posteriorly and passing scrobal suture; tip of cell *R* lying on anterior margin of wing.*Sphecius* Dahlb.
- 14(11). Mesopleuron with sternaulus or traces thereof.
- 15(16). Abdominal segment I (Fig. 7) elongate, divided by deep groove from segment II (latter strongly narrowed anteriorly); tergite I thickened toward tip.....*Lestiphorus* Lep.
- 16(15). Abdominal segment I not or only weakly elongated; abdomen without transverse groove or at most with weak constrictions delimiting 1st and 2nd segments, tergite I not thickened apically.
- 17(18). Mesosternum with transverse carina (subomaulus) directed toward humeral tubercle and having 2 large medial projections (Fig. 12).....*Psammaecius* Lep.
- 18(17). Mesosternum without transverse carina or with one that is not directed toward humeral tubercle and not forming 2 large transverse projections.
- 19(22). Forebasitarsus of ♀ with 2 setae on lateral surfaces exclusive of apical setae; 12th-13th antennal segments or ♂ not modified.
- 20(21). Acetabular carina long, sometimes coming off omaulus; median field of intermediate

¹There is a pair (♂ and ♀) of specimens from "Yemen, Arabia, 1930 (N. Zhenzhurist)," in ZIAN determined by me as *Afrogorytes monstrosus* Handl.

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Figs. 21-40. Gorytini. 21-22) Abdomen: 21) *Gorytes quinquecinctus* (F.), 22) *Pseudoplisus kohlii* (Handl.); 23-24) *Gorytes*, facial pattern (23-32, 34 - ♀, 33 - ♂): 23) *G. albidulus* (Lep.), 24,25) *G. ambiguus* Handl., 26-28) *G. laticinctus* (Lep.), 29-31) *G. quadrifasciatus* (F.), 32) *G. hebraeus* Beum., 33, 34) *G. pيلي* Yasum., 35-40) *G. tobiasi* sp. n. (35-38 ♀; 39, 40 ♂; 35 abdomen; 36 medial field of intermediate segment; 37 pygidial area; 38, 39 head; 40 anterior clypeal margin).

segment smooth, except for longitudinal mesal stripe and short longitudinal rugulosity at base; abdominal segment I long and narrow (Fig. 22), in ♀ longer than maximal width by 1.3 times, in ♂ by 1.6 times; abdominal tergite I yellow with black median spot. *Pseudoplisus* Ashm.

21(20). Acetabular carina very short (except in *G. pleuripunctatus* Costa); medial field of intermediate segment uniformly rugose or at least in anterior half (in *G. africanus* Mercet nearly wholly smooth). Abdominal segment I shorter and wider (Fig. 22), black with pale crossband or apicolateral spots. *Gorytes* Latr.

22(19). Forebasitarsus of ♀ with 3 setae on lateral surfaces; ♂ with antennal segments 10-13 ventrally emarginate or flattened.

23(24). Acetabular carinae present, often reaching place of meeting omaulus and sternaulus (Fig. 13). *Hoplisoides* Gribodo.

24(23). Acetabular carina lacking.

25(26). Hindwing with vein *M* originating before tip of anal cell (Fig. 2). ♂ with posterior margins of abdominal sternites III-V with bands of dense, short, erect hairs; sternite VIII at tip not divided. [*Eogorytes* Bohart].

26(25). Hindwing with vein *M* originating at tip of anal cell (Fig. 1). ♂ with posterior margins of abdominal sternites III-V without such bands; sternite VIII split apically
..... *Oryttus* Spin.

Gorytes Latreille, 1804

Latreille, 1804: 180. Type species *Mellinus quinquecinctus* Fabricius, 1793, by monotypy. In Palearctic Region 24 spp., 20 in USSR. The Palearctic species are divided into 3 groups by Beaumont (1953): 1) the *kohlii* Group with a single species later referred to *Pseudoplisus* (Bohart and Menke, 1976); 2) the *laticinctus* Group, one quite distinct morphologically and comprising at present 7 closely related Palearctic species; and 3) the *quinquecinctus* Group, rather heterogeneous, to which are referred the remaining species. Such a division does not correspond to the taxonomic structure of the genus. It is proposed here to divide the genus into 7 groups.

1. Group *laticinctus*: *G. laticinctus*, *G. quadrifasciatus*, *G. planifrons*, *G. tricinctus*, *G. albidulus*, *G. ambiguus*, *G. harbinensis*. The last species, the ♀ of which is unknown, is included provisionally.

2. Group *neglectus*: *G. neglectus*, *G. aino*. This group is transitional between Groups 1 and 3 in several characters.

3. Group *quinquefasciatus*: *G. quinquefasciatus*, *G. fallax*, *G. pieli*, *G. tobiasi*, *G. africanus*.

4. Group *hebraeus*: *G. hebraeus*. This group occupies an intermediate position between Groups 3 and 5, but cannot be placed with either of them.

5. Group *quinquecinctus*: *G. quinquecinctus*, *G. sulcifrons*, *G. nigrifacies*, *G. schmiedeknechtii*, *G. schlettereri*, *G. maculicornis*.

6. Group foveolatus: *G. foveolatus*, *G. procrustes*.

7. Group pleuripunctatus: *G. pleuripunctatus*.

For the formation of the groups such characters were used for the largest part as in the ♀s the ratio of AOD:WAS, shape and sculpturation of the pygidial area, etc., and to a considerably lesser extent characters of the ♂s. In the key to species, diagnostic characters of the group are given for the ♀s, but that has not been feasible for the ♂s without damaging facility of determination.

KEY TO SPECIES OF *Gorytes*

1(54). ♀s.

2(5). Pygidial area (Fig. 16) considerably narrowed, with concave sides, rather dense punctation, and dense decumbent hairs at tip (Group foveolatus).

3(4). Antenna weakly thickened toward tip; A3L:W = 3.7, A12L:W = 1.6; forefemur wholly or nearly wholly pale; abdomen sharply punctate; 9-11 mm. *G. foveolatus* Handl.

4(3). Antennae well thickened toward tip; A3L:W = 3.3, A12L:W = 1.0; forefemur mostly black; abdomen indistinctly punctate..... *G. procrustes* Handl.

5(2). Pygidial area (Figs. 17-20) wider, sides not concave.

6(19). Pygidial area (Fig. 20) finely and closely longitudinally irregularly rugulose, in basal half often more weakly so and with interspersed fine punctations (Group quinquecinctus).

7(8). Face black; mesopleuron punctate and more or less striate; metapleuron wholly plicate; intermediate segment laterally with very dense micropunctation and fine rugulosity anterior to spiracular ridge, matt or semishining; 10-11 mm. *G. nigrifacies* (Mocs.).

8(7). Face usually with pale pattern; mesopleuron usually smooth, very rarely weakly striate, sometimes punctate; metapleuron partially and intermediate segment laterally before spiracular ridge smooth and shining.

9(10). Mesoscutum shining, densely micropunctate, and with comparatively large deep punctations partially fused into longitudinal ridges and furrows; labrum, clypeus, and basal half of pygidial area yellow; humeral callus black; 11-12 mm
..... *G. schmiedeknechtii* Handl.

10(9). Mesoscutum without sharp punctation and lacking stripes of fused punctations.

11(12). Humeral callus, mesopleuron, and hindtrochanter and hindfemur largely black; tegula partially yellow or yellowish brown; scutellum with yellow stripes; mesocutal hairs of varying length, some shorter than Od; 9-12 mm. *G. shlettereri ponticus* Beaum.

12(11). Humeral callus usually yellow, mesopleuron with yellow spots, hindtrochanter and femora uniformly pale (yellow or ferruginous) or only to slight extent black; mesoscutal hairs approximately all of same length, half as long as Od.

13(16). Mesoscutum without sharp punctations; mesal field of intermediate segment with reg-

- ularly elongated small furrows, sometimes not developed posteriorly; posterior surface of intermediate segment usually sharply rugose-plicate; clypeus pale, labrum usually also; midfemur largely pale (yellow or ferruginous).
- 14(15). Body with extensive yellow pattern, bands of tergites entire, often wide; femora yellow with black markings; 7-12 mm. *G. s. sulcifrons* (Costa).
- 15(14). Body with less extensive whitish pattern; bands of tergites white, rather narrow, sometimes interrupted; femora largely ferruginous, ventrally yellowish white, sometimes dorsally at extreme base with small dark spots; 9-12 mm. — Azerbaijan, Kazakhstan (except S and SE parts), Altai, South Siberia E to Chita Prov. — Mongolia, NE China. *G. s. mongolicus* Tsuneki.
- 16(13). Mesoscutum with sharp, rather large dispersed punctations on densely micropunctate background; labrum black; midfemur mostly black, apically yellowish ferruginous.
- 17(18). Mesal field of intermediate segment with regular longitudinal folds, usually undeveloped posteriorly, in other areas with sparse and weak punctation and very weak and indistinct folds; clypeus yellow; mandibles with yellow basal spot; antennal flagellum dorsally ferruginous, at least in apical half; 11-14 mm. — S Chita Prov., Amur Prov., S Khabarovsk Terr., Maritime Terr. — NE China, Korean Peninsula, Japan (Hokkaido, Honshu). *G. maculicornis* (F. Mor.) (eous Guss.).
- 18(17). Mesal field of intermediate segment irregularly plicate, in other areas distinctly plicate; clypeus usually black with yellow central spot, rarely wholly black or yellow; mandibles black; antennal flagellum dorsally black; 8-13 mm. — Entire European USSR, Caucasus, Kazakhstan, Kirgizia, Altai, South Siberia E to Chita Prov. — W Europe, N Africa, Turkey. *G. quinquecinctus* (F.) (*proximus* Handl.).
- 19(6). Pygidial area without longitudinal rugulosity, densely or sparsely punctate.
- 20(21). Pygidial area (Fig. 17) very densely and finely punctate (Group hebraeus). Mesoscutum and mesopleuron with fine sharp punctations; facial pattern as in Fig. 32; antennal flagellum yellowish ferruginous (basal segments dorsally a little darkened); mid- and hindfemora ferruginous with basal blackening; 10-12 mm (♂ unknown). *G. hebraeus* Beaum.
- 21(20). Pygidial area (Figs. 18, 19) sparsely punctate, punctations often rather coarse.
- 22(25). Acetabular carina distinctly longer than in other species (Fig. 15); forefemur strongly widened basally (Fig. 8); abdomen sharply punctate. (Group pleuripunctatus).
- 23(24). Labrum, clypeus, mesoscutum, postscutellum and intermediate segment black; 10-12 mm. *G. p. pleuripunctatus* (Costa).
- 24(23). Labrum, clypeus, and spot on postscutellum yellow; mesoscutum and intermediate segment often with yellow markings; 10-12 mm. *G. p. barbarus* Beaum.
- 25(22). Acetabular carina short (Fig. 14); forefemur not widened at base (Fig. 9); abdomen without sharp punctation.
- 26(39). Inner ocular margins weakly convergent below; AOD not less than WAS; epistomal

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suture weakly curved, tentorial pits lying between frons and eye (Fig. 26); thorax with pale markings or wholly black (*G. tricinctus*), and mesoscutum with longitudinal rugosity. (Group *laticinctus*).

27(30). Femora (except basally, tibiae, and tarsi ferruginous; in forms with extensive pale pattern forefemur ventrally and all tibiae anteriorly yellow-ferruginous.

28(29). A3L:W = A6L:W = 1.6; facial pattern as in Figs. 24, 25; stripe along inner ocular margin approximately as wide as Od; pale pattern of body white or yellow; 9-11 mm — Tajikistan, Kazakhstan, Altai, S Siberia and Far East. — Mongolia, NE China.....*G. ambiguus* Handl. (*sogdianus* Guss., *verheofii* Tsuneki, *heptapotamiensis* Kazenas, *zaysanicus* Kazenas (Syn. n.).

29(28). A3L:W = 3.8, A6L:W = 2.3; face as in Fig. 23; spot or stripe along inner ocular margin half as wide as Od; pattern of body always white; 10-11 mm....*G. albidulus* (Lep.).

30(27). Femora and tibiae usually black with yellow marking, rarely wholly black, tarsi yellow or brown.

31(32). Mesoscutum with comparatively large punctations, partially fused to form longitudinal ridges and furrows; thorax wholly black abdomen with narrow yellow bands on tergites I to III (that on tergite I widely interrupted); 10-14 mm. — Japan (Hokkaido, Honshu).....[*G. tricinctus* (Pérez)].

32(31). Mesoscutum with line sparse punctations on background of dense micropunctuation never fusing into stripes; thorax with pale markings.

33(34). Metapleuron without longitudinal folds; femora black, at extreme tips yellow spots; frons with deepened line between antennal cavities and anterior ocellus; clypeus black with yellow spots or wholly black; abdomen with wide yellow bands; c. 15 mm. — W Europe.....[*G. planifrons* (Wesm)].

34(33). Metapleuron dorsally with longitudinal folds; femora, especially forefemur, with large yellow ventral spots.

35(36). A3L:W = 3.5; face as in Figs. 29-31; 10-13 mm. — Transpalearctic*G. quadrifasciatus* (F.)

36(35). A3L:W = 4; face as in Figs. 26-28.

37(38). Mesoscutum with distinct punctations; mesal field of intermediate segment wholly irregularly rugulose-plicate; scutellum usually with yellow stripe; abdominal tergite II with band occupying 1/3-1/2 its length; 12-15 mm. — Entire European USSR, Caucasus, E Kazakhstan, Altai. — W Europe, N Africa, Turkey.....*G. l. laticinctus* (Lep.).

38(37). Mesoscutum with indistinct punctation; mesal field of intermediate segment with more regular rugulosity; scutellum black abdominal tergite II with band occupying app. 1/5 its length; 9-13 mm. — S Chita Prov., Khabarovsk Terr., Sakhalin, Kunashir Is. — Korean Peninsula, Japan (Hokkaido).....*G. l. koreanus* Handl. (*radoszkovskyi* Handl.).

- 39(26). Inner ocular margins strongly converging below; AOD distinctly less than WAS (in *G. neglectus* and *G. aino* only little less; in both species thorax wholly black and mesoscutum without longitudinal rugulae); epistomal suture strongly bent; tentorial pits lying close to inner ocular margin (Figs. 34, 38).
- 40(43). WAS:AOD = 1.5; thorax wholly black. (Group *neglectus*).
- 41(42). Frons and dorsum of thorax matt; mesoscutum with very dense microsculpturation of small punctations without large ones; color of labrum various; scape black, flagellum ventrally ferruginous or black brown; abdominal tergites I-VI with yellow bands; 11-13 mm — S forest zone of Siberia and Far East. — N Finland, Korean Peninsula, Japan (Hokkaido).....*G. neglectus* Handl. (*hakutozanus* Tsuneki).
- 42(41). Frons and dorsum of thorax more or less shining; mesoscutum with indistinctly delimited, flat, comparatively large sometimes partially fused punctations on background of dense micropunctuation; labrum and antenna yellow; abdominal tergites I-III with yellow bands 10-13 mm. — Maritime Terr., Sakhalin, Kunashir Is. — Japan (Hokkaido, Honshu).....*G. aino* Tsuneki.
- 43(40). WAS:AOD = 2; thorax with pale markings. (Group *quinquefasciatus*).
- 44(45). Anterior clypeal margin with 2 small medial rounded projections (Fig. 38); lateral surface of intermediate segment anterior to spiracular ridges finely obliquely rugulose, matt or weakly shining; humeral callus and mesopleuron black; femora ferruginous (forefemur yellow below); 10-13 mm.....*G. tobiasi* sp. n.
- 45(44). Anterior clypeal margin straight or with small medial emargination (Fig. 34); lateral surface of intermediate segment anterior to spiracular ridges smooth and shining; humeral callus pale; mesopleuron often with pale marking.
- 46(47). Mesoscutum impunctate; mesal field of intermediate segment smooth or at very most with short longitudinal rugulosity at base; 10-12 mm. — N Africa, Spain.....
..... [*G. africanus* Mercet].
- 47(46). Mesoscutum with distinct scattered punctations on background of micropunctuation; mesal field of intermediate segment usually plicate over entire surface, rarely (in *G. quinquefasciatus*) smooth posteriorly.
- 48(49). Pygidial area with fine sparse punctations, shining (Fig. 19); frons below antennal cavities yellow (Fig. 34); mesoscutum usually with small yellow spots in hindcorners; 10-12 mm — S Chita Prov., Maritime Terr. — NE China, Korean Peninsula.....
.....*G. pieli* Yasumatsu (*takeuchii* Tsuneki).
- 49(48). Pygidial area with rather large scattered, partially fused punctations (Fig. 18); frons below antennal cavities wholly or largely black; mesoscutum without markings.
- 50(51). Mesal field of intermediate segment over entire surface with irregular rugulose-punctate sculpturation; punctuation of mesoscutum very fine; pygidial area more shining; frons with well-developed stripes along inner ocular margins; femora black with small yellow apical spots; 10-13 mm. — Kostroma and Chelyabinsk provs., Dagestan, E Kazakhstan, Irkutsk Prov. — W Europe.....*G. fallax* Handl.

- 51(50). Mesal field of intermediate segment with more regular longitudinal folds, sometimes not developed posteriorly; punctation of mesoscutum often rather coarse; pygidial area matt or weakly shining; frons without yellow stripes along inner ocular margins or if developed then femora with large yellow spots.
- 52(53). Body with whitish pattern; mandibles, labrum, clypeus, and intermediate segment black; mesopleuron usually without spots; mid- and hindfemora (except at base), and tip of forefemur ferrugineous; 8-13 mm. — Entire European USSR, Kazakhstan (N, C, E), Altai, S Siberia, and Far East — W Europe.....*G. q. quinquefasciatus* (Pz.).
- 53(52). Body with yellow pattern; basal half of mandibles, labrum, and clypeus yellow; mesopleuron and intermediate segment often with yellow spots; femora black with yellow spots of varying extent; 11-13 mm.....*G. q. levantinus* Pulawski.
- 54(1). ♂ s.
- 55(56). Postscutellum and posterior part of scutellum with regular longitudinal rugosity; stripe on pronotal collar and humeral callus yellow; 10-13 mm..... *G. fallax* Handl.
- 56(55). Most of posterior part of postscutellum longitudinally rugose (in *G. aino* sometimes completely, but thorax wholly black).
- 57(62). Abdominal sternites IV and V in middle and sternite VI at base with short erect hairs.
- 58(59). A10-12L:W = 1.7; frons and mesoscutum with indistinct punctation; frons yellow; facial pattern as in Fig. 33; 8-9 mm.....*G. pieli* Yasumatsu.
- 59(58). A10-12L:W = 1.3; frons and mesoscutum with sharp punctation, often rather coarse and dense; frons usually black.
- 60(61). Body with whitish pattern; mandibles, frons, mesopleuron, and intermediate segment black; labrum and clypeus usually black; abdominal bands narrow, often interrupted; 10-11 mm*G. q. quinquefasciatus* (Pz.).
- 61(60). Body with yellow pattern; basal half of mandible, labrum, and clypeus yellow; frons black or yellow; mesopleuron and intermediate segment often with spots; abdominal tergites, especially II, rather wide, complete; 10-11 mm..... *G. q. levantinus* Pulawski.
- 62(57). Abdominal sternites with very short decumbent pubescence.
- 63(68). Abdomen sharply punctate.
- 64(65). Acetabular carina short (as in Fig. 14); A10-12L:W = 2; labrum black; 9-10 mm.....
.....*G. foveolatus* Handl.
- 65(64). Acetabular carina long (Fig. 15); A10-12L:W = 1.5; labrum yellow.
- 66(67). Antennal flagellum ventrally black or dark brown; mesoscutum, postscutellum, and intermediate segment black; 9-11 mm.....*G. pl. pleuripunctatus* (Costa).
- 67(66). Antennal flagellum ventrally ferrugineous; mesoscutum often with spots and spots of-

- ten on postscutellum; intermediate segment with 2 yellow spots; 9-11 mm.....
*G. p. barbarus* Beaum.
- 68(63). Abdomen largely indistinctly punctate.
- 69(96). Abdominal tergite I basally between longitudinal carinae smooth, without longitudinal rugulosity.
- 70(73). Thorax entirely black.
- 71(72). Apical half of frons matt; mesoscutum with very fine, dense, uniform punctation, without large punctations; antennal segments III-VIII with tyloids; labrum and clypeus yellow; 9-11 mm.....*G. neglectus* Handl.
- 72(71). Apical half of frons more or less shining; mesoscutum with scattered medium-sized punctations on background of fine micropunctation; antennal segments III-VI with tyloids, labrum black; clypeus black with 1 or 2 yellow basal spots; 7-10 mm.....
*G. aino* Tsuneki.
- 73(70). Thorax with pale pattern (at least collar of pronotum with pale stripe).
- 74(77). Lateral surface of intermediate segment anterior to spiracular ridge at least in apical half finely rugulose or rugulose-punctate, matt or weakly shining; humeral callus and mesopleuron black (rarely with pale spots in *G. nigrifacies*); pronotal collar with pale stripe.
- 75(76). Anterior margin of clypeus with 2 median, rounded, small convexities (Fig. 40); mesopleuron smooth below scrobal suture; scape yellow ventrally; clypeus medially usually with single large yellow spot, rarely with 2 or 3 small ones; 9-11 mm... *G. tobiasi* sp. n.
- 76(75). Anterior margin of clypeus nearly straight, with small median emargination (as in Fig. 33); mesopleuron punctate and more or less straight; scape black; clypeus usually black, rarely with small pale spots; 10-11 mm.....*G. nigrifacies* (Mocs.).
- 77(74). Lateral surface of intermediate segment anterior to spiracular ridge smooth and shining; humeral callus usually and mesopleuron with pale pattern.
- 78(85). Mesoscutum with rather large, distinct punctation.
- 79(80). Antennal flagellum ventrally ferruginous; intermediate segment along mesal field (except areas adjacent to mesal field) often with very indistinct rugulose-punctate microsculpture; 8-11 mm..... *G. maculicornis* (F. Mor.).
- 80(79). Antennal flagellum black, sometimes with ferruginous tyloids; intermediate segment, except smooth parts of lateral surface anterior to spiracular ridges, with sharp striato-rugulose sculpturation.
- 81(82). Mesoscutum densely punctate, punctations partially fused to form longitudinal grooves; medial antennal segments with strongly raised tyloids; labrum, clypeus, scape, and stripe on pronotal collar yellow; humeral callus black; 9-11 mm.....
*G. shmiedeknechtii* Handl.

- 82(81). Mesoscutum with scattered punctations never fusing to form grooves.
- 83(84). Mesal field of intermediate segment with less regular and deeper rugulosity; pronotal collar with pale stripe; abdominal tergites with complete pale bands, very rarely interrupted.....*G. quinquecinctus* (F.).
- 84(83). Mesal field of intermediate segment with more regular and shallower rugosity; pronotal collar with 2 lateral pale spots; pale bands on abdominal tergites usually interrupted; 9-11 mm.....*G. procrustes* Handl.
- 85(78). Mesoscutum mostly with fine, inconspicuous punctation on densely micropunctate background.
- 86(87). Scape, humeral callus, and mesopleuron black; mesoscutum with hairs of various length, some not shorter than Od; scutellum with yellow stripe tegulae partly yellow or yellowish brown; 8-11 mm.....*G. schlettereri ponticus* Beaum.
- 87(86). Scape pale ventrally; humeral callus and mesopleuron usually with pale pattern; mesoscutum with hairs usually of approximately equal length, half as long as Od.
- 88(89). AOD:WAS = 0.8; width of pale stripe along inner ocular margin in lower part of frons not less than Od; frons often with pale spots; antennal segments III-VI with tyloids; 9-11 mm.....*G. ambiguus* Handl.
- 89(88). AOD:WAS = 0.5; width of pale stripe along inner ocular margin 1/2 to 1/3 Od; frons black.
- 90(91). Antenna with narrow and sharp tyloids, one on segment VI more than 15 times as long as wide; frons with fine indistinct punctation on background of dense (sometimes rather deep) micropunctation; mesal field of intermediate segment usually irregularly rugulose-plicate; humeral callus black; mesopleuron with pale spots; bands of tergites white, usually medially interrupted, interruption widening from tergite I to IV; 8-11 mm.....*G. albidulus* (Lep.).
- 91(90). Antenna with wide and slope-margined tyloids of paler color, one on segment VI 3 to 7 times as long as wide; frons with distinct punctation; mesal field of intermediate segment usually with regular longitudinal plication or with large smooth part; bands of abdominal tergites yellow or white, usually complete.
- 92(93). Mesal field of intermediate segment smooth, except for longitudinal central stripe and short longitudinally rugulose basal section; 9-11 mm[*G. africanus* Mercet.]
- 93(92). Mesal field of intermediate segment wholly plicate.
- 94(95). Body with yellow pattern; tergal bands complete, usually wide; hindfemur black with wide yellow spot; 7-12 mm.....*G. s. sulcifrons* (Costa).
- 95(94). Body with whitish pattern; bands of abdominal tergites white, rather narrow, sometimes interrupted; hindfemur black with varying extent of ferruginous marking; 8-11 mm*G. s. mongolicus* Tsuneki.

- 96(69). Base of abdominal tergite I with a little sharp longitudinal rugulosity between 2 longitudinal carinae (in *G. quadrifasciatus* rugulosity somewhat effaced).
- 97(98). Mesoscutum with comparatively large punctation, partially fused, especially posteriorly to form longitudinal rugae; thorax wholly black; abdomen usually with 3 yellow bands; 9-12 mm..... [*G. tricinctus* Pérez].
- 98(97). Mesoscutum with scattered punctation of moderate size, never becoming fused; thorax with pale markings.
- 99(100). Antennal flagellum largely ferrugineous, segments III-VIII with tyloids; A3L:W = 2; mesal field of intermediate segment with regular longitudinal folds, becoming striate posteriorly; 9 mm. (♀ unknown). — China (Harbin)..... [*G. harbinensis* Tsuneki].
- 100(99). Antennal flagellum black, antennal segments III-X with tyloids; A3L:W = more than 2; mesal field of intermediate segment with entire surface plicate.
- 101(102). Frons with distinct impressed line between antennal cavities and anterior ocellus; metapleuron not longitudinally plicate; c. 14 mm..... [*G. planifrons* Wesm.].
- 102(101). Frons without impressed line between antennal cavities and anterior ocellus; metapleuron dorsally with longitudinal plicae.
- 103(104). Clypeus usually with 2 pale spots of varying size (often more or less fused), rarely wholly black; frons black; pronotal collar with well developed pale stripe; abdomen with narrow pale bands, that of tergite II occupying c. 1/5 of its length and less than half as long as that of tergite III; pale pattern of body yellow or whitish; 8-11 mm.....
..... *G. quadrifasciatus* (F.).
- 104(103). Clypeus usually yellow, except for narrow black anterior margin; frons often with yellow spots; pronotal collar usually black or with short narrow yellow median stripe; band of abdominal tergite II occupying half to 1/3 its length, or if narrower then more than twice as wide as band of tergite III; pale pattern of body always yellow.
- 105(106). Mesoscutum with distinct punctation; mesal field of intermediate segment with entire surface irregularly rugose-plicate; band of abdominal tergite II occupying half to 1/3 length of tergite; 9-11 mm..... *G. l. laticinctus* (Lep.)
- 106(105). Mesoscutum more weakly punctate; mesal field of intermediate segment more regularly plicate; band of abdominal tergite II occupying c. 1/5 length of tergite; 8-12 mm....
..... *G. l. koreanus* Handl.

Gorytes albidulus (Lepeletier, 1832).

Lepeletier, 1832: 65, ♀ (*Hoplisis*).

Material. Eleven ♀s and 8 ♂s from the Ukraine (Kiev), Azerbaijan (Ordubad), Kazakhstan (Shili, Zaili Alatau, Chilik R., Chelkar, 50 km E of Ili, and 35 km S of Lepsy), Hungary (Budapest), and Iran (Tebriz).

Distribution. USSR: S and C zone of European USSR, Caucasus, Uzbekistan, and Kazakhstan. W Europe, N Africa, SW Asia, Mongolia.

**Gorytes quinquefasciatus levantinus* Pulawski, 1961.

Pulawski, 1961: 93, ♂, ♀.

Specimens from SE Kazakhstan and Central Asia agree with the subspecies *G. q. levantinus* described by Pulawski from Lebanon and Syria. The subspecies differs sharply (mainly in color) from the widely distributed nominate subspecies of the temperate zone of the Palearctic and much less from the forms *eburneus* (Switzerland), *intercedens* (Hispania), and *mauritanicus* (Algeria), described as distinct species. The latter 3 are now considered to be junior synonyms of *G. quinquefasciatus* (Bohart and Menke, 1976). In the way of clarification, there is a disproportionate multiplicity of forms quite different from both the typical and the subspecies *G. q. levantinus*, as well as from each other.

Material. Nine ♀s and 13 ♂s from Tajikistan (Dzhirgatal'), Uzbekistan (Pendzhikent, 25 km S of Parkent), Kirghizia (Sretenka), Kazakhstan (Uzunagach, Otarom and Samsy, 35 km NW of Kapchagay).

Distribution. USSR: Central Asia, Kirghizia, Kazakhstan (S, SE). Lebanon, Syria, Turkey.

Gorytes tobiasi Nemkov, sp. n.

♀. Length of body 9.8-12.6 mm. Anterior clypeal margin medially with 2 small rounded projections (Fig. 38). Inner ocular margins strongly convergent below, interval between them at level of anterior ocellus 1.8 times ID. OAD:WAS:IAD = 9:18:4. Frons with slender longitudinal groove between antennal cavities and anterior ocellus, more or less effaced in dorsal part. OOD:Od:POD as 29:13:28. Antennae distinctly thickened apically; A3L:W = 2.8; A9-11L:W = 1; A12L:W = 1.6. Acetabular carina usually short. Forefemur at base not widened. Abdominal segment I (Fig. 35) approximately 1.1 times as long as maximal width. Pygidial area triangular, lateral margins straight (Fig. 39).

Frons semimatt, with scattered sharp punctations of diameter 1/6 to 1/7 of Od and separated by distance equal to their diameter or a little more on background of dense sharp micropunctuation. Mesoscutum and scutellum shining, with effaced micropunctuation and fine, rather sparse punctuation (diameter 1/5 to 1/6 of Od and separated by 1.5 to 3 times their diameter). Mesopleuron with weak but distinct sparse punctations (in part dorsad of scrobal suture) with fine longitudinal striate. Dorsal half of metapleuron with very dense fine longitudinal rugosity. Mesal field of intermediate segment with sharp slender rugae, more or less longitudinal in anterior part and transverse posteriorly (Fig. 36). Posterior and posterolateral surfaces of intermediate segment striatoplicate. Lateral surfaces of intermediate segment anterior to stigmal ridgematt or weakly shining, with fine sharp longitudinal rugosity dorsally and more or less effaced oblique rugosity elsewhere. Abdomen with indistinct punctuation, shining. Pygidial area matt, with comparatively fine punctuation (diameter of punctations 1/4 of Od) on background of sharp shagreened microsculpturation. Pubescence of body decumbent, very short, only dorsal part of clypeus and ventral part of frons with longer silvery hairs.

Body black; basal half of mandible, labrum, clypeus (except semitransparent anterior margin), spot in ventral part of frons at inner ocular margins (Fig. 38), scape, most of antennal segments II and III, stripes on pronotal collar and scutellum, spot on tegula, band on abdominal ter-

gites I-V, and lateral spots on sternite II (Fig. 35) yellow. Humeral callus and pygidial area black. Mesopleuron without spots. Antennal flagellum yellowish ferruginous, weakly darkened dorsally. Femora ferruginous, forefemur ventrally with large yellow spot. Tibiae ferruginous, anteriorly yellowish. Tarsi yellowish ferruginous. Wings hyaline; radial cell darkened; veins dark pterostigma yellowish brown.

♂. Length of body 8.4 to 11.2 mm. Anterior margin of clypeus with 2 rounded projections more pronounced than in ♀ and with short longitudinal depression (Fig. 40), sometimes weakly developed. Distance between inner ocular margins at level of anterior ocellus twice IOD (Fig. 39). OAD:WAS:IAD = 7:16:4; OOD:Od:POD = 25:13:30. Antennae weakly thickened toward apex. A3L:W = 1.9; A10-12L:W = 1.1; A12L:W = 1.6; antennal segments 3-9 with tyloids. Abdominal segment I c. 1.2 times as long as maximal width.

Sculpturation and pubescence of body as in ♀, but punctation of mesoscutum finer; mesopleuron smooth; lateral surface of intermediate segment anterior to spiracular ridge sometimes with rather strongly effaced sculpturation in ventral part; in dorsal part next to spiracle always sharply rugulose. Head black, only clypeus with yellow spot of characteristic shape (Fig. 39), sometimes reduced to 2 or 3 little dots. Scape anteriorly and small spot on antennal segment II yellow; flagellum black with ferruginous tyloids. Color of thorax and abdomen as in ♀. Femora black with yellow apices; tibiae yellow with varying amount of dark spotting on posterior surface; fore- and midtarsi yellow, hindtarsus brown.

Holotype ♀, Uzbekistan, 20 km N of Parkent, Chatkal' Range, Akasagaty Landmark, 8.VI.1982 (Kazenas). Paratypes: 1 ♂, same locality, 10.VI.1982 (Kazenas); Kazakhstan, 5 ♀, 2 ♂s, between Otarom and Samsy, 1.VI.1922 (Arkhangel'skiy); 2 ♂s, Darbaza, 5.V.1931 (Gussakovskiy); 2 ♂s, Alma-Ata, 22.V.1980, 12.VI.1983 (Kazenas); 7 ♂s, 40 km W of Alma-Ata, 12.VI.1973 (Kazenas); 2 ♂s, Achisay, 2.V.1975 (Kazenas); 1 ♂, 20 km S of Chulak-Kurgan, 14.V.1975 (Kazenas); 1 ♂, 30 km NW of Vannovka, 24.V.1975 (Kazenas); 1 ♂, 20 km E of Mankanchi, 10.VI.1980 (Kazenas); 5 km N of Irinovka, 14.VI.1980 (Kazenas); 1 ♂, 35 km NW of Kapchagay, 20.V.1982 (Kazenas).

The species belongs to the quinquefasciatus Group; the chief differences of the new species from all known Palearctic species are cited in the key. The species is named in honor of V. I. Tobias.

**Gorytes hebraeus* Beaumont, 1953.

Beaumont, 1953: 181, ♀.

Material. Armenia, 1 ♀, Araks valley, Saray-Bulag, 8.VI.1926 (Shelkovnikov).

Distribution. USSR: Armenia. Turkey.

Gorytes sulcifrons sulcifrons (Costa, 1869).

Costa, 1869: 81, ♀ (*Hoplisis*).

Material. Nine ♀s and 11 ♂ from Tajikistan (Hissar Range, Zigdi, 2000 m, Ruydasht-Kutarmakba road, 2500-3000 m, Kondar Ravine; Yagnob R.), Uzbekistan (Nikol'skoe, 20 km N of Parkent), Kazakhstan (20 km W of Kantemirovka, 40 km W of Alma-Ata, 16 km E of Ayak-Kalkan), Spain (Sierra de Bejar), Italy (Ostia), Switzerland (S'er).

Distribution. USSR: S European part, Central Asia, Kazakhstan (S, SE). S and C Europe, N Africa, SW Asia.

**Gorytres nigrifacies* (Mocsary, 1879).

Mocsary, 1879: 134, ♀, ♂ (*Hoplisus*).

Material. Daghestan, 1 ♀, 1 ♂, Levashi, 16.VI.1926 (Ryabov).

Distribution. USSR: Daghestan. Spain, S France, Hungary, Turkey, Palestine.

**Gorytes schmiedeknechtii* Handlirsch, 1888.

Handlirsch, 1888: 492, ♂.

Material. Azerbaijan, 3 ♀s, Lachin, 8.V, 9.VI.1925 (Nazarov).

Distribution. USSR: S Azerbaijan, Greece, Turkey.

**Gorytes schlettereri ponticus* Beaumont, 1967.

Beaumont, 1967: 314, ♂, ♀.

Material. Gruzia (= Georgia), 2 ♀s, Bakuriani, 18.VII.1923.

Distribution. USSR: Gruzia. Mts. of N Turkey.

Gorytes foveolatus Handlirsch, 1888.

Handlirsch, 1888: 485, ♀, ♂.

Material. 4 ♀s and 4 ♂s from the Crimea (Sevastopol', Karadag), Krasnodar Terr. (Gelendzhik). Spain (Alcala).

Distribution. USSR: S European part. S Europe, N Africa, SW Asia.

Gorytes procrustes Handlirsch, 1888.

Handlirsch, 1888: 490, ♀, ♂.

Material. Five ♀s and 5 ♂s from Kostroma Prov. (Vasil'evskoe), Yaroslavl' (Berditsyno) and Vladimir (Vladimir) provs., Krasnodar Terr. (Abrau-Dyurso), Chelyabinsk Prov. (Shemakha), Kazakhstan (Ryn-Peski, Ural'sk). Greece (Kerkyra Is.).

Distribution. USSR: S and C belts of European part, Caucasus, Kazakhstan, S and C Europe.

Gorytes pleuripunctatus pleuripunctatus (Costa, 1859).

Costa, 1859: 31, ♀, ♂ (*Hoplisus*).

Material. Five ♀s and 8 ♂s from Volgograd (Volgograd) and Orenburg (Spasskoe) provs., Krasnodar Terr. (Gelendzhik). Gruzia (= Georgia) (Vashlovan Res.), Azerbaijan (Tash-Bulag, Dzhedgarabad, Zakataly), Kazakhstan (Alma-Ata). Spain (Fermarella), Hungary (Budapest).

Distribution. USSR: S European part, Gruzia (= Georgia), Azerbaijan, Kazakhstan, Central Asia. S and C Europe.

Gorytes pleuripunctatus barbarus Beaumont, 1953.

Beaumont, 1953: 186, ♀, ♂.

The study of specimens from Armenia, in particular from Nakhichevan', relates them by their color to the subspecies *G. p. barbarus*, described from N Africa. Specimens from Turkey and Syria, judging from Beaumont's remarks (1953, 1967), are also close to this subspecies. The specimens from Azerbaijan and Gruzia in coloration are intermediate between *G. p. barbarus* and the nominate subspecies.

Material. One ♀ and 2 ♂s from Armenia (Erevan) and Azerbaijan (Ordubad, Kuduly).

Distribution. USSR: Armenia (Nakhichevan'). Algeria, Morocco, Syria, Turkey.

Pseudoplisus Ashmead, 1899

Ashmead, 1899: 323. Type-species *Gorytes floridanus* Fox, 1891 = *Pseudoplisus smithii floridanus* Fox, 1891, by original designation. One species in the Palearctic Region.

Pseudoplisus kohlii (Handlirsch, 1888).

Handlirsch, 1888: 511, ♀, ♂ (*Gorytes*).

Material. Four ♀s and 6 ♂s from Crimea (Karadag, Otuzi), Kazakhstan (17 km NW of Bakanas), Turkmenia (Tashauz, Kerki).

Distribution. USSR: Crimea, SE Kazakhstan, Turkmenia, Yugoslavia, Syria.

Kohlia Handlirsch, 1895

Handlirsch, 1895: 950. Type-species *Kohlia cephalotes* Handlirsch, 1895, by monotypy. In the Palearctic there are 2 spp., 1 in the USSR.

KEY TO SPECIES

- 1(2). Inner margin of mandible edentate; midtibia of ♂ with single apical spur. - N Africa, Israel..... *K. coxalis* Morice.
- 2(1). Inner margin of mandible with preapical tooth; midtibia of ♂ with 2 apical spurs; pygidial area of ♀ with rather coarse longitudinal rugosity; body yellow with black pattern; 11-12 mm..... *K. pavlovskii* (Guss.).

Kolia pavlovskii Gussakovskij, 1952

Gussakovskij, 1952: 274, ♂ (*Stizobembex*).

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Material. 1 ♀ and 2 ♂s from Uzbekistan (Talimardzhan, Alaudin-Tau).

Distribution. USSR: Tadzhikistan, Uzbekistan.

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