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SIR A. SMITH WOODWARD, LL.D., F.R.S., F.G.S.,

SIR GUY A. K. MARSHALL, C.M.G., D.Sc., F.R.S.,

C. TATE REGAN, M.A., D.Sc., F.R.S.,

AND

JOHN STEPHENSON, C.I.E., M.B., D.Sc., F.R.S.

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IX.—On Species of *Panurginus*, Nyl. (Apidæ,
Panurginæ). By O. W. RICHARDS, M.A.

IN the second edition of Schmiedeknecht's 'Hymenoptera Mitteleuropas' (1930, p. 772) three European species of *Panurginus* are recorded. During a holiday in Tyrol in 1929, I captured a fourth, which it is proposed to describe as new in the present paper. The available descriptions of *P. montanus*, Gir., the nearest ally of the new species, are so meagre that I also redescribe that species. A single female captured at Seiser Alpe (Alpe di Siusi), N. Italy, in 1925, apparently belongs to another undescribed species, but more material is required.

The genus *Panurginus* is probably restricted to the Palearctic region. It is true that bees from N. and S. America have been referred to this genus, but Crawford (1926), in monographing the N. American species, refers them all to *Pseudopanurgus*. The European species have been revised by Friese in two papers, 1897 and 1901 (p. 7). An additional species was described by Aurivillius (1914), who also notes that the genotype, *P. niger*, Nyl., is probably distinct from *P. labiatus*, Eversm., with which Friese synonymizes it.

My new species is closely allied to *P. montanus*, Giraud. *P. labiatus*, Eversm., is smaller, with the abdomen shining and definitely punctured. *P. romani*, Auriv. (Aurivillius, *loc. cit.*; Alfken, 1927), also has the dorsum of the abdomen strongly shining, and has the antennæ brown beneath. The structure of the sixth sternite of the male also appears to be different. The nearest ally to *P. montanus*, Gir., and to the new species appears to be *P. alticola*, Morawitz (1876, p. 59), in which the vertex and occiput are shining and very finely, not very closely, punctured. The male antennæ, also, are largely pale.

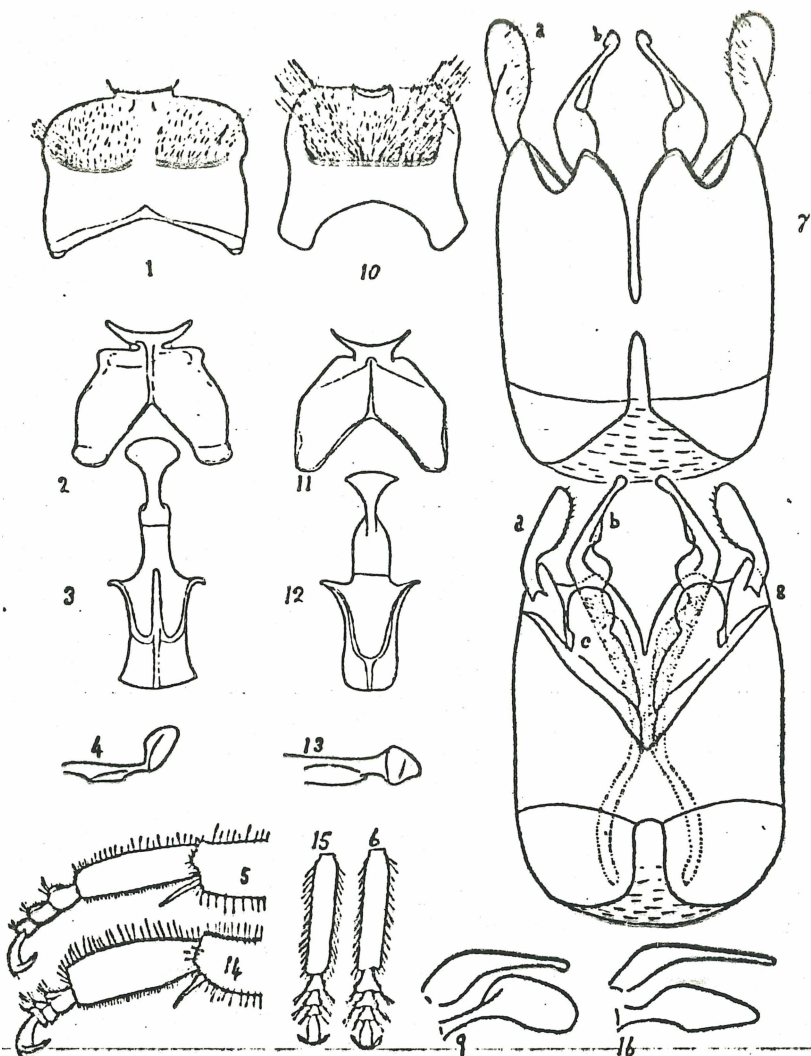
Panurginus tyrolensis, sp. n.

Male.—Black; clypeus covered by a white patch, which is broadly sinuate at upper lateral margin; small spot at apex of anterior femora, broad streak along anterior margin of fore tibiæ, fore tarsi, mid-basitarsus, and all the tibial spurs whitish yellow. Mid-tarsal segments 2-5 pale brown. Pterostigma and venation dark brown. Length 7.5 mm.

Hairs all whitish; rather long and dense on the whole head, including scape of antennæ, thorax including the median segment (shorter on pronotum), and legs; shorter and denser on ventral surface of tarsi; dorsal surface of

abdomen nearly bare except quite laterally: tergites 6-7 with dense long hairs; abdominal sternites with very short sparse hairs, except at the sides.

Head broader than long, without the eyes not quite quadrate, produced behind the eyes a distance equal to three-quarters the length of scape; posterior angles rounded, but rather strong; posterior margin broadly emarginate. Labrum smooth, very shining, slightly impressed transversely; oculo-malar space almost obliterated, about as broad as one-third the width of second antennal segment; clypeus shining with large sparse punctures, faintly alutaceous and less shining on upper third; genæ smooth and shining below, but for most of their area with large, moderately closely-set punctures (more numerous nearer the eyes) and alutaceous, rather dull; supraclypeal plate moderately shining, faintly alutaceous, hardly punctured; vertex coriaceous, dull, with moderately close, almost obliterated, shallow punctures; a narrow smooth area in front of median ocellus and a small round one just lateral to each lateral ocellus; tempora smooth, shining, moderately sparsely and coarsely punctured; antennal sockets separated by three times their diameter; scape about as long as four times the diameter of a socket; third antennal segment about one and a half times as long as broad, fourth and fifth just transverse, sixth to twelfth quadrate, thirteenth twice as long as broad; ocelli rather well raised on the vertex, distance separating the outer margin of each lateral ocellus to distance from outer margin to nearest point of eye as 3:4; distance from median ocellus to lateral equal to rather less than half that separating the two laterals; inner orbit with a longitudinal impression (as long as scape of antennæ) proceeding downwards from a point just below top of eye. Mesonotum rather closely and finely punctured, shining behind, dull and alutaceous in the anterior third. Whole pleuron and sides of median segment dull, coarsely alutaceous, pleuron obsoletely but moderately closely punctured; mesosternum more shining; sides of pronotum rather dull, moderately alutaceous, unpunctured; scutellum slightly impressed in the centre, rather closely and strongly punctured, shining in front, dull and coarsely alutaceous behind; postscutellum dull, strongly alutaceous and sparsely and obsoletely punctured; dorsal area of median segment a little longer than the postscutellum, transversely impressed in the centre, with an ill-defined crescentic, irregularly and moderately strongly rugose area, dull; outside this area it is finely rugose, dull; posterior surface



Panurginus tyrolensis, sp. n.

1. 6th sternite.
2. 7th sternite.
3. 8th sternite.
4. 8th sternite, lateral view of apex.
5. Hind tarsus, lateral view.
6. Mid-tarsus, dorsal view.
7. Male genitalia, dorsal view. *a*, squama; *b*, sagitta.
8. The same, ventral view. *a*, squama; *b*, sagitta; *c*, volsella.
9. The same, lateral view of squama and sagitta.

Panurginus montanus, Gir.

10. 6th sternite.
11. 7th sternite.
12. 8th sternite.
13. 8th sternite, lateral view of apex.
14. Hind tarsus, lateral view.
15. Mid-tarsus, dorsal view.
16. Male genitalia, lateral view of squama and sagitta.

finely rugose, centrally dull, laterally shining, with three circular pits, the central the largest, just above the reception of the abdomen. Segments 2 to 4 of mid-tarsi (fig. 6) somewhat expanded, segment 2 as long as broad; first segment of hind tarsi (fig. 5) almost half as long as the tibia, five times as broad, about as long as the remaining tarsal segments taken together. Fore wings with second submarginal cell receiving both recurrent veins, one just after the first transverse cubital, the other just before the second; the second submarginal cell narrowed towards costa, twice as broad on cubitus as it is on radius. Abdomen dull, finely alutaceous throughout, practically unpunctured, but with traces of fine close punctures on tergites 1-2; apical impressions moderately broad, more shining than basal part of tergites, but still finely transversely aciculate; sternites 1-4 simple, 5 truncate, centrally slightly impressed, with distinct apico-lateral tufts of pale hairs; 6 (fig. 1) obsoletely keeled centrally, with produced apical lobe including about one-third of apical margin, bearing inconspicuous hairs and defined laterally by fine spines, the sternite with inconspicuous, strictly lateral hair-tufts; 7 (fig. 2) bearing a bilobed apical process, the apical margin of sternite forming a distinct angle with sides; 8 (fig. 3) with two lateral arms and a long apical process bearing an expanded apical lobe (fig. 4), which is thin and considerably flexed ventrally; genitalia (figs. 7 & 8), with the squama in lateral view considerably expanded, broadly ovate, apex of sagitta distinctly knobbed (fig. 9).

Female.—Black; fore tarsi with segments 2 to 5 yellowish brown; tibial spurs and annulations of four posterior tarsi yellowish white. Venation and pterostigma dark brown. Length 7 mm.

Hairs all whitish; moderately long and dense on whole head, including scape of antennae, thorax except pronotum, upper part of sides of median segment, legs except ventral surface of tarsi. Dorsal surface of abdomen nearly bare except at extreme sides, tergites 5 and 6 with long, pale fusco-whitish hairs; sternites 1-4 with short sparse hairs, longer and denser on 5 and 6.

Head very broad, face not including the eyes distinctly broader than long, produced behind the eyes a distance equal to two-thirds the length of the scape; posterior angles rounded, not very prominent; posterior margin rather strongly emarginate. Labrum with a coarsely granulate, hairy, ventral region and a smooth, shining, transversely impressed

dorsal region ; oculo-malar space just obliterated ; clypeus shining, with large, very sparse punctures, the posterior half a little duller, finely alutaceous ; genae ventrally smooth and shining, but for the greater part with moderately large, not very close punctures, finely alutaceous, moderately shining ; supraclypeal plate shining, hardly alutaceous except at sides, sparsely and obsoletely punctured ; vertex coriaceous, dull with fairly close but shallow and indistinct punctures, a large triangular area in front of median ocellus and a smaller circular one just laterally to each lateral ocellus, smooth and shining ; tempora smooth and shining, sparsely and rather finely punctured ; antennal sockets separated by three times their diameter ; scape of antenna about four times as long as an antennal socket, third segment about one and a half times as long as broad, fourth to eleventh quadrate, twelfth nearly twice as long as broad, antennae a little thickened to apex ; ocelli rather well raised on vertex, distance separating outer margin of each ocellus to distance from outer margin to nearest point of eye as 3 to 4 ; distance from median ocellus to lateral equal to rather less than half that separating two laterals ; inner orbits with a smooth longitudinal impression from just below top of eye to level of bottom of antennal socket, as long as scape and segment 2 of antenna. Mesonotum moderately finely and closely punctured, shining behind, alutaceous on anterior third, with a fine median impressed line ; thoracic pleuron and sides of median segment coarsely alutaceous, dull, mesopleuron obsoletely and moderately closely punctured ; mesosternum more shining ; scutellum hardly impressed, shining, dull and alutaceous on posterior third, with sparse shallow punctures ; postscutellum dull, coarsely alutaceous, with obsolete punctures ; dorsal area of median segment nearly as long as scutellum, hardly impressed, with an ill-defined crescentic, irregularly and rather strongly rugose area, dull ; outside this area it is a little more shining, finely rugose ; posterior surface coarsely alutaceous, moderately shining, with three small circular pits, the central the largest, just above reception of abdomen. Fore wing with second submarginal cell receiving second recurrent vein just before the second transverse cubital, first recurrent interstitial ; second submarginal cell narrowed towards costa, twice as broad on cubitus as on radius. Abdomen moderately shining, finely alutaceous, unpunctured ; the moderately broad shallow apical impressions are sculptured just like base of tergites ; pygidial area dull, alutaceous, moderately broadly triangular, finely margined,

disc slightly raised; sternites sparsely hairy (5 and 6 more densely), shining, very finely alutaceous, sparsely and not very finely punctured.

Type, ♂, Oetz, Tyrol, Austria, on the way up to the Bielefelde Hütte, ca. 7000 ft., 14 July, 1930 (in coll. Brit. Mus.). *Paratypes*, 1 ♀ with the same data, 1 ♂ above Krimml, Salzburg, 10 July, 1930 (in my collection).

Panurginus montanus, Gir.

Panurginus montanus, Giraud, 1861, p. 453.

Giraud's description agrees well with a species I captured in numbers at Ferleiten, Salzburg, Austria. Giraud's capture was made in the same district (1 ♂, Mts. of Gastein). In my series nearly all the males have the hind tarsi dirty white, but rarely they are black, as in *P. tyrolensis*. Giraud described one of the latter exceptional specimens, and all subsequent authors have copied his description in this respect, though it is unlikely that the specimens they examined really had black tarsi.

Male.—Like *P. tyrolensis*, except: a small spot beneath the anterior tibiae pale; mid-tarsi pale throughout; hind tarsi dirty whitish. Length 7 mm. Oculo-malar space hardly perceptibly longer; supraclypeal plate duller, much more strongly alutaceous; vertex with no smooth areas by the ocelli; fourth and fifth antennal segments hardly transverse; impressions on inner orbits nearly obsolete, not as long as scape; dorsal area of median segment less obviously impressed; segments 2 to 5 of mid-tarsi (fig. 15) not expanded, second segment once and a half longer than broad; first segment of hind tarsi (fig. 14) distinctly shorter than half length of tibiae, about three and a half times longer than broad, distinctly longer than remaining tarsal segments; apical impressions of abdomen rather more shining; sternite 5 broadly emarginate at apex; 6 (fig. 10) with a similar apical lobe, covered with dense short yellowish hairs, not defined by two spines, hair-tufts large, conspicuous, arising from the greater part of surface of sternite; 7 (fig. 11) with the prongs of bilobed apical process finer, apical margin and sides of sternite not forming such a distinct angle with one another; 8 (figs. 12 & 13) with apical lobe thick and little flexed ventrally; genitalia (fig. 16) with squama in lateral view lozenge-shaped, narrowed apically, apex of sagitta not knobbed.

Female.—Like *P. tyrolensis*, except: length 7.5 mm. Head rather narrower; face, without eyes, a little longer than broad; oculo-malar space distinct, about as long as half width of second antennal segment; basal half of clypeus strongly alutaceous, strongly contrasting with apical half; upper part of genæ duller, more coarsely alutaceous; supra-clypeal plate a little duller; no smooth shining areas on vertex; impressions on inner orbits dull; mesonotum finely alutaceous throughout, dull, only disc moderately shining; dorsal area of median segment hardly longer than post-scutellum, coarsely alutaceous, dull, not rugose; posterior surface duller; disc of pygidial area flat.

Specimens examined.—21 ♂, above Ferleiten, Salzburg, Austria, ca. 7000 ft., 30 June, 1930 (mostly on *Ranunculus* sp., some on *Potentilla aurea*); 1 ♂, 1 ♀, the same place, 1 July, 1930; 3 ♂, the same place, 3 July, 1930 (on *Dryas octopetala*).

In the collection of the British Museum are the following specimens:—1 ♂, no locality (F. Smith coll.); 2 ♂, 2 ♀, —Andermatt, 9 July, 1884 (Fries); 1 ♂, 1 ♀, Lautaret, 15 July (E. Saunders coll.); 1 ♀, Stilfersjoch, 1890 (*Brauer-Handlirsch*); 1 ♀, Simplon Hospice, 29 August, 1895 (E. Saunders coll.). Except the first, all these specimens had been determined by either Saunders or Fries. In one of the Andermatt males the hind tarsi are almost quite black. In the females from the Swiss and French Alps the upper part of the clypeus is not so conspicuously dull, and there are sometimes faint traces of small shining spaces on the vertex.

According to Fries (1901, p. 19) the species occurs in the Alps at the upper tree-limit, where it is not rare at the end of June and in July on *Ranunculus* and *Hieracium*. Frey-Gessner (1899–1907, p. 341) states that it is not rare in Switzerland in July and August in the Alpine region (1600–2200 m.), on the flowers of the Cichoriaceæ.

Panurginus sp.?

Female.—Resembles *P. tyrolensis*, except: four hind tarsi all pale brown; length 7 mm. Head rather narrower; posterior half of clypeus rather duller; supra-clypeal plate a little duller; smooth areas on vertex smaller and duller; impressions on inner orbit duller and shallower; mesonotum rather more closely punctured, duller; dorsal area of median segment very obsoletely rugose, hardly impressed; posterior surface duller. Abdomen with sparse, very fine punctures on first and second tergites; pygidial area distinctly narrower.

1 ♀, Seiser Alpe, N. Italy, ca. 5000 ft., 31 Aug., 1925, on a yellow composite. More material, including the male sex, is required to settle the status of this form.

I am much indebted to Mr. R. H. Bunting for assistance in reproducing the figures.

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X.—*The March Brown*, *Rhithrogena haarupi*, Esb.-Peters., not *Ecdyurus venosus*, F. (*Ephemeroptera*). By MARTIN E. MOSELY, F.E.S.

[Plates II. & III.]

It will be something of a surprise to entomologists to learn that a fly which has been well known to British trout-fishermen for nearly five hundred years is not only unrecorded in the list of British Ephemeroptera, but is, moreover, entirely unknown to scientific as distinct from fly-fishing entomology.

I refer to the fisherman's March Brown, a fly in the subimago stage which is nearly the first trout-fly in the season to attract particular attention and to have a definite period of its own.

The earliest mention in angling literature of the name March Brown occurs in Ronalds's 'Fly-Fishers' Entomology,' published in 1836. It appears again in Aldam's 'A Quaint Treatise on Flies and the Art a Artyfichall Flee Making,' which was published in 1876. In his Preface, the author of this work explains that the 'Treatise' is from an MS. some seventy years old, so that one may infer that the name was in use in 1806.

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