

Eight New Taxa of the Genera *Odontotrypes* and *Phelotrupes* (Coleoptera: Geotrupidae) from China

by

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Abstract - Six new species of the genus *Odontotrypes* are described from China: *O. (Thorectomimus) zeduoensis* sp. nov., and *O. (T.) xinluhaiensis* sp. nov., both from Sichuan; *O. (T.) lazikouensis* sp. nov. from Gansu; *O. (Odontotrypes) erchushanus* sp. nov., *O. (O.) guoluoshanus* sp. nov., and *O. (O.) abaensis* sp. nov., all from Sichuan. Additionally, two new subspecies of *Phelotrupes* are described from Yunnan, China: *P. (Eogeotrupes) schoolmeestersi gaoligongicus* ssp. nov., and *P. (Phelotrupes) reni daxueshanus* ssp. nov.

The genera *Odontotrypes* and *Phelotrupes* have been known to highly diversify in China, which harbors about 80% of known species for each of the genera (KRÁL *et al.*, 2001; NIKOLAJEV *et al.*, 2016; SCHOOLMEESTERS, 2017).

In recent years, we have been studying specimens of *Odontotrypes* and *Phelotrupes* from China in the first author's collection together with those provided by several collaborators (OCHI *et al.*, 2010, 2017a, b, c). In the present paper, we describe eight new taxa of *Odontotrypes* and *Phelotrupes* from China.

We herewith define some terms used in the following descriptions of the male genitalia, as follows [see also ZUNINO (1984) and OCHI *et al.* (2017b)]: 1) ventral lobes: a pair of apical portions of phallobase (visible in ventral view), which are separated by markedly wide and deep incision; 2) sagittary ventral suture: a longitudinal suture situated at the middle of ventral side of phallobase; 3) ventral apico-median area: an area situated at apico-median portion of parameres (visible in ventral view), which is usually sclerotised; 4) inner oblique stick: an oblique stick-like projection, which is branched from the intero-basal portion of left paramere (visible in dorsal view), which is usually directed obliquely inward, and mostly more or less sharp at apex (applied to *Odontotrypes* only); 5) outer broader lobe: a strongly prolonged outer lobe of left paramere (visible in dorsal view), which is separated from the inner oblique stick by a median deep notch, gently incurved, mostly more or less tumid at apex, and often with a slight thin membrane at inner side of apex (applied to *Odontotrypes* only); 6) left spatula: a strongly elongate outer lobe of left paramere, which is situated at outermost portion of left paramere, along with the prolonged left lobe of phallobase, and spatulate at apex (applied to *Odontotrypes* only).

The abbreviations for measurements (in mm) are as follows: Pl, pronotal length along the midline; Pw, pronotal width at the widest place; El, elytral length from the level of humeri to the apices of elytra; Ew, elytral width at the widest place; Phl, phallobase length; Phw, phallobase width; Prl, paramere length in dorsal view.

***Odontotrypes (Thorectomimus) zeduoensis* sp. nov.** Figs. 1, 9, 15-16

Description of holotype

Length: 12.2 mm (excluding mandibles).

Male. Body small-sized for this genus, oblong-oval, strongly and somewhat evenly convex dorsally. Dorsal side strongly shining and glabrous; ventral side also shining except for sub-opaque abdominal ventrites, and distinctly clothed with blackish-brown hairs. Color monochromatically black; dorsal surface entirely without metallic tinge; ventral surface also without metallic tinge; mouth parts, palpi and legs slightly brownish; terminal spurs and claws brown; antennae almost black, partly with slight brownish tinge.

Head transverse, moderately produced forward; labrum broad, shallowly emarginate in the middle and rounded on either corner, rather densely and coarsely punctate; clypeus moderately produced forward, precisely semicircular in outline, with fine marginal line; clypeal median portion scarcely raised, median longitudinal keel and tubercle indistinct; clypeal suture finely but distinctly defined; T-shaped suture weakly depressed; eye tubercles weakly raised and vague; eye canthus with external margin obtusely angled in front, slightly curved and almost parallel-sided in the middle, and suddenly narrowed behind; surface shining, with clypeus weakly wrinkled and somewhat uneven, irregularly and somewhat densely covered with indefinite shallow punctures, which are distinctly sparse in the middle, posterior portion of head sparsely punctate, though impunctate and almost smooth on eye tubercles, eye canthus irregularly sculptured or granulate.

Pronotum transverse, evenly and strongly convex dorsally, simply formed, about 1.7 times as wide as long (Pl : Pw = 3.7 : 4.6), widest at basal 3/7; median longitudinal groove very weak, barely perceptible; anterior margin emarginate and thickly membranous in median 1/2, with marginal line thick and scarcely raised in the middle, becoming thinner toward either side; lateral margins smooth and not crenulate throughout, gently rounded and thickly bordered in basal 1/3, and then almost linearly narrowed and thinly bordered toward apex in apical 2/3; anterior angles slightly produced forward and rounded, posterior ones obtuse; basal margin weakly bisinuate, with marginal border weak, partly very weak on either side; disc shallowly and transversely grooved along anterior margin; lateral fovea very weak, postero-medial fovea lacking; surface shining, punctulate all over, very sparsely and fairly irregularly covered with strong even punctures in the middle, the punctures becoming slightly denser and stronger toward lateral margin. Scutellum broadly triangular in outline, shining, with several punctures at the middle.

Elytra short, strongly convex, about 1.1 times as wide as long (El : Ew = 6.4 : 7.2), slightly wider than pronotum in maximum width and widest at basal 1/3, with humeral callus fairly weak, scarcely perceptible, and with either lateral portion noticeably broadly flattened almost throughout along lateral margin; disc strongly convex, each with fine striae, which are partly effaced or almost reduced and sometimes partly forming strong zigzag lines; striae punctures strong, distinct to indefinite, sometimes with oblique or transverse irregular strong scratches or wrinkles; intervals flat, shining and very smooth, without any micro-granules except for lateral flattened portion along lateral margin where is densely, irregularly, and transversely covered with numerous rough strong wrinkles or sculptures. Micropterous, metathoracic wing heavily atrophied, about 1.5 mm in maximum length.

Femora almost strongly shining; metafemora each with ventral side bearing one indented transverse ridge between anterior and posterior margins, which is located at apical 1/6. Protibiae slightly incurved, strongly broadened toward apex, with 6 external teeth (in right protibia), which are gradually decreasing in size from apex to base; the 1st tooth fairly large and elongate; ventral side armed with 5-6 sharp teeth in longitudinal row on the ventro-medial edge, of which the largest one is located at apical 1/2; terminal spur slender and slightly curved.

Aedeagus wide and rather short. Phallobase asymmetrical, Phl 2.6 mm and Phw 1.1 mm in ventral view; ventral side with sagittal ventral suture distinct, antero-median portion much deeply and broadly incised and separated into two ventral lobes, right ventral lobe a little broader than the left one, incurved, and rather broad near apex, left ventral lobe simply formed. Parameres broad and remarkably asymmetrical, Prl 1.1 mm in dorsal view; in dorsal view, left paramere broad basally and forked at inner basal 1/3, inner oblique stick distinctly broader than in congeners, rather obtuse at apex, outer broader lobe relatively robust, almost straight, the apex with small inner triangular thin membrane at inner side; right paramere simply prolonged along right

lobe of phallobase and gently incurved, slightly tumid at apex; ventral apico-median area defined in rough V-shape.

Variation. Length: 10.9- 12.2 mm (n=5). Male genitalia with parameres 1.1 mm in length in dorsal view (n=2). In one male specimen metafemora with ventral side bearing two indented transverse ridges between anterior and posterior margins and the remaining three female specimens with only one transverse ridge as well as the holotype. Female. Head with clypeal wrinkles a little stronger than in male; eye tubercles only slightly weaker than those of male, almost impunctate or at most with several very fine punctures. Elytra with intervals more strongly and irregularly wrinkled or scratched. Protibiae slightly broader than in male.

Type series. Holotype: ♂, China, Sichuan, nr. Kanding, Zeduo Pass (about 3700 m alt.) VII.1989. Paratypes: 1 ♂, 3 ♀ ♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Sichuan).

Etymology. The specific name is after the type locality, "Zeduo".

Notes. The present new species is closely related to *Odontotrypes (Thorectomimus) schoolmeestersi* Ochi, Kon & Bai, 2017 from China (Sichuan), but can be distinguished from the latter by the following characteristics: 1) elytron with lateral portion along lateral margin noticeably broadly flattened and densely covered with strong transverse wrinkles or sculptures, whereas in *O. (T.) schoolmeestersi*, it is less broadly flattened and with the transverse wrinkles or sculptures distinctly weaker and finer; 2) head with clypeus distinctly sparsely punctate and eye tubercle almost impunctate, whereas in *O. (T.) schoolmeestersi*, the former is more densely punctate and the latter is sparsely punctate; 3) elytron with striae punctures strong, intervals smooth, whereas in *O. (T.) schoolmeestersi*, the former are obviously weaker and the latter are partly micro-granulose; 4) male genitalia quite differently shaped.

Odontotrypes (Thorectomimus) xinluhaiensis sp. nov. Figs. 2, 10, 17-18

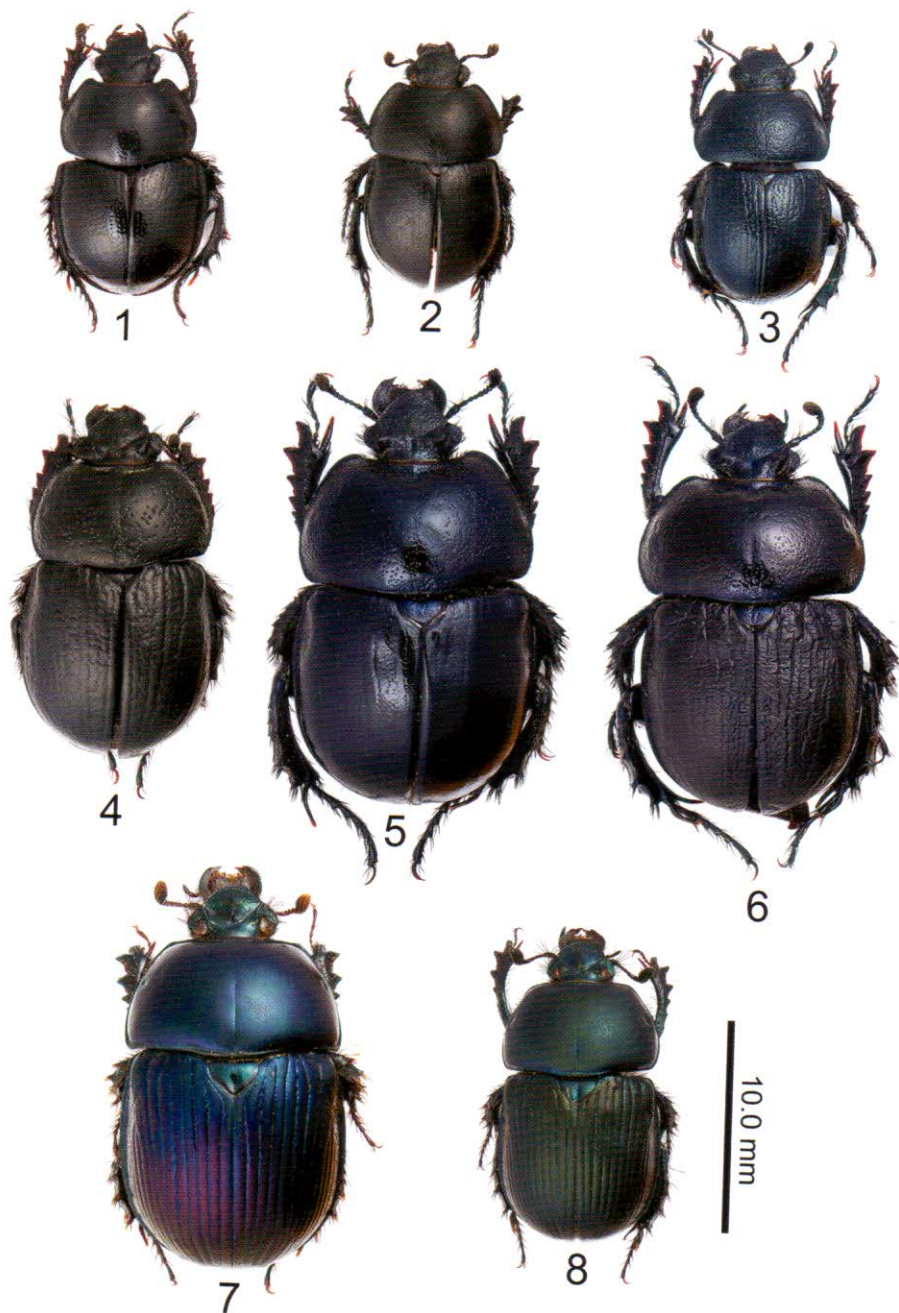
Description of holotype

Length: 11.6 mm (excluding mandibles).

Male. Body small-sized, oblong-oval, strongly and somewhat evenly convex above. Dorsal side faintly shining and glabrous; ventral side sub-opaque except for shining legs, and distinctly clothed with blackish brown hairs. Color uniformly black; dorsal and ventral surfaces without metallic luster; mouth parts, palpi and legs a little brownish; terminal spurs and claws brown; antennae almost black.

Head transverse, less strongly produced forward; labrum broad, shallowly emarginate in the middle and rounded on either corner, coarsely punctate; clypeus less strongly produced forward, broadly and transversely elliptical in outline, finely bordered; clypeal median portion slightly raised, with tubercle vague and median longitudinal keel undeveloped and indistinct; clypeal suture finely defined and well visible; T-shaped suture almost effaced; eye tubercles weak, slightly raised; eye canthus with external margin rounded in front and behind, weakly curved in the middle; surface slightly uneven, very densely punctate and densely wrinkled or sculptured, the punctures becoming partly confluent, with eye canthus irregularly sculptured or granulate.

Pronotum transverse, evenly and strongly convex, simply formed, about 1.8 times as wide as long (Pl : Pw = 3.6 : 6.3), widest at basal 4/7; median longitudinal line very obtuse; anterior margin emarginate and thickly membranous in median 4/7, with marginal line fairly thick in the middle, thin on either side; lateral margins smooth and non-crenulate throughout, gently rounded or almost parallel and thickly bordered from base to basal 3/7, then almost linearly narrowed and thinly bordered toward apex in apical 4/7; anterior angles



Figs. 1-8. Habitus, in dorsal view, scale 10 mm. 1, *Odontotrypes (Thorectomimus) zeduoensis* sp. nov., male (holotype); 2, *O. (T.) xinluhaiensis* sp. nov., male (holotype); 3, *O. (T.) lazikouensis* sp. nov., male (holotype); 4, *O. (Odontotrypes) erchushanus* sp. nov., male (holotype); 5, *O. (O.) guoluoshanus* sp. nov., male (holotype); 6, *O. (O.) abaensis* sp. nov., male (holotype); 7, *Phelotrupes (Eogeotrupes) schoolmeestersi gaoligongicus* ssp. nov., male (holotype); 8, *P. (Phelotrupes) reni daxueshanus* ssp. nov., male (holotype).

slightly produced forward and rounded, posterior ones obtuse; basal margin slightly bisinuate, thinly bordered in the middle, the marginal line fine or indistinct on either side; disc shallowly, finely and transversely grooved along anterior margin, the groove slightly broad at the middle; lateral fovea traceable, barely visible, postero-medial fovea lacking; surface faintly shining, irregularly sparsely and strongly punctate in the middle, densely and fairly strongly punctate and wrinkled or sculptured on marginal portions, especially so at extreme sides. Scutellum broadly triangular in outline, sub-opaque, with a few indefinite punctures at the middle.

Elytra relatively short, strongly convex, about 1.1 times as wide as long (El : Ew = 5.9 : 6.2), only slightly narrower than pronotum in maximum width and widest at basal 1/3, with humeral callus fairly weak, and with either lateral portion distinctly narrowly flattened along lateral margin; disc strongly convex, each with weak striae, which are partly traceable or effaced, and sometimes partly forming zigzag lines; striae punctures mostly indefinite, partly effaced or often bearing oblique or transverse irregular wrinkles or scratches; intervals uneven, a little shining though weakly micro-granulose, irregularly and strongly wrinkled or scratched, the wrinkles or scratches becoming noticeably stronger toward lateral margin. Micropterous, metathoracic wing heavily atrophied, about 1.9 mm in maximum length.

Femora shining and smooth; metafemora each with ventral side bearing two indented transverse ridges between anterior and posterior margins, the 1st one located at apical 1/7, and the 2nd one at basal 2/7. Protibiae somewhat strongly dilated apicad, slightly incurved, with 4-5 external teeth, which are gradually decreasing in size from apex to base, the 1st tooth large and elongate; ventral side armed with 5-6 small teeth in longitudinal row on the ventro-medial edge, of which the 1st large one is situated at apical 1/2; terminal spur fairly slender and slightly incurved.

Aedeagus narrow and elongate. Phallobase asymmetrical, Phl 2.7 mm and Phw 0.8 mm in ventral view; ventral side with sagittal ventral suture distinct, antero-medial portion much deeply and broadly incised and separated into two ventral lobes, right ventral lobe distinctly broader than the left one near apex, incurved, and simply constricted toward apex, left ventral lobe narrow, simply formed, sharp at apex. Parameres remarkably asymmetrical, Prl 1.0 mm in dorsal view; in dorsal view, left paramere relatively narrow basally and forked at basal third of inner side, with inner oblique stick very slender, strongly prolonged, sharply pointed apicad, outer broader lobe almost simply prolonged apicad, and slightly tumid near apex, which bears small inner triangular thin membrane a little prior to distal end; right paramere simply prolonged along right lobe of phallobase and gently incurved, narrowly sclerotized along inner margin throughout; ventral apico-medial area defined in rough V-shape.

Variation. Length: 11.6-13.6 mm (n=5). Female. Head with clypeal surface more densely and more strongly punctate than in male, and the superficial wrinkles denser and stronger. Pronotum with anterior marginal line somewhat thicker and slightly raised in the middle; lateral margin more broadly rounded in the middle; punctures stronger and more numerous though irregularly scattered. Protibiae broader and more distinctly incurved than in male, with external teeth slightly stronger; terminal spur a little bolder.

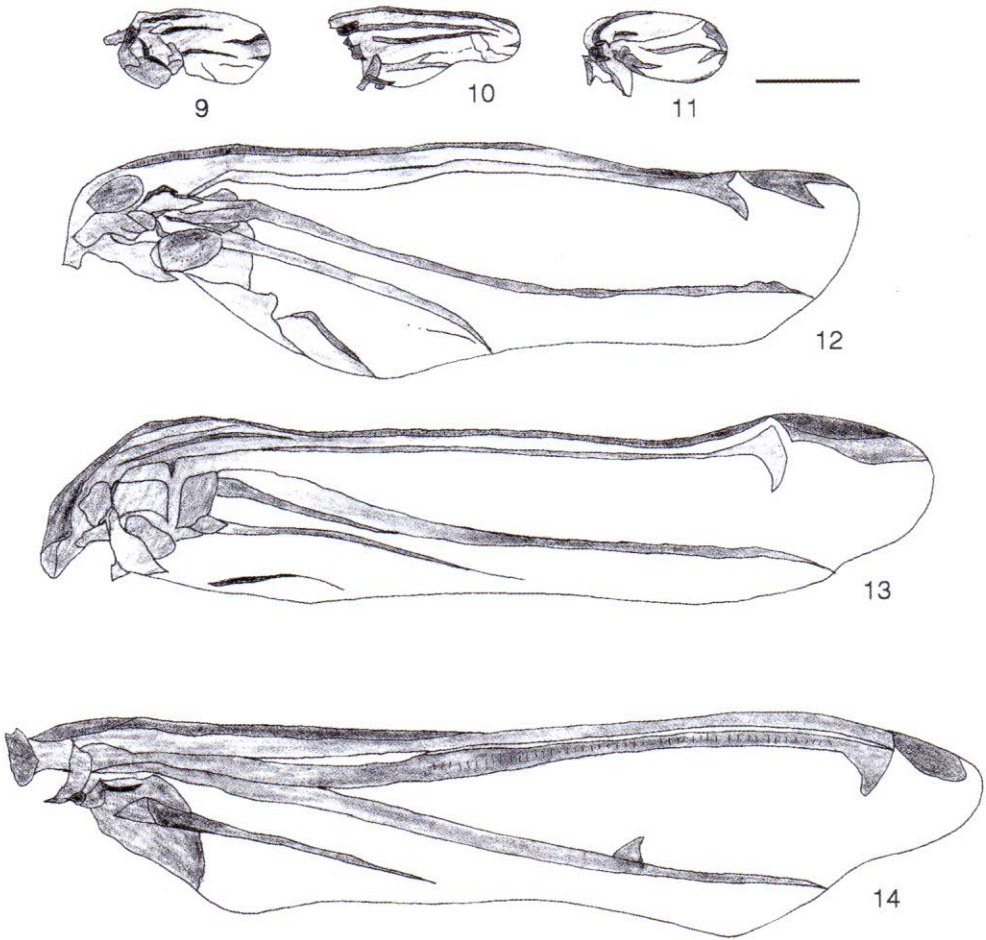
Type series. Holotype: ♂, China, NW. Sichuan, Xinluhai (about 4100 m alt.) VII.1990. Paratypes: 1 ♂, 3 ♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Sichuan).

Etymology. The specific name is after the type locality, "Xinluhai".

Notes. The present new species is closely related to *Odontotrypes* (*Thorectomimus*) *weiweii*, 2017 from China (Sichuan), but can be distinguished from the latter by the following characteristics: 1) elytron with lateral flattened area along lateral margin fairly narrow, whereas in *O. (T.) weiweii*, it is distinctly broad; 2) head slightly but more strongly produced forward (strongly so in the clypeus) than in *O. (T.) weiweii*; 3) metathoracic wing slightly longer and



Figs. 9-14. Right metathoracic wing of *Odontotrypes*, in dorsal view, scale line 1 mm. 9, *Odontotrypes* (*Thorectomimus*) *zeduoensis* sp. nov., male (holotype); 10, *O. (T.) xinluhaiensis* sp. nov., male (holotype); 11, *O. (T.) lazikouensis* sp. nov., male (holotype); 12, *O. (O.) erchushanus* sp. nov., male (holotype); 13, *O. (O.) guoluoshanus* sp. nov., male (holotype); 14, *O. (O.) abaensis* sp. nov., male (holotype).

differently shaped; 4) male genitalia with phallobase distinctly longer, with outer broader lobe of left paramere slenderer and apex more strongly prolonged.

***Odontotrypes (Thorectomimus) lazikouensis* sp. nov.** Figs. 3, 11, 19-20

Description of holotype

Male. Length: 11.9 mm (excluding mandibles).

Body small-sized, elongate-oval, strongly convex dorsally, with legs obviously longer than in congeners, especially metafemora noticeable so. Dorsal side weakly shining and glabrous; ventral side sub-opaque to weakly shining, and distinctly clothed with dark brown hairs. Color black; dorsal surface partly tinged with weak bluish luster; ventral surface also tinged with the same color as that of dorsum; mouth parts,

palpi and legs a little brownish; terminal spurs and claws brown; antennae almost black.

Head transverse, less strongly produced forward; labrum distinctly and broadly emarginate in the middle and rounded on either corner, coarsely punctate; clypeus weakly produced forward, fairly broadly and transversely elliptical in outline, finely bordered; clypeal median portion scarcely raised, with both tubercle and median longitudinal keel indistinct; clypeal suture somewhat finely but strongly defined; T-shaped suture obviously depressed; eye tubercles rather strongly raised; eye canthus with external margin roundly and obtusely angled in front, weakly curved in the middle and strongly narrowed behind; surface of clypeus somewhat uneven, very densely, irregularly and fairly strongly punctate, and closely wrinkled or sculptured, the punctures becoming partly confluent, posterior portion of head also similarly punctate as clypeus, eye canthus irregularly sculptured or granulate.

Pronotum transverse, evenly and strongly convex, simply formed, about 1.7 times as wide as long (Pl : Pw = 3.7 : 6.4), widest at basal 7/15; median longitudinal line obtuse, barely visible by the naked eye; anterior margin emarginate and thickly membranous in median 4/7, with marginal line fairly thick and slightly raised in the middle, thin on either side; lateral margins smooth and non-crenulate throughout, gently rounded and thickly bordered from base to basal 3/7, and then linearly narrowed and thinly bordered toward apex in apical 4/7; anterior angles rather strongly produced forward and rounded, posterior ones obtuse; basal margin weakly bisinuate, thinly bordered in the middle, the marginal line fine or indistinct on either side; disc slightly and transversely grooved along anterior margin, the groove scarcely broadened at the middle; lateral fovea traceable, barely visible, postero-medial fovea lacking; surface weakly shining, irregularly and partly densely covered with fairly strong punctures in the middle, which become denser and larger laterad, with lateral marginal portions densely and strongly wrinkled or sculptured. Scutellum triangular in outline and distinctly narrower than in congeners, thinly depressed along either lateral margin, shining, with a few punctures or sculptures at the middle.

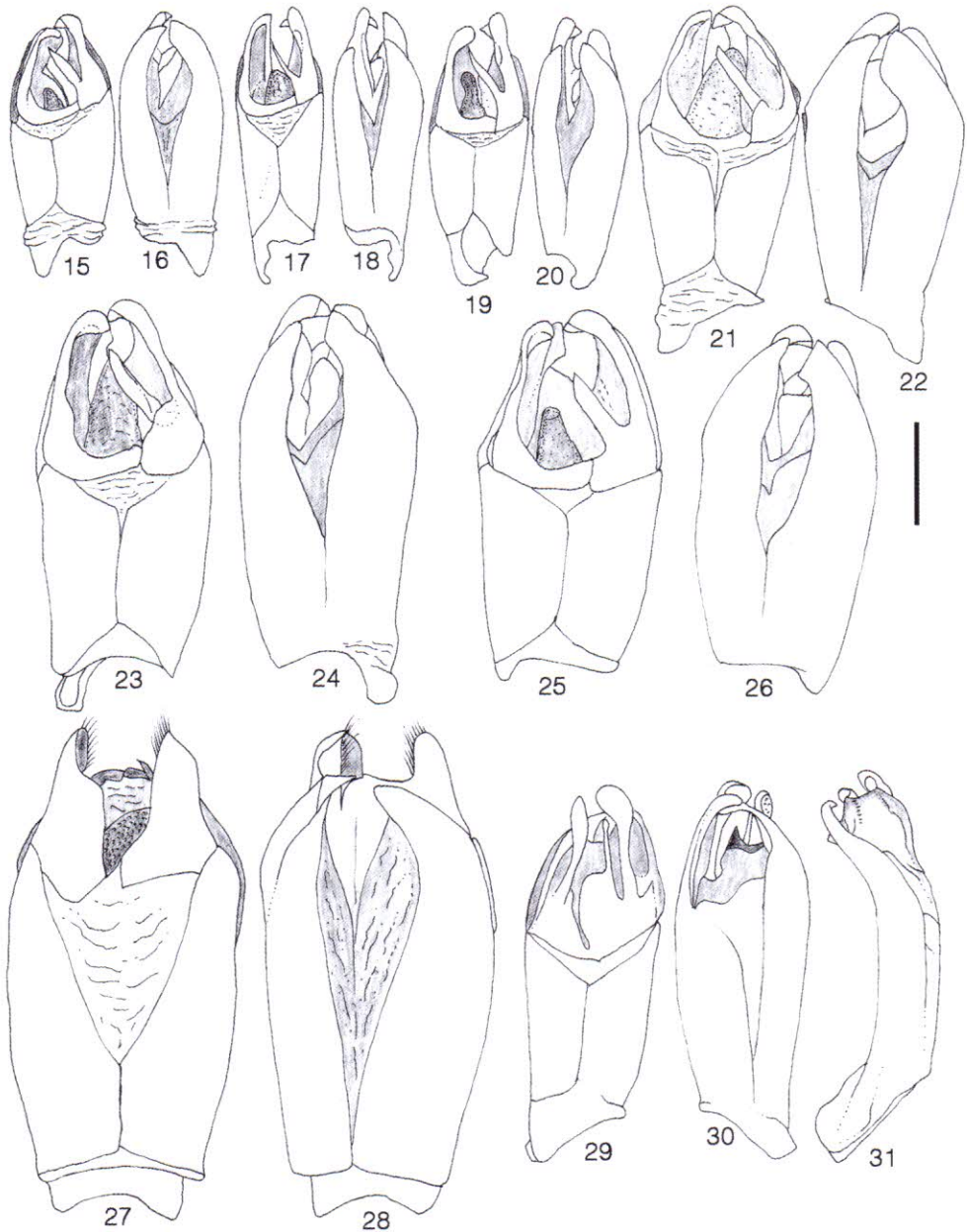
Elytra relatively short, strongly convex, about 1.0 times as wide as long (El : Ew = 6.5 : 6.7), only slightly narrower than pronotum in maximum width and widest at basal 1/3, with humeral callus weak, and with either lateral portion broadly flattened along lateral margin, which is densely and transversely relieved or sculptured; disc strongly convex, each with 14 barely countable striae, which are partly traceable or effaced, and often forming slight zigzag lines; stria punctures mostly indefinite, partly effaced or often bearing oblique or transverse irregular wrinkles or deep scratches; intervals weakly convex and somewhat uneven, shining without microgranules, irregularly and strongly wrinkled or scratched, the wrinkles or scratches becoming noticeably stronger toward either lateral margin; suture almost flat, not costate. Micropterous, metathoracic wing heavily atrophied, almost simply elliptical in outline, about 1.4 mm in maximum length.

Femora weakly shining, scarcely smooth and obtusely wrinkled; metafemora distinctly long, apical portion of dorsal surface well noticeable, with ventral side bearing two indented transverse ridges between anterior and posterior margins, the 1st one located at apical 1/6, and the 2nd one at basal 2/6. Protibiae moderately strongly dilated apicad, slightly incurved, with 5-6 external teeth, which are gradually decreasing in size from apex to base, the 1st tooth not so large and somewhat short; ventral side armed with 7-8 small teeth in longitudinal row on the ventro-medial edge, of which the 1st large one is situated at apical 1/2; terminal spur slender and slightly incurved.

Aedeagus broad and robust. Phallobase asymmetrical, Phl 2.7 mm and Phw 1.1 mm in ventral view; ventral side with sagittal ventral suture distinct, antero-median portion much deeply and broadly incised and separated into two ventral lobes, right ventral lobe distinctly broader than the left one, incurved, and rounded at apex, left ventral lobe narrow, simply formed, rather sharp at apex. Parameres rather long and remarkably asymmetrical, Prl 1.2 mm in dorsal view; in dorsal view, left paramere relatively narrow basally and forked at basal 5/12 of inner side, with inner oblique stick somewhat broad, strongly prolonged, obtusely pointed at apex, outer broader lobe stout, almost simply prolonged apicad, and tumid near apex, which bears small inner triangular thin membrane a little prior to distal end; right paramere prolonged along right lobe of phallobase, gently incurved, and noticeably tumid at apex; ventral apico-median area defined in rough V-shape.

Female unknown.

Holotype: ♂, China, Gansu, Lazikou Pass (about 3900 m alt.) VII.1990.



Figs. 15-31. Male genitalia of *Odontotrypes* and *Phelotrupes*, scale line 1 mm. 15, 17, 19, 21, 23, 25, 27, 29, dorsal view; 16, 18, 20, 22, 24, 26, 28, 30, ventral view; 31, lateral view. 15-16, *Odontotrypes* (*Thorectomimus*) *zeduoensis* sp. nov. (holotype); 17-18, *O. (T.) xinluhaiensis* sp. nov. (holotype); 19-20, *O. (T.) lazikouensis* sp. nov. (holotype); 21-22, *O. (Odontotrypes) erchushanus* sp. nov. (holotype); 23-24, *O. (O.) guoluoshanus* sp. nov. (holotype); 25-26, *O. (O.) abaensis* sp. nov. (holotype); 27-28, *Phelotrupes* (*Eogeotrupes*) *schoolmeestersi gaoligongicus* ssp. nov. (holotype); 29-31, *P. (Phelotrupes) reni daxueshanus* ssp. nov. (holotype).

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Gansu).

Etymology. The specific name is after the type locality, "Lazikou".

Notes. The present new species is seemingly similar to *Odontotrypes* (*Odontotrupes*) *lassallei* Král *et al.*, 2001 from China (Sichuan), but can be distinguished from the latter by the following characteristics: 1) elytron with striae barely perceptible and countable, with intervals weakly uneven, whereas in *O. (O.) lassallei*, the former are scarcely perceptible and uncountable, and the latter are strongly uneven; 2) elytron with suture almost flat, not costate, whereas in *O. (O.) lassallei*, it is distinctly convex and strongly costate throughout; 3) metathoracic wing clearly short and more heavily atrophied, entirely differently shaped; 4) male genitalia with both parameres distinctly short and robust, the left one forked at basal 5/12, whereas in *O. (O.) lassallei*, they are long and more elongate, and the left one is forked at basal 2/12.

***Odontotrypes (Odontotrupes) erchushanus* sp. nov.** Figs. 4, 12, 21-22

Description of holotype

Length: 16.3 mm (excluding mandibles).

Male. Body moderate-sized for this genus, oblong-oval, strongly convex dorsally. Dorsum opaque and glabrous; venter almost opaque except for shining legs, and distinctly clothed with blackish brown hairs. Color black, partly slightly brownish; dorsal surface almost black though anterior marginal groove with very slight cupreous luster; ventral surface almost black; claws distinctly brown; antennae brownish black.

Head rather strongly produced anteriorly, sub-hexagonal in front in outline; labrum shallowly and rather broadly emarginate in front; clypeus triangularly produced forward, with either side parallel in basal 1/7 and then straightly narrowed toward rounded apex, marginal line fine and slightly reflexed; clypeal median portion scarcely raised, median longitudinal keel and tubercle entirely missing; clypeal suture finely defined as smooth line; T-shaped suture clearly depressed and shining; eye tubercles sharply produced upward, and apparently triangular process in lateral view; eye canthus broad, well produced laterad, with external margin obtusely angled in front and almost parallel-sided in the middle, rapidly narrowed behind; surface weakly shining, somewhat uneven, fairly wrinkled, densely and irregularly covered with indefinite punctures on clypeus, densely and rugosely punctate behind clypeal suture, and posterior-most portion opaque, micro-granulose and almost impunctate at the middle.

Pronotum transverse, strongly convex, almost simply formed except for apical transverse groove, about 1.6 times as wide as long ($P_l : P_w = 5.2 : 8.3$), widest at basal 2/5; median longitudinal line weakly and finely grooved in basal half, and almost effaced in apical half; anterior margin bisinuate, with marginal membrane thick, marginal line broadly biarcuate and weakly elevated medially, and becoming thinner laterally; lateral margins shortly and weakly crenulate in front and the remaining portion non-crenulate, gently rounded and thickly bordered from base to basal 1/3, and then almost straightly narrowed and thinly bordered toward apex in apical 2/3; anterior angles weakly produced forward and rounded, posterior ones obtuse; basal margin slightly bisinuate, weakly rounded and distinctly bordered in the middle, and unbordered or indefinitely so on either side; disc with a shallow transverse groove behind anterior margin, which has three vague bottoms, one located at the middle and the other two on either side; lateral fovea small, postero-medial fovea lacking; surface finely micro-granulose, scattered with two kinds of punctures, strong and small, the strong punctures irregularly distributed in the middle and dense on either side, the small punctures vague and dense; lateral marginal portion distinctly wrinkled. Scutellum broadly triangular, micro-granulose, with several small punctures.

Elytra ordinary in shape, strongly convex, about 1.0 times as long as wide ($E_l : E_w = 8.9 : 9.1$), slightly wider than pronotum in maximum width and widest at basal 2/5, with humeral callus distinct, a little

swollen; disc strongly convex, each with scarcely countable 14 or so weak striae, which are shallowly grooved, mostly as more or less zigzag lines and partly effaced or interrupted; striae punctures mostly indefinite, irregularly distributed, sometimes bearing oblique or transverse irregular short wrinkles; intervals distinctly convex, strongly micro-granulose, the micro-granules obviously coarser than those of pronotum, partly uneven, often transversely and irregularly rugose. Brachypterous, narrow metathoracic wing about 7.9 mm in maximum length.

Femora shining; metafemora with ventral side bearing two indented transverse ridges between anterior and posterior margins, the 1st one located at apical 2/9, and the 2nd one at basal 3/9. Protibiae ordinary, weakly incurved, strongly broadened toward apex, with 5 external teeth, which are gradually decreasing in size from apex to base; the 1st tooth strong and rather elongate; ventral side armed with 4 sharp teeth in longitudinal row on the ventro-medial edge, of which the largest one is located near the middle.

Aedeagus wide. Phallobase asymmetrical, Phl about 3.4 mm and Phw about 1.5 mm in ventral view; ventral side with sagittal ventral suture distinct, ventral apico-median area much deeply and broadly incised and separated into two ventral lobes, right ventral lobe fairly broad, strongly incurved, with apex distinctly expanded internally, left one simply formed, distinctly shorter and narrower than the right one. Parameres noticeably asymmetrical, Prl about 1.6 mm in dorsal view; in dorsal view, left paramere narrow at base and forked into two lobes in basal 1/3, inner oblique stick strongly prolonged and fairly slender, sharp at apex, outer broader lobe prolonged and roundly tumid toward apex, with small inner triangular membrane at inner side of apex; right paramere elongate, simply prolonged, and only slightly tumid at apex; ventral apico-median area defined in rough V-shape.

Variation. Length: 16.3-18.5 mm (n=5). Female. Head a little strongly produced forward than in male, with apex slightly sharper; clypeal median portion weakly raised behind, median longitudinal keel entirely missing though small median tubercle well perceptible; surface more distinctly uneven and more strongly rugose. Elytra with intervals often more roughly rugose. Protibiae stronger, with outer teeth larger. Otherwise like male.

Type series. Holotype: ♂, China, Sichuan, Ganzi, Mt. Erchushan, VII.1990. Paratypes: 4 ♀♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Sichuan).

Etymology. The specific name is after the type locality, "Erchushan".

Notes. The present new species is closely related to *Odontotrypes (Odontotrypes) sabde* Král *et al.*, 2001 from W Sichuan, but can be distinguished from the latter by the following characteristics: 1) elytron with striae weak, shallowly grooved, whereas in *O. (O.) sabde*, they are more strongly and more deeply grooved; 2) pronotum with anterior marginal line broadly biarcuate and weakly elevated medially, whereas in *O. (O.) sabde*, it is more strongly and distinctly elevated medially; 3) pronotum with lateral margin shortly and weakly crenulate in front, whereas in *O. (O.) sabde*, it is not crenulate throughout; 4) metathoracic wing entirely differently shaped, more obviously reduced and narrow; 5) in male, left paramere narrow at base, with inner oblique stick distinctly elongate and slender, whereas in *O. (O.) sabde*, the left paramere is broader at base and with the inner oblique stick stouter.

***Odontotrypes (Odontotrypes) guoluoshanus* sp. nov.** Figs. 5, 13, 23-24

Description of holotype

Length: 19.3 mm (excluding mandibles).

Male. Body somewhat large-sized for this genus, oblong-oval, strongly convex dorsally. Dorsal side shining and glabrous; ventral side almost opaque except for feebly shining legs, and distinctly clothed with blackish brown hairs. Color almost black; dorsal surface seemingly black, though partly tinged with very weak dark bluish luster; ventral surface also partly tinged with similar luster like that on dorsum; claws black in basal half and brown in apical half; antennae with antennal foot-stalks black, club segments slightly brownish.

Head rather strongly produced forward, sub-hexagonal in front in outline; labrum shallowly emarginate in front; clypeus triangularly produced forward and rounded at apex, with marginal line fine and slightly reflexed; clypeal median portion very obtusely raised, median longitudinal keel and tubercle entirely missing; clypeal suture sharply defined as distinct smooth line; T-shaped suture depressed and shining; eye tubercles strongly produced upward, and seemingly triangular process in lateral view; eye canthus broad, strongly produced laterad, with external margin fully rounded in front, parallel-sided in the middle and narrowed posteriad; surface weakly shining, somewhat uneven, strongly wrinkled, densely and irregularly covered with distinct small strong punctures on clypeus, the punctures and wrinkles becoming obviously weaker and shallower toward posterior portion of head; postero-median portion narrowly impunctate.

Pronotum transverse, strongly convex, almost simply formed except for apical transverse groove, about 1.7 times as wide as long (Pl : Pw = 6.3 : 10.8), widest at basal 5/12; median longitudinal line very weak and scarcely grooved in basal half; anterior margin weakly bisinuate, with marginal membrane thick, marginal line broadly biarcuate and distinctly elevated at the middle, and becoming thinner laterally; lateral margins scarcely crenulate, gently rounded from base to basal 1/3, and then almost straightly narrowed toward apex in apical 2/3, with marginal line thin in apical 2/3 and a little thick in basal 1/3; anterior angles weakly produced forward and broadly rounded, posterior ones obtuse; basal margin feebly bisinuate, weakly rounded and distinctly bordered in the middle, and unbordered or indefinitely so on either side; disc with a shallow transverse groove behind anterior margin, which bears three vague bottoms, strong one located at the middle and the other two on either side; lateral fovea very small, postero-medial fovea lacking; surface shining, distinctly punctulate all over, irregularly scattered with strong punctures, which are sparse in the middle, and dense and a little larger on either side; lateral marginal portion distinctly wrinkled and slightly uneven. Scutellum broadly triangular, shining, punctulate, with several small punctures.

Elytra ordinary in shape, strongly convex, about 1.2 times as long as wide (El : Ew = 9.6 : 11.8), a little wider than pronotum in maximum width and widest at basal 2/5, with humeral callus distinct, slightly swollen; disc strongly convex, each with scarcely countable and weak striae, which are barely visible by the naked eye, mostly as more or less zigzag lines and partly effaced or interrupted; striae punctures mostly indefinite, irregularly distributed, sometimes bearing oblique or transverse irregular short wrinkles; intervals flat to almost flat, shining, evenly scattered with small indefinite fine punctures, each of which bears a few short wrinkles or fine scratches. Brachypterous, narrow metathoracic wing about 8.3 mm in maximum length.

Femora sub-opaque; metafemora with ventral side bearing two indented transverse ridges between anterior and posterior margins, the 1st one located at apical 1/6, and the 2nd one at basal 2/6. Protibiae ordinary, weakly incurved, fairly strongly broadened apicad, with 6 external teeth, which are gradually decreasing in size from apex to base; the 1st tooth strong and rather elongate; ventral side armed with 6-7 sharp teeth in longitudinal row on the ventro-medial edge, of which the largest one is located near the middle.

Aedeagus wide. Phallobase asymmetrical, Phl about 3.9 mm and Phw about 1.8 mm in ventral view; ventral side with sagittal ventral suture distinct, ventral apico-median area much deeply and broadly incised and separated into two ventral lobes, right ventral lobe broad, strongly incurved, with apex somewhat expanded internally, left one simply formed, distinctly shorter and narrower than the right one. Parameres noticeably asymmetrical, Prl about 1.8 mm in dorsal view; in dorsal view, left paramere rather broad and fully swollen at base, and forked into two lobes in basal 1/3, with inner oblique stick moderately prolonged and rather broad, obtusely pointed at apex, outer broader lobe prolonged, narrow basally and a little roundly tumid apicad, with a small inner triangular thin membrane at inner side of apex; right paramere elongate, simply prolonged, and tumid at apex; ventral apico-median area defined in rough V-shape.

Variation. Length: 15.1- 21.1 mm (n=5). In smaller male, head with eye tubercles weak and less strongly raised, pronotum with anterior margin weakly elevated at the middle; in smaller male and females, lateral margins apparently smooth, though very weak and traceable crenulations barely perceptible. Female.

Head only slightly strongly produced forward, with respect to the male. Protibiae slightly broader, with 1st tooth a little larger. Males and females very similar mutually in external morphology.

Type series. Holotype: ♂, China, Sichuan, Guoluoshan, VI.1990. Paratypes: 1 ♂, 3 ♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Sichuan).

Etymology. The specific name is after the type locality, "Guoluoshan".

Notes. The present new species is closely related to *Odontotrypes (Odontotrypes) hayeki* (Mikšić, 1961) from Xizang, China, but can be distinguished from the latter by the following characteristics: 1) head with eye tubercle distinctly weaker and lower, whereas in *O. (O.) hayeki*, it is markedly prominent even in smaller males and also females; 2) head with clypeal surface somewhat uneven, strongly wrinkled, densely and irregularly covered with distinct small strong punctures, instead of being less strongly wrinkled, more sparsely covered with small punctures; 3) claws black in basal half and brown in apical half, whereas in *O. (O.) hayeki*, they are entirely brown; 4) metathoracic wing entirely differently shaped, more strongly reduced and narrow; 5) in male, phallobase with right ventral lobe quite differently shaped and obviously narrower in ventral view.

Odontotrypes (Odontotrypes) abaensis sp. nov. Figs. 6, 14, 25-26

Description of holotype

Length: 18.5 mm (excluding mandibles).

Male. Body rather large-sized, oblong-oval, strongly convex dorsally. Dorsal side glabrous, with head and pronotum weakly shining and elytra distinctly opaque; ventral side opaque including legs, and distinctly clothed with blackish brown hairs. Color almost black; dorsal surface apparently black, though head, all margins of pronotum, lateral margins of elytra and scutellum with weak dark bluish to purplish luster, and the remaining parts with very slight dark cupreous luster; ventral surface also with similar luster as that on dorsum; claws black in basal half and brown in apical half; antennae with antennal foot-stalks black, club segments very slightly brownish.

Head somewhat strongly produced anteriorly, sub-hexagonal in front in outline; labrum shallowly emarginate in front; clypeus triangularly produced forward, with marginal line thin and slightly reflexed; clypeal median portion fairly obtusely raised, median longitudinal keel and tubercle entirely missing; clypeal suture sharply defined as distinct smooth line; T-shaped suture obviously depressed and shining; eye tubercles strongly produced upward, and seemingly triangular process in lateral view; eye canthus broad, strongly produced laterad, with external margin rounded from apex to the median portion, and narrowed posteriorly; surface feebly shining, rather uneven, strongly wrinkled, densely and irregularly covered with strong and uneven punctures on clypeus, the punctures and wrinkles becoming noticeably weaker toward eye tubercles and narrow postero-median portion which is almost impunctate.

Pronotum transverse, strongly convex, almost simply formed except for apical transverse groove, about 1.6 times as wide as long (Pl : Pw = 6.0 : 10.2), widest at basal 5/12; median longitudinal line very weak and scarcely grooved in basal half; anterior margin distinctly bisinuate, with marginal membrane thick, marginal line broadly biarcuate and obviously elevated at the middle, and becoming thinner laterally; lateral margins very slightly crenulate, gently rounded from base to basal 1/3, and then almost straightly or a little roundly narrowed toward apex in apical 2/3, with marginal line thin in apical 2/3 and a little thick in basal 1/3; anterior angles weakly produced forward and broadly rounded, posterior ones obtuse; basal margin feebly bisinuate, weakly

rounded and distinctly bordered in the middle, and unbordered or indefinitely so on either side; disc with a shallow transverse groove behind anterior margin, which bears three vague bottoms, one located at the middle and the other two on either side; lateral fovea very small, postero-medial fovea lacking; surface shining, punctulate all over though partly vaguely, irregularly scattered with strong punctures, which are sparse in the middle, and dense and a little larger on either side; lateral marginal portion distinctly wrinkled and slightly uneven. Scutellum broadly triangular, smooth and shining, punctulate, with several indefinite punctures.

Elytra ordinary in shape, strongly convex, about 1.1 times as long as wide (El : Ew = 9.4 : 10.3), almost the same width as pronotum in maximum width and widest at basal 1/4, with humeral callus distinct, slightly swollen; disc strongly convex, each with uncountable striae, which are partly deeply and strongly grooved though mostly fairly as zigzag lines, and very often effaced or interrupted; striae punctures entirely missing; intervals uneven, distinctly to partly weakly micro-granulose, strongly and irregularly wrinkled or scratched, the wrinkles or scratches noticeably coarse to fairly fine. Brachypterous, narrow metathoracic wing about 9.3 mm in maximum length.

Femora opaque; metafemora with ventral side bearing two indented transverse ridges between anterior and posterior margins, the 1st one located at apical 1/8, and the 2nd one at basal 3/8. Protibiae ordinary, weakly incurved, strongly broadened apicad, with 6 external teeth, which are gradually decreasing in size from apex to base; the 1st tooth strong and rather elongate; ventral side armed with 5-6 sharp teeth in longitudinal row on the ventro-medial edge, of which the largest one is located near the middle.

Aedeagus wide. Phallobase asymmetrical, Phl about 3.5 mm and Phw about 1.8 mm in ventral view; ventral side with sagittal ventral suture distinct, ventral apico-median area much deeply and broadly incised and separated into two ventral lobes, right ventral lobe broad, strongly incurved, with apex internally expanded as rectangular corner, left one simply formed, distinctly shorter and narrower than the right one. Parameres markedly asymmetrical, Prl about 1.7 mm in dorsal view; in dorsal view, left paramere rather broad at base, evenly swollen and forked into two lobes in basal 2/5, inner oblique stick a little prolonged and fairly broad, obtuse at apex, outer broader lobe prolonged and a little tumid apicad, with a small inner triangular thin membrane at inner side of apex; right paramere elongate, slightly sinuously prolonged, and scarcely tumid at apex; ventral apico-median area defined in rough V-shape.

Female unknown.

Holotype. ♂, China, Sichuan, Aba region, 4000 m alt., VI.1990.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Sichuan).

Etymology. The specific name is after the type locality, "Aba".

Notes. The present new species is closely related to *Odontotrypes (Odontotrypes) turnai* Král *et al.*, 2001, from S. Sichuan, China, but can be distinguished from the latter by the following characteristics: 1) elytral striae without distinct punctures, whereas in *O. (O.) turnai*, they bear distinct punctures; 2) elytron with intervals uneven, strongly and irregularly wrinkled or scratched, the wrinkles or scratches varying from markedly coarse to fairly fine, whereas in *O. (O.) turnai*, they are not so uneven and at most weakly wrinkled; 3) claws black in basal half and brown in apical half, instead of being entirely brown; 4) metathoracic wing entirely differently shaped, more distinctly developed and large; 5) in male, genitalia more robust, left paramere with basal third portion obviously broader and evenly swollen, with oblique inner stick fairly broad, whereas in *O. (O.) turnai*, the former is smaller and narrower, and the latter is slender and elongate.

***Phelotrupes (Eogeotrupes) schoolmeestersi gaoligongicus* ssp. nov.** Figs. 7, 27-28

Description of holotype

Length: 17.9 mm (excluding mouth parts).

Male. Body rather large-sized, almost the same outline as the nominotypical subspecies. Color also similar to that of the nominotypical subspecies, black tinged with weak bluish luster on pronotum and elytra, the latter partly with purplish tinge. Head with labrum rather shallowly emarginate in front; clypeus a little weakly produced anteriorly in male, and almost similarly strongly produced forward as in the female of the nominotypical subspecies; eye canthus with anterior margin scarcely angled, the angle unnoticeable, and almost straight posteriorly. Pronotum strongly convex, simply formed, about 1.7 times as wide as long (Pl : Pw = 5.9 : 10.1), widest behind the middle. Elytra slightly wider than pronotum, about 1.1 times as wide as long (El : Ew = 9.8 : 10.5). Protibiae mostly slightly broader in male. Aedeagus. Phallobase asymmetrical; Phl about 4.6 mm and Phw about 2.3 mm in ventral view. Parameres asymmetrical, Prl about 2.0 mm in dorsal view.

Variation. Length: 16.7-19.8 mm (n= 10).

Type series. Holotype: ♂, China, Yunnan, Nea Tengchong, Mt. Gaoligong, 2100 m alt., VI.1983. Paratypes: 4 ♂♂, 6 ♀♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Yunnan).

Etymology. The subspecific name is after the type locality, "Gaoligong".

Notes. The present new subspecies can be distinguished from the nominotypical one from Kachin, Myanmar by the following characteristics: 1) eye canthus with anterior margin scarcely angled (the angle unnoticeable), and almost straight posteriorly, whereas in the nominotypical subspecies, it is distinctly angled (the angle well noticeable), and mostly sinuate posteriorly; 2) head with labrum shallowly emarginate in front, whereas in the nominotypical subspecies, it is rather deeply emarginate in front; 3) in male, head with clypeus a little weakly produced anteriorly, whereas in the nominotypical subspecies, it is more strongly produced forward.

***Phelotrupes (Phelotrupes) reni daxueshanus* ssp. nov.** Figs. 8, 29-31

Description of holotype

Length: 17.1 mm (excluding mouth parts).

Male. Body moderate-sized, oblong-oval, strongly convex dorsally. Dorsal side entirely opaque and glabrous; ventral side weakly shining and distinctly clothed with blackish brown hairs, with femora shining and smooth. Color black, dorsal surface distinctly tinged with dark bluish, partly dark greenish, luster; ventral surface also tinged with dark bluish to greenish luster; mouth parts, palpi and legs dark brown with claws brown; antennae blackish brown, partly slightly paler.

Head distinctly produced forward, with labrum almost truncate at apex; clypeus moderately produced forward and obviously elliptic in outline, with margin thinly bordered and slightly reflexed; median portion of clypeus slightly produced upward as a small pointed tubercle behind, median longitudinal keel not developed and effaced; clypeal suture finely depressed in front and somewhat broad behind; T-shaped suture vague, not distinctly defined; eye tubercles distinctly raised and rather sharp; eye canthus with external margin scarcely angled in front and then gradually broadened posteriorly, and suddenly narrowed at base; surface micro-granulose

except for slightly lustrous clypeal suture, with clypeus slightly uneven, weakly transversely rugose, and sparsely covered with fine strong punctures, frons fairly sparsely punctate and almost impunctate on vertex, eye canthus irregularly and somewhat finely micro-sculptured.

Pronotum transverse, strongly and evenly convex, almost simply formed except for narrow apical transverse groove, about 1.6 times as wide as long (Pl : Pw = 5.7 : 9.1), widest at basal 1/3; median longitudinal line weak but distinct, finely grooved in basal third and arranged with several fine punctures; anterior margin weakly bisinuate in the middle, with marginal membrane thick, marginal line a little broadly bordered, biarcuate at the middle, and becoming thinner laterally; lateral margins smooth, gently rounded from base to basal 1/2, and then straightly narrowed toward apex in apical 1/2, with marginal line somewhat thin in basal half and becoming slightly thinner in apical half; anterior angles slightly produced forward and broadly rounded, posterior ones obtuse; basal margin feebly bisinuate, weakly rounded and distinctly bordered in median half, and unbordered or indefinitely so on either side; disc with a shallow fine transverse groove behind anterior margin, which bears one median vague bottom; lateral fovea very small, postero-medial fovea lacking; surface micro-granulose, almost impunctate in the broad median portion except for closely punctate anterior groove and sparsely so lateral portions along margins. Scutellum broadly triangular, micro-granulose, almost impunctate, with a large median fovea.

Elytra a little wider than pronotum in maximum width, strongly convex, about 1.1 times as long as wide (El : Ew = 8.8 : 9.4), widest at basal 5/9, with humeral callus distinct, fully swollen; disc strongly convex, each elytron with 14 striae; inner seven of which are distinctly grooved though frequently partly and shortly interrupted; outer seven often partly effaced or interrupted; striae punctures missing at a glance, in reality sparse and fine punctures barely perceptible; intervals weakly convex, obviously micro-granulose and impunctate, very sparsely and irregularly wrinkled. Macropterous.

Femora shining and scarcely micro-granulose; metafemora with ventral side bearing two indented transverse ridges between anterior and posterior margins, the 1st one located at apical 1/9, and the 2nd one located at basal 4/9. Protibiae ordinary, distinctly incurved, strongly broadened apicad, with 6 external teeth, which are gradually decreasing in size from apex to base; the 1st tooth strong and rather elongate; ventral side armed with a fairly strong sharp tooth slightly behind the middle of ventro-medial edge. Abdominal ventrites weakly micro-granulose and punctate.

Aedeagus. Phallobase asymmetrical, Phl about 3.5 mm and Phw about 1.3 mm in ventral view; ventral side with sagittal ventral suture distinct and situated near base; right ventral lobe broader than the left one, strongly incurved, fairly prolonged, and extended to apex of left one; left lobe strongly constricted and incurved a little prior to apex which is slightly tumid. Parameres noticeably asymmetrical, Prl of left one about 1.7 mm in dorsal view; left paramere in dorsal view with median notch rather broad; left spatula broader, strongly prolonged, suddenly and roundly swollen at apex; inner thin stick fairly slender; right paramere in dorsal view broad in basal 2/5, scarcely angled at inner side of basal 2/5, and then strongly narrowed apicad and developed as right spatula, which is widened near apex and weakly incised at apex in right lateral view; ventral antero-medial area sharply pointed at the middle, narrowly and roundly notched at right side of the point.

Variation. Length: 16.0-17.1 mm. Female. Color slightly darker. Head with labrum almost straight; clypeal outline almost the same as that of male; eye canthus more distinctly angled in front; median longitudinal keel also not developed, median tubercle slightly stronger than that of male; eye tubercles slightly lower; surface more strongly micro-granulose and more densely punctate. Pronotum less strongly convex dorsally and strongly narrowed forward in front; anterior margin with marginal border more strongly widened and raised in the middle. Protibiae more strongly broader than those of male, with 1st tooth clearly stronger and longer.

Type series. Holotype: ♂, China, Yunnan, Yong-de, Mt. Daxueshan, VIII.1989. Paratype: 1 ♀, same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, People's Republic of China.

Distribution. China (Yunnan).

Etymology. The subspecific name is after the type locality, "Daxueshan".

Notes. The present new subspecies can be distinguished from both the nominotypical subspecies from Shaanxi, and *Phelotrupes (Phelotrupes) reni gansuensis* Ochi, Kon & Bai, 2017 from Gansu, by the following characteristics: 1) dorsal surface strongly micro-granulose (this feature pronounced especially for elytra), whereas in the nominotypical subspecies and *P. (P.) reni gansuensis*, the dorsal surface is weakly shining, with elytra usually shining and not strongly micro-granulose; 2) pronotum with anterior margin not so thickly bordered, instead of being thickly bordered in the middle; 3) in male, clypeal surface more sparsely and more weakly punctate; 4) in male, parameres with the right one shorter, a little less produced than right ventral lobe, whereas in the nominotypical subspecies and *P. (P.) reni gansuensis*, the right paramere is long, distinctly exceeding the right ventral lobe.

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