

## Three New Species of the Subgenus *Pseudotrichotichnus* (Coleoptera, Carabidae, Harpalini) from Tropical Asia and New Guinea

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**Abstract** Three new species of the subgenus *Pseudotrichotichnus* are described from Sri Lanka, Java and New Guinea, respectively. The new species from Java is peculiar in having the body oval and very convex, the frontal impressions not so deep, and the aedeagus triangularly prominent laterad in dorsal view.

### Introduction

In this paper, I am going to describe three new species of the subgenus *Pseudotrichotichnus* HABU of the genus *Trichotichnus* MORAWITZ, *Trichotichnus* (*Pseudotrichotichnus*) *hiekei* from Sri Lanka, *T. (P.) notabilis* from Java, and *T. (P.) subcordicollis* from New Guinea. *Trichotichnus (P.) hiekei* is different from *T. (P.) lamprus* (BATES, 1886) in having the body smaller and the pronotum weakly sinuate at the sides before base instead of being straight. *Trichotichnus notabilis* is peculiar in the body oval-shaped, the frontal impressions somewhat shallow, and the aedeagus triangularly prominent laterad. *Trichotichnus (P.) subcordicollis* is distinguishable from *T. (P.) piceus* N. ITO, 1991 by the pronotum not smooth and the elytral intervals deeper.

I wish to express my deep gratitude to Dr. Fritz HIEKE of the Museum der Humboldt-Universität zu Berlin, Dr. Lothar ZERCHE of the Deutsches Entomologisches Institut, Eberswalde, and Dr. Fritz GUSENLEITNER of the Landesmuseum, Linz, for their kindly offering many valuable materials. I heartily thank Mr. Taichi SHIBATA for his kind guidance.

### *Trichotichnus (Pseudotrichotichnus) hiekei* N. ITO, sp. nov.

(Figs. 1, 4 & 6)

Body rather narrowly oblong, pitchy black or slightly brownish, shiny, not iridescent, with slightly aeneous tinge on pronotum and elytra; palpi, antennae and legs yellowish brown, labrum and clypeus dark reddish brown, mandibles blackish brown.

Head wide, more than three-fourths the pronotal width (0.78 in ratio), well convex, very sparsely and microscopically punctate, with several vague and longitudinal rugosities near each setiferous pore on clypeus; labrum weakly arcuate-sided, widely notched at apex; clypeus shallowly depressed between the pores, weakly raised behind



Figs. 1-3. Habitus of *Trichotichnus* spp. — 1, *T. (Pseudotrichotichnus) hiekei* N. ITO, sp. nov.; 2, *T. (P.) notabilis* N. ITO, sp. nov.; 3, *T. (P.) subcordicollis* N. ITO, sp. nov.

the depression, rather deeply emarginate at apex, deeply sutured with frons; frontal impressions abruptly divergent behind, reaching supraorbital grooves, deeper than the suture; eyes not large, relatively prominent, but not hemispherical; temples more or less developed, about one-third the eye length, rather steeply contracted behind; space between genuine ventral margin of eye and buccal fissure relatively wide; mandibles short and robust, vertically truncate at tips; antennae slender, short, not surpassing pronotal base, 3rd segment pubescent in apical two-thirds, as long as the 4th and a half longer than the 2nd; labial palpi rather short, 3rd segment more or less tumid, one-fourth longer than the 2nd; ligula narrow, weakly contracted forwards behind truncate apex; paraglossae large, fully prolonged forwards beyond ligula, free from it in the contracted portion; median tooth of mentum narrow, blunt at tip, epilobes slim, parallel at sides; submentum completely sutured with mentum, bisetose at each side; microsculpture mostly invisible, partly observable as vague isodiametric meshes on clypeus and frons.

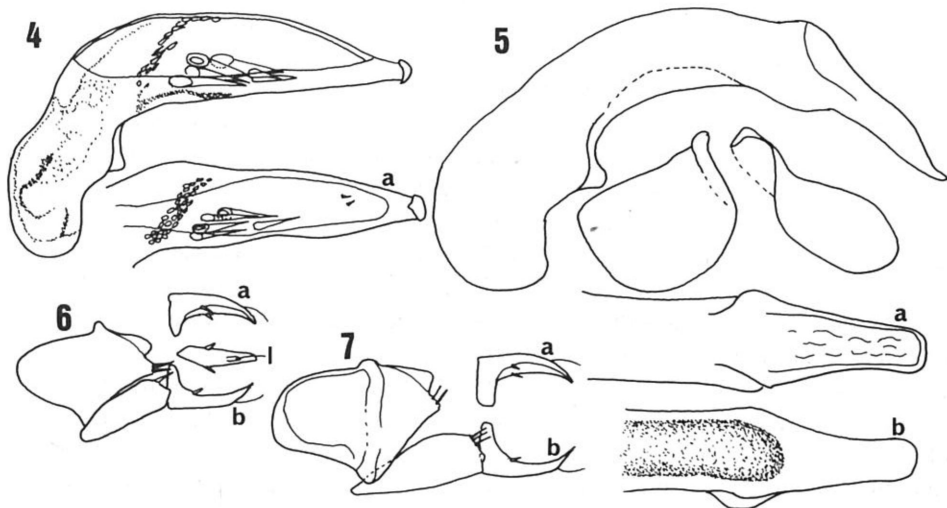
Pronotum subcordate, widest at apical two-fifths, a little more than one and one-third as wide as long (1.36-1.38 in ratio), flat on disc, relatively declivous apico-laterad, centrally smooth, sparsely and moderately punctate in medio-apical area, finely so in latero-apical area, and moderately and coarsely so in basal area, the basal punctures interrupted in the middle; sides clearly arcuate in front and almost straightly oblique behind from the widest point, somewhat deeply sinuate before base; apex truncate, unbordered medially; base one-sixth wider than apex, feebly oblique at sides, finely and entirely bordered; apical angles not produced, narrowly rounded; basal angles a little larger than rectangle, angularly rounded, edentate at tips; lateral furrows

wholly engraved in a line, isolated from basal foveae which are small, shallow and longitudinally elliptical; front transverse impression vague, but not obliterated like the hind one; median line fine and shallow, reduced behind apex and before base; microsculpture invisible under 80 $\times$  magnification.

Elytra subovally oblong, a little more than a half longer than wide (1.53–1.56 in ratio), well convex, without punctures; sides gently curved at humeri, gradually strongly contracted behind from apical two-fifths, rather deeply sinuate before apices which are weakly prominent, narrowly rounded at tips and with angulate sutural angles; base shallowly emarginate, very obtuse and angulate at humeral angles; striae rather wide, finely crenulate, scutellar striole not long; intervals weakly convex on disc, becoming more convex laterad and apicad, 3rd interval with a setiferous pore a little behind middle; marginal series interrupted in middle, composed of (10–11)+(9–11) umbilicate pores; microsculpture invisible under 80 $\times$  magnification. Hind wings entire.

Ventral surface almost smooth, very sparsely and vaguely punctate on pro-, meso- and metepisterna and laterally on metasternum, sparsely furnished with very short pubescence on prosternum and along middle of 2nd to 6th abdominal segments; metepisternum strongly narrowed behind, one-fourth longer than wide; 6th abdominal segment bisetose in both sexes on each side, truncate in  $\sigma$  and weakly arcuate in  $\text{f}$  at apical margin.

Mid tarsus sparsely short-setose along fore margin and quadrisetose along hind margin, 1st segment in  $\sigma$  without adhesive hairs, hind tarsus trisetose along hind margin, 1st segment in  $\sigma$  three-tenths shorter than the width of head including eyes, as



Figs. 4–7. Genitalia of *Trichotichnus* spp. — 4 & 6, *T. (P.) hiekei* N. ITO, sp. nov.; 5 & 7, *T. (P.) notabilis* N. ITO, sp. nov.; 4–5, male genitalia; 6–7, female genitalia; a, dorsal view; b, ventral view; l, lateral view.

long as the 2nd and 3rd together and two-thirds longer than the 2nd, 4th four-fifths the 3rd, claw segment bi- or trisetose along each ventral margin.

Aedeagus (Fig. 4) more or less robust, straightly prolonged, rather thinly knob-shaped at apex; apical orifice large, directed dorso-laterad, inner sac armed with small sclerites near apex and with several long peg-shaped ones near middle; ventral side unbordered, longitudinally raised. Stylus (Fig. 6) moderately curved, with a small spine at basal third of each external margin.

Length: 6.9–8.3 mm. Width: 2.9–3.4 mm.

Holotype: ♂, Ceylon. NIETNER leg. (preserved in the Museum of Humboldt University). Paratype: 1 ♀, same data as the holotype.

This new species is distinguished from *Trichotichnus* (*Pseudotrichotichnus*) *lamprus* (BATES) by the body smaller in length, the pronotum narrower and sinuate before base instead of being straight, and the aedeagus bearing three sclerites in the inner sac instead of single one.

*Trichotichnus* (*Pseudotrichotichnus*) *notabilis* N. ITO, sp. nov.

(Figs. 2, 5 & 7)

Body oblong-oval, thickened, black, shiny, not iridescent even on elytra; palpi and antennae light brown, lateral margins of pronotum and legs reddish brown.

Head well convex, wide, about four-fifths times the pronotal width, not punctate; labrum transversely subtrapezoidal, with a small blunt notch at apex; clypeus weakly swollen, subtruncate apically, possessing one or two obscure longitudinal rugosities near each side in the holotype and several coarse rugosities throughout in the paratype; clypeus deep even in middle, slant in front; frontal impressions also deepened, slightly deeper in the paratype than in the holotype, reaching supraorbits, front triangular space almost flattened in the holotype and rather raised in the paratype; eyes large and well prominent, but not hemispherical; interocular space wide, about seven-tenths the width of head including eyes; temples short, steeply contractd behind and forming on each side an obtuse and blunt angle with neck constriction; space between buccal fissure and genuine ventral margin of eye more or less wide, equal in width to that of *T. birmanicus* BATES; mandibles short and stout, blunt at apices; antennae short, not passing pronotal base, 3rd segment moderately thickened distad, pubescent in apical three-fifths, as long as the 4th and three-fifths longer than the 2nd; labial palpi somewhat slender and rather long, 3rd segment equal in length to 2nd, sparsely with long pubescence; ligula parallel-sided, abruptly dilated in front from apical fifth, truncate at apex; paraglossae not wide and produced a little forwards beyond ligula, separated from ligula by narrow and deep notches; mentum deeply emarginate, clearly sutured with submentum, median tooth elongate and isosceles-triangular, rounded at tip, epilobes weakly expanded apicad; surface mostly not microsculptured, with vague isodiametric sculpture partly on clypeus and with some transverse ones near supraorbital pores.

Pronotum subcordate, three-tenths to two-fifths wider than long, comparatively

well convex, the convexity strong and approaching baso-laterally, smooth in most part, sparsely and minutely punctate only in basal area, widest at apical third; sides gently arcuate in front and straightly oblique behind from apical two-fifths; apex uniformly emarginate, with the border fine and interrupted in middle; base almost equal in width to apex, feebly bisinuate, weakly arcuate at sides, unbordered in middle; apical angles narrowly rounded; basal angles a little larger than rectangle, bearing a tiny blunt protuberance at each tip; lateral furrows narrow, weakly widened behind; basal foveae longitudinally oblong and small, shallowly impressed on inclined area of the discal convexity, far apart from the furrows; front transverse impression almost evanescent in the holotype and shallowly engraved in the paratype, the hind one invisible; median line fine and clear medially, extending to near apex and base; microsculpture obscure, observable as transverse lines on disc and as transverse meshes in basal and apical areas.

Elytra oval, widest almost at middle, two-fifths longer than wide, rather steeply declivous laterad and apicad, without punctures; sides gently arcuately widened from humeri to the widest point, from there gradually strongly curved inwards and shallowly sinuate before apices; bases gently oblique at sides, humeral angles much wider than rectangle and angulate, edentate at tips; apices not produced behind in the holotype and more or less produced in the paratype, not widely rounded and narrowly separated from each other at tips; striae fine and relatively shallow, finely crenulate, scutellar striole long and reaching 1st striae; intervals weakly convex in most areas, fully raised apico-laterally, dorsal pore lacking on 3rd interval; marginal series interrupted medially, composed of (7–9)+(9–10) umbilicate pores; microsculpture fine and clear, composed of compact transverse lines. Hind wings half reduced.

Ventral surface obscurely and very sparsely punctate on prepisterna, laterally on metasternum and on metepisterna; metepisternum not elongate, weakly contracted behind, and as long as wide; abdomen sparsely ciliate on intercoxal area of 2nd segment, 6th unisetose in ♂ and bisetose in ♀ on each side, entirely bordered and gently arcuate in ♂ and a little more strongly arcuate in ♀ at apex.

Hind femur bisetose along hind margin; 1st segment of mid tarsus in ♂ biserially squamous only near apex, hind tarsus in ♂ seven-tenths times and in ♀ about two-thirds times the width of head, 1st segment one-sixth shorter than the 2nd and 3rd together and a half longer than the 2nd, 3rd one and four-elevenths times the 4th, claw segment tri- or quadrisetose along each ventral margin.

Aedeagus (Fig. 5) arcuate and gradually tapered towards apex, apex not thickened and weakly reflected dorsally at tip; dorsal side crocodile-shaped, humped laterally at apical third of both sides, apical orifice opened to near apical margin, inner sac without armature; ventral side also bearing a gentle hump at each side, widely depressed from apical third to behind basal orifice. Stylus (Fig. 7) slender, gently arcuate, sharpened apicad, with a single short seta at dorso-external margin and somewhat internally at ventro-external margin, respectively, a seta before apex not long; valvifer bisetose at apex.

Length: 8.1–8.3 mm. Width: 3.5 mm.

Holotype: ♂, Java, BURMEISTER leg. (preserved in the Museum of Humboldt University). Paratypes: 1 ♀, Java, BURMEISTER leg. (Hist.-Coll., Nr. 3454), 1 ♀, Java (without further data).

This new species bears more or less deepened frontal impressions, but the impressions are a little shallower than those in the usual species of the subgenus *Pseudotrichotichnus*. A half reduced wings are also rare in the subgenus. Furthermore, the male genitalia is peculiar in having the humps in the middle.

This species is easily distinguished from the others of the subgenus by the lustre of the body not pitchy, the elytra not iridescent and the metepisterna not long, in addition to the characteristics mentioned above.

*Trichotichnus (Pseudotrichotichnus) subcordicollis* N. ITO, sp. nov.

(Figs. 3, 8)

Body oblong, pitchy black and very slightly aeneous-tinged, shiny, with hardly iridescent lustre on elytra; palpi and antennae reddish brown, lateral margins of pronotum and legs dark reddish brown.

Head wide, three-fourths as wide as the pronotal width, rather convex, flattened from frons to clypeus, with fine punctures very sparsely scattered; labrum subsquare, produced at apical corners; clypeus clearly emarginate at apex, vaguely and transversely depressed along middle; clypeal suture rather deeply carved; frontal impression arcuately running to supraorbital groove from each end of the suture and more deeply engraved, space in front of the impression weakly raised; eyes relatively prominent, but not hemispherical; temples short, about one-tenth the eye length; genuine ventral margin of eye more or less widely separated from buccal fissure; mandibles short and thick, vertically truncate at apex of right one; antennae submoniliform, short, not extending to pronotal base, 3rd slightly shorter than the 4th (0.93 in ratio) and three-fifths longer than the 2nd; labial palpi slender, 3rd segment almost as long as the 2nd; ligula slim, weakly converging distad, truncate at apex; paraglossae wide, fully produced beyond ligula, fused with it to just before its apex; mentum rather deeply concave, median tooth not large, epilobes parallel-sided; microsculpture mostly invisible, obscurely observable as isodiametric meshes on clypeus and as broken transverse meshes near frontal impressions.

Pronotum subquadrate, widest at apical two-fifths, about two-fifths wider than long, almost flat on disc, gently declivous apico-laterad, with dorsal punctures very sparse and fine on disc, somewhat denser in front transverse impression and a little coarser and denser in lateral furrows and basal foveae; sides clearly arcuate in front and straightly oblique behind from the widest point, feebly sinuate before base; apex gently emarginate, almost straight at the bottom of the emargination, with the border interrupted at middle; base one-fourth wider than apex, hardly bisinuate, unbordered in medial fifth; apical angles more or less narrowly rounded; basal angles obtuse and angulate; lateral furrows narrow, weakly widened behind, linked with basal foveae; basal

foveae small, each isolated from lateral border by a slight swell; front transverse impression obscure, but not obliterated like the hind one; microsculpture partly visible and very vague, consisting of transverse meshes.

Elytra oblongo-elliptical, three-fifths longer than wide, well convex, abruptly sloping latero-apicad, with microscopic punctures very sparsely scattered; sides widely arcuate at humeri, shallowly sinuate before apices which are not produced, narrowly rounded at tips, blunt at sutural angles; bases shallowly emarginate, with humeral angles angulate and fully wider than rectangle; striae deep, finely crenulate, 9th stria with a short and weak keel before apical sinus, scutellar striole fairly long; intervals almost flat on disc, becoming weakly convex laterad and apicad, a dorsal pore on 3rd interval situated just behind middle; marginal series interrupted in middle, composed of (9-10)+10 umbilicate pores; microsculpture invisible under 80 $\times$  magnification. Hind wings entire.

Ventral surface mostly smooth, sparsely and obscurely punctate on metepisterna and laterally on metasternum, covered with short pubescence medially on metasternum; metepisternum elongate, twice as long as wide; 6th abdominal segment bisetose on each side, truncate at apex.

Hind femur bisetose along hind margin; fore tibia slender, truncate at apex, longitudinally sulcate on dorsal side, bispinous apico-externally, terminal spur short, robust and simple; mid tarsus in  $\sigma$  biserially squamous ventrally in 2nd to 4th segments, hind tarsus two-thirds shorter than the width of head including eyes, 1st segment a little shorter than the 2nd and 3rd together (0.85 in ratio), 2nd one-tenth longer than the 3rd and one and five-sixths the 4th, claw segment bisetose at each ventral margin.

Aedeagus (Fig. 8) robust and gently curved, weakly constricted before tip which is knob-shaped; apical orifice wide, directed to the left, inner sac armed with two

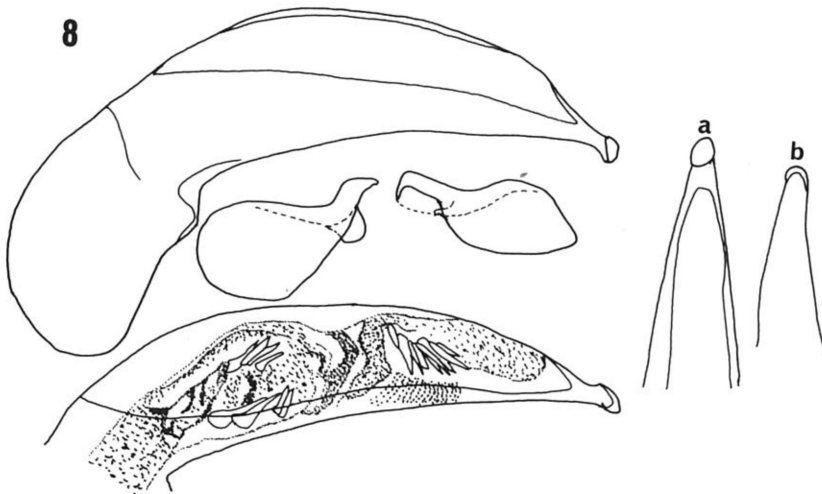


Fig. 8. Male genitalia of *T. (P.) subcordicollis* N. ITO, sp. nov.; a, dorsal view; b, ventral view.

groups of sclerites near basal bulb and another group near apex; ventral side unbordered, longitudinally raised.

Length: 10.9 mm. Width: 4.5 mm.

♀ Unknown.

Holotype: ♂, 1,570 m, Berg, Sepik, New Guinea, XI-1910, Prof. L. SCHULTZE leg. (preserved in the Museum of Humboldt University). Paratype: 1 ♂, same data as the holotype.

This new species is allied to *Trichotichnus* (*Pseudotrichotichnus*) *piceus* N. ITO, but is easily distinguished from the latter by the eyes more prominent, the pronotum not smooth, and the elytral striae deeper.

### 要 約

伊藤 昇：熱帯アジアおよびニューギニア産 *Pseudotrichotichnus* 亜属の3新種。—— Sri Lanka, Java および New Guinea から, *Trichotichnus* (*Pseudotrichotichnus*) *hiekei*, *T. (P.) notabilis* および *T. (P.) subcordicollis* をそれぞれ記載した。 *T. (P.) notabilis* は, 体形が卵形で, 前頭溝がこの亜属の通常の種類に比べてやや浅く, かつ雄交尾器の陰茎中央部が側方に膨らむ点で特異である。

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