Three remarkable new *Pterostichus* species from Southern Tibet (Insecta: Coleoptera: Carabidae: Pterostichini)

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Summary

Three new species of the genus Pterostichus Bonelli, 1810 are newly described from the Himalaya of Southern Tibet, Peoples Republic of China. Pterostichus conaensis sp. n. was found South of Cona, and represents the easternmost occurrence of the harmandi group of the subgenus Pseudethira Sciaky, 1996 along the High Himalayan mountain chain. Pterostichus perhoplites sp. n. was also found near Cona, and Pterostichus pseudojugivagus sp. n. was collected on a pass that crosses the Xuebudala Shan of the northern adjacent Tibetan Himalaya. Both these species are the first known representatives of the subgenus Sinosteropus Sciaky, 1994 in the Eastern Himalava until today. However, based on pronotal morphology they represent a separate evolutionary lineage, which is postulated to be endemic to the Eastern Himalaya.

Zusammenfassung

Drei bemerkenswerte neue *Pterostichus*-Arten aus Südtibet (Coleoptera, Carabidae, Pterostichini).

Aus dem Himalaya in Südtibet werden drei neue Arten der Gattung Pterostichus Bonelli, 1810 beschrieben. Pterostichus conaensis sp. n. wurde südlich der Ortschaft Cona gefunden. Dies ist das bisher östlichste bekannte Vorkommen einer Art der harmandi-Gruppe aus der Untergattung Pseudethira Sciaky, 1996 entlang des Hohen Himalaya. Pterostichus perhoplites sp. n. wurde ebenfalls bei Cona gefunden, und Pterostichus pseudojugivagus sp. n. wurde an einem Pass über den Xuebudala Shan des nördlich angrenzenden Tibetischen Himalaya gesammelt. Diese beiden Arten repräsentierten die bislang einzigen bekannten Vertreter der Untergattung Sinosteropus Sciaky, 1994 im Osthimalaya. Basierend auf Merkmalen des Halsschildes repräsentieren sie jedoch eine eigenständige, vermutlich endemische Entwicklungslinie.

Key words: China, Himalaya, Tibet, taxonomy, new species, Carabidae, Pterostichini, *Georgeballius, Pseudethira, Pterostichus, Sinosteropus*

Introduction

During June-July of 2009-2010 the junior author visited the more eastern parts of Southern Tibet. During these trips the more remote parts of the Himalava of Cona (Tsona) and Lhünze (Lhuntse) Counties of the Chinese Province Xizang were explored. From an entomological viewpoint both these areas are quite poorly known. It was thus not surprising that occurrences of several ground beetle species new to science were discovered. The discovery of a new species of the genus Cychropsis Boileau, 1901 south of Cona was already published by DEUVE & TIAN (2009). Three further new Carabidae species which were found during these collecting trips are described below. These species belong to two separate lineages of the genus Pterostichus Bonelli, 1810. One is a characteristic representative of the subgenus Pseudethira Sciaky, 1996. This highly diverse taxon is endemic to the High Himalaya. Several Pseudethira species and species groups have been recently revised by SCHMIDT (2006a+b, 2007, 2009). The other two species seem to belong to the subgenus Sinosteropus Sciaky, 1994. This taxon includes almost twenty species, which are all very similar in habitus and which can be identified mainly based on male genital characters (SCIAKY 1994, SCIAKY & FACCHINI 2003). All but one of the Sinosteropus species are endemic to separate parts of the Western Chinese mountain ranges along the eastern macro slope of the Tibetan Plateau. A single species (P. wrasei Sciaky & Facchini, 2003) was described from the Western Himalaya in Northern India. Now we can present the occurrence of Sinosteropus also in the Eastern Himalaya.

Material and methods

Specimens were examined by stereomicroscopes Leica M205-C and Olympus SZ 40. The photographs were taken with a Leica DFC450 digital camera using a motorised focussing drive, light base Leica TL5000 Ergo,

diffused light with Leica hood LED5000 HDI, subsequently processed with Leica LAS application software, and enhanced with CorelDRAW Graphics Suite X5. Drawings were made using an ocular grid (10x10) squares.

Body size was measured from apex of the longer mandible in closed position to apex of the longer elytron. The width of the head (HW) was measured across the widest portion including the compound eyes. The widths of the pronotum (PW) and of the elytra (EW) were measured at their widest points. The length of the pronotum (PL) was measured from the anterior to the posterior margin along the midline; the length of the elytra (EL) was measured from base of scutellum to the apex of the longer elytron.

Genitalia were prepared after soaking specimens in water with vinegar and mild detergent for one day, followed by dissection. Aedeagus was cleared in lactic acid for up to five days. After examination, genitalic preparations were stored in Euparal on acetate labels or cards, and pinned beneath the specimen from which they had been removed. The specimens are preserved in the collections of the South China Agricultural University, Guangzhou (SCAU), and of Joachim Schmidt, Admannshagen (CSCHM).

Pterostichus (Pseudethira) conaensis sp. n.

Figs. 1, 2. Holotype. Male, with label data: "CHINA S Tibet 25.VI.10 / SW Cona, 3km to Mama Xiang / 3066 m, leg. Tian Mingyi / 27°53.929N 91°48.099E", "HS 1146" (SCAU).

Paratypes. 3 females, with label data "CHINA S Tibet, ca. 18 km / SW Cona, 3000–3100m / 27°54'N 91°48'E / 22.VII.09 lg. Tian Mingyi" (CSCHM).

Etymology. The name is derived from the locality were the species was collected.

Description. Body length: 12.5–13.2 mm.

Colour: Body almost completely black, with dorsal side moderately shiny without metallic reflections; palpi, terminal joints of antennae, and tarsal segments reddish brown lightened.

Micro-sculpture: Surfaces of head including labrum and of pronotum with small isodiametric sculpticells (slightly transverse sculpticells on disc of pronotum) which are only faintly engraved (visible under magnification 50 x). Elytra with isodiametric sculpticells more deeply engraved; surfaces of sculpticells slightly more convex in the female specimens than in the male.

Head: Mandibles of normal length, each with dorsolateral bead moderately developed. Frontal furrows markedly deepened, multiply fan out backwards, reaching at least level of posterior margin of eyes. Vertex between eyes with 5–7 additional moderately engraved longitudinal furrows. Eyes of normal size, markedly convex, with temples slightly longer than half of eye diameter; temples distinctly angled. Two supraorbital setae present on each side. Antennae moderately short, tip of tenth or eleventh antennal joint extended to pronotal base. Scapus approx. twice as long as wide, slightly longer than third antennal joint.

Pronotum: Moderately large, subcordate, more transverse in females (PW/PL = 1.39-1.41) than in male (PW/ PL = 1.33, holotype), distinctly wider than head (PW/ HW = 1.41 in female paratypes, 1.35 in male holotype), broadest slightly before middle. Sides evenly rounded in anterior 3/4 or 4/5 and concavely rounded in posterior 1/4 or 1/5, hind angles obtuse, not protruding laterally. Anterior margin markedly concave, front angles well protruding (especially in female specimens). Posterior margin slightly narrower than anterior margin, +/- concave in middle, distinctly curved anteriorly towards side margin; basal bead completely reduced. Each side with a single deep and long laterobasal groove which is laterally curved near base; space between groove and pronotal lateral border markedly convex, smooth. Both lateral and basolateral setae present.

Elytra: Long oval in dorsal view (EL/EW = 1.49-1.55, holotype 1.51), maximum width slightly behind middle. Side margin slightly concave in anterior quarter, almost straight (not sinuate) before apex, latter shortly rounded. Shoulders moderately wide, rounded, with elytral base obtuse wrinkled to the mesepisternites (120–130°). Epipleura evenly narrowed distally. Basal border entirely developed (in one specimen indistinct between parascutellar stria and second striae), moderately curved anteriorly towards shoulders. All striae deeply impressed throughout, without puncture, intervals markedly convex. Base of first stria reduced, rest of first stria follows seamlessly parascutellar striae. Parascutellar setae absent; three (sometimes four) discal setae present: the anterior seta is situated close to the third stria at end of anterior elytral guarter or fifth



Fig. 1: Pterostichus (Pseudethira) conaensis sp. n., holotype.



Fig. 2: *Pterostichus (Pseudethira) conaensis* sp. n., holotype. (a) Aedeagal median lobe in left lateral view, (b) distal portion of median lobe with terminal lamella in dorsal view, (c) right paramere.

(sometimes two anterior setae are situated in this area), second is situated somewhat behind elytral middle close to second stria, and third is situated a little before beginning of distal elytral quarter close to second stria. Umbilicate series consist of 17–19 setae, with setae in middle of elytra only slightly more distant than in elytral distal third. Seventh stria with a single apical seta developed; the minor seta which normally inserts at end of seventh stria is absent.

Legs: Moderately short, male femora not remarkably broadened. Onychium smooth ventrally.

Male genitalia: Aedeagal median lobe slender, tubular, in lateral view rectangular curved after basal third, straight in middle, somewhat curved downwards before terminal lamella, latter relatively long, moderately wide, spatulate, with suggestion of a dorsolateral tooth on left margin, somewhat curved upwards and, in dorsal view, very slightly curved to left. Terminal apophysis of right paramere digitiform, rises angular from base.

Relationships. *Pterostichus conaensis* sp. n. appears to be a new representative of the *P. harmandi* group sensu SCHMIDT (2006a) based on the combination of the following five morphological characters: (1) dorsolateral bead of mandibles moderately developed; (2) pronotal basal bead completely reduced; (3) space between pronotal basal groove and lateral border markedly convex; (4) elytral base angulate; (5) aedeagal median lobe slender tube-shaped, not widened in middle.

Differential diagnosis. Within the *P. harmandi* group the new species is recognized by the absence of both the parascutellar seta and the small apical seta which usually inserts at the end of the seventh elytral stria. Due to the wholly black body, *P. conaensis* sp. n. is most similar to *P. pseudodolens* Morvan, 1978, which was described based on a single female specimen from Bhutan. In addition to the elytral chaetotaxy characters named above, the new species differs from the latter by concavely rounded pronotal sides near base and by the absence of setae on ventral side of the fifth tarsal joint.

Distribution and habitat. Up to now only known from the Himalayan transverse valley between Cona in Tibet and Tawang on the southern slope of the High Himalaya. The species is certainly endemic to this part of the Eastern Himalaya. It was collected in a mixed forest of the middle cloud forest zone at altitudes of 3000–3100 m.

Pterostichus (Sinosteropus) perhoplites sp. n.

Figs. 3, 4.

Holotype. Male, with label data: "CHINA S Tibet, ca. 15km / SW of Cona, 3700–3970m / 27°55'N 91°50'E / 19+22.VII.09 lg. Tian Mingyi" (SCAU).

Paratypes. 2 males, 5 females, with same label data as holotype (CSCHM, SCAU); 1 female "CHINA S Tibet / 12km SW Cona, ca. 4500 m / 27°55'N 91°52'E / 19+22.VII.09 lg. Tian Mingyi" (CSCHM); 1 female "CHINA S Tibet 24.VI.10 / SW Cona 4465m lg. Tian M. / 27°55.392 91°52.555E", "HS 1148" (CSCHM).

Etymology. The name refers to the apparent similarity of the new species to the Japanese endemic *Pterostichus* (*Georgeballius*) *hoplites* Bates, 1883.

Description. Body length: 7.9-8.9 mm.

Colour: Surface of body brown to blackish brown, shiny; labrum, palpi, antennae, and legs somewhat lightened. Micro-sculpture: Labrum with deeply engraved isodiametric sculpticells, which are visible under magnification 30 x. Sculpticells on discs of head, pronotum and elytra very slightly engraved in both sexes, not visible under magnification < 50 x.

Head: Mandibles normal. Vertex markedly convex, smooth, with Frontal furrows very shallow developed. Eyes relatively small, moderately protruded, with temples approx. 2/3 of length of eye diameter; temples distinctly angled. Two supraorbital setae present on each side. Antennae relatively short, tip of last antennal joint barely reaches pronotal base. Scapus approx. twice as long as wide, distinctly longer than third antennal joint; pedicellus with a single small apical seta on ventral side; third antennal joint somewhat depressed near base.

Pronotum: Moderately large and moderately transverse (PW/PL = 1.28-1.36), insignificantly subcordate, distinctly wider than head (PW/HW = 1.38-1.44), broadest slightly before middle. Sides evenly rounded in anterior 3/4 or 4/5 and straight or faintly concave before hind angles, the latter marked as small obtuse teeth. Anterior margin moderately concave, front angles protruding. Posterior margin same as broad as anterior margin or slightly broader, almost straight in middle, faintly curved anteriorly towards side margin; basal bead completely reduced (sometimes short relics visible). Each side with a single laterobasal groove which is moderately deep and laterally curved backwards;



Fig. 3: Pterostichus (Sinosteropus) perhoplites sp. n., holotype.

space between groove and pronotal lateral border convex or slightly flattened before base, this portion and laterobasal grooves sparsely punctuate, pronotal discus smooth. Both lateral and basolateral setae present.

Elytra: Long oval in dorsal view (EL/EW = 1.48 - 1.54), maximum width in middle. Sides with basal depression and apical sinuation indistinct, elytral apex rounded. Shoulders relatively wide, angular, with humeral tooth distinct, and with elvtral base almost rectangular wrinkled to mesepisternites. Basal border entirely developed, straight ore faintly concave. All striae deeply impressed throughout, indistinct punctuate, intervals moderately convex. Parascutellar striae present, parascutellar setae absent, two discal setae beside second stria present in which anterior seta is situated a little before elvtral middle and posterior seta is situated a little before beginning of distal elytral quarter. Umbilicate series widely interrupted in middle, forms a humeral series of five setae and a distal series of 4-7 setae. Seventh stria with two apical setae developed.

Ventral side: Proepisternites relative spaciously punctuate. Metepisternites short, almost as long as wide. Fig. 4: Pterostichus (Sinosteropus) perhoplites sp. n., holotype. (a) Aedeagal median lobe in left lateral view, (b) median lobe in right lateral view, (c) right paramere.

lateral view.

view.



Legs: Short, femora moderately broadened. Onychium smooth ventrally.

Male genitalia: Aedeagal median lobe relatively short, with basal portion slender than distal 2/3, ventrally widened and carinate, in lateral view markedly bent in middle and somewhat curved downwards before apex, latter relatively short, simple. Right paramere lunulate, with terminal apophysis long and slightly curved.

Relationships and differential diagnosis.

This species is very similar to P. pseudojugivagus sp. n., which is described below, and it is doubtless its sister species. For details see description of the latter, below.

Distribution and habitat. Up to now, this species was only collected in the mountains SW of Cona, and it is certainly endemic to this part of the Eastern Himalaya. It has been found in the subalpine zone at altitudes of 3900-4500 m.

Pterostichus (Sinosteropus) pseudojugivagus sp. n. Fig. 5.

Holotype. Male, with label data: "CHINA S Tibet / Xuebudala Shan, pass 5100m / 22.VI.10 leg. Tian Mingyi / 28°37.822N 92°13.258E" (SCAU).

Paratype. 1 male, with same label data as holotype (CSCHM).

Etymology. The name refers to the habitually similarity of the new species to the East Tibetan endemic Pterostichus (Pseudohaptoderus) jugivagus (Tschitschérine, 1898).

Description. Body length: 7.7-8.0 mm.

Colour and micro-sculpture: As described in P. perhoplites sp. n.

Head: Eyes slightly protruding with temples almost 3/4 as long as eye diameter. In all other characters agreeing with P. perhoplites sp. n.

Pronotum: Proportions: PW/PL = 1.19-1.21, PW/HW = 1.39-1.45. Sides rounded throughout, not concave before hind angles. In all other characters agreeing with *P. perhoplites* sp. n.

Elytra: Proportions: EL/EW = 1.57-1.59, EW/PW = 1.25-1.27. In all other characters agreeing with *P. perhoplites* sp. n.

Ventral side and legs: As described in *P. perhoplites* sp. n. Male genitalia: Aedeagal median lobe similar as in *P. perhoplites* sp. n., short, in lateral view markedly bent in middle, and with apex simple; middle portion of median lobe moderately widened ventrad, ventral carina indistinct.

Relationships.

Based on morphological characters alone the relationships of both Pterostichus perhoplites sp. n. and P. pseudoiugivagus sp. n. seem difficult to define because there are no really similar species known from the Himalaya and adjacent regions. In the external shape, the new species are reminiscent of the Eastern and Central Tibetan species P. jugivagus (Tschitschérine, 1898) and P. semenowi (Tschitschérine, 1888) of the subgenus Pseudohaptoderus Tschitschérine, 1888. However, both differ markedly by having umbilicate series of elytra not widely interrupted in middle and by having a more simple, slender tube-shaped median lobe of aedeagus. Two characters, which are probably more important from a phylogenetic point of view, the chaetotaxy of eighth elytral interval and the shape of aedeagus with enlarged middle portion and with carinate ventral side, the new species share similarity with those of the subgenus Sinosteropus Sciaky, 1994. Therefore, we decided to describe the new species within this group although there is at least one more striking character which is not developed in P. perhoplites sp. n. and P. pseudojugivagus sp. n. All of the Sinosteropus hitherto described possess a rounded pronotum with a markedly convex base and with completely rounded hind angles (SCIAKY 1994, SCIAKY & FACCHINI 2003). This pronotal shape doubtless represents a derived character state and it defines all Sinosteropus species from the Eastern Tibetan Plateau + P. (Sinosteropus) wrasei Sciaky & Facchini, 2003 from the Western Himalava as a natural group. Thus, if the above described features of male genital and of elytral chaetotaxy are actually synapomorphies of Sinosteropus together with P. perhoplites sp. n. and P. pseudojugivagus sp. n. both the latter represent a separate branch which arose from the common stem lineage before the diversification of other *Sinosteropus* (s. str.). This would allow us to describe a separate subgeneric taxon for the new species, however, we refrain from doing so as so many East Asian *Pterostichus* species groups are already named without existence of a phylogenetic analysis of the genus. For the moment, we believe it is better to treat the subgenus *Sinosteropus* in a broader sense which includes *P. perhoplites* sp. n. and *P. pseudojugivagus* sp. n.

Close relationships of the newly described species together with Sinosteropus were also supported by a recent phylogeographical analysis based on 28s ribosomal DNA data (Schmidt et al., in preparation). Moreover, the same analysis shows close relationships of a clade formed by the latter taxa together with the Japanese monospecific taxon Georgeballius Habu, 1984. Actually, *P. perhoplites* sp. n. and *P. pseudojugivagus* sp. n. are very similar to P. (Georgeballius) hoplites Bates, 1883, in external and in genital morphology. Several of these similarities, however, are symplesiomorphies, e.g. the pronotal shape with hind angles well-developed. On the other hand, P. (Georgeballius) hoplites seems more derived due to the deformation of the third antennal segment, the markedly shortened basal portion of the aedeagal median lobe and the reduced terminal apophysis of the right paramere (see HABU 1984). Thus, the true systematic position of both the newly described species within a probably Georgeballius + Sinosteropus lineage remains uncertain until a more comprehensive phylogenetic analysis of the genus Pterostichus is done.

Differential diagnosis.

In external characters *P. pseudojugivagus* sp. n. is very similar to *P. perhoplites* sp. n., however, it differs mainly by the pronotal side margin, which is rounded up to the small tooth-like hind angles. The eyes are less protruded, the temples longer, and the elytra somewhat slender. The middle portion of the aedeagal median lobe of *P. perhoplites* sp. n. is broader than in *P. pseudojugivagus* sp. n., the ventral carina is markedly developed. Within the Himalayan *Pterostichus* fauna both species are easily recognized by the widely interrupted umbilicate series of elytra. From the East Tibetan *Sinosteropus* (s. str.) species, which share this character of elytral chaetotaxy with the new species, the latter are easily distinguished by the plesiomorph pronotal shape with hind angles distinct.

Distribution and habitat. This species was found on Xuebudala Shan mountain range of South Tibet between Cona and Tsethang (Zetang), and it is certainly endemic to this part of the Eastern Himalayan mountain system. It was collected on alpine meadows beside the road at an altitude of approx. 5100 m.

Acknowledgements

We are very grateful to Torsten Dikow, Chicago, for the linguistic revision of the text. The travel of the second author was possible due to generous support by the German Research Council (DFG) in the course of the project MI 271/20–1.

Literatur

- DEUVE, T. & TIAN, M.-Y. (2009): Nouveaux Carabus et Cychropsis du Hunan, du Guizhou, du Sichuan et du Tibet (Coleoptera, Carabidae). – Coléoptères 15 (14): 115–122.
- HABU, A. (1984): Two new genera of Pterostichini from Japan (Coleoptera, Carabidae). – The Entomological Review of Japan 39 (1): 1–7.
- SCHMIDT, J. (2006a): Die Pterostichus-Arten des Subgenus Pseudethira Sciaky, 1996, in Zentral- und West-Nepal (Coleoptera, Carabidae): Taxonomie, Phylogenie, Biogeographie. – In: HARTMANN, M. & J. WEIPERT (eds.): Biodiversity and Natural Heritage of the Himalaya. Vol. II. – Verein der Freunde und Förderer des Naturkundemuseums Erfurt e.V., Erfurt: 179–243.
- (2006b): Neues zur *Pseudethira*-Fauna des Manaslu-Massivs im zentralen Nepal-Himalaya (Coleoptera, Carabidae, *Pterostichus*).
 Veröffentlichungen Naturkundemuseum Erfurt **25**: 197–202.

GLANDT, D. (2011): Grundkurs Amphibien- und Reptilienbestimmung – Beobachten, Erfassen und Bestimmen aller europäischen Arten. – Quelle & Meyer Verlag Wiebelsheim: 411 S., 515 farbige Abb., 78 Strichabb., 14 s-w Abb., 7 Tabellen,

Format: 18 x 11,4 x 3,4 cm; ISBN: 978–3–494–01496–8, Preis: 29,95 €.

Im Jahr 2010 hat der Autor im gleichen Verlag und in gleicher Aufmachung ein bemerkenswertes "Taschenlexikon der Amphibien und Reptilien Europas" vorgelegt (s. Rezension VERNATE 29/2010: S. 194). Dieses Werk hat einerseits Anerkennung für seine fundierte Darstellung der Arten gefunden, aber ebenso viel Kritik für Aufbau und Konzept. Besonders kritisiert wurde, dass dieses Lexikon zwar eine Fülle von Informatio-

- (2007): Neue Pseudethira-Funde im Annapurna-Massiv im westlichen Zentral-Nepal-Himalaya mit Hinweisen zur Lage von Glazialrefugien im oberen Kali Gandaki- und Marsyangdi Khola-Tal (Coleoptera, Carabidae, Pterostichus). – Veröffentlichungen Naturkundemuseum Erfurt 26: 13–25.
- (2009): Neue Arten und Unterarten der *Pterostichus* Untergattung *Pseudethira* Sciaky, 1996 aus Nepal (Coleoptera, Carabidae). – VERNATE 28: 183–196.
- SCIAKY, R. (1994): Sinosteropus new subgenus and three new species of Pterostichus from China (Coleoptera Carabidae). – Natura bresciana, Annuario del Museo Civico di Storia Naturale di Brescia 29 [1993]: 193–201.
- SCIAKY, R. & FACCHINI, S. (2003): A revision of *Pterostichus* subgenus *Sinosteropus*, with description of twenty-seven new taxa from China and India. – Bollettino del Museo Civico di Storia Naturale di Verona **20** (2): 401–438.

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nen bietet, aber bei der Bestimmung der Arten nur sehr bedingt hilfreich ist. Dieser Kritik begegnen nun Autor und Verlag mit dem Nachschieben des "Grundkurses Amphibien- und Reptilienbestimmung". Ausdrücklich wird betont, daß beide Bände sich ergänzen, man Bildwiederholungen unbedingt vermeiden wollte und auch ansonsten Aspekte mit aufgenommen wurden, die im Lexikon fehlten. Beide Bände muß man daher im Nachhinein als Einheit betrachten.

Der Band beginnt mit einem Vergleich von Körperbau und Biologie bei Amphibien und Reptilien, sowie einer Artenliste Europas und der angrenzenden Atlantischen Inseln. Dem folgt eine kleine Auswahl typischer Lebensräume in diesem Areal. Anhand einiger hübscher Fotos wird beschrieben, was für Arten dort erwartet werden können und wie man sie findet. Den Nachweismethoden

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Jahr/Year: 2011

Band/Volume: 30

Autor(en)/Author(s): Schmidt Joachim, Ming-Yi Tian

Artikel/Article: <u>Three remarkable new Pterostichus species from Southern Tibet</u> (Insecta: Coleoptera: Carabidae: Pterostichini) 175-181