

A New Pterostichine Carabid Beetle from Kwantô, Central Japan

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Abstract A new pterostichine carabid beetle, *Pterostichus (Nialoe) ryomoensis* sp. nov., is described from Kwantô District, Central Japan. It is related to *P. (N.) asymmetricus* BATES, but differs from it mainly in the body size and the shape of male genital organ.

In 1987, SUDA and UCHIYAMA redescribed *Pterostichus asymmetricus* BATES (1883, p. 245) based on the Ashio population, and commented on the strong possibility of a new species, though they placed it in an extreme of the cline. Since then, new materials from the same mountains have been accumulated steadily, and now we have at hand many pterostichine specimens from several localities of the Ashio and Ryômô Mountains. Though there still remains some doubt about the true systematic status of this species, we have decided to conclude the long protracted task by giving the pterostichine a proper scientific name.

The abbreviations used in this paper are the same as those explained in previous papers of MORITA's.

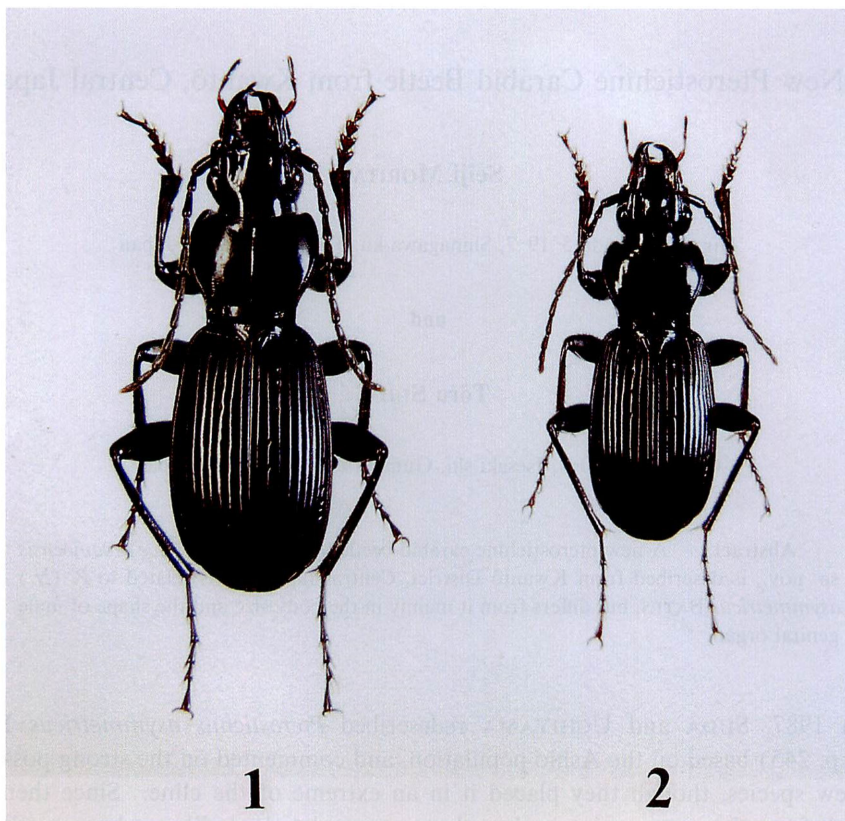
Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the original manuscript of this paper. My thanks are also due to Messrs. Yasutoshi HIRANO, Hideo OHKAWA and Yûji UCHIYAMA for their kind help.

Pterostichus (Nialoe) ryomoensis MORITA et SUDA, sp. nov.

[Japanese name: Ryômô-naga-gomimushi]

(Figs. 1, 3, 4 & 7)

Pterostichus (Nialoe) asymmetricus: SUDA & UCHIYAMA, 1987, *Insect*, Utsunomiya, **38**: 16 [partim]. — SUDA, 2000, *Ranbu*, Fujioka, (10): 83 [partim]; 2003, *ibid.*, (12): 146.



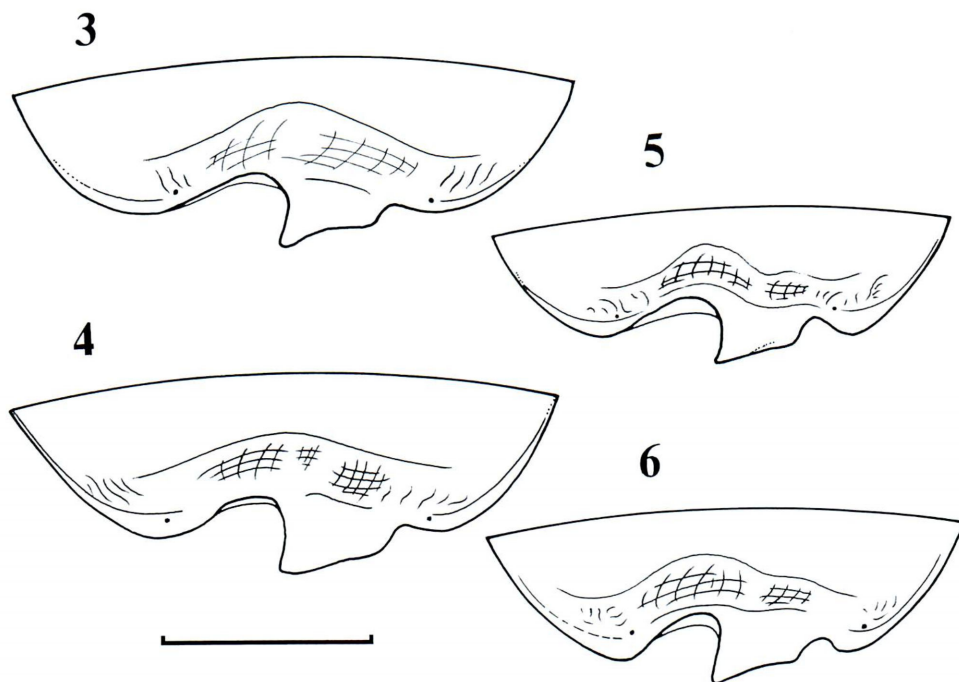
Figs. 1, 2. *Pterostichus (Nialoe)* spp. — 1, *Pterostichus (Nialoe) ryomoensis* MORITA et SUDA, sp. nov., from Mt. Karasawa-yama; 2, *P. (N.) asymmetricus* BATES from Mt. Akagi-san.

Diagnosis. Body very large and convex; genae weakly convex; elytral shoulders narrowly rounded; in ♂, anal sternite with oblique wrinkles near a pair of setae; apex of aedeagus distinctly curved dorsad, and moderately rounded at the tip; right paramere wide and weakly curved.

Description. Length: 17.7–21.6 mm (from apical margin of clypeus to apices of elytra).

Body very large and convex. Colour black; dorsal surface shiny; ventral surface, mouth parts and appendages almost black to blackish brown.

Head gently convex; eyes moderately convex; PW/HW 1.32–1.39 (M 1.35) in 20♂♂, 1.32–1.42 (M 1.36) in 20♀♀; genae weakly convex and shorter than eyes; frontal furrows deep, linear, a little divergent posteriad or almost parallel, and reaching the level of anterior supraorbital pores; lateral grooves deep, straight and reaching the level of basal 2/3 of genae; mentum tooth bifid; microsculpture composed of isodiametric to wide meshes; relative length of antennal segments as follows:— I : II : III : IV : V : VI :



Figs. 3-6. Anal sternite of ♂ in *Pterostichus (Nialoe)* spp. — 3, 4, *Pterostichus (Nialoe) ryomoensis* MORITA et SUDA, sp. nov., from Kabasaki-chô; 5, *P. (N.) asymmetricus* BATES from Mt. Himuro-san; 6, same species from Mt. Akagi-san. (Scale: 2 mm.)

XI = 1 : 0.61 : 0.89 : 0.90 : 0.90 : 0.91 : 0.72.

Pronotum cordate and moderately convex; apex moderately to deeply emarginate and bordered at the sides; PW/PL 1.22-1.42 (M 1.33) in 20♂♂, 1.24-1.40 (M 1.33) in 20♀♀; PW/PA 1.33-1.47 (M 1.38) in 20♂♂, 1.31-1.48 (M 1.37) in 20♀♀; PW/PB 1.42-1.54 (M 1.47) in 20♂♂, 1.40-1.60 (M 1.47) in 20♀♀; sides moderately arcuate in front and then sinuate and parallel towards hind angles or a little divergent just before hind angles; base emarginate at middle and slightly arcuate or straight at the sides; PA/PB 0.99-1.12 (M 1.06) in 20♂♂, 1.02-1.18 (M 1.07) in 20♀♀; basal foveae sparsely and finely punctate, and rather shallow, and with linear bottom on each side; basal part almost smooth or several longitudinal and short wrinkles; median line finely impressed, reaching neither apex nor base; anterior transverse impression obsolete; apical angles moderately produced and rounded at the tips; hind angles sharp or rectangular; reflexed lateral borders very narrow throughout; microsculpture composed of fine transverse meshes.

Elytra elongated subovoid, convex, and widest at about the middle; basal part narrow; shoulders oblique and narrowly rounded; EW/PW 1.19-1.28 (M 1.23) in 20♂♂, 1.18-1.27 (M 1.23) in 20♀♀; EL/EW 1.50-1.63 (M 1.56) in 20♂♂, 1.54-1.63 (M 1.58) in 20♀♀; sides very weakly arcuate or rarely gradually dilated towards the widest

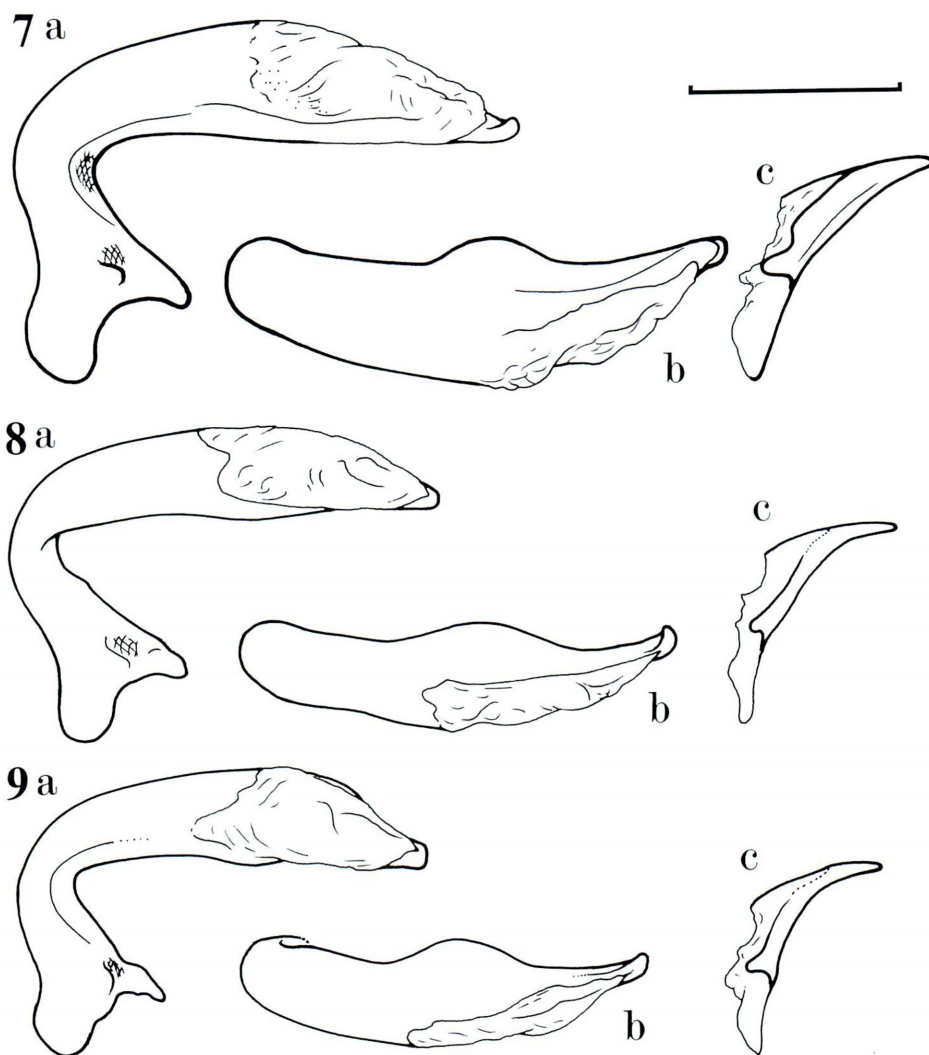
part, and widely arcuate in apical parts, and with wide and rather deep preapical emargination; epipleuron gradually narrowed towards apex; inner plica distinct; apices usually conjointly rounded, sometimes separated from each other and sutural angle usually obtuse; basal border moderately arcuate; basal pore situated on interval I and joining stria 1; scutellar striole very short, situated on interval I and usually joining basal border; intervals moderately convex; striae smooth and rather deep; dorsal pores on interval III usually with four to five pores, sometimes with six; basal two or three pores joining stria 3, and the remaining pores joining stria 2 or irregularly arranged from the middle to preapical part; marginal series composed of 17–21 pores; microsculpture composed of fine transverse meshes.

Legs slender; basal three segments of meso- and metatarsi externally sulcate; TL/HW 1.19–1.36 (M 1.29) in 15♂♂, 1.12–1.24 (M 1.19) in 15♀♀.

Ventral side almost smooth; in ♂, anal sternite with a deep concavity, a single asymmetrical projection at about middle of the margin, and several oblique wrinkles near a pair of setae.

Aedeagus elongate and strongly curved at basal third; apical part of aedeagus slightly curved to the right in dorsal view; left ventral edge with a large tumor; apical lobe rather short; apex distinctly curved dorsad, and moderately rounded at the tip; right paramere elongate, weakly curved, and with a simply rounded apex; left paramere square.

Type series. Holotype: ♂, allotype: ♀, Mt. Ôhira-san, Ôhira-machi, Tochigi Pref., 24~30-IX-2006, T. SUDA leg. (NSMT). Paratypes: 1♂, Nagusakami-chô, Ashikaga-shi, Tochigi Pref., 11-VIII-1976, T. SUDA leg.; 5♂♂, 3♀♀, same locality, 9-VII-1977, T. SUDA leg.; 1♂, 1♀, same locality, 4-IX-1977, T. SUDA leg.; 2♀♀, same locality, 10-X-1980, T. SUDA leg.; 2♀♀, same locality, 7-IX-1981, T. SUDA leg.; 3♂♂, 2♀♀, same locality, 22-X-1989, H. OHKAWA leg.; 1♀, same locality, 19-IX-1995, H. OHKAWA leg.; 3♂♂, 3♀♀, Matsuda-chô, Ashikaga-shi, Tochigi Pref., 25-VIII-1980, Y. UCHIYAMA leg.; 2♂♂, 3♀♀, same locality, 7~8-X-2000, S. MORITA leg.; 1♂, Nageshirindô, Matsuda-chô, Ashikaga-shi, Tochigi Pref., 25-X-1998, H. OHKAWA leg.; 2♂♂, Yunosawa, Matsuda-chô, Ashikaga-shi, Tochigi Pref., 22-X-1997, H. OHKAWA leg.; 1♂, 2♀♀, Umauchi-tôge, Tsukiya-chô, Ashikaga-shi, Tochigi Pref., 19~29-IX-1987, T. SUDA leg.; 1♀, same locality, 19-X-1995, H. OHKAWA leg.; 2♀♀, Mt. Gyôdô-san, Tsukiya-chô, Ashikaga-shi, Tochigi Pref., 19~29-IX-1987, T. SUDA leg.; 1♀, same locality, 30-X-1997, H. OHKAWA leg.; 1♂, Hajika-chô, Ashikaga-shi, Tochigi Pref., 24-VI-1986, T. SUDA leg.; 1♀, Kabasaki-chô, Ashikaga-shi, Tochigi Pref., 11-XI-1995, H. OHKAWA leg.; 4♂♂, 4♀♀, same locality, 7~8-X-2000, S. MORITA leg.; 16♂♂, 62♀♀, same locality, 9~13-X-2000, H. OHKAWA leg.; 2♂♂, 2♀♀, Iriya, Kabasaki-chô, Ashikaga-shi, Tochigi Pref., 22-X-1989, H. OHKAWA leg.; 1♀, same locality, 28-V-1995, H. OHKAWA leg.; 15♂♂, 1♀, same locality, 19~23-X-1995, H. OHKAWA leg.; 2♀♀, same locality, 2-XI-1995, H. OHKAWA leg.; 1♀, Ôfuno, Awanoya-chô, Ashikaga-shi, Tochigi Pref., 6-X-1999, H. OHKAWA leg.; 1♂, 1♀, Ônumata-chô, Ashikaga-shi, Tochigi Pref., 28-IX-1967, Y. HIRANO leg.; 1♂, same locality, 11-XI-1995, H.



Figs. 7-9. Male genital organ in *Pterostichus (Nialoe)* spp. — 7, *P. (N.) ryomoensis* MORITA et SUDA, sp. nov.; 8, 9, *P. (N.) asymmetricus* BATES. — 7, Specimen from Kabasaki-chô; 8, specimen from Mt. Himuro-san; 9, specimen from Mt. Akagi-san. — a, Aedeagus, left lateral view; b, same, dorsal view; c, right paramere, left lateral view. (Scale: 2 mm.)

OHKAWA leg.; 1♂, Tamondô, Ôiwa-chô, Ashikaga-shi, Tochigi Pref., 26-X-1995, H. OHKAWA leg.; 6♂♂, 2♀♀, Yamashita-chô, Ashikaga-shi, Tochigi Pref., 31-X~10-XI-1995, H. OHKAWA leg.; 1♂, 1♀, same locality, 3-V-1996, H. OHKAWA leg.; 1♂, 1♀, same locality, 7~8-X-2000, S. MORITA leg.; 9♂♂, 17♀♀, Iwakiri, Omata-chô, Ashikaga-shi, Tochigi Pref., 8~20-IX-1995, H. OHKAWA leg.; 5♂♂, 13♀♀, same locality, 14~29-X-1995, H. OHKAWA leg.; 25♂♂, 60♀♀, same locality, 11~13-X-2000, H.

OHKAWA leg.; 1♂, 1♀, Ôgaki, Tsuga-machi, Tochigi Pref., 6-IX-1995, H. OHKAWA leg.; 2♂♂, Miya, Iwafune-machi, Tochigi Pref., 15-IX-1998, H. OHKAWA leg.; 1♂, Toyoshiro ~ Aisawa, Kuzuu-machi, Tochigi Pref., 7-X-1997, H. OHKAWA leg.; 1♂, 2♀♀, same locality, 26-X-1997, H. OHKAWA leg.; 3♂♂, 1♀, same locality, 7~8-X-2000, S. MORITA leg.; 1♂, 3♀♀, same locality, 13-X-2000, H. OHKAWA leg.; 1♀, Izuruhara-chô, Sano-shi, Tochigi Pref., 22-VII-1973, H. SAITO leg.; 1♂, Komaba, Akami-chô, Sano-shi, Tochigi Pref., 4-VI-1979, T. SUDA leg.; 1♂, 1♀, Oinokôji-tôge, Hikoma, Tanuma-machi, Tochigi Pref., 19~29-IX-1987, T. SUDA leg.; 1♂, 2♀♀, Mt. Karasawa-yama, Sano-shi, Tochigi Pref., 21-IX-1998, H. OHKAWA leg.; 1♂, 2♀♀, same locality, 7~8-X-2000, S. MORITA leg.; 3♂♂, 1♀, same locality, 27-IX~4-X-2003, T. SUDA leg.; 5♂♂, 13♀♀, same locality, 10~16-X-2004, T. SUDA leg.; 10♂♂, 10♀♀, same locality, 24~30-IX-2006, T. SUDA leg.; 3♂♂, 2♀♀, Mt. Karasawa-yama, Tochimoto, Tanuma-machi, Tochigi Pref., 29-VIII-1974, Y. UCHIYAMA leg.; 1♂, 1♀, same locality, 25-IX-1977, Y. UCHIYAMA leg.; 2♂♂, same locality, 25-VIII-1980, Y. UCHIYAMA leg.; 2♂♂, same locality, 6~13-VI-1982, Y. UCHIYAMA leg.; 1♂, 6♀♀, same locality, 25-VIII-1982, Y. UCHIYAMA leg.; 1♂, same locality, 14~17-X-1995, T. SUDA leg.; 1♂, 1♀, same locality, 11~14-X-1997, T. SUDA leg.; 1♂, 2♀♀, same locality, 3-XI-1998, Y. UCHIYAMA leg.; 3♂♂, Ô-koeji-tôge, Shimo-nagano, Awano-machi, Tochigi Pref., 27~30-VI-1982, Y. UCHIYAMA leg.; 6♂♂, 3♀♀, same locality, 26-VIII-1982, Y. UCHIYAMA leg.; 4♂♂, 2♀♀, Manago, Nishikata-mura, Tochigi Pref., 12~18-VIII-1989, T. SUDA leg.; 7♂♂, 11♀♀, Mt. Ôhira-san, Ôhira-machi, Tochigi Pref., 10~14-X-1995, T. SUDA leg.; 7♂♂, 4♀♀, same locality, 11~14-X-1997, T. SUDA leg.; 31♂♂, 52♀♀, same locality, 11~26-X-1997, Y. UCHIYAMA leg.; 1♂, same locality, 31-X-1998, H. OHKAWA leg.; 3♂♂, 6♀♀, same locality, 27-IX~4-X-2003, T. SUDA leg.; 3♂♂, 4♀♀, same locality, 7~16-VII-2005, Y. UCHIYAMA leg.; 18♂♂, 28♀♀, same locality, 24~30-IX-2006, T. SUDA leg.; 1♂, 7♀♀, same locality, 7~9-X-2006, S. MORITA leg.; 1♂, 1♀, Hishimachi-kurokawa, Kiryû-shi, Gumma Pref., 5~9-X-1986, T. SUDA leg.; 1♂, 4♀♀, Yunoiri, Yabuzuka-honmachi, Gumma Pref., 7~9-X-1982, T. SUDA leg.; 8♂♂, 11♀♀, same locality, 9~16-X-1982, T. SUDA leg.; 3♂♂, 2♀♀, same locality, 6~12-X-1985, T. SUDA leg.; 3♀♀, same locality, 28-IX~4-X-2003, T. SUDA leg.

Further specimen examined. 1♂, Mt. Narukami-yama, Kawauchi-machi, Kiryû-shi, Gumma Pref., 24~30-IX-2006, T. SUDA leg.

Range. Tochigi and Gumma Prefectures, Central Japan. All the specimens were taken at about 80–400 m in altitude. Only a single male was collected on Mt. Narukami-yama at about 750 m in altitude.

Notes. This new species is closely allied to *Pterostichus (Nialoe) asymmetricus* BATES, but is distinguished from it by the following points: 1) body very large and convex, 2) anal sternite of the male with oblique wrinkles near a pair of setae, 3) aedeagus with more convex tumor, 4) apical part of aedeagus more strongly curved, and 5) right paramere of male genitalia weakly curved.

So far as we are aware, the nearest known collecting sites of *P. (N.) asymmetricus*

are Mt. Akagi-san (=Akagi-yama), Gumma Prefecture and Mt. Himuro-san, Tochigi Prefecture. The former is about 15 km distant to the northwest in a bee-line from Mt. Narukami-yama, one of the localities of the present new species, and the latter is about 17 km to the northwest from Toyoshiro as the crow flies, one of the type localities of this new species.

The specimen from Mt. Narukami-yama is slightly different from average specimens of this new species in the following points: body small (L: 17.7 mm); basal part of pronotum rather flat; basal foveae of pronotum smooth; anal sternite in ♂ with several short and irregular wrinkles at the sides. It is, however, perfectly identical with this new species in the shape of aedeagal apex and the right paramere of the male genitalia. If there were no such distinct male genital organ, this specimen would be judged to be a hybrid between this new species and *P. (N.) asymmetricus*. Therefore, it was excluded from the type series.

Etymology. The specific epithet of this new species is derived from the type area “Ryômô”.

要 約

森田誠司・須田 亨：関東地方に分布するナガゴミムシの1新種。—— 以前から栃木，群馬両県南部に産するベーツナガゴミムシ *Pterostichus (Nialoe) asymmetricus* BATES は，ひじょうに大型になることが知られていた。筆者らは，これまでに収集した多数の標本を基にこの地域の個体群を新種とみとめ，リョウモウナガゴミムシ *P. (N.) ryomoensis* と命名し記載した。

本種はひじょうに大型で，陰茎の先端部の形状などでベーツナガゴミムシと識別される。

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