

# Western Palaearctic species of the genus *Deleaster* Erichson, 1839 (Coleoptera: Staphylinidae: Oxytelinae)

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Type material is revised for *Deleaster bergi* Kastcheev, 1999 and *D. bactrianus* Semenov, 1900. Nomenclatural status of the type specimens of *D. bactrianus* is discussed. The following new synonymy is established: *D. bactrianus* Semenov, 1900 = *D. bergi* Kastcheev, 1999. *D. dichrous* (Gravenhorst, 1802) and *D. bactrianus* are redescribed. Morphological variability and geographical distribution for both of these species are discussed.

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## Introduction

The genus *Deleaster* Erichson, 1839 belongs to the tribe Coprophilini of the subfamily Oxytelinae, and can be recognised by the following combination of characters: open procoxal fissure, exposed scutellum, elongate mesocoxae, presence of two abdominal laterosternites and characteristic shape of the body, which is similar to that of some Omaliinae genera (for example, *Anthophagus*). At present, seven species are known in the genus *Deleaster*: four from the Palaearctic Region, two from the Nearctic Region, and one species from the Ethiopian Region. All species are distributed mostly in the mountain regions, and confined to the wet habitats such as banks of streams, leaf litter, caves, shelters under stones, etc. Presence of plesiomorphic characters and very wide but disjunctive area of distribution of the genus, suggest that *Deleaster* is an old and primitive taxon (Herman, 1970), and its disjunctive distribution is of relic nature.

Three species of *Deleaster* were hitherto known in the Western Palaearctic: *D. dichrous* (Gravenhorst, 1802), *D. bactrianus* Semenov, 1900 and *D. bergi* Kastcheev, 1999. As a result of examination of the morphological variability and geographical distribution based on the type and additional (non type) material of these species, the synonymy of *D. bactrianus* Sem. and *D. bergi* Kastch. is established. For *D. dichrous* (Grav.) and *D. bactrianus* Sem., additional data on the diagnostics, distribution and bionomics are provided.

The paper is based on the material from the following collections: Zoological Institute, St.Petersburg (ZIN); private collection of A.Yu. Solodovnikov, St.Petersburg (cSol); private collection of the author (cG); some specimens examined were kindly gifted to the author by A.V. Kravets and O.G. Brekhov, both from Volgograd).

Measurements and ratios are given in the Table.

## *Deleaster dichrous* (Gravenhorst, 1802) (Figs 1-5)

*Oxytelus dichroa* Gravenhorst, 1802: 188.

*Deleaster dichrous*: Lohse, 1964: 72; Kastcheev, 1999: 149.

*Material examined. France*: 1 ♂, 1 ♀, Dijon. *Austria*: 1 ♂, Tyrol. *Ukraine*: *Kharkov Prov.*: 1 ♂, 2 ♀, Gaydary, VI.1967, leg. V. Kastcheev; *Crimea*: 4 ♂, 6 ♀, env. Yalta, 3.VI.1907, leg. W. Pliginsky; 1 ♂, Sevastopol, 5.V.1913, leg. W. Pliginsky. *Russia (European part)*: *St.Petersburg*: 1 ♂, 2 ♀, "Petropolis"; *Ryazan Prov.*: 1 ♂, 1 ♀, Gremyachka, 9.VII.1898, VIII.1901, leg. P.P. Semenov; 1 ♀, Ryazan; *Yaroslavl Prov.*: 1 ♀, Yaroslavl, 2.VII.1891; *Saratov Prov.*: 1 ♂, Polivanovka River, 8.V.1925, leg. Richter (ZIN); *Volgograd Prov.*: 1 ♂, vill. Shcherbatovka (N of Kamyshin), 14-15.VII.1996, leg. K. Grebennikov (cG). *Russia (Western Siberia)*: *Tomsk Prov.*: 1 ♀, Veselaya River, 11.IV.1908, leg. Khvorov (ZIN); *Tyumen Region*: 1 ♂, 2 ♀, Tyumen, 21-22.IV.1995 (cSol). *Russia (Northern Caucasus)*: *Krasnodar Terr.*: 1 ♂, Abin Range, 31.VII.-4.VIII.1997, leg. A. Kravets (cG); 2 ♀, Shessi Mt., upper reaches of Pshish River, 2.VI.1992, leg. A.Yu. Solodovnikov; 1 ♂, Lagonaki Plateau, Kamyshanova Polyana, 23.VII.1990, leg. A.Yu. Solodovnikov (cSol); 1 ♀, upper reaches of Belaya River, 26.VI.1903, leg. Filipchenko; *Northern Osetia*: 1 ♂, Vladikavkaz,

**Table.** Measurements (mm) and ratios of *Deleaster dichrous* (Grav.) and *D. bactrianus* Sem.

| Measurements and ratios   | <i>D. dichrous</i> | <i>D. bactrianus</i> |
|---|--------------------|----------------------|
| Length of body (from apex of clypeus to apex of abdomen)                  | 6.4-7.9            | 7.3-8.0              |
| Length of forebody (from fore margin of clypeus to hind margin of elytra) | 4.0-4.5            | 4.2-4.6              |
| Length of head (from fore margin of clypeus to neck)                      | 1.00-1.13          | 1.05-1.10            |
| Maximum width of head (including eyes)                                    | 1.10-1.30          | 1.13-1.30            |
| Length of pronotum (along median line)                                    | 0.98-1.00          | 1.00-1.08            |
| Maximum width of pronotum   | 1.03-1.18          | 1.08-1.23            |
| Length of elytra (from basal margin near the shoulder to hind margin)     | 1.90-2.15          | 2.08-2.30            |
| Maximum width of elytra   | 2.00-2.20          | 2.25-2.55            |
| Head: length/width  | 0.87-0.91          | 0.80-0.93            |
| Length of eye/length of temple (in dorsal view)                           | 1.4-1.8            | 2.2-2.8              |
| 8-10th antennal segments length/maximum width (for each segment)          | 1.3-1.5            | 1.4-1.5              |
| Pronotum: length/width  | 0.85-0.95          | 0.84-0.93            |
| Elytra: length/width  | 0.90-1.03          | 0.88-0.94            |

27.IV.1899, leg. Demokidov. **Georgia:** 1 ♂, Mtskheta, 12.IV.1929, leg. Ya.D. Kirschenblatt; **Abkhazia:** 2 ♀, Tsumuri, 2.VII.1981, leg. V.I. Gusarov; 1 ♂, 2 ♀, Tsumuri, 9.VI.1982, leg. Drebkin. **Azerbaijan:** 1 ♂, Lenkoran Distr., Lirik, 6.VI.1909, leg. Kiritschenko. **Turkmenistan:** 1 ♂, 1 ♀, Kopetdag, 20 km from Firyuza, 15.IX.1935, leg. Arnoldi (ZIN).

*Description.* Thorax, abdomen, pronotum, elytra, legs, antennae and mouthparts brown; median stripe of abdomen, area on the hind margin of elytra, antennae and often labrum darker; head black.

Head slightly wider than long; temples convex, rounded (without distinct angles). Dorsum with coarse groove extending anterolaterally from base of head to compound eye. Surface of convex frontoclypeal area with well distinct (20×) microsculpture and small sparse punctures. Grooves without punctation, with extremely dense microsculpture. Antennae long (when spread backwards, exceeding the middle of elytra) and slender; 3rd segment about twice as long as 2nd. Antenna slightly and gradually thickened to the distal end.

Pronotum as wide as head, slightly wider than long, with coarse groove in the middle of lateral margin, and shallower groove before the base, also usually with very fine small groove extending backwards from the apical margin. In some specimens, convex discal area with fine short longitudinal median furrow. Surface of pronotum except grooves with sparse large punctures and sometimes with fine, but distinct (20×) microsculpture. Surface of grooves with very dense microsculpture yet being finer than that of grooves on head, and usually with hardly distinct

(among dense microsculpture) dense punctation at least on margins of grooves. Scutellum with very dense microsculpture and hardly distinct punctation; marginal area sometimes without microsculpture and punctation. Elytra wider than head and pronotum, almost as long as wide, or slightly wider than long, roundly diverging backwards. Sutural stripe convex, bordered by more or less coarse grooves, at least in anterior 1/4. Surface with more or less dense, distinct (20×) microsculpture and small punctures (interspaces about 1-2 times as large as diameter of punctures).

Legs long and slender.

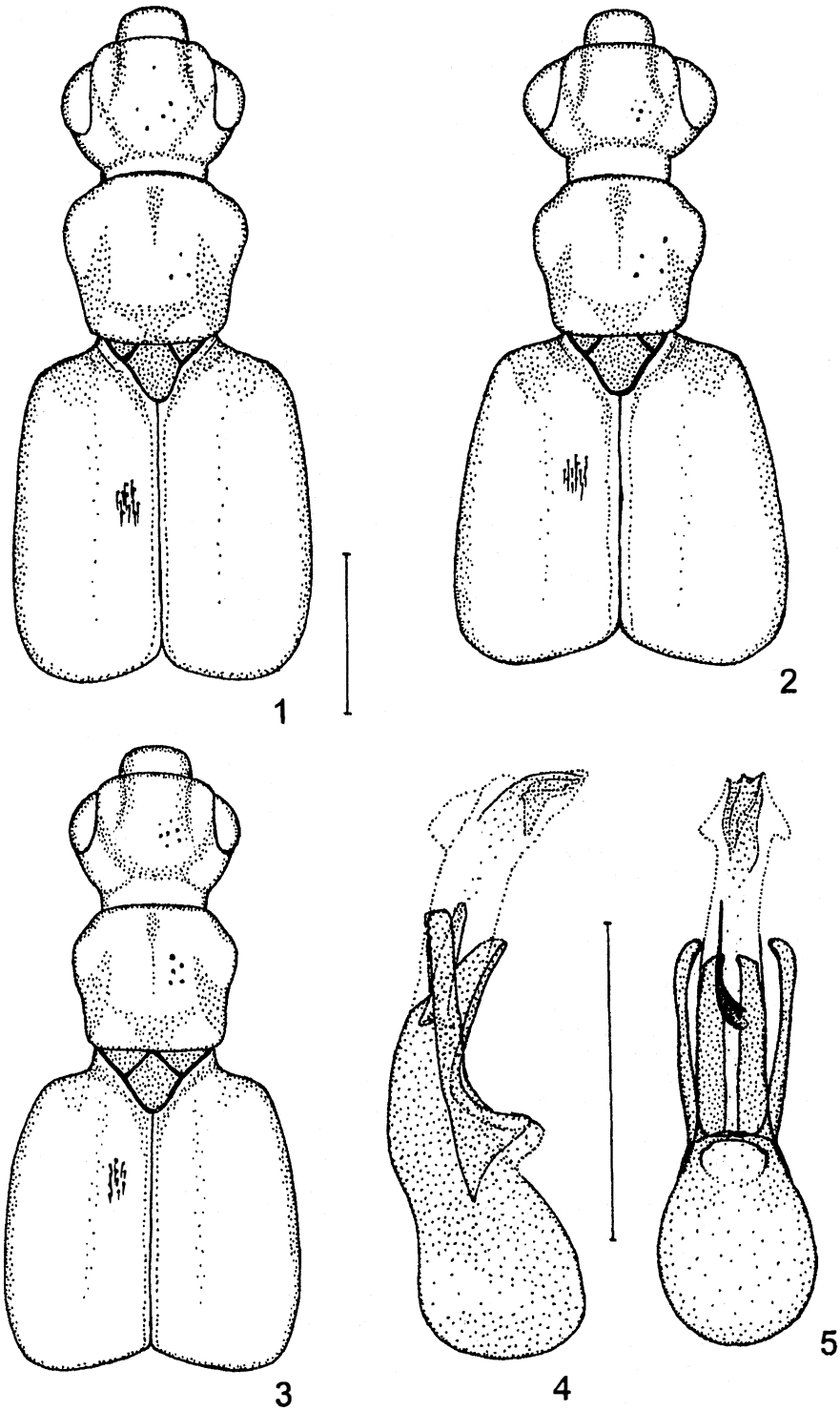
Abdomen as wide as elytra or slightly narrower, widest in the middle, slightly narrowed anteriorly and backwards. Tergite of 3rd segment (2nd visible tergite) 4.5 times as wide as laterosternite in dorsal view. Surface in middle of tergites with fine, but distinct (20×) microsculpture and very sparse fine punctation; lateral areas of tergites with dense microsculpture and dense fine punctation hardly distinct among dense microsculpture.

Aedeagus as in Figs 4, 5.

*Variability.* Most of the external characters of *D. dichrous* are very variable, but the shape of aedeagus is somewhat more stable. The overall great morphological variability of the species is probably caused by its wide yet very patchy distribution. Presumably, some local populations of the species, restricted to suitable habitats, remain to be completely isolated from each other during a long time.

Variability of particular characters is as follows (for measurements and ratios see the Table):

1. Forebody shape: some extreme variants are



Figs 1-5. *Deleaster dichrous* (Grav.): 1-3, forebody (1, Kharkov; 2, Abin Range, Krasnodar Terr.; 3, Shcherbatovka River, Volgograd Prov.); 4, aedeagus, lateral view (Abin Range, Krasnodar Terr.); 5, aedeagus, dorsal view (Shcherbatovka River, Volgograd Prov.). Scale: 1 mm.

presented in Figs 1-3.

2. Density of the punctuation of the convex areas of head and pronotum (described as the ratio of diameter of the interspaces between the punctures to the maximum diameter of these latter) varies from 2-3 to 3-5; on the elytra, density of the punctuation is less variable. Microsculpture may be more or less coarse on the head, and may be absent on the pronotum. Median longitudinal furrow of the pronotum is short but well distinct or absent.

3. Coloration of the body is rather variable, especially in the degree of darkness of the area at the hind margin of elytra.

*Distribution.* Europe, W Siberia, Caucasus, Transcaucasia, Asia Minor, Iran (Tikhomirova, 1973), S Turkmenistan.

*Comments.* *D. dichrous* is the only species of the genus which is widespread on the plains of Europe and W Siberia. However, its distribution in the plain consists of numerous insular populations restricted to suitable habitats and probably can be explained by the effect of Quaternary glaciation.

### *Deleaster bactrianus* Semenov, 1900 (Figs 7-8)

*Deleaster bactrianus* Semenov, 1900: 684; Kastcheev, 1999: 149.

*Deleaster bergi* Kastcheev, 1999: 148, *syn. nov.*

*Type material examined.* *Syntypes* of *D. bactrianus*: 1 ♂ (head and pronotum missing), Gissar, verkh.[ov'e] r.[eki] Karataga [handwritten in Russian, translation: *Gissar Prov.*, upper reaches of Karatag River (about 50 km S of Dushanbe, **Tadjikistan**)], 1898, [leg.] E. Tsil'ber/ golden circle/ *Deleaster bactrianus* m. ♂ Typ, A. Semenow det., VI.[1]900; 1 ♀, green square/ Gissar, 1898, [leg.] Tsil'ber [handwritten in Russian]/ *Deleaster bactrianus* m. ♂ [sic!] Typ, A. Semenow det., VI.[1]900; 1 ♂ (three apical segments of abdomen missing), Turkestan, Lac. Margusar [Margusar Lake, S of Pendzhikent, **Tadjikistan**], 1892, [leg.] Glasunov/ *Deleaster bactrianus* m. ♀ [sic!] Typ, A. Semenow det., VI.[1]900; 1 ♂, green square/ *Deleaster nigricollis* m. n. sp. [E. Reitter's handwriting, species was not described]/ 199./ golden circle/ *Deleaster bactrianus* m. ♀ Typ, A. Semenow det., VI.[1]900; 1 ♀ (head and pronotum missing), *Deleaster bactrianus* m. Typ, A. Semenow det., VI.[1]900 (ZIN). *Paratype* of *D. bergi*: 1 ♀, **Kazakhstan**, r.[River] Temirlik [Almaty Prov.] [handwritten in Russian], 29.VII.1988, [leg.] V. Kastcheev/ Paratypus *Deleaster bergi*, ♀, Kastcheev.

*Additional material examined.* **Kazakhstan** (southeastern part), *Taldy-Kurgan Prov.*: 1 ♀, Dzharkeht Distr., Ili River, 1906, leg. V. Rückbeil; **Tadjikistan**, *Dushanbe Prov.*: 1 ♂, 1 ♀, near Gissar Town; *Leninabad Prov.*: 2 ♂, Andarak, 10-12.VI.1906, leg. L. Berg; 1 ♂, Zeravshan, Kshut, Artuch [S of Pendzhikent], 1898, leg. Glasunov; 1 ♀, Shing River [S of Pendzhikent], 1892, leg. Glasunov.

*Description.* Abdomen, scutellum, mouthparts

and antennae brown (laterosternites and sometimes tergites partly or entirely yellowish brown); legs yellowish brown; elytra reddish brown, usually with more or less wide black stripe along basal margin; pronotum and head black.

Head slightly wider than long; temples convex, rounded (without distinct angles). Dorsum with coarse grooves extending anterolaterally from base of head to compound eyes. Surface of convex frontoclypeal area with or without fine (20×) microsculpture, with sparse small or large punctures; often punctuation double, at least along grooves. Antennae long (when spread backwards, exceeding the middle of elytra) and slender; 3rd segment about twice as long as 2nd. Antenna slightly and gradually thickened to distal end.

Pronotum slightly narrower than head, wider than long, with coarse groove in the middle of lateral margin; similar groove before the base, and small shallower groove extending backwards from the apical margin. Convex discal area with more or less coarse median furrow. Surface of pronotum except grooves without distinct microsculpture, with sparse fine punctuation (interspaces 2-4 times as large as diameter of punctures); grooves with very dense microsculpture yet being finer than that of grooves on head, and dense punctuation; the latter distinct among dense microsculpture only on margins of grooves. Scutellum with very dense microsculpture, without distinct punctuation. Elytra wider than head and pronotum, slightly wider than long, roundly diverging backwards. Sutural stripe convex, bordered by prominent grooves in anterior 1/4. Surface with dense microsculpture and small punctures (interspaces about 1-2 times as large as diameter of punctures).

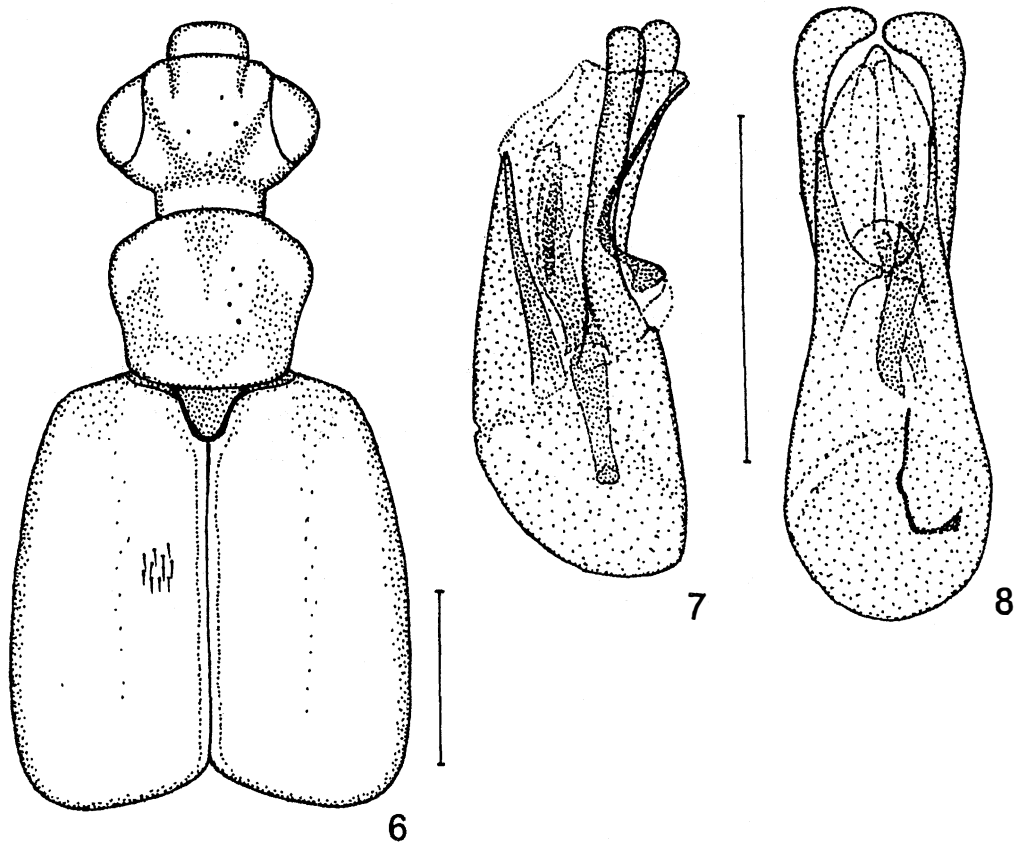
Legs long and slender.

Abdomen as wide as elytra or slightly narrower, parallel-sided, from 5th (4th visible) segment roundly narrowed backwards. Tergite of 3rd segment (2nd visible tergite) 4.5 times as wide as laterosternite in dorsal view. Surface with clearly distinct (20×) microsculpture being dense and fine on lateral areas of tergites, but sparse in the middle of tergites, and with dense punctuation on lateral areas of tergites.

Aedeagus as in Figs 7, 8.

*Variability.* Compared to *D. dichrous*, *D. bactrianus* appears to be less variable. However, some of its characters vary as follows (for measurements and ratios see the Table):

1. Microsculpture of the convex frontoclypeal area of the head is from fine but distinct to completely absent. Punctuation is from small to large and more or less heterogeneous.



Figs 6–8. *Deleaster bactrianus* Sem. (syntype, Margusar Lake, Tadjikistan): 6, forebody; 7, aedeagus, lateral view; 8, same, ventral view. Scale: 1 mm.

2. Median longitudinal furrow of the pronotum is more or less coarse and long.

3. Colour, especially black stripe on the hind margin of the elytra, may be more or less clear and wide, or absent.

*Distribution.* Middle Asia. Undoubtedly, this species is widely distributed in the mountains of the East of Middle Asia (Tadjikistan, Kirgizia, Uzbekistan, SE Kazakhstan) and probably also in some adjacent regions. Its distribution is not known in detail because only few specimens are hitherto known.

*Comments on syntypes.* In the original description, Semenov (1900) indicated five syntypes and mentioned the type locality (upper reaches of Karatag River; Margusar Lake also belongs to the type localities, but was not mentioned). All five specimens examined here and listed above in the section “Type material examined”, bear the respective identification labels of Semenov and

originate from the type localities. Undoubtedly, they are syntypes (the date of identification also confirms that all these specimens were examined by A. Semenov during preparation of the description).

However, the syntypes are either females or, if males, very damaged, whereas the single undamaged male syntype is unfortunately without any geographical label. Under these circumstances, I refrained from designation of a lectotype for *D. bactrianus*.

*Comments on synonymy.* Comparison of the syntypes of *D. bactrianus* with the paratype of *D. bergi* (my attempt to receive the holotype for examination was not successful) did not confirm the differences between these two taxa indicated by Kastcheev (1999). The examined paratype of *D. bergi* lies within the range of intraspecific variability of *D. bactrianus*. So, *D. bergi* is a new synonym of *D. bactrianus*.

**Key to species of *Deleaster* Er. from the Western Palaearctic**

1. Pronotum brown. Body smaller (6.4-7.9 mm). Grooves of head and pronotum finer; median longitudinal furrow of pronotum finer and shorter, or absent. Upper surface of head always, of pronotum often with microsculpture. Eyes relatively short (1.4-1.8 times as long as temples). Forebody as in Figs 1-3. Aedeagus as in Figs 4, 5. Distributed in Europe, W Siberia, Asia Minor, Caucasus, Transcaucasia, Iran, S Turkmenistan . . . . . ***D. dichrous*** (Grav.)
- Pronotum black. Body larger (7.3-8.0 mm). Grooves of head and pronotum coarser, median longitudinal furrow of pronotum coarser and longer, always distinct. Upper surface of head often, of pronotum always without microsculpture. Eyes relatively long (2.2-2.8 times as long as temples). Forebody as in Fig. 6. Aedeagus as in Figs 7, 8. Distributed in the mountains of the Eastern part of Middle Asia . . . . . ***D. bactrianus*** Sem.

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