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Two new species of *Helophorus* FABRICIUS, 1775 from the East Palearctic Region (Coleoptera: Helophoridae)

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Abstract

Two new species of *Helophorus* FABRICIUS, 1775 (Coleoptera: Helophoridae) are described from the East Palearctic Region: *H. orientalitibeticus* sp.n. (China, Tibet), and *H. kasparyani* sp.n. (Russia, East Siberia).

Key words: Coleoptera, Helophoridae, *Helophorus*, taxonomy, new species, East Palearctic Region, Tibet, East Siberia.

Introduction

In the course of identifying a collection of *Helophorus* FABRICIUS, 1775 from the Tibetan Plateau, on loan from the Naturhistorisches Museum Wien, Austria, a series of a new species was discovered. Describing this species has prompted me to re-evaluate *H. poppii* ANGUS, 1970. The original description was based on very limited material and although I had noticed variation in the length of the aedeagal struts, I considered this as variation within the species and did not mention it. In 1970 I collected extensive material of this species and in my accounts of this trip I mentioned the occurrence of two forms of aedeagi and listed the material of each form, though without attempting taxonomic evaluation (ANGUS 2011, 2016).

Material and methods

Specimens are located in the Naturhistorisches Museum Wien, Austria (NMW), my collection in the Natural History Museum, London, UK (NHMUK), the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZIN), the Finnish Museum of Natural History, Helsinki, Finland (MZH) and the Naturkundemuseum Erfurt, Germany (NHME).

Dissected aedeagi are mounted in Dimethyl Hydantoin Formaldehyde (DMHF) on the cards bearing the beetles. Photographs of the aedeagi were taken from slide mounts in DMHF, using a Zeiss Axioskop microscope, and of whole beetles and parts of them using a Leica 125 stereomicroscope. All photographs were taken in the Sackler bioimaging laboratory of the NHMUK, using Cannon DC7.4V cameras with EOS Utility program for image capture and Helicon Focus for stacking.

Helophorus orientalitibeticus sp.n.

Holotype ♂ (NMW), E. Tibet, road Jomda [county] – Dege [Dêgê County in Sichuan] pass 40 km N Jomda 31°38'N 98°28'E, 4245 m, alpine meadow, 18.VII.1997, leg. Jaroslav Turna, NHMW-ZOO-COL-0012951. **Paratypes**: 3 ♂♂, 3 ♀♀, 7 unsexed (NMW [0012952–64]), 2 ♂♂ (NHMUK), data as holotype; 1 ♀ (NHME, coll. A. Skale), data as holotype; 1 ♂ (NMW [0012965]): E. Tibet, Bamda env., 4400 m, 30°15'N 97°16'E, grassland, 5.VII.1997, leg. Jaroslav Turna.

General appearance (Fig. 1): A very distinctive species with its uniform very dark colour, evenly arched pronotum and more or less symmetrical oval apical segments of the maxillary palpi.

Length: 2.6–3.0 mm (♂), 2.9–3.3 mm (♀). Width 1.1–1.2 mm (♂), 1.3–1.5 mm (♀).

Head (Figs. 2–3) shining black, sometimes with slight greenish or reddish bronze reflections. Surface granulate to rugose-punctate, the sculpture tending to be reduced medially. Y-grove with stem fairly narrow, weakly expanded anteriorly, wider than arms. Maxillary palpi shining dark yellow, apical segment more or less symmetrically oval, darkened at tip. Antennae nine-segmented, dull yellow, clubs darker.

Pronotum (Figs. 2–3) coloured as head, evenly and rather highly arched, the sides either evenly curved to base or slightly straighter in basal fifth. Grooves narrow and shallow, submedians weakly angled outwards medially. Internal and middle intervals shining punctate on disc, becoming weakly granulate anteriorly and posteriorly. External intervals with flattened granulation. Marginal grooves narrow, not reaching anterior margin of pronotum, their inner margins encroached on by the granulation of the external intervals. Raised lateral margins very narrow, only weakly developed.

Elytra (Fig. 1) dark blackish brown, sides rounded, widest two thirds of the way to the apex, the apex tapered, rounded. Strongly striate, the strial punctures about half the width of the interstices, adjacent punctures along the striae separated by about half of a puncture. Interstices weakly convex. Pseudepipleura wide, opposite the metaventrite about as wide as the epipleura (Fig. 4).

Legs (Fig. 1) mid brown, quite long, tarsi without obvious swimming-hairs.

Aedeagus (Figs. 5–6) just under 0.5 mm long, tube and struts of approximately equal lengths. Parameres slightly shorter than phallobase, their sides almost straight to weakly curved over basal four fifths, apical fifth incurved, sinuate subapically.

Etymology: *orientalitibeticus*, adjective, east Tibetan.

Helophorus kasparyani sp.n.

Holotype ♂ (ZIN): SIBERIA, Yakutsk, Chuchur Muran, 62.041°N 129.624°E, 30.VI.–1.VII.1970, leg. R.B. Angus. The type locality is shown in Fig. 25. **Paratypes**: 25 ♂♂, 31 ♀♀ (NHMUK), 2 ♂♂ (NMW [0012966–67]), data as holotype; 1 ♂ (NHMUK): Siberia, Yakutsk, "Viluiskiy" [Vilyuyskiy] Trakt [road] to 55 km W of Jakutsk, 2.–5.VII.1970, leg. R.B. Angus; 1 ♂ (MZH), 1 ♂ (NHMUK): Jakutsk, B. Poppius.

General appearance (Fig. 7): Small dark, heavily sculptured with blackish bronze head and pronotum and unicolourous dark brown elytra.

Length: 2.3–2.7 mm (♂), 2.4–2.7 mm (♀), width ca. 1.2 mm (♂), 1.20–1.25 mm (♀).

Head (Figs. 10–12) generally coarsely granulate but the granulation tending to be effaced medially. Y-groove with its stem narrow, parallel-sided, at most slightly wider than arms. The area surrounding the Y-groove may be depressed and this sunken area tends to be encrusted with silt. Maxillary palpi dull yellow, apical segment clearly asymmetrical, darkened apically. Antennae 8-segmented, dull yellowish brown, the clubs a little darker.

Pronotum (Figs. 10–12) highly arched, shining dark greenish or reddish bronze, widest medially, sides evenly rounded. Intervals generally strongly granulate throughout, but internal and middle intervals sometimes with reduced granulation. Grooves narrow, fairly deep. Mid groove straight, tapered to points at each end. Submedians curved or weakly angled outwards medially, recurved 1/5 of the way from each end, effaced anteriorly but open posteriorly. Submarginals weakly curved, divergent anteriorly. Marginals narrow and shallow, raised lateral margins very narrow and weak.

Elytra dark brown, strongly striate, widest medially, tapering apically. Flanks (pseudepipleura) (Figs. 16–17) narrowly visible from below, their width opposite the metaventrite less than half that of the epipleura.

Legs (Fig. 7) brown, tarsal swimming-hairs moderately developed.

Aedeagus (Figs. 21–22) with short struts just over half the length of the tube, the parameres with the outer margins curved, the strength of the curvature depending on their orientation, tapered to rounded apex.

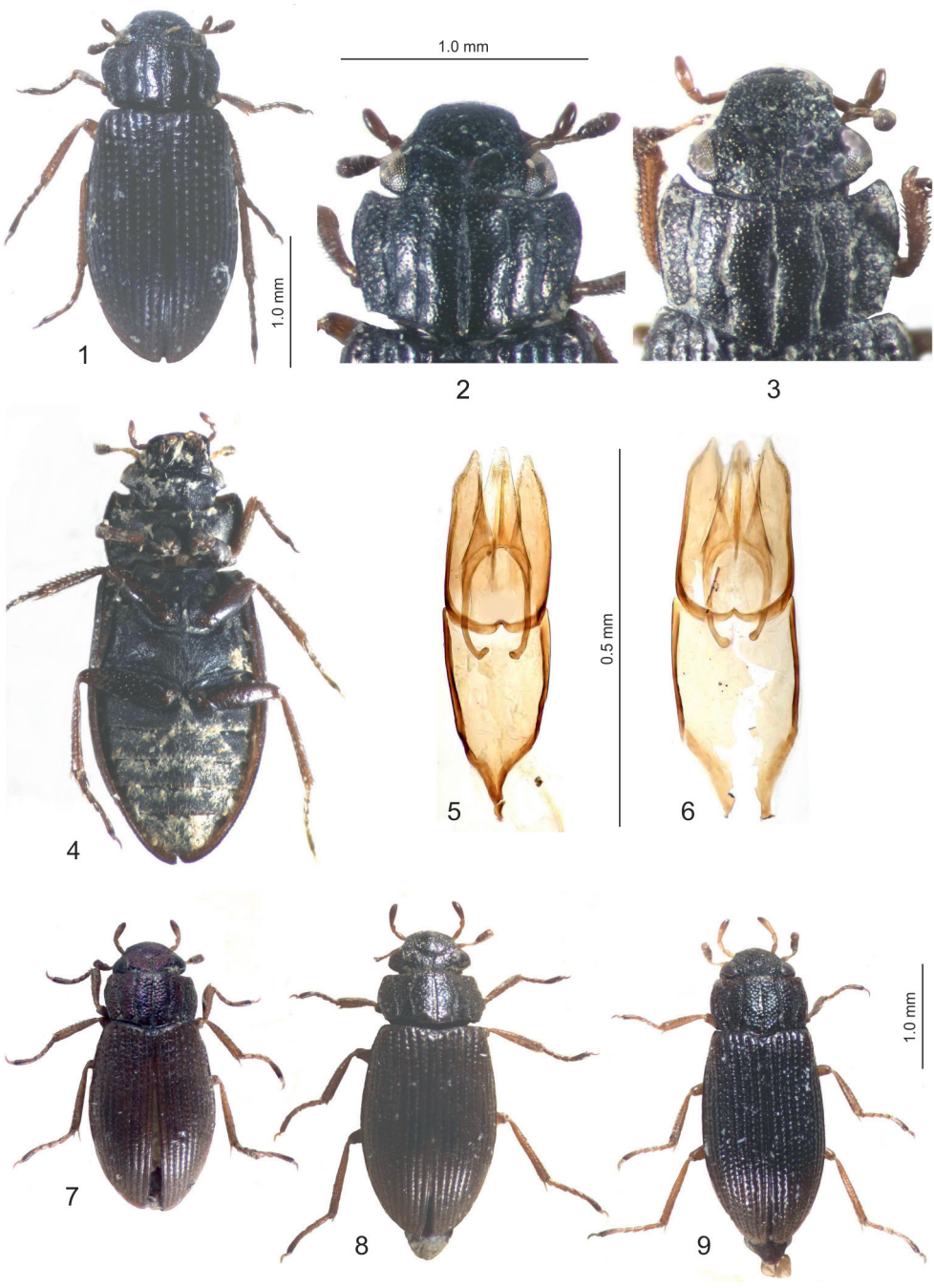
Etymology: This species is named after the hymenopterist Dmitri Rafaelovich Kasparyan (ZIN), who accompanied me during my collecting trip in Eastern Siberia. This allowed visits to very remote areas, contributing greatly to the successes of this trip.

Remarks: *Helophorus kasparyani* and *H. poppii* are sibling species, virtually indistinguishable except by the longer aedeagal struts of *H. poppii* (Figs. 21–23). The latter can be slightly larger than in *H. kasparyani*, maximum length 3.0 mm as against 2.7 mm (Figs. 7–9). The pronota of *H. poppii* (Figs. 13–14) appear indistinguishable from those of *H. kasparyani*, but in both species they are relatively narrower than that of *H. redtenbacheri* (Fig. 15). ANGUS (1970) refers to the narrower elytral flanks (pseudepipleura) of *H. poppii* (including *H. kasparyani*) compared with those of the European and West Siberian *H. redtenbacheri* KUWERT, 1885. In fact, the elytral flanks of *H. kasparyani* (Figs. 16–17) are consistently narrow, less than half the width of the epipleura opposite the posterior margin of the metaventrite, while those of *H. poppii* (Figs. 18–19) range from about half to two thirds of the epipleuron width. The flanks of *H. redtenbacheri* (Fig. 20) are wider still, about as wide as the epipleura at this point. The aedeagus of *H. redtenbacheri* (Fig. 24) differs from those of *H. kasparyani* and *H. poppii* in the clearly straighter outer margins of the parameres. It seems that *H. kasparyani* and *H. poppii* tend not to occur together. Thus, the sample of *H. kasparyani* from Chuchur Muran comprised 59 specimens (28 ♂♂, 31 ♀♀), all *H. kasparyani*, and the locality yielding both *H. kasparyani* and *H. poppii*, "pools along the Vilyuyskiy Trakt [road]", is not a single collecting site. Specimens were collected on that road between Yakutsk and a point lying about 55 km west of Yakutsk. The material from there comprised one male each of *H. poppii* and *H. kasparyani*, along with eight females not identified to species.

Helophorus poppii appears to be the more widely distributed of the two species, occurring in the Irkutsk Oblast and Buryatia as well as Yakutia. One of the Irkutsk localities, Dachnaya near Bolshoy Lug, 25 km SW of Irkutsk (Fig. 26), yielded not only the largest sample taken (29 ♂♂, 36 ♀♀) but also the easternmost known records of *H. pumilio* ERICHSON, 1837 *H. strigifrons* THOMSON, 1868 and *H. granularis* (L., 1761) (ANGUS 2011). I also have a single male from Tunka (Buryatiya), 90 km W of Lake Baikal. My other sample of *H. poppii*, from Olëkminsk in southern Yakutia, comprises 29 specimens (13 ♂♂, 16 ♀♀).

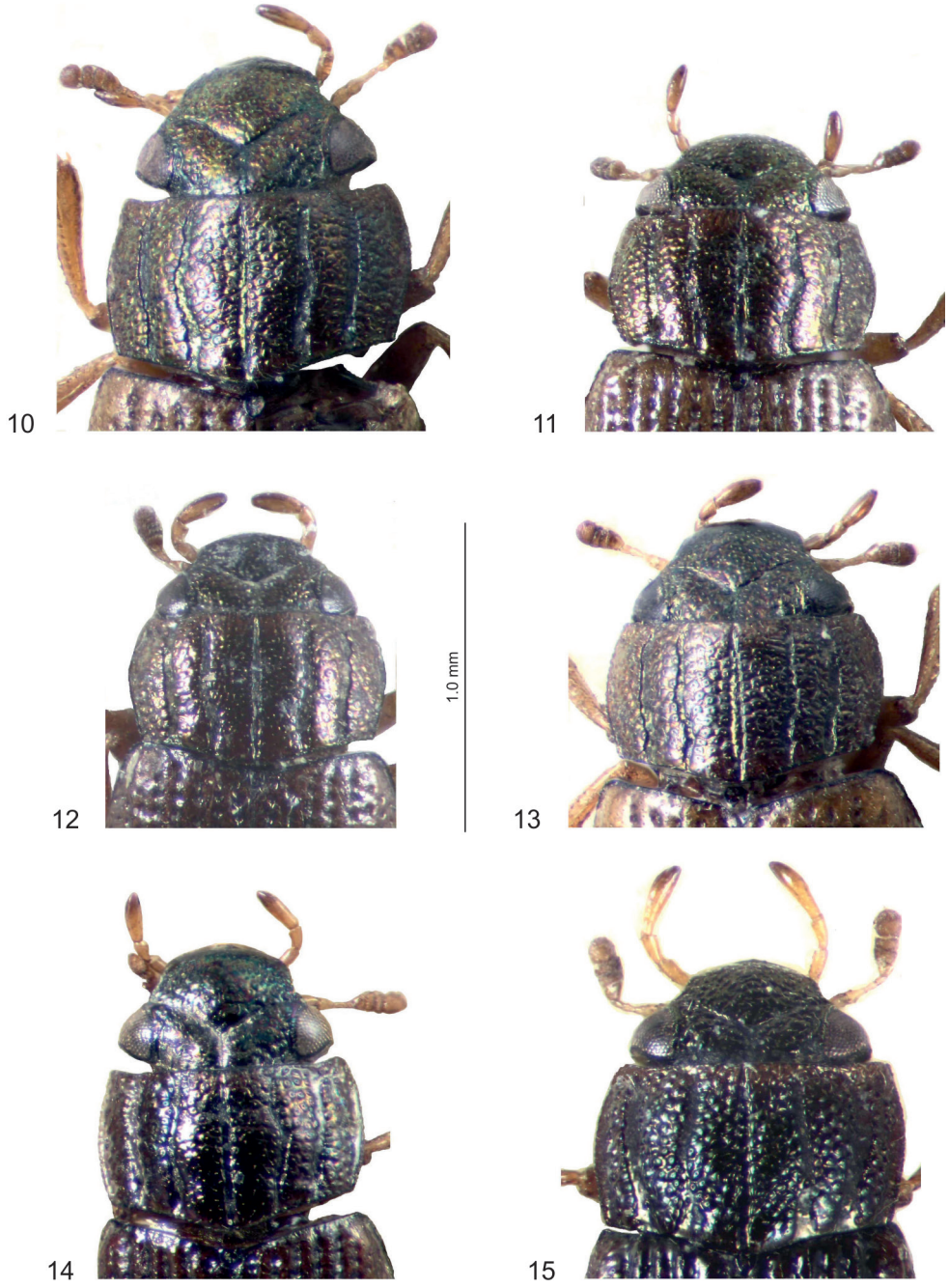
Acknowledgements

I thank Dr. Wenfei Liao (University of Helsinki, Finland) and Dr. Jaako Mattila (ZMH) for checking and photographing the aedeagi of the holotype and paratypes of *H. poppii* in the ZMH, thus confirming that the holotype is figured by ANGUS (1970) as plate 2, fig. 1 as stated by Angus in the figure captions and not as fig. 2 as stated on p. 264, and has the longer aedeagal struts. I also thank Dr. Manfred A. Jäch (NMW) for the gift of two paratypes of *H. orientalitibeticus* to the NHMUK.

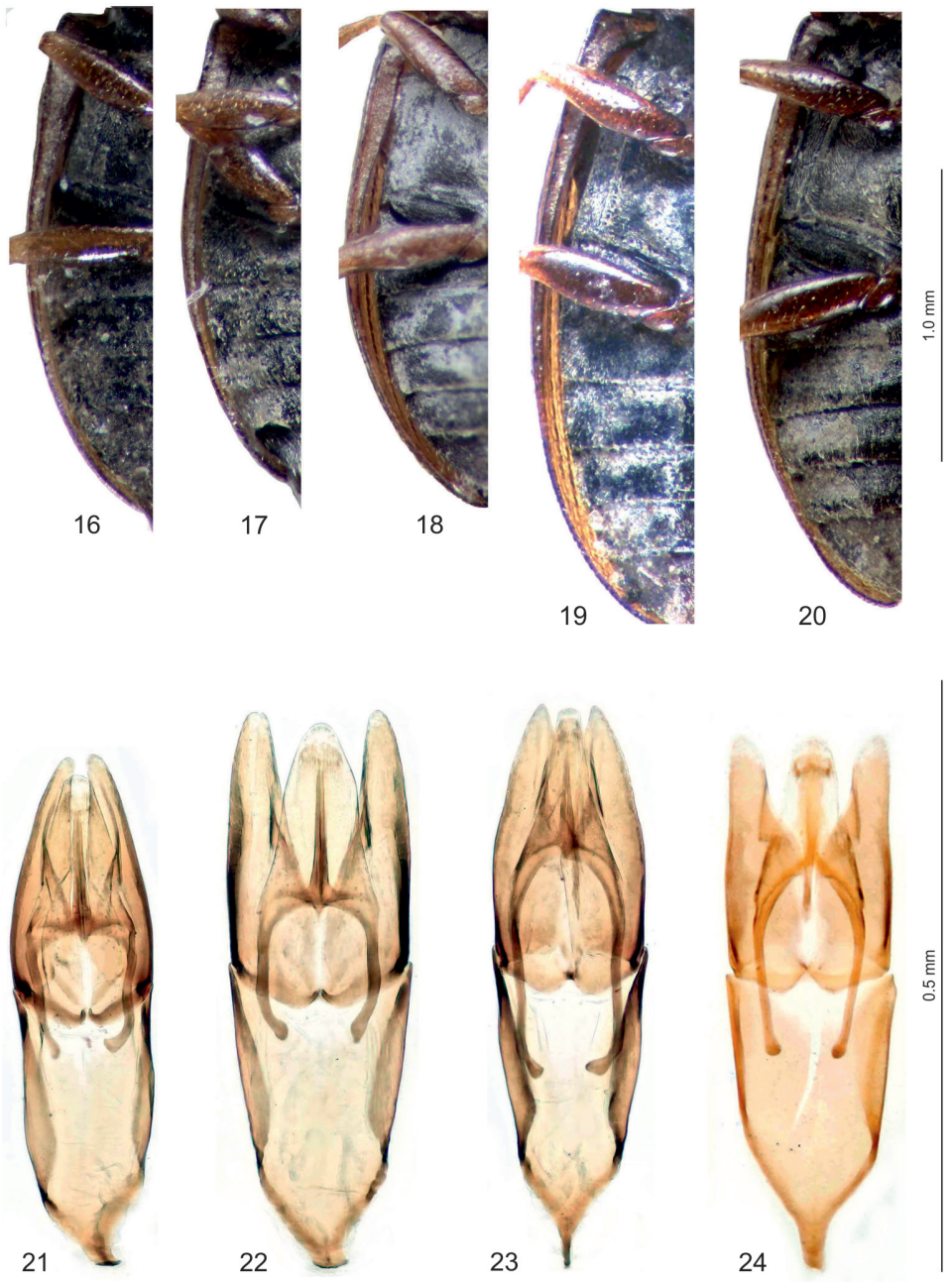


Figs. 1–6: *Helophorus orientalitibeticus*: 1) holotype, dorsal view; 2) same, head and pronotum; 3) paratype, head and pronotum; 4) paratype ♀, ventral view; 5–6: aedeagi, 5) holotype; 6) paratype.

Figs. 7–9: Whole beetles, dorsal view: 7) *Helophorus kasparyani*, holotype; 8) *H. poppii*, Irkutsk obl., pools by R. Malaya Bystraya 18 km W of L. Baikal, Russia; 9) *H. redtenbacheri*, Novosibirsk, Russia.



Figs. 10–15: Heads and pronota, dorsal view: 10–12) *Helophorus kasparyani*, paratypes, 10–11) ♀, 12) ♂; 13–14) *H. poppii*, Dachnaya, Russia, 13) ♀, 14) ♂; 15) *H. redtenbacheri* Novosibirsk, Russia.



Figs. 16–20: Undersides showing the elytral epipleura and flanks: 16–17: *H. kasparyani* paratypes, 16) ♀, 17) ♂; 18–19: *H. poppii*, 18) Irkutsk obl., pools by R. Malaya Bystraya, Russia, 19) Irklutsk obl., Dachnaya near Bolshoy Lug, Russia; 20) *H. redtenbacheri*, Novosibirsk, Russia.

Figs. 21–24: Aedeagi: 21–22) *Helophorus kasparyani*, 21) holotype, 22) paratype; 23) *H. poppii*, Yakutsk, Vilyuyskiy Trakt [road] to 55 km W of Yakutsk, Russia; 24) *H. redtenbacheri*, Novosibirsk, Russia.

Fig. 25: Type locality of *Helophorus kasparyani* at Chuchur Muran, Yakutsk, Russia.

Fig. 26: Habitat of *H. poppii* at Dachnaya, Irkutsk, Russia. Dima Kasparyan is shown sweeping for Hymenoptera in the sloping meadow, while I took the photograph standing in the flooded grassy pool where the *H. poppii* occurred.

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