

# *Craspedites schulginae* sp. nov., a New Ammonite Species from the Volgian Stage

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**Abstract**—Revision of the Siberian Middle- and Upper Volgian ammonites, which were previously identified as *Craspedites mosquensis* Geras. allow their re-identification as a new species *C. schulginae* sp. nov.

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## INTRODUCTION

Ammonites of the genus *Craspedites* Pavlow were widespread in Volgian Boreal seas. In the Russian Federation, they are found in the Middle- and Upper Volgian beds of Central Russia, and western and eastern Siberia. Siberian *Craspedites* from natural outcrops and borehole cores were described by N.I. Shulgina, V.I. Bodylevsky, and I.G. Klimova. Most frequently, Siberian *Craspedites* have been identified with species widespread in the Russian Platform.

P.A. Gerasimov (1960, p. 171, pl. 38, fig. 3) was the first to describe the species *Craspedites mosquensis* Gerasimov from the Upper Volgian *Craspedites nodiger* Zone in the Russian Platform. Later, Shulgina (1969, p. 148, pl. 33, fig. 1) described an ammonite shell from the Khatanga depression, which she identified as *C. cf. mosquensis* Gerasimov.

By the end of the 1980s, geologists have collected a large collection of *Craspedites* from the Volgian beds of western Siberia, opened by boreholes. Ammonites were identified by M.S. Mesezhnikov, I.G. Klimova, N.P. Vyachkileva. Some ammonites were identified by these workers as the aforementioned Siberian ammonites of Shulgina, rather than as the typical *Craspedites mosquensis*. These western Siberian *Craspedites* were identified as *C. ex gr. mosquensis* Schulgina (non Gerasimov) (*Bazhenovskii ...*, 1986, p. 104, pl. XVI, figs. 6–8; *Atlas ...*, 1990; pl. 63, fig. 2). Note that this identification was applied to specimens from the core and meant that this material belonged to a species similar to *C. mosquensis* in the sense of Shulgina. Thus, Mesezhnikov, Klimova, and Vyachkileva separated the Siberian forms from the Eastern European *C. mosquensis* Geras., in practice recognizing them as two separate species.

The author of this paper also reached the conclusion that the Siberian *C. ex gr. mosquensis* Schulgina (non Gerasimov) is by no means conspecific with

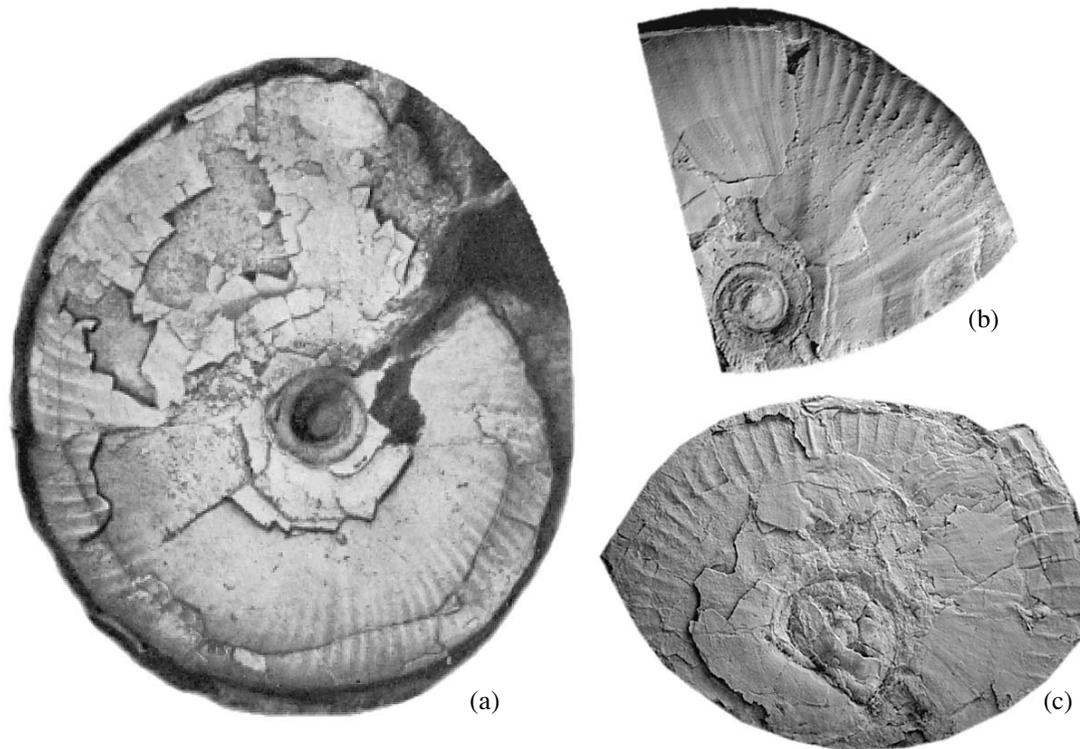
*C. mosquensis* Geras. from the Russian Platform. There are two different species of the genus *Craspedites* which are cited in the literature under the same name. It is proposed that the Siberian forms similar to, but clearly different from, the Eastern European species *C. mosquensis* Geras. be separated as a new species, *Craspedites schulginae* sp. nov.

## RESULTS AND DISCUSSION

Gerasimov listed the following morphological characters of *C. mosquensis* Gerasimov: very involute whorls, narrow umbilicus, weakly developed ribs on the venter, completely absent in the lower part of the flanks on the body chamber (Gerasimov, 1960, p. 172). In a later description of this species Gerasimov wrote about its ornamentation: “The ribbing is smoothed by the smooth anterior half of the body chamber. The last septate whorl possesses 8–10 elongate umbonal nodes. They are hardly noticeable connected or not at all connected with distinct ribs of the upper part of the flank. In the mid-venter, they are almost completely smoothed. In the lower half of the flank between the umbonal nodes, there are 2–5 very thin almost thread-like ribs” (Gerasimov, 1969, p. 89).

The specimen figured by Shulgina (1969), shows large sized last volution (diameter 88 mm), narrow umbilicus (17%), thin, distinct, densely spaced ornamentation (around 50 ribs in the last half-whorl). Shulgina believed that the specimen she figured is the terminal body chamber of a typical *C. mosquensis* Gerasimov, because it has a characteristic specific character—absence of ribs in the lower part of the flank.

The Eastern European representatives of *C. mosquensis* are distinguished from the Siberian specimen by the wider umbilicus (20–24%), indistinctly pronounced ribs in the upper flank and prominent, relatively coarse ribs on the venter.



**Fig. 1.** Volgian *Craspedites* from Siberia,  $\times 1$ : (a) *Craspedites schulginae* sp. nov., holotype F.N. Tchernyschew TsNIGR Museum, no. 63/9565 (reproduced from Shulgina, 1969, pl. 33, fig. 1), north Siberia, Levaya Boyarka River, riverside; (b) *Craspedites* cf. *schulginae*, INGG SO RAS, specimen no. 2008/69, western Siberia, borehole Khalmerpayutinskaya 2099, interval 3813–3826.2 m (depth 3825 m), Yanovstan Formation, Middle Volgian Substage; (c) *Craspedites* cf. *schulginae*, specimen INGG SO RAS, no. 2008/8, western Siberia, borehole Pokachevskaya 7029, interval 2767–2753 m (depth 2763.2 m), Bazhenovo Formation, ? Upper Volgian Substage.

The body chamber in *C. mosquensis* Gerasimov, according to the author of the species, is slightly over 3/4 of the whorl.

The body chamber of the Siberian specimen *C. cf. mosquensis* Gerasimov occupies an almost complete whorl. European representatives of the species *C. mosquensis* Gerasimov show a trend towards smoothening the ornamentation towards the aperture. In the Siberian specimen the ornamentation is present in almost the entire whorl.

The stratigraphic position of the new species is not entirely resolved. The only specimen from the Levaya Boyarka River comes from the talus of supposedly Volgian beds. Specimen no. 2008/69 from borehole Khalmerpayutinskaya 2099 was found together with Middle Volgian bivalves *Buchia mosquensis* (Buch) and *B. russiensis* (Pavlov), and also the assemblage of microfauna of the Middle Volgian *Dorothia tortuosa* f-zone (Shurygin et al., 2007). Borehole Pokachevskaya 7029, contained specimen no. 2008/8 1.6 m above the occurrence of *?Kachpurites* sp. ind., and 10 m below it ammonites similar to *Dorsoplanites*. The data on the occurrence of remaining specimens that we assign to the new species, in the Upper Volgian beds (*Bazhenovskii* ..., 1986, p. 104; *Atlas* ..., 1990, p. 178) are not

supported by any other data. The species *C. mosquensis* Geras. is found on the Russian Platform with other species of *Craspedites* in the terminal zone of the Volgian Stage *Craspedites nodiger*. It cannot be excluded that the species *C. schulginae* sp. nov. and *C. mosquensis* Geras. characterize different stratigraphic levels of the Volgian Stage in Siberia and Central Russia.

The above information allows the identification of two separate species of ammonites from the Russian Platform and from Siberia, which have formerly been cited in the literature as the same species *C. mosquensis*. Below a new species is described.

## SYSTEMATIC PALEONTOLOGY

### Genus *Craspedites* Pavlov, 1890

#### *Craspedites schulginae* Alifirov, sp. nov.

*Craspedites* cf. *mosquensis*: Shulgina, 1969, p. 148, pl. XXXIII, fig. 1.

*Craspedites* ex gr. *mosquensis*: *Bazhenovskii* ..., 1986, p. 104, pl. 16, figs. 6–8; *Atlas* ..., 1990, pl. 63, fig. 2.

*Craspedites* sp. ind.: Alifirov and Igolnikov, 2007a, pl. 1, fig. 9.

*Craspedites* aff. *mosquensis*: Alifirov and Igolnikov, 2007b, pl. 1, fig. 9.

**Etymology.** In honor of the paleontologist N.I. Shulgina.

Holotype. No. 63/9565, Tchernyshev TsNIGR Museum, Eastern Siberia, Levaya Boyarka River; ? upper substage of the Volgian Stage. Figured by Shulgina (1969, pl. 33, fig. 1).

**Description** (Fig. 1a). Shells medium-sized and large. The umbilicus narrow or moderately narrow. The ornamentation is revealed as thin, clear, unbranching ribs, developed only on the upper flank. The ribs become weaker on the venter. The ornamentation is retained up to the diameter of 88 mm (50 ribs per 1/2 whorls). At the shell diameter of 55 mm, in the upper part of the flank there are 37 ribs.

**Comparison.** This species is distinguished from the morphologically similar *C. mosquensis* Gerasimov by the absence of the umbilical and ribs on the lower flank, and also by the presence of ornamentation at large shell diameter. It differs from *C. okensis* (d'Orbigny) (Shulgina, 1969, pls. 26–28) by the presence of ornamentation in the medium-sized and large shells. In contrast to *C. taimyrensis* (Bodylevsky), *C. originalis* Schulg., and *C. singularis* Schulg., the species *C. schulginae* sp. nov. has no ribs, extending from the umbilical edge across the entire flank (Shulgina, 1969, pl. 34–35; *Atlas* ..., 1990, pl. 62, figs 3–7).

**Remarks.** Paleontological identification lists from the boreholes of western Siberia contain *C. mosquensis* sensu Schulgina, an identification I could not check. Apparently, the following specimens should be assigned to the new species: *Craspedites* sp. (*C.* cf. *mosquensis* Schulg. (non Geras.)) –borehole Saymskaya 1, interval 2807–2814 m (depth 2812.5 m); *Craspedites* ex gr. *mosquensis* Schulg. (non Geras.) –borehole Salym'skaya 1, interval 2807–2814 m (depth 2813.5 m), borehole Tukolando-Vadinskaya 320 (depth of 3616.6 m), borehole Enitorskaya 971, interval 2646–2650.1 m (depth 2647.8 m).

**Occurrence.** Upper part of the Middle Volgian–lower part of the Upper Volgian substages of eastern and western Siberia.

**Material.** Apart from the holotype, 4 incompletely preserved specimens from the borehole core from western Siberia, tentatively assigned to the new species: specimen no. 2008/69, borehole Khalmerp-

ayutinskaya 2099, interval 3813–3826.2 m (depth 3825 m), Yanovstan Formation; Middle Volgian Substage; specimen no. 2008/8, borehole Pokachevskaya 7029, interval 2767–2753 m (depth 2763.2 m), Bazhenovo Formation, ?Upper Volgian Substage; 2 specimens from the borehole Malobalykskaya 21, interval 2887.4–2890 m, from the Bazhenovo Formation, Upper Volgian Substage (*Bazhenovskii* ..., 1986, p. 104, pl. 16, figs 6 and 7).

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