

A new genus of Fissurelloidei (Gastropoda) from the Upper Carboniferous of Moscow Basin: the oldest known example of the suborder

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ABSTRACT. A new genus *Retshitsella* from the Upper Carboniferous of the Moscow Basin is described and assigned to the family Emarginulidae. Studied specimens are the oldest known representatives of the suborder Fissurelloidei, therefore the age of the suborder increased for about 60 my.

INTRODUCTION

The new genus *Retshitsella* described below includes one species from the Gzhelian Stage of the Upper Carboniferous of Moscow Basin. The shape and sculpture of the shells allow to assign them to the family Emarginulidae. According to Knight et al. [1960], the earliest representatives of the family seem to appear in the Middle Triassic. Yochelson [1960] described *Lepetopsis(?) capitensis* (Girty) from the Upper Permian of Texas. It was a single limpet bearing cancellate sculpture, yet the apex was not preserved. The systematic position of the species is unclear but its sculpture is more characteristic of fissurellid than archinacellid or docoglossate gastropods. The earliest reliable representatives of the family have been recorded from the Cassian Formation of the Upper Triassic of Italian Alps [Bandel, 1994]. Thus, the new genus from the Upper Carboniferous is the oldest known example of the suborder Fissurelloidei.

Studied specimens are similar to the Cassian ones in sculptural characters and relatively high apex. These specimens also have quite different length of lateral slopes. Judging upon the left lateral slope shorter than the right slope, the shells may be considered dextral.

The described fossils have been discovered in 1986 by R.V. Egorov in outcrops between "55 km" station and Gzhel station (near Rechitzy village). The map with localities and measured section was given by Mazaev [1994: 23, fig. 2 C]. The described fossils were obtained from yellow mudrock labeled as layer No 6 of the section. The outcrop is a stratotype of the Gzhelian Stage of the Upper Carboniferous. According to Makhlina et al. [1979],

the bed with *Retshitsella* stratigraphically belong to the Rusavkino Formation, Rechitzian Provincial Stage.

Based on my previous conclusions [Mazaev, 1996: 92], this mudrock layer was considered as a tempestite. The mudrock contains abundant remains of brachiopods, bryozoans, gastropods, solitary corals, echinoderms, fusulinids, and other forams. The depositional setting may be recognized as an open sea sublittoral facies.

Suboder Fissurelloidei

Golikov et Starobogatov, 1988

Family Emarginulidae Gray, 1834

Retshitsella Mazaev, gen. nov.

Type species. *Retshitsella egorovi* Mazaev, sp. nov.

Description. Small conical shell with distinct apex slightly shifted to back. Right slope slightly shorter than left. Sculpture of radial and concentric ribs. Radial ribs developed much stronger than concentric on anterior slope. Selenizone, perforation, or slit absent.

Etymology. Named after locality near Rechitzy village.

Discussion. *Retshitsella* is an unusual representative of emarginulid gastropods in the absence of selenizone, perforation, or slit. However, in these morphological characters the new genus is similar to Recent *Scutus* Montfort, 1810.

Retshitsella egorovi Mazaev, sp. nov.

(Fig. 1 A-K)

Type material. Paleontological Museum of the Russian Academy of Sciences, holotype No 4471/8/138, paratype No 4471/8/139.

Type locality. Moscow Region, outcrops between "55 km" station and Gzhel station (near Rechitzy village), yellow mudrock in upper part of section, 2 m above top of white soft limestone bed with flint nodules. Upper Carboniferous, Gzhelian

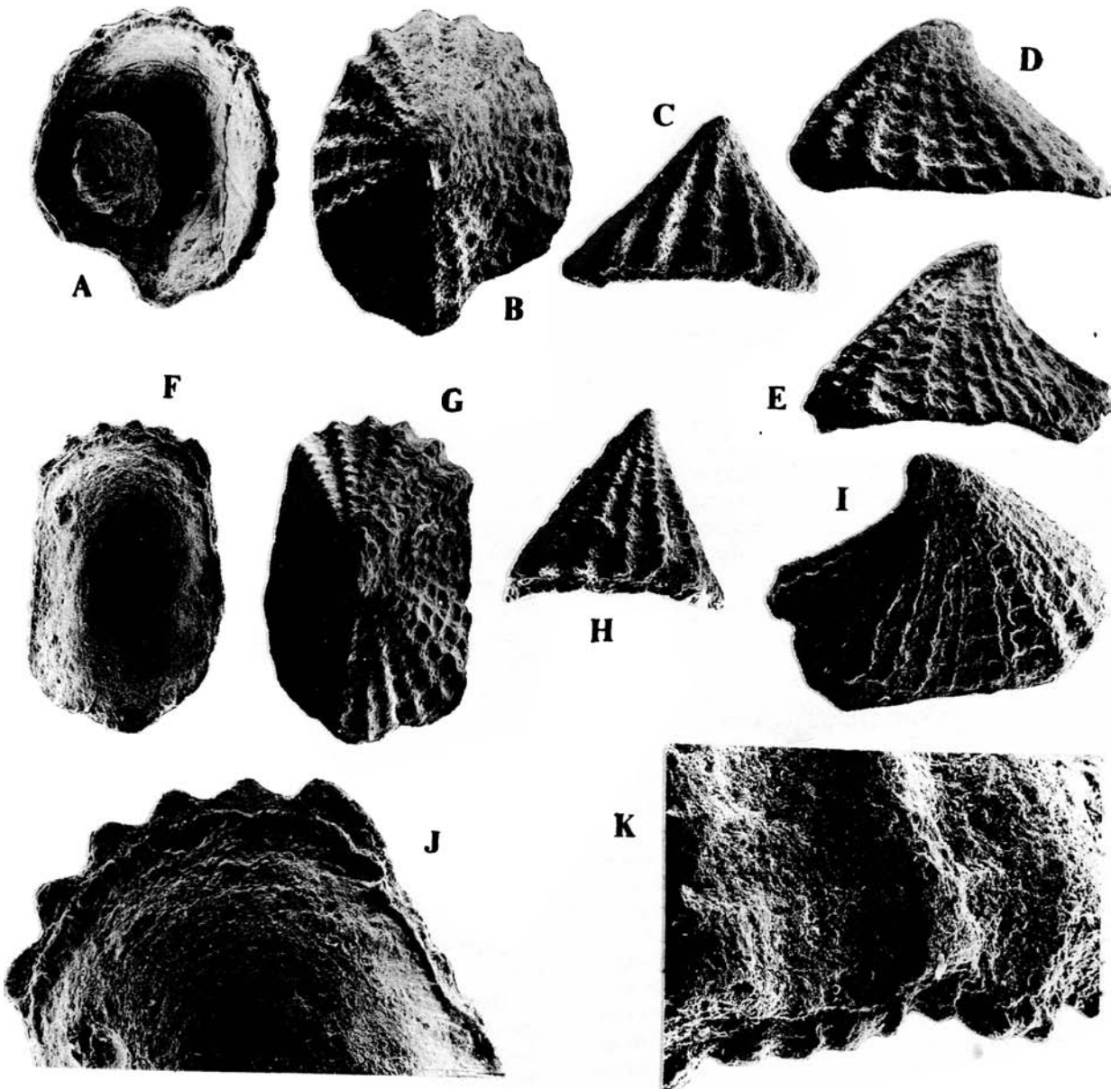


FIG. 1. *Retshitsella egorovi* Mazaev, sp. nov.: A-D — paratype No. 4471/8/139 ($\times 20$): apertural view, apical view, anterior view and left lateral view; E-I — holotype No. 4471/8/138 ($\times 20$): left lateral view, apertural view, apical view, anterior view and oblique lateral view; J, K — micrographs of holotype showing anterior apertural margin ($\times 50$ and $\times 90$).

РИС. 1. *Retshitsella egorovi* Mazaev, sp. nov.: A-E — паратип No. 4471/8/139 ($\times 20$): вид со стороны устья, вид сверху, вид спереди и слева; E-I — голотип No. 4471/8/138 ($\times 20$): вид слева, вид со стороны устья, вид сверху, вид спереди и наклонный слева; J, K — микрофотографии переднего края устья голотипа ($\times 50$ и $\times 90$).

Stage, Rechitzian Provincial Stage, Rusavkino Formation. Collected by R.V. Egorov in 1986.

Description. Small conical shell, relatively thick, maximum length 2.2 mm. Aperture (particularly of holotype) saddle-shaped, in plane rounded or oval, with almost parallel lateral margins. Anterior apertural margin rugous and exposed final parts of 6 radial ribs (Fig. 1 A, F, J). Profile moderately high, with apex slightly curved backward. Anterior slope slightly convex, posterior slope concave. Lateral slopes almost straight, right slope

distinctly shorter than the left one. Protoconch not preserved. Selenizone, perforation, or slit not observed. Sculpture of about 25 well-defined radial ribs crossing also well-defined concentric ribs. Six radial ribs on anterior slope much stronger than concentric ribs that expressed as nodes. Growth lines absent. Muscle scar and pallial attachment not marked.

Dimensions, mm

No.	length	width	height
4471/8/138 holotype	2.2	1.4	1.4
4471/8/139 paratype	2.2	1.8	1.3

Material. Holotype and 1 paratype from the type locality.

Etymology. Species named in honor of R.V. Egorov who collected carboniferous gastropods for a long time.

Discussion. Two specimens described strongly differs from each other in their aperural outlines and profiles. However, their dimensions are similar, as well as sculptural elements, so they are considered as one species.

Such difference in the shape of shells may be observed at premature stage in some limpet-like species. I think that the specimens studied are adult shells despite their very small size. Moreover, based on McLean's conclusions about the correlation between fissurellid shell features and body morphology, shells of *Retshetsella* were not equivalent to their body size. McLean [1984: 16] noted that saddle-shaped shell with raised ends correlates with greatly reduced or internal shell. Thus, the body size of *Retshetsella* might have been much larger than the shell.

[Диагноз. Маленькие, колпачковидные раковины, относительно толстые, максимальная длина 2,2 мм. Устье (особенно у голотипа) седловидное, в плане округлое или овальное с почти параллельными боковыми краями. Предний край устья морщинистый и обнаруживает конечные части 6 радиальных ребер. Профиль относительно высокий, с макушкой, слегка изогнутой назад. Передний склон слегка выпуклый, задний – вогнутый. Боковые склоны почти прямые, причем правый склон явно короче левого. Протоконх не сохранился. Селенизоны, краевого выреза или отверстия не наблюдается. Скульптура состоит из примерно 25 хорошо различимых радиальных ребер, пересекающихся так же хорошо различимыми концентрическими ребрами. На переднем склоне 6 радиальных ребер развиты значительно сильнее чем концентрические, которые выражены как бугорки. Линии роста отсутствуют. Мускульные и мантийные отпечатки не отмечены].

ACKNOWLEDGMENTS

I am very thankful to R. V. Egorov for kind donation of the material.

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- Новый род фиссуреллоидей (Gastropoda) из верхнего карбона Подмосковского бассейна: древнейший представитель подотряда
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- Описан и отнесен к семейству Emarginulidae новый род *Retshetsella* из верхнего карбона Подмосковского бассейна. Изученные образцы являются древнейшими представителями подотряда Fissurelloidei и увеличивают возраст его существования примерно на 60 млн. лет.