

***Smithodus* n. gen. (Conodonta) from the Smithian stage  
of the Lower Triassic**

by

**K.J. BUDUROV<sup>1</sup>, G.I. BURYI<sup>2</sup> & M.N. SUDAR<sup>3</sup>**

with 1 Plate

Authors addresses:

- <sup>1</sup> Geological Institute, Bulgarian Academy of Sciences, Sofia
- <sup>2</sup> Geological Institute, DVSC Acad. Sci. USSR, Vladivostok
- <sup>3</sup> Institute for Regional Geology and Paleontology,  
Faculty of Mining and Geology, Belgrade

During the study of Lower Triassic conodonts MOSHER (1973) and BURYI (1979) found blade-like specimens. They referred them to the genera *Anchignathodus* and *Neospathodus* respectively, and BURYI (1979) integrated them into the new species *Neospathodus longiusculus*. A number of reasons are inciting us to refer these specimens to *Smithodus* n. gen. Although the evolution of this genus has been controlled by facies, the attachment of *Smithodus longiusculus* (BURYI) to ammonitic fauna dating parts of the Smithian Stage (adopted after TOZER 1965, 1967; non TOZER 1984, 1986 where the Namalian Stage has been introduced without clear correlation possibilities with the Indian and Olenekian Stages applied in the USSR) makes it a reliable stratigraphic marker. Future finds would solve the problem for its applicability as a zonal taxon too.

### *Smithodus* n. gen.

**Type species:** Through a further monotypy this is *Neospathodus longiusculus* BURYI, 1979. The holotype has been represented by BURYI (1979, pls. XII, XIII and XIV) and is housed in the Institute of Geology and Geophysics in Vladivostok under No. 461/69. It comes from South Primorje (the Far East of the USSR), upper parts of the river Kamenushka, the brook (kluch) Perevalnyi, outcrop No. 125, Lower Triassic, Tobizinskyi horizon (formation), *Anasibirites nevolini*-Zone.

The type species is re-figured after BURYI (1979) and MOSHER (1973) on Plate 1.

**Derivatio nominis:** Named in memory of the Triassic researcher James Perrin Smith (1864–1931) whose name bear also the type locality Smith Creak on Ellesmere Island, Canadian Arctic Islands, of the Smithian Stage, Lower Triassic.

**Diagnosis:** Bilaterally developed narrow and long blade conodont elements with a main denticle and a slight arched lateral bow. Bear up to 18 low and inclined (laterally bowed) denticles. The wider and high main denticle is outlined in the posterior third. Behind the main denticle the shorter and bowed at about 30° posterior blade bears 3–4 denticles. The main denticle projection results aborally in an asymmetrical moderately large and open shallow cavity which tapers both anteriorly and posteriorly into lateral grooves.

**Remarks:** It is likely that *Smithodus* participates in monoelement conodont apparatuses.

These conodonts are clearly discernible from other Triassic blade-like conodont genera thank to their morphology. They differ from *Anchignathodus* by their long and narrow but bilaterally developed blade (which is distantly similar to the bowing manner of *Xaniognathus*), the presence of main denticle and by the smaller shallow and asymmetrical cavity. It differs from *Neospathodus* (which possesses a basal pit) by the presence of cavity and by the bilateral blade development as well as by the bowing of the latter.

Because of their considerably differing morphology compared to that of other known Triassic blade-like conodont genera, representatives of *Smithodus* n. gen. have been described in different manners.

MOSHER (1973) described briefly and represented (p. 152, pl. 17, fig. 1) the

single 1.5 mm long specimen found by him. It came (MOSHER 1973, p. 185) from "sample GSC loc. 28680, Blind Fiord Formation, 5 miles northwest of entrance to Hare Fiord (340 B) (TOZER 1961, p. 13; TOZER 1967, p. 48) (Coll. Thorsteinsson and Tozer 1956)". This sample is from the lower parts of the ammonite Zone *Euflemingites romunderi* (MOSHER 1973, pl. 2, pp. 149, 152, 185). He referred this conodont tentatively to the genus *Anchignathodus* (1970), solely because of the widely open cavity and of the blade-like character, and assumed that if this was really a representative of *Anchignathodus*, it had to be the earliest one. According to SWEET (1970) the last *Anchignathodus* died out in the uppermost parts of the Griesbachian Stage and did not subsist into the Dienerian Stage. A number of studies including the one by BUDUROV et al. (1987) confirmed this viewpoint. Its absence in the Dienerian Stage makes impossible to refer this conodont from the lower parts of the Smithian Stage (ammonite Zone *Euflemingites romunderi*) to the genus *Anchignathodus*; such a reference is to be excluded also because of the morphology of *Anchignathodus*, including *Isarcicella* KOZUR.

One of the authors (BURYI, 1979) found these conodonts in the Tobizinskiy horizon of the Olenekian Stage of the Soviet Primorje, bounded them to the ammonite Zone *Anasibirites nevolini*, referred them to the genus *Neospathodus* and named them *Neospathodus longiusculus* BURYI. This ammonite Zone characterizes the upper parts of the Lower Olenekian which correlate according to the accepted standard scheme of ammonite zonation, to *Wasatchites tardus* Zone (DAGIS 1984, pp. 52, 53, pl. 2). The scheme of TOZER (1965, 1967) for a four-part division of the Lower Triassic, has been accepted (BUDUROV et al., 1987) in order to obtain a better correlation with the Lower Triassic of the USSR which is subdivided into Indian and Olenekian Stages; eventual use of the Namalian Stage which embraces parts of the latter would result in misunderstandings. BURYI (1979, p. 91) communicated that *Smithodus longiusculus* (BURYI) had been found in the Tobizinskiy horizon (sp. No. 4034) at 20 m below a lenticle of limy sandstone with ammonite fauna typical of *Anasibirites nevolini* Zone whose age corresponded to the upper parts of the Smithian Stage. It was accompanied by *Furnishius triserratus* CLARK and some specimens of *Neospathodus*. From a higher lenticle (sp. No. 4033) of limy sandstone, *Neogondolella milleri* (MÜLLER) and *Platyvillosus* aff. *gardenae* (STAESCHE) have been found together with *Furnishius* sp. These conodonts define uppermost parts of the Smithian Stage or the boundary beds of Smithian and Spathian Stages (presence of *Platyvillosus*). The specimen with *Smithodus longiusculus* (BURYI) may have even an older age (similar or equal to *Euflemingites romunderi* ammonite Zone) taking into account all above-listed considerations and its position at 20 m below the specimen 4034.

**Species content:** Only the type species *Smithodus longiusculus* (BURYI, 1979) is known.

**Range:** Smithian Stage of the Lower Triassic (or parts of it) conodont Zone *Neospathodus waageni*, equal to ammonite Zones *Euflemingites romunderi* and *Wasatchites tardus*. Absent in environments with *Neogondolella* (due to facies control) and should be correlatable to the conodont gondolellid Zone *Neogondolella mosheri* (after DAGIS, 1984).

**Geographical distribution:** It is known from the Far East of the USSR (Primorje) and the Northern Arctic Island of Canada (Ellesmere Island).

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#### Explanation of Plate 1

Fig. 1–4: *Smithodus longiusculus* (BURYI, 1979).

Fig. 1: Holotype, 110 x, from BURYI 1979, pl. XII, No. 461/69, South Primorje, Lower Triassic, Tobizinskyi horizon, Ammonite Zone *Anasibirites nevolini*.

Fig. 2: Holotype fragment with lateral asymmetric cavity, 200 x, from BURYI, 1979, pl. XIII.

Fig. 3: Fragment from tissue fabric on the holotype surface, 3000 x, from BURYI, 1979, pl. XIV.

Fig. 4: Specimen (80 x) designated by MOSHER 1973, as *Anchignathodus* sp., sample GSC, loc. 28680, Blind Fiord Formation, 5 miles northwest of entrance to Hare Fiord (340 B) (Coll. Thorsteinsson and Tozer, 1956, ammonoid zone *Euflemingites romunderi*) from MOSHER, 1973, pl. 17, fig. 1.

PLATE 1

