

NOMENCLATRURAL CHANGES FOR EIGHT GENUS GROUP NAMES IN BRACHIOPODA

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ABSTRACT: Eight junior homonyms were detected amongst the brachiopod genus group names and the following replacement names are proposed: *Sartenaerus* nom. nov. for *Centrorhynchus* Sartenaer, 1970; *Gruntia* nom. nov. for *Boloria* Grunt, 1973; *Baranovus* nom. nov. for *Obscurella* Baranov, 1991; *Paleolibys* nom. nov. for *Libys* Massa, Termier & Termier, 1974; *Neosandia* nom. nov. for *Sandia* Sutherland & Harlow, 1973; *Nalivkiniella* nom. nov. for *Ala* Nalivkin, 1979; *Neopaulinella* nom. nov. for *Paulinella* Boucot & Racheboeuf, 1987 and *Paleopetria* nom. nov. for *Petria* Mendes, 1957. Accordingly, new combinations are herein proposed for the species currently included in these genus group names respectively: *Sartenaerus deltidialis* (Sartenaer, 1970) comb. nov.; *Gruntia garmoensis* (Grunt, 1973) comb. nov.; *Baranovus costatus* (Baranov, 1991) comb. nov.; *Paleolibys hercinus* (Massa, Termier & Termier, 1974) comb. nov.; *Neosandia brevis* (Sutherland & Harlow, 1973) comb. nov.; *Nalivkiniella tau* (Nalivkin, 1979) comb. nov.; *Neopaulinella guerangeri* (Verneuil, 1851) comb. nov.; *Paleopetria coutinhoana* (Derby, 1874) comb. nov.

KEY WORDS: nomenclatural changes, homonymy, replacement names, Brachiopoda.

The purpose of the present paper is to bring the taxonomy of Brachiopoda into accordance with the requirements of the International Code of Zoological Nomenclature (1999). It considers homonymous genus group names of Brachiopoda introduced from 1758 to 2005.

In an effort to reduce the number of homonyms in Brachiopoda, I systematically checked all generic names published. I found eight brachiopod genus group names which had been previously published for other taxa, making them junior homonyms. In accordance with Article 60 of the International Code of Zoological Nomenclature, I propose substitute names for these names.

The brachiopods are a large group of solitary and exclusively marine organisms with a very good geologic history throughout most of the Phanerozoic and are among the most successful benthic macroinvertebrates of the Paleozoic. They are typified by two mineralized valves which enclose most of the animal. Like the bryozoans, brachiopods are filter feeders which collect food particles on a ciliated organ called the lophophore. Brachiopods differ in many ways from bryozoans (in both soft and hard-part morphology), and are thus considered by most workers as a separate but closely related phylum. However, one of the most distinguishing features of brachiopods is the presence of a pedicle, a fleshy stalk-like structure that aids the animal in burrowing and maintaining stability.

Currently, brachiopods are divided into two major groups. Class Inarticulata (including lingulids), and Class Articulata based on the presence or absence of hinge teeth and sockets.

CLASSIFICATION & GEOLOGIC RANGES

- Phylum Brachiopoda (Cambrian-Recent)
- Class Inarticulata (Cambrian-Recent)
- Class Articulata (Cambrian-Recent)
 - Order Orthida (Cambrian-Permian)
 - Order Strophomenida (Ordovician-Jurassic)
 - Order Pentamerida (Cambrian-Devonian)
 - Order Rhynchonellida (Ordovician-Recent)
 - Order Spiriferida (Ordovician-Jurassic)
 - Order Terebratulida (Devonian-Recent)

Order RHYNCHONELLIDA Kuhn 1949

Genus *SARTENAERUS* NOM. NOV.

Centrorhynchus Sartenaer, 1970. Bull.Inst.r.Sci.nat.Belg. 46 No.32: 11. (Brachiopoda: Articulata: Rhynchonellida: Rhynchonellacea: Triconirhynchidae). Preoccupied by *Centrorhynchus* Luehe, 1911. In Brauer, Süßw.-Fauna, 16, 41. (Acanthocephala: Palaeacanthocephala: Polymorphida: Centrorhynchidae).

Remarks: The triconirhynchid brachiopod *Centrorhynchus* Sartenaer, 1970 was established for a genus with the type species *Centrorhynchus deltoidalis* Sartenaer, 1970. The genus is not extant. It was assigned Rhynchonellida by Sepkoski (2002). Nevertheless the name *Centrorhynchus* is already occupied. Luehe (1911) established the genus *Centrorhynchus* with the type species *Centrorhynchus aluconis* (Müller, 1780) for Acanthocephala. Shortly, later in 1957 the genus *Centrorhynchus* Luehe, 1911, was restored as a valid name by Dollfus. It was found that the homonymy had been caused by a typographical error (Dollfus, 1957). The genus is still used as the type genus of the family Centrorhynchidae in Acanthocephala. Thus the brachiopod *Centrorhynchus* Sartenaer, 1970 is a junior homonym of the genus *Centrorhynchus* Luehe, 1911. I suggest here that the name *Sartenaerus* should be erected as a replacement name for *Centrorhynchus* Sartenaer, 1970 not *Centrorhynchus* Luehe, 1911 (Acanthocephala) and not *Centrorhynchus* Steven or Fisher Waldheim, 1829 (Coleoptera) and *Centrorhynchus* Lutz, 1913 (Diptera).

Etymology: from P. Sartenaer who is the current author of the preexisting genus *Centrorhynchus*.

Summary of nomenclatural changes:

***Sartenaerus* nom. nov.**

= *Centrorhynchus* Sartenaer, 1970 (non Luehe, 1911).

***Sartenaerus deltidialis* (Sartenaer, 1970) comb. nov.**

= *Centrorhynchus deltidialis* (Sartenaer, 1970).

Genus *GRUNTIA* NOM. NOV.

Boloria Grunt, 1973. In Grunt & Dmitriev, Trudy paleont.Inst. 136: 119. (Brachiopoda: Articulata: Rhynchonellida: Pugnacoidea: Paranorellidae). Preoccupied by *Boloria* Moore, 1900. Lep. Ind., 4, 243. (Insecta: Lepidoptera: Papilionoidea: Nymphalidae).

Remarks: The name *Boloria* was initially introduced by Moore, 1900 for a genus of the butterfly family Nymphalidae (with the type species *Papilio pales* Denis & Schiffermüller, 1775). Subsequently, Grunt, 1973 described an paranorellid brachiopod genus *Boloria* (with the type species *Boloria garmoensis* Grunt, 1973) under the same generic name. It is still used as a valid genus name (e. g. Pérez-Huerta, 2007). The genus is not extant. It was assigned Rhynchonellida by Sepkoski (2002). Thus, the genus group name *Boloria* Grunt, 1973 is a junior homonym of the genus *Boloria* Moore, 1900. So I propose a new replacement name *Gruntia* nom. nov. for the genus name *Boloria* Grunt, 1973.

Etymology: from T. A. Grunt who is the current author of the preexisting genus *Boloria*.

Summary of nomenclatural changes:

***Gruntia* nom. nov.**

= *Boloria* Grunt, 1973 (non Moore, 1900).

***Gruntia garmoensis* (Grunt, 1973) comb. nov.**

= *Boloria garmoensis* Grunt, 1973.

Genus *BARANOVUS* NOM. NOV.

Obscurella Baranov, 1991. Paleontol. Zh. 1991 (1): 36. (Brachiopoda: Articulata: Rhynchonellida: Rhynchonellacea). Preoccupied by *Obscurella* Clessin, 1889. Moll. Fauna Oesterr.-Ung. Schweiz, 591, 599. (Mollusca: Gastropoda: Architaenioglossa: Cyclophoroidea: Cochlostomatidae: *Cochlostoma*).

Remarks: Baranov (1991) described the brachiopod genus *Obscurella* with the type species *Obscurella costata* Baranov, 1991. The genus is not extant. It was assigned Rhynchonellida by Sepkoski (2002). Unfortunately, the generic name was already preoccupied by Clessin (1889), who had proposed the genus group name *Obscurella* with the

type species *Cyclostoma apricum* Mousson, 1847 by subsequent designation by Wenz, 1923 in the gastropod family Cochlostomatidae. *Obscurella* Clessin, 1889 is a subgenus of *Cochlostoma* Jan, 1830. However, Raven (1990) raised *Obscurella* to genus rank and introduced two subgenera. On the other side, Raven (1990) argued that the type species should be *C. obscurum* by “virtual tautonymy”. According to Gofas (2001), this is not recognized by ICZN and Wenz’s designation is valid. Anyway, the genus group name *Obscurella* Clessin, 1889 is still used as a valid name in Mollusca. Thus, the genus *Obscurella* Baranov, 1991 is a junior homonym of the generic name *Obscurella* Clessin, 1889. So I propose a new replacement name *Baranovus* nom. nov. for *Obscurella* Baranov, 1991.

Etymology: from V. V. Baranov who is the current author of the preexisting genus *Obscurella*.

Summary of nomenclatural changes:

***Baranovus* nom. nov.**

= *Obscurella* Baranov, 1991 (non Clessin, 1889).

***Baranovus costatus* (Baranov, 1991) comb. nov.**

= *Obscurella costata* Baranov, 1991.

Order STROPHOMENIDA

Genus *PALEOLIBYS* NOM. NOV.

Libys Massa, Termier & Termier, 1974. Notes Mem. Cie fr. Petroles No.11: 172. (Brachiopoda: Articulata: Strophomenida: Productacea). Preoccupied by *Libys* Münster, 1842. N. Jahrb. f. Min., 1842, 45. (Vertebrata: Gnathostomata: Osteichthyes: Sarcopterygii: Coelacanthiformes).

Remarks: Massa, Termier & Termier (1974) proposed the brachiopod genus name *Libys* with the type species *Libys hericinus* Massa, Termier & Termier, 1974. The genus is not extant. It was assigned Strophomenida by Sepkoski (2002). Unfortunately, the generic name was already preoccupied by Münster (1842), who had described the fish genus *Libys* with the type species *Libys polypterus* Münster, 1842. The genus is not extant. It was assigned Coelacanthiformes by Sepkoski (2002). It is still used as a valid name in Sarcopterygii (Schultze, 2004). Thus, the genus *Libys* Massa, Termier & Termier, 1974 is a junior homonym of the generic name *Libys* Münster, 1842. So I propose a new replacement name *Paleolibys* nom. nov. for *Libys* Massa, Termier & Termier, 1974.

Etymology: from the preexisting genus name *Libys*.

Summary of nomenclatural changes:

***Paleolibys* nom. nov.**

= *Libys* Massa, Termier & Termier, 1974 (non Münster, 1842).

***Paleolibys hericinus* (Massa, Termier & Termier, 1974) comb. nov.**

= *Libys hericinus* Massa, Termier & Termier, 1974.

Genus *NEOSANDIA* NOM. NOV.

Sandia Sutherland & Harlow, 1973. Mem. Inst. Min. Technol. New Mex. 27: 41. (Brachiopoda: Articulata: Strophomenida: Productacea). Preoccupied by *Sandia* Ehrlich & Clench, 1960. Ent. News 71: 138. (Insecta: Lepidoptera: Papilionoidea: Lycaenidae: Lycaeninae).

Remarks: The brachiopod *Sandia* Sutherland & Harlow, 1973 was established for a genus with the type species *Sandia brevis* Sutherland & Harlow, 1973. The genus is not extant. It was assigned Strophomenida by Sepkoski (2002). Chen et al. (2005) stated that the genus *Sandia* Sutherland & Harlow, 1973, which has been treated as a junior synonym of *Brasilioproductus* by Langenheim (1991) and Gordon et al. (1993). However, taking into account their different internal features, Brunton et al. (2000) referred *Sandia* to the Productellidae and *Brasilioproductus* to the Productidae. Apart from the internal distinctions, the type species *Sandia brevis* Sutherland and Harlow (1973) also differs from *B. chandlessi* in having longitudinal ridges on the trail and lacking dorsal spines. Nevertheless the name *Sandia* is already occupied. Ehrlich & Clench (1960) proposed the butterfly genus group name *Sandia* with the type species *Callophrys (Sandia) mcfarlandi* Ehrlich & Clench, 1960 for Lepidoptera. The genus group name is still used as a valid name in Lycaenidae (Lepidoptera). Thus the brachiopod *Sandia* Sutherland & Harlow, 1973 is a junior homonym of *Sandia* Ehrlich & Clench, 1960 (Lepidoptera). I suggest here that the name *Neosandia* should be erected as a replacement name for *Sandia* Sutherland & Harlow, 1973 not *Sandia* Ehrlich & Clench, 1960 (Lepidoptera).

Etymology: from the preexisting genus name *Sandia*.

Summary of nomenclatural changes:

***Neosandia* nom. nov.**

= *Sandia* Sutherland & Harlow, 1973 (non Ehrlich & Clench, 1960).

***Neosandia brevis* (Sutherland & Harlow, 1973) comb. nov.**

= *Sandia brevis* Sutherland & Harlow, 1973.

Genus *NALIVKINIELLA* NOM. NOV.

Ala Nalivkin, 1979. [Brachiopods of the Tournaisian stage of the Urals.] Nauka, Leningrad: 135. (Brachiopoda: Articulata: Strophomenida: Spiriferacea). Preoccupied by *Ala* Lockington, 1877. Proc. Calif. Acad. nat. Sci., 7, 65. (Crustacea: Malacostraca: Decapoda: Barchyura: Majoidea: Mithracidae).

Remarks: The generic name *Ala* Lockington, 1877 was proposed for a genus of crustacean family Mithracidae with the type species *Ala cornuta* (Stimpson, 1860). Subsequently, the generic name *Ala* Nalivkin, 1979 was introduced for a new brachiopod genus (with the type species *Ala tau* Nalivkin, 1979). The genus is not extant. It was assigned to Strophomenida by Sepkoski (2002). Thus, the genus *Ala* Nalivkin, 1979 is a junior homonym of the generic name *Ala* Lockington, 1877. So I propose for the genus *Ala* Nalivkin, 1979 the new replacement name *Nalivkiniella* nom. nov.

Etymology: from D. V. Nalivkin who is the current author of the preexisting genus *Ala*.

Summary of nomenclatural changes:

***Nalivkiniella* nom. nov.**

= *Ala* Nalivkin, 1979 (non Lockington, 1877).

***Nalivkiniella tau* (Nalivkin, 1979) comb. nov.**

= *Ala tau* Nalivkin, 1979.

Order TEREBRATULIDA**Genus *NEOPAULINELLA* NOM. NOV.**

Paulinella Boucot & Racheboeuf, 1987. Geobios, Lyon 20 (1): 99. (Brachiopoda: Articulata: Terebratulida: Dielasmatacea). Preoccupied by *Paulinella* Lauterborn, 1895. Z. wiss. Zool., 59, 537. (Protozoa: Sarcodina: Rhizopoda: Filosia: Aconchulinida: Gromiina: Paulinellidae).

Remarks: The genus *Paulinella* was erected by Lauterborn, 1895 with the type species *Paulinella chromatophora* Lauterborn, 1895 in Rhizopoda. *Paulinella* Lauterborn, 1895 is still used as a type genus of the family Paulinellidae. Later, the brachiopod genus name *Paulinella* was proposed by Boucot & Racheboeuf, 1987 with the type species *Terebratula guerangeri* Verneuil, 1851. However, the name *Paulinella* Boucot & Racheboeuf, 1987 is invalid under the law of homonymy, being a junior homonym of *Paulinella* Lauterborn, 1895. So I propose to substitute the junior homonym name *Paulinella* Boucot & Racheboeuf, 1987 for the name *Neopaulinella* nom. nov.

Etymology: from the preexisting genus name *Paulinella*.

Summary of nomenclatural changes:

Neopaulinella **nom. nov.**

= *Paulinella* Boucot & Racheboeuf, 1987 (non Lauterborn, 1895).

Neopaulinella guerangeri (Verneuil, 1851) **comb. nov.**

= *Terebratulula guerangeri* Verneuil, 1851

= *Paulinella guerangeri* (Verneuil, 1851)

Genus PALEOPETRIA NOM. NOV.

Petria Mendes, 1957. Bolm Soc. bras. Geol. 6 (1): 21. (Brachiopoda: Articulata: Terebratulida: Dielasmatacea). Preoccupied by *Petria* Semenov, 1894. Mém. biol. Bull. Acad. Sci. St. Pétersbourg, 13, 363. (Insecta: Coleoptera: Polyphaga: Alleculidae).

Remarks: The name *Petria* was initially introduced by Semenov, 1894 as a genus name in Coleoptera. Lawrence (1971) has confirmed that *Petria*, which was originally placed in a distinct family, Petriidae, is actually a specialised omophline alleculid, a position assigned to it by Oglobin & Znoiko (1950). Subsequently, Mendes, 1957 described a new brachiopod genus (with the type species *Waldheimia coutinhoana* Derby, 1874) under the same generic name. Thus, the genus *Petria* Mendes, 1957 is a junior homonym of the genus *Petria* Semenov, 1894. So I propose for the genus *Petria* Mendes, 1957 the new replacement name *Paleopetria* nom. nov.

Etymology: from the preexisting genus name *Petria*.

Summary of nomenclatural changes:

Paleopetria **nom. nov.**

= *Petria* Mendes, 1957 (non Semenov, 1894).

Paleopetria coutinhoana (Derby, 1874) **comb. nov.**

= *Waldheimia coutinhoana* Derby, 1874

= *Petria coutinhoana* (Derby, 1874)

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Order	Junior homonym	Senior homonym	Replacement name
RHYNCHONELLIDA	Centrorhynchus Sartenaer, 1970	Centrorhynchus Luehe, 1911 (Achantocephala)	Sartenaerus nom. nov.
RHYNCHONELLIDA	Boloria Grunt, 1973	Boloria Moore, 1900 (Lepidoptera)	Gruntia nom. nov.
RHYNCHONELLIDA	Obscurella Baranov, 1991	Obscurella Clessin, 1889 (Gastropoda)	Baranovus nom. nov.
STROPHOMENIDA	Libys Massa, Termier & Termier, 1974	Libys Münster, 1842 (Osteichthyes)	Paleolibys nom. nov.
STROPHOMENIDA	Sandia Sutherland & Harlow, 1973	Sandia Ehrlich & Clench, 1960 (Lepidoptera)	Neosandia nom. nov.
STROPHOMENIDA	Ala Nalivkin, 1979	Ala Lockington, 1877 (Crustacea)	Nalivkinitella nom. nov.
TEREBRATULIDA	Paulinella Boucot & Racheboeuf, 1987	Paulinella Lauterborn, 1895 (Protozoa)	Neopaulinella nom. nov.
TEREBRATULIDA	Petria Mendes, 1957	Petria Semenov, 1894 (Coleoptera)	Paleopetria nom. nov.