

Anzeiger Abt. I

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**Liassic Brachiopods of the Northern
Calcareous Alps and Their Generic
Attributions**

By

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durch das k. M. Werner E. Piller)

The purpose of this paper is to give a review of present generic assignments of the Liassic brachiopod species reported from the Northern Calcareous Alps. In this respect it follows the similar paper focused on Triassic species (SIBLÍK, 1988). A list of the species mentioned in the present synopsis was made basing on data from both old and recent palaeontological and stratigraphical papers studying territory of the Northern Calcareous Alps. Despite careful search in the literature, possible omitting of some species can not be excluded. The intention of the review is not to comment on possible incorrect determinations, to solve possible synonymies which certainly occur among the Liassic brachiopods, or to confirm the validity of used specific names. Several revised generic attributions only come from the present author's study, the predominant part of existing specific names was assigned to the genera following studies made by other authors. Mentioned should be here in this connection recent papers by VÖRÖS (esp. 1983, 1994, 1997), DULAI (1992, 1998), SULSER (1993) etc. Extensive works by AGER (1956–1967), ALMÉRAS (1964) and DELANCE (1974) were worthy as well.

Even if this synopsis can hardly be considered complete, and if some generic attributions could be found questionable, it is hoped that it could be of great use both to palaeontologists and biostratigraphers coming accidentally into contact with the Alpine Liassic brachiopods.

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- acuta* [Spiriferina acuta STUR m. s. GEYER] = **Liospiriferina acuta** (STUR in GEYER, 1889)
- adnethensis* [Terebratula Adnethensis SUESS] = **Securithyris adnethensis** (SUESS, 1855)
- adnethica* [Terebratula adnethica GÜMBEL, 1861] see **Securithyris adnethensis**
- adnethica* [Amphiclinodonta adnethica BITTN.] = **Amphiclinodonta adnethica** BITTNER, 1894 (Triassic? – Liassic?)
- albertii* [Rhynchonella Albertii OPP.] = **Salgirella albertii** (OPPEL, 1861)
- alfredi* [Rhynchonella Alfredi NEUM.] = „**Rhynchonella**“ **alfredi** NEUMAYR, 1879
- alpina* [Spiriferina alpina OPP.] = **Liospiriferina alpina** (OPPEL, 1861)
- alpina* [Waldheimia alpina GEYER] = **Zeilleria alpina** (GEYER, 1889)
- altesinuata* [Rhynchonella altesinuata BÖSE] = **Apringia altesinuata** (BÖSE, 1897)
- andleri* [Terebratula Andleri OPP.] = **Lobothyris andleri** (OPPEL, 1861)
- angulata* [Spiriferina angulata OPP.] = **Liospiriferina angulata** (OPPEL, 1861)
- apenninica* [Terebratula (Waldheimia) Apenninica ZITT.] = **Bakonithyris apenninica** (ZITTEL, 1869)
- applanata* [Rhynchonella plicatissima var. applanata ROTHPL., 1886] = according to SULSER (1993, p. 19) **Mediterranirhynchia ? plicatissima** (QUENST., 1852). The species is referred to **Calcirhynchia** (?) in the present review.
- ascia* [Terebratula ascia GIR.] = „**Terebratula**“ **ascia** GIRARD, 1843
- aspasia* [Terebratula Aspasia ZITT.] = **Linguithyris aspasia** (ZITTEL, 1869)
- atlaeformis* [Rhynchonella atlaeformis BÖSE] = **Apringia ? atlaeformis** (BÖSE, 1897)
- austriaca* [Rhynchonella Austriaca SUESS (non QUENSTEDT, 1852 – nomen nudum)] = **Grestenella austriaca** (SUESS, 1854)
- baldacii* [Waldheimia Baldacii GEMM.] = **Zeilleria baldacii** (GEMMELLARO, 1874)
- basilica* [Terebratula basilica OPP.] = „**Terebratula**“ **basilica** OPPEL, 1861
- batilla* [Waldheimia batilla GEYER] = **Zeilleria batilla** (GEYER, 1889)
- belemnica* [Terebratula belemnica QUENST.] = **Prionorhynchia belemnica** (QUENSTEDT, 1858). SULSER (1993, 1999) associates the species with *Rudirhynchia*.

- beyrichi* [Terebratula Beyrichi (Waldheimia ?) OPP.] = **Linguithyris beyrichi** (OPPEL, 1861). ANTOSTCHENCO (1973) referred the species to his new genus *Spinulothyris*, VÖRÖS (1997) connected it with *Rhapidothyris* TULUWEIT.
- bicolor* [Waldheimia bicolor BÖSE] = **Zeilleria bicolor** (BÖSE, 1897)
- bimammata* [Terebratula bimammata ROTHPL.] = **Papodina bimammata** (ROTHPLETZ, 1886)
- bittneri* [Terebratula Bittneri GEYER] = **Papodina bittneri** (GEYER, 1889)
- bittneri* [Amphiclinodonta Bittneri BÖSE] = **Amphiclinodonta bittneri** BÖSE, 1897
- bonifazii* [Rhynchonella Bonifazii HAHN] = „**Rhynchonella**“ **bonifazii** HAHN, 1911
- brevirostris* [Spiriferina brevirostris OPP.] = **Liospiriferina brevirostris** (OPPEL, 1861)
- briseis* [Rhynchonella Briseis GEMM.] = **Cirpa briseis** (GEMMELLARO, 1874)
- calcaria* [Calcirhynchia calcaria BUCKM.] = **Calcirhynchia calcaria** BUCKMAN, 1918
- calcicosta* [Terebratula calcicosta QUENST.] = **Rudirhynchia calcicosta** (QUENSTEDT, 1852)
- capuliformis* [Spiriferina capuliformis SEG.] = **Liospiriferina capuliformis** (SEGUENZA, 1885)
- carinata* [Terebratula punctata SOW. carinata TRAUTH] = **Lobothyris** (?) **carinata** (TRAUTH, 1909)
- caroli* [Rhynchonella Caroli GEMM.] = **Piarorhynchia** (?) **caroli** (GEMMELLARO, 1878). The species attributed to *Calcirhynchia* by SULSER, 1993.
- cartieri* [Rhynchonella Cartieri OPP.] = **Cuneirhynchia cartieri** (OPPEL, 1861)
- catharinae* [Waldheimia Catharinae GEMM.] = **Zeilleria catharinae** (GEMMELLARO, 1874)
- cerasulum* [Terebratula cerasulum ZITT.] = **Phymatothyris cerasulum** (ZITTEL, 1869)
- choffati* [Waldheimia (Zeilleria) Choffati HAAS] = **Zeilleria choffati** HAAS, 1885
- cianii* [Rhynchonella Cianii FUC.] = „**Rhynchonella**“ **cianii** FUCINI, 1895
- cianii densicostata* [Rhynchonella Cianii FUC. var. densicostata HAHN, 1911] see „**Rhynchonella**“ **cianii** FUCINI, 1895

- collenoti* [Spiriferina Collenoti E.-DESL.] = **Dispiriferina collenoti** (EUDES-DESLONGCHAMPS, 1884)
- cor* [Terebratula cor LAMARCK] = **Cincta cor** (LAMARCK, 1819).
- cordiformis* [Spiriferina cordiformis BÖSE] = **Liospiriferina cordiformis** (BÖSE, 1897)
- cornicolana* [Pygope cornicolana CAN.] = **Linguithyris cornicolana** (CANAVARI, 1881)
- cornuta* [Terebratula cornuta SOWERBY] = **Zeilleria cornuta** (SOWERBY, 1825)
- costellata* [Terebratula costellata PIETTE] = „**Rhynchonella**“ **costellata** (PIETTE, 1856)
- crassa* [Terebratula crassa NEUM.] = variant of **Lobothyris delta** (NEUM.)?
- curviceps* [Terebratula curviceps QUENST.] = **Gibbirhynchia curviceps** (QUENSTEDT, 1858)
- crassimedia* [Quadratorhynchia crassimedia BUCK.] = **Quadratorhynchia crassimedia** BUCKMAN, 1918. *Q. crassimedia* and *crassimedia depressa* AGER were reported by GSCHWEND (1990) from the Allgäu Alps.
- dalmasi* [Rhynchonella dalmasi DUM.] = **Cuneirhynchia dalmasi** (DUMORTIER, 1869)
- darwini* [Spiriferina Darwini GEMM.] = **Liospiriferina darwini** (GEMMELLARO, 1878)
- deffneri* [Rhynchonella Deffneri OPPEL, 1861] = junior synonym of **Piarorhynchia juvenis** (QUENSTEDT, 1852)
- delta* [Terebratula delta NEUM.] = **Lobothyris delta** (NEUMAYR, 1879)
- diptycha* [Rhynchonella diptycha BÖSE] = „**Rhynchonella**“ **diptycha** BÖSE, 1897
- discoidalis rofanica* [Rhynchonella discoidalis PAR. var. rofanica HAHN] = probably **Rhynchonella cianii** FUCINI, 1895
- dunrobinensis* [Rhynchonella dunrobinensis ROLL.] = **Tetrarhynchia dunrobinensis** (ROLLIER, 1917). Mentioned by GSCHWEND (1990, p. 65) from the Allgäu Alps.
- eberhardi* [Koninckina Eberhardi BITT.] = **Koninckina eberhardi** BITTNER, 1886
- edwardsi* [Terebratula Edwardsii DAV.] = **Lobothyris punctata edwardsi** (DAVIDSON, 1851). Mentioned by BÖSE (1893) from Hindelang.
- emmrichi* [Rhynchonella Emmrichi OPP.] = **Furcirhynchia emmrichi** (OPPEL, 1861)
- engelhardti* [Terebratula Engelhardti (Waldheimia) OPP.] = **Bakonyithyris (?) engelhardti** (OPPEL, 1861)

- erbaensis* [Terebratula Erbaensis SUESS, 1867] = junior synonym of **Securithyris adnethensis** (SUESS)
- ewaldi* [Terebratula Ewaldi (Waldheimia) OPP.] = **Bakonyithyris ewaldi** (OPPEL, 1861)
- faba* [Waldheimia faba BÖSE in SCHLOSSER (1895, p. 352 – nomen nudum)] = see under **Zeilleria bicolor** (BÖSE, 1897)
- fascicostata* [Rhynchonella fascicostata UHL.] = **Calcirhynchia fascicostata** (UHLIG, 1880)
- faucensis* [Terebratula faucensis ROTHPL.] = „**Terebratula**“ **faucensis** ROTHPLETZ, 1886
- fimbria* [Spiriferina fimbria ROTHPL.] = „**Spiriferina**“ **fimbria** ROTHPLETZ, 1886
- finkelsteini* [Waldheimia Finkelsteini BÖSE] = **Zeilleria finkelsteini** (BÖSE, 1894)
- fissicostata* [Rhynchonella fissicostata SUESS] = **Fissirhynchia fissicostata** (SUESS, 1854). Upper Triassic but occurring also rarely in the Liassic (?)
- flabellum* [Rhynchonella flabellum MEN. in Gemm.] = **Prionorhynchia flabellum** (MENEHINI in GEMMELLARO, 1874)
- forticostata* [Rhynchonella forticostata BÖCKH] = **Prionorhynchia forticostata** (BÖCKH, 1874)
- fraasi* [Rhynchonella Fraasi OPP.] = **Prionorhynchia fraasi** (OPPEL, 1861). VÖRÖS (1997) and DULAI (1998) attributed the species to *Cuneirhynchia*.
- fraasi paucicostata* [Rhynchonella Fraasi OPP. var. paucicostata DALPIAZ in HAHN, 1911] = most probably „**Rhynchonella**“ **bonifazii** HAHN
- fraudatrix* [Rhynchonella fraudatrix BÖSE] = **Apringia fraudatrix** (BÖSE, 1897)
- frontensis* [Waldheimia frontensis ROTHPL.] = **Zeilleria frontensis** (ROTHPLETZ, 1886)
- fuggeri* [Rhynchonella Fuggeri FRAUSCHER] = **Sulcistrostra fuggeri** (FRAUSCHER, 1883)
- fuggeri* [Koninckina (Koninckodonta nov. subgen.) Fuggeri BITTN.] = **Koninckodonta fuggeri** BITTNER, 1894
- fuggeri* [Waldheimia Fuggeri BÖSE] = **Aulacothyris (?) fuggeri** (BÖSE, 1897)
- furlana* [Terebratula (Waldheimia) Furlana ZITT.] = **Phymatothyris (?) furlana** (ZITTEL, 1869)
- furcillata* [Terebratula furcillata Theod. BUCH] = **Furcirhynchia furcillata** (VON BUCH, 1835)

- garlandica* [Terebratula garlandica WINKL.] = „**Terebratula**“ **garlandica** WINKLER, 1886. Ascertained in Bayern only.
- genifer* [Rhynchonella genifer WINKL.] = „**Rhynchonella**“ **genifer** WINKLER, 1886. Bayern only.
- geyeri* [Koninckina (Koninckodonta) Geyeri BITTN.] = **Koninckodonta geyeri** BITTNER, 1894
- giesshüblensis* [Terebratula (Terebratulina ?) Giesshüblensis TOULA] = **Terebratulina** (?) **giesshueblensis** TOULA, 1908
- globosa* [Spiriferina globosa BÖSE] = **Liospiriferina globosa** (BÖSE, 1897)
- glycinna* [Rhynchonella Glycinna GEMM.] = **Prionorhynchia glycinna** (GEMMELLARO, 1874)
- gozzanensis* [Terebratula Gozzanensis PAR.] = **Viallithyris gozzanensis** (PARONA, 1880)
- gracilicostata* [Terebratula gracilicostata BÖSE] = „**Terebratula**“ **gracilicostata** BÖSE, 1897
- gregaria* [Terebratula gregaria SUESS] = **Rhaetina gregaria** (SUESS, 1854). Triassic but reported rarely also from the Lower Liassic.
- greppini* [Rhynchonella Greppini OPP.] = **Prionorhynchia greppini** (OPPEL, 1861)
- grestenensis* [Terebratula Grestenensis SUESS] = **Lobothyris** (?) **grestenensis** (SUESS, 1854)
- grossaviensis* [Terebratula (?) Grossaviensis TRAUTH] = „**Terebratula**“ **grossaviensis** TRAUTH, 1909
- gryphoidea* [Spiriferina gryphoidea UHL.] = **Liospiriferina gryphoidea** (UHLIG, 1879)
- guembeli* [Rhynchonella Guembeli OPP.] = **Prionorhynchia guembeli** (OPPEL, 1861)
- guembeli* [Spiriferina Gümbeli NEUM.] = „**Spiriferina**“ **guembeli** NEUMAYR, 1879
- hagaviensis* [Rhynchonella Hagaviensis BÖSE] = **Pisirhynchia** (?) **hagaviensis** (BÖSE, 1897)
- haueri* [Spirifer Haueri SUESS] = **Callospiriferina haueri** (SUESS, 1854)
- hierlatzica* [Terebratula Hierlatzica OPP.] = **Securina hierlatzica** (OPPEL, 1861). Regarded synonymous with *Securina partschi* by DULAI (1992).
- indentata* [Terebratula indentata SOW.] = **Zeilleria indentata** (SOWERBY, 1824)
- inflata* [Saubachia inflata SIBL.] = **Saubachia inflata** SIBLÍK, 1999

- inopinata* [Tetrarhynchia inopinata SIBL.] = **Tetrarhynchia inopinata** SIBLÍK, 1999
- inversa* [Rhynchonella inversa OPP.] = **Pisirhynchia inversa** (OPPEL, 1861)
- juvavica* [Terebratula juvavica GEYER] = „**Terebratula**“ **juvavica** GEYER, 1889
- juvenis* [Terebratula triplicata juvenis QUENST.] = **Piarorhynchia juvenis** (QUENSTEDT, 1852)
- kastneri* [Koninckodonta Kastneri BITTN.] = **Koninckodonta kastneri** BITTNER, 1899
- kraussi* [Rhynchonella Kraussi OPP.] = **Pisirhynchia inversa** (OPPEL, 1861)
- latesinuosa* [Rhynchonella variabilis SCHL. latesinuosa TRAUTH] = **Cuneirhynchia** (?) **latesinuosa** (TRAUTH, 1909)
- laevicosta* [Rhynchonella laevicosta STUR m. s. GEYER] = **Calcirhynchia** (?) **laevicosta** (STUR in GEYER, 1889)
- latifrons* [Rhynchonella latifrons STUR m. s. GEYER] = **Cirpa latifrons** (STUR in GEYER, 1889). According to SULSER (1993) *Fissirhynchia* (?)
- liasina* [Leptaena liasina BOUCH.-CHANT.] = **Koninckella liasina** (BOUCHARD-CHANTERAUX, 1847). Reported from the Allgäu Alps by GSCHWEND (1990, p. 65).
- liasina* [Amphiclina (Amphiclinodonta) liasina BITTN.] = **Amphiclinodonta liasina** BITTNER, 1888
- magni* [Rhynchonella Magni ROTHPL.] = **Calcirhynchia** (?) **magni** (ROTHPLETZ, 1886)
- margaritati* [Rhynchonella margaritati BÖSE] = „**Rhynchonella**“ **margaritati** BÖSE, 1897
- mariae* [Terebratula Mariae d'ORB.] = **Zeilleria mariae** (d'ORBIGNY, 1850)
- matyasovszkyi* [Rhynchonella Matyasovszkyi BÖCKH] = **Calcirhynchia** (?) **matyasovszkyi** (BÖCKH, 1874). Reported by ROTHPLETZ (1886) from the Vils Alps.
- metensis* [Lingula Metensis TERQ.] = **Lingula metensis** TERQUEM, 1850
- minor* [Rhynchonella juvavica minor SKUP.] = **Sulcistrostra juvavica minor** (SKUPHOS, 1892). Age uncertain, Rhaetian or Liassic.
- möschi* [Spiriferina Möschi HAAS] = **Liospiriferina moeschi** (HAAS, 1891)
- münsteri* [Spirifer Münsterii DAV.] = **Spiriferina muensteri** (DAVIDSON, 1851)

- mutabilis* [Terebratula mutabilis (Waldheimia) OPP.] = **Zeilleria mutabilis** (OPPEL, 1861)
- nimbata* [Terebratula nimbata (Waldheimia) OPP.] = **Rhapidothyris (?) nimbata** (OPPEL, 1861)
- numismalis* [Terebratula numismalis LAM.] = **Cincta numismalis** (LAMARCK, 1819)
- obtusa* [Spiriferina obtusa OPP.] = **Liospiriferina obtusa** (OPPEL, 1861)
- oenana* [Waldheimia oenana BÖSE] = **Zeilleria oenana** (BÖSE, 1897)
- opima* [Waldheimia (Zeilleria) opima TRAUTH] = **Zeilleria opima** TRAUTH, 1909
- orsinii* [Rhynchonella Orsinii GEMM.] = **Gibbirhynchia (?) orsinii** (GEMMELLARO, 1874)
- orthisiformis* [Rhynchonellina orthisiformis ROTHPL.] = **Sulcirostra orthisiformis** ROTHPLETZ, 1886. Replaced incorrectly by *Rhynchonellina Rothpletzi* in BÖSE, 1894.
- orthoptychides* [Rhynchonella orthoptychides ROTHPL.] = „**Rhynchonella“ orthoptychides** ROTHPLETZ, 1886
- ovatissima* [Terebratula ovatissima QUENST., 1858] = according to SULSER (1999) the synonym (?) of **Lobothyris punctata**.
- ovatissimaeformis* [Terebratula ovatissimaeformis BÖCKH] = **Lobothyris ovatissimaeformis** (BÖCKH, 1874)
- ovimontana* [Terebratula ovimontana BÖSE] = **Rhapidothyris (?) ovimontana** (BÖSE, 1897)
- ovimontana* [Waldheimia ovimontana BÖSE] = **Bakonyithyris ovimontana** (BÖSE, 1897)
- oxygona* [Spiriferina oxygona E.-DESL.] = „**Spiriferina“ oxygona** EUDES-DESLONGCHAMPS, 1858
- oxynoti* [Terebratula oxynoti QUENST.] = **Cuneirhynchia oxynoti** (QUENSTEDT, 1852)
- palmata* [Rhynchonella Greppini var. palmata OPP.] = **Prionorhynchia palmata** (OPPEL, 1861)
- paolii* [Rhynchonella Paolii CAN.] = **Apringia paolii** (CANAVARI, 1880)
- paronai* [Rhynchonellina Paronai BÖSE] = **Sulcirostra paronai** (BÖSE, 1894)
- partschi* [Terebratula Partschi (Waldheimia) OPP.] = **Securina partschi** (OPPEL, 1861)
- pectiniformis* [Rhynchonella pectiniformis CAN.] = **Calcirhynchia (?) pectiniformis** (CANAVARI, 1884)
- perforata* [Terebratula perforata PIETTE] = **Zeilleria perforata** (PIETTE, 1856)

- pichleri* [Koninckina Pichleri BITTN.] = **Koninckina pichleri** BITTNER, 1894
- pichleri* [Spiriferina Pichleri NEUM.] = **Liospiriferina pichleri** (NEUMAYR, 1879)
- pinguis* [Spirifer pinguis ZIETEN, 1832] = synonym of **Callospiriferina tumida** (BUCH, 1840). DULAI (1992) recognizes the species as *Callospiriferina pinguis* (ZIETEN).
- planifrons* [Rhynchonella planifrons ORM.] = **Cirpa planifrons** (ORMÓS, 1937)
- plicatissima* [Terebratula plicatissima QUENST.] = **Calcirhynchia (?) plicatissima** (QUENSTEDT, 1852). SULSER (1993) associated the species with *Mediterranirhynchia* ? In 1999 he attributed the species to *Calcirhynchia*, considering *Mediterranirhynchia* synonymous with *Calcirhynchia*.
- polyptycha* [Rhynchonella polyptycha OPP.] = **Prionorhynchia polyptycha** (OPPEL, 1861); probably synonym of *Prionorhynchia fraasi*.
- prona* [Rhynchonella prona OPP.] = **Homoeorhynchia (?) prona** (OPPEL, 1861)
- pseudoscherina* [Rhynchonella pseudo-scherina BÖSE] = **Prionorhynchia pseudoscherina** (BÖSE, 1897)
- ptinoides* [Rhynchonella ptinoides DI STEF.] = **Homoeorhynchia (?) ptinoides** (DI STEFANO, 1891)
- punctata* [Terebratula punctata SOW.] = **Lobothyris punctata** (SOWERBY, 1812)
- pusilla* [Rhynchonella pusilla GEMM.] = **Piarorhynchia (?) pusilla** (GEMMELLARO, 1874)
- pygmaea* [Rhynchonellina pygmaea GEMM.] = **Rhynchonellina pygmaea** GEMMELLARO, 1886
- quadrifida* [Terebratula quadrifida LAM.] = **Zeilleria quadrifida** (LAMARCK, 1819). Mentioned by GSCHWEND (1990, p. 65) from the Allgäu Alps.
- ramosa* [Rhynchonella ramosa ROTHPL.] = „**Rhynchonella“ ramosa** ROTHPLETZ, 1886. The species associated with *Squamirhynchia* (?) by ALMÉRAS (1964, p. 147).
- regia* [Rhynchonella regia ROTHPL.] = **Prionorhynchia regia** (ROTHPLETZ, 1886)
- resupinata* [Terebratula resupinata SOW.] = **Aulacothyris resupinata** (SOWERBY, 1816).
- retroplicata* [Rhynchonella retroplicata ZITT.] = **Pisirhynchia retroplicata** (ZITTEL, 1869). SULSER (1993) referred the species to *Maxillirhynchia* ?

- retusifrons* [Rhynchonella retusifrons OPP.] = **Cuneirhynchia retusifrons** (OPPEL, 1861)
- rimata* [Rhynchonella rimata OPP.] = **Calcirhynchia (?) rimata** (OPPEL, 1861). SULSER (1993) attributed the species to *Furcirhynchia* (?)
- rostrata* [Terebratulites rostratus SCHLOTH.] = **Liospiriferina rostrata** (SCHLOTHEIM, 1822)
- rothpletzi* [Rhynchonellina Rothpletzi BöSE, 1894] = see **Sulcirostra orthisiformis** (ROTHPLETZ, 1886)
- rudis* [Terebratula rudis GEMM.] = **Phymatothyris (?) rudis** (GEMMELLARO, 1874)
- rupestris* [Spiriferina rupestris E.-DESL.] = **Callospiriferina rupestris** (EUDES-DESLONGCHAMPS, 1862)
- rubrisaxensis* [Terebratula rubrisaxensis ROTHPL.] = „**Terebratula rubrisaxensis** ROTHPLETZ, 1886
- salisburgensis* [Terebratula Salisburgensis BöSE] = „**Terebratula salisburgensis** BöSE, 1897
- salisburgensis* [Rhynchonella Salisburgensis NEUM.] = „**Rhynchonella salisburgensis** NEUMAYR, 1879. According to BöSE (1893, p. 643) identical with *Rhynchonella plicatissima*.
- salomoni* [Spiriferina Salomoni BöSE] = **Liospiriferina salomoni** (BöSE, 1897)
- sanctihilarii* [Rhynchonella Sancti-Hilarii BöSE] = According to SULSER (1993) **Rostrirhynchia sanctihilarii** (BöSE, 1897)
- sarthacensis* [Terebratula sarthacensis d'ORB.] = **Zeilleria sarthacensis** (d'ORBIGNY, 1850)
- saximontana* [Spiriferina saximontana BöSE] = **Liospiriferina saximontana** (BöSE, 1897)
- scherina* [Rhynchonella Scherina GEMM.] = „**Rhynchonella scherina** GEMMELLARO, 1874. According to SULSER (1993) = *Prionorhynchia quinqueplicata* (ZIETEN, 1832)
- schlosseri* [Terebratula Schlosseri BöSE] = „**Terebratula schlosseri** BöSE, 1897
- segregata* [Spiriferina segregata DI-STEF.] = **Dispiriferina segregata** (DI-STEFANO, 1887)
- seguenzae* [Rhynchonellina Seguenzae GEMM.] = **Sulcirostra seguenzae** (GEMMELLARO, 1876?)
- sejuncta* [Rhynchonella sejuncta BöSE] = „**Rhynchonella sejuncta** BöSE, 1897
- semicircularis* [Spiriferina semicircularis BöSE] = **Liospiriferina semicircularis** (BöSE, 1897)

- serrata* [Terebratula serrata SOW.] = **Prionorhynchia serrata** (SOWERBY, 1825)
- sicula* [Spiriferina sicula GEMM.] = **Liospiriferina sicula** (GEMMELLARO, 1874)
- sirinniae* [Rhynchonella Sirinniae TIET.] = **Tetrarhynchia sirinniae** (TIETZE, 1872)
- solitaria* [Homoeorhynchia solitaria SIBL.] = **Homoeorhynchia solitaria** SIBLÍK, 1999
- sordellii* [Rhynchonella Sordellii PAR.] = **Gibbirhynchia (?) sordellii** (PARONA, 1880). The species was associated with *Pseudogibbirhynchia* by SACCHI VIALLI & CANTALUPPI (1967), or with *Tetrarhynchia* ? by SULSER (1993)
- sphenoidalis* [Terebratula sphenoidalis MGH. in CANAVARI, 1880] = possibly variants of **Phymatothyris cerasulum** (ZITT.), according to VÖRÖS (1994, p. 359)
- stachei* [Rhynchonella Stachei BöSE] = „**Rhynchonella stachei** BöSE, 1897
- stapia* [Terebratula stapia (Waldheimia) OPP.] = **Zeilleria stapia** (OPPEL, 1861)
- stoppanii* [Rhynchonella Stoppanii PAR.] = **Apringia (?) stoppanii** (PARONA, 1880)
- styriaca* [Koninckina styriaca BITTN.] = **Koninckina styriaca** BITTNER, 1888
- subaliens* [Rhynchonella subaliens TRAUTH] = „**Rhynchonella subaliens** TRAUTH, 1909
- subcostellata* [Rhynchonella subcostellata GEMM.] = **Cirpa subcostellata** (GEMMELLARO, 1874)
- subdiscoidalis* [Rhynchonella subdiscoidalis BöSE] = „**Rhynchonella subdiscoidalis** BöSE, 1897
- subfurcillata* [Rhynchonella subfurcillata BöSE] = „**Rhynchonella subfurcillata** BöSE, 1897
- sublaevicosta* [Rhynchonella sublaevicosta HAHN] = „**Rhynchonella sublaevicosta** HAHN, 1911
- sublatifrons* [Rhynchonella sublatifrons BöSE] = **Squamirhynchia sublatifrons** (BöSE, 1897)
- subnumismalis* [Terebratula numismalis var. subnumismalis DAV.] = **Zeilleria subnumismalis** (DAVIDSON, 1851)
- subpectiniformis* [Rhynchonella subpectiniformis BöSE] = „**Rhynchonella subpectiniformis** BöSE, 1897
- subpentagonalis* [Rhynchonella Dalmasi subpentagonalis TRAUTH] = see under **Cuneirhynchia dalmasi**

subpunctata [Terebratula subpunctata DAV.] = following AGER, 1990 **Lobothyris punctata subpunctata** (DAVIDSON, 1851). „Subpunctata“ was attributed by SUČIĆ-PROTIĆ (1971) to her new genus *Pirotothyris*; later on, it was mentioned as *Lobothyris subpunctata* (DAV.) by ALMÉRAS & MOULAN (1982). The species was reported by Gschwend (1990) from the Allgäu Alps.

subundata [Rhynchonella subundata ROTHPL.] = „**Rhynchonella**“ **subundata** ROTHPLETZ, 1886

sylvia [Spiriferina Sylvia GEMM.] = **Liospiriferina sylvia** (GEMMELLARO, 1878)

tessoni [Spirifer Tessoni DAV.] = „**Spiriferina**“ **tessoni** (DAVIDSON, 1852)

tetraedra [Terebratula tetraedra SOW.] = **Tetrarhynchia tetraedra** (SOWERBY, 1812). Reported by TRAUTH (1909) from the Gresten Beds in Hinterholz.

thurwieseri [Waldheimia Thurwieseri BÖSE] = **Zeilleria thurwieseri** (BÖSE, 1897)

triquetra [Rhynchonella triquetra GEMM.] = „**Rhynchonella**“ **triquetra** GEMMELLARO, 1874

tumida [Spirifer tumidus BUCH] = **Callospiriferina tumida** (BUCH, 1836)

uhligi [Rhynchonella Uhligi HAAS] = following SULSER (1993 and 1999) **Septocrurella (?) uhligi** (HAAS, 1884). The species was attributed to *Pisirhynchia (?)* by VÖRÖS (1997).

uhligi [Terebratula Uhligi GEYER] = „**Terebratula**“ **uhligi** GEYER, 1889

uncinata [Spirifer uncinatus SCHAFFH.] = **Zugmayerella uncinata** (SCHAFFHÄUTL, 1851). Rhaetian species, reported from the Gresten Beds by TRAUTH (1909) as *Cyrtina uncinata* SCHAFFH.sp.

undata [Rhynchonella undata PAR.] = **Prionorhynchia undata** (PARONA, 1880)

undulata [Spiriferina undulata SEG.] = **Liospiriferina undulata** (SEGUENZA, 1885)

variabilis [Terebratulites variabilis SCHLOTHEIM, 1813] = the name should be abandoned as a nomen dubium (AGER, 1958, p. 56)

venusta [Waldheimia venusta UHL.] = **Zeilleria venusta** (UHLIG, 1879)

walcotti [Spirifer Walcottii SOW.] = **Spiriferina walcotti** (SOWERBY, 1822)

waterhousi [Terebratula Waterhousii DAV.] = **Zeilleria waterhousi** (DAVIDSON, 1851)

wähneri [Koninckina Wähneri BITTN.] = **Koninckina wähneri** BITTNER, 1894 – Upper Liassic-?Dogger.
zitteli [Rhynchonellina Zitteli BÖSE] = **Sulcirostra zitteli** (BÖSE, 1894)

zitteli [Rhynchonella Zitteli GEMM.] = **Tetrarhynchia zitteli** (GEMMELLARO, 1874). SULSER (1993) associated the species with *Mediterranirhynchia*.

zugmayeri [Rhynchonella Zugmayeri GEMM.] = **Calcirhynchia zugmayeri** (GEMMELLARO, 1878)

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