

## Mesozoic Brachiopods of the Hallstatt-Dachstein/Salzkammergut UNESCO World Heritage Site: History of Research

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As early as at the beginning of the second half of the 19<sup>th</sup> century, a series of famous personalities in geology took part in the palaeontological research of the Hallstatt – Dachstein area and gathered essential knowledge on the local stratigraphy and palaeontology. From among those eminent scientists at least E. SUESS, F. HAUER, A. OPPEL, M. HOERNES, A.E. REUSS and several years later F. STOLICZKA and E. MOJSISOVICS should be mentioned.

The rich content of fossil fauna at some localities is one of the reasons why some palaeontological localities have become classical and why some local names have been used ever since for the designation of types of limestones or beds. At present, Middle Triassic Schreyeralmkalk, Upper Triassic Dachsteinkalk and Hallstätterkalk, Lower Jurassic (Liassic) Hierlatzkalk, Middle Jurassic Klauskalk, Upper Jurassic Plassenkalk and Cretaceous Gosauschichten (Gosau Group) are terms used all over the world in scientific literature.

Beside the stratigraphically most important animal group of the ammonites, another group – the brachiopods – played a significant role in the fossil assemblages. In the Lower and Middle Jurassic they were the most frequent bottom dwellers in the local past ocean. The study of these animals thus substantially helps in getting better notion of the bottom life in that time.

First notes on „Hierlatz“ brachiopods were published already 150 years ago by HAUER and by SUESS in 1852. A list of brachiopods from the Klauskalk and Hierlatzkalk was offered by HAUER one year later in 1853. Shortly afterwards, more detailed studies or monographs followed. Papers on the Hallstätterkalk brachiopods by SUESS appeared in 1855, then on brachiopods of the Hierlatzkalk in 1861 and of the Klauskalk in 1863, both by OPPEL. Rare Gosau brachiopods were made known by SUESS in 1866, while Hierlatz brachiopods were monographed by GEYER more than 20 years later, in 1889. Brachiopods of the Schreyeralmkalk and Hallstätterkalk were studied in detail by BITTNER in his large monograph on Alpine Triassic brachiopods issued in 1890.

During those studies many brachiopod species appeared to be unknown and found for the first time. Thus a rather

long series of the new brachiopod species could be established in the Hallstatt area. In the UNESCO World Heritage Region 17 Triassic species have their type localities; 3 of them were described by SUESS (1855), 13 by BITTNER (1890) and 1 by KITTL (1916). In the Lower Jurassic 32 species were established there (24 of them by OPPEL [1861] and 8 by GEYER [1889]). Fifteen Middle Jurassic brachiopod species were described from the area by OPPEL in 1863. The only one Cretaceous species (*Argiophe ornata*) was established by SUESS in 1866.

Some new specific names were derived from the local topography or were named after famous citizens. This is the case of the Triassic *Rhynchonellina gosaviensis* KITTL 1916 and the Liassic *Terebratula Hierlatzica* OPPEL 1861, resp. of *Terebratula Ramsaueri* named by SUESS 1855 after the famous Hallstatt mine supervisor and discoverer of the prehistoric burial grounds on the Salzberg – Johann Georg RAMSAUER. Another new brachiopod was named *Terebratula Simonyi* SUESS (published by HAUER in 1852 and 1853) after Friedrich SIMONY, the well-known geographer and allround researcher of Dachstein. This specific name is, however, unavailable (nomen nudum) and not usable in the scientific literature as it was not originally accompanied with necessary characteristics of a new brachiopod taxon.

Very interesting occurrences of the Liassic brachiopods in the protected region are known from sedimentary fissures in the Upper Triassic Dachstein Limestone, in so-called neptunian dykes. These fissures originated near submarine fault zones and were sometimes very spacious. The Hierlatz Limestone, which in the most cases infilled later these fissures, contains often abundant brachiopods. The accompanying fauna may be composed of complete or fragmentary specimens of bivalves, gastropods, crinoids and stratigraphically significant ammonites. Basing on the last group, the Lower Jurassic (Sinemurian–Carixian) age of the infilling Hierlatz Limestone in the neptunian dykes was documented already by GEYER (1886) at the classical locality Feuerkogel in the Hierlatz Group. Accumulated shells were in the most cases probably transported after the animals' death from the nearest surrounding, where they had lived, into the fissures.

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Some fossiliferous Triassic localities should be mentioned from the near neighbourhood of the UNESCO World Heritage Region, which similarly yielded a series of new Triassic brachiopod species, and thus many new specific names. Also names as Pedata-Schichten, Pötschenkalk and Zlambachschichten have their origin in this part of the Salzkammergut. Such localities as Raschberg, Leising near St. Agatha, Zlambachgraben, Hütteneck near Goisern, Sandling (Vordersandling), Rötelstein (Teltschen) and Lupitsch near Aussee are to be mentioned. From there 33 new Triassic brachiopod species were established, most of them by SUESS (1855) and by BITTNER (1890 and 1892). Quite recently, a new discinacean was described by RADWANSKI & SUMMESBERGER (2001) from the Kleiner Zlambachgraben. Also here some new names were connected with the region of origin, e.g. *Waldheimia (Aulacothyris) Sandlingensis* BITTNER 1890 or *Spirigera Ausseana* BITTNER 1890.

Since that classical period of the brachiopod research in the Hallstatt – Dachstein area only rare short notes of faunal lists have been published containing information on brachiopods. In the last years, a revisional study was started, to bring some newer data from the classical locality of Hierlatz and to report on the Triassic and Jurassic brachiopod fauna from the environs of Hallstatt.

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