In contrast, north of the Steinplatte, sedimentation of the Kössen Formation continuously passes into grey cherty limestones of the adjacent basin (Hettangian Kendlbach Formation and Sinemurian Scheibelberg Formation). The latter is characterised by varying, often high amounts of siliceous sponges and/or siliceous bulbs (MOSTLER, 1990; KRAINER & MOSTLER, 1997).

3.2.5. Locality 8 – Eiberg

The Eiberg section is located in an active cement quarry (SPZ Zementwerk Eiberg GmbH) about 3 km south of Kufstein (North Tyrol) (Fig. 1). The upper part of the Hochalm Member (upper unit 2 to unit 4, sensu GOLEBIOWSKI, 1989) and the Eiberg Member are exposed (Figs. 33, 34). The top of the Eiberg Member contains the Event Bed and the first post-extinction marls but is then separated from the Early Jurassic strata (Allgäu Formation) by a prominent fault. The Kendlbach Formation, which contains the Triassic-Jurassic boundary, is mostly missing. The Eiberg section was palaeogeographically situated in the central part of the Eiberg Basin (Fig. 5). KRYSTYN et al. (2005) supposed a connection with the open Tethys to allow the immigration of the pelagic ammonoids and conodonts. The Kössen Formation, Rhaetian in age, records a long-term deepening of the basin, with repeated shallowing upward cycles well documented by the litho and biofacies (Fig. 34). Particularly the associations of bivalves and brachiopods studied in details by GOLEBIOWSKI (1989, 1991) give indication of depth changes (Fig. 35).

Fig. 33. Eiberg Quarry behind main cement factory exposing Kössen Formation with top Hochalm Member (Units 3 + 4) and lower Eiberg Member (Units 1 + 2).

The Hochalm Member

Only the top of the Hochalm Member, Unit 2 is visible on the southern part of the quarry. If shallow water carbonate dominated bioclastic limestone in the Unit 1, these shallow water carbonate (Fig. 36B) are rarer in the Unit 2 and disappear in Unit 3. The proximal tempestite of Unit 1 become more distal in Unit 2 and the marls are increasing in thickness. The shallowing upward cycles in unit 2 are marked by alternation of distal tempestite, laminated

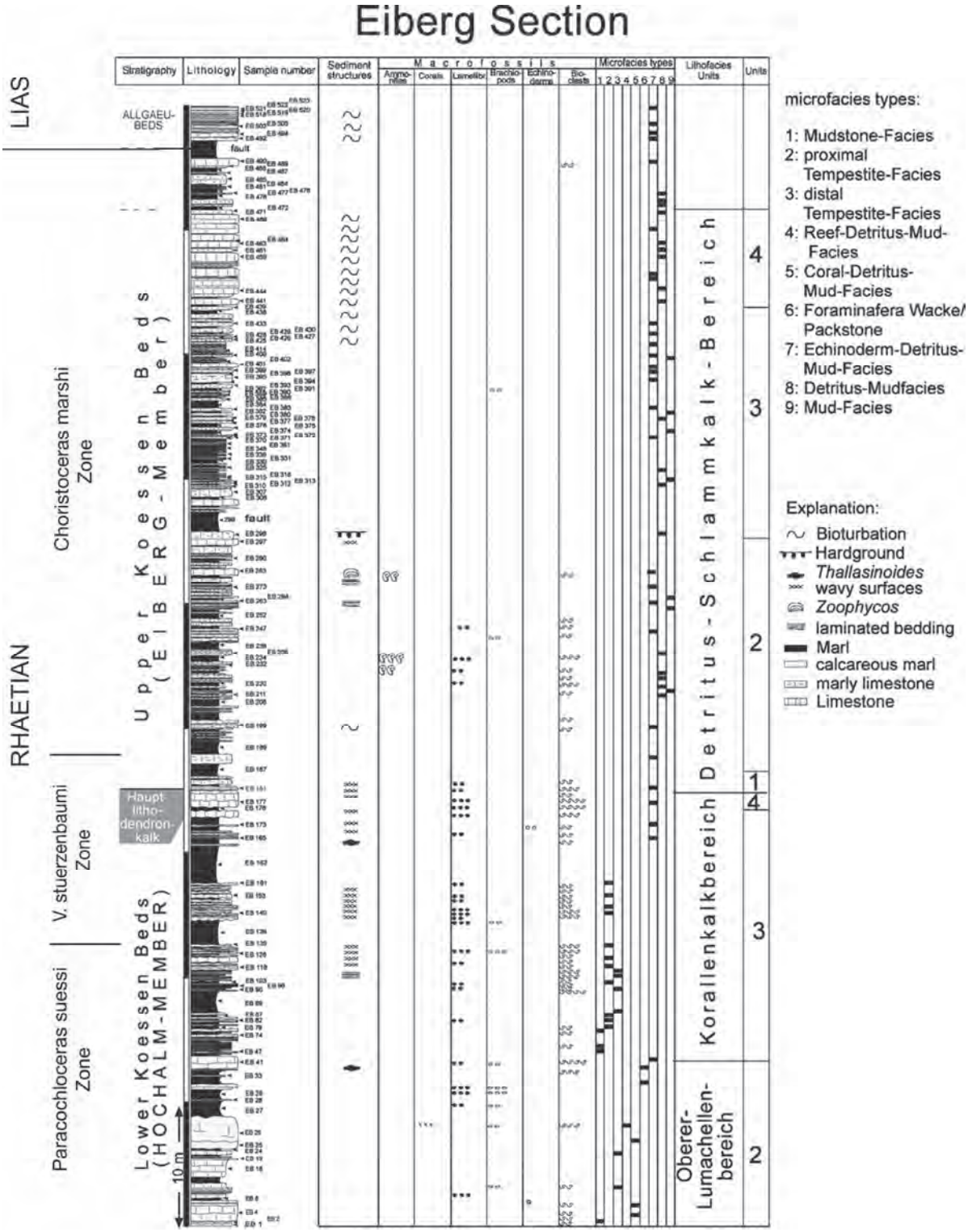

Fig. 34. Profil of the Eiberg section (modified from GOLEBIOWSKI, 1991).

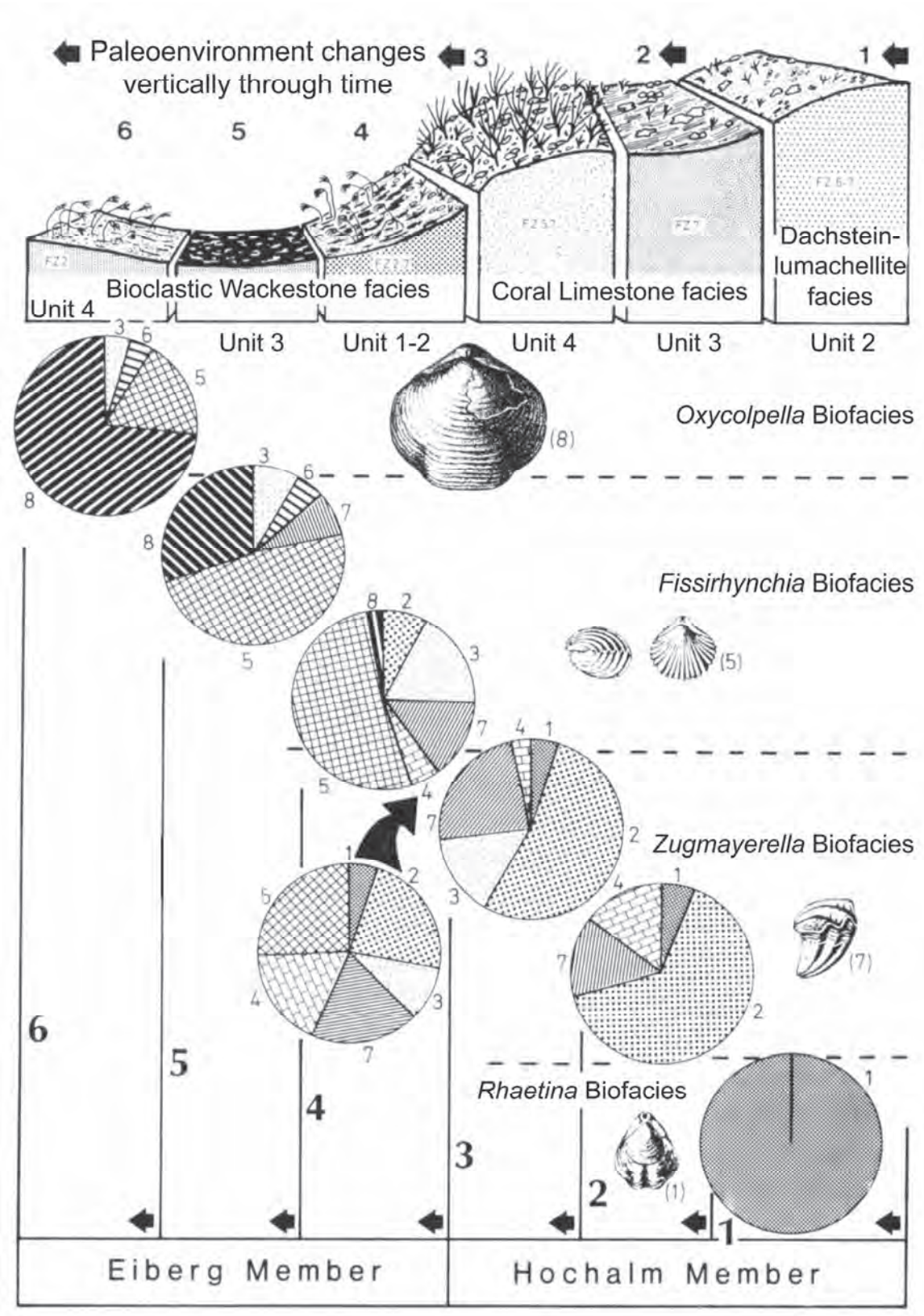

Fig. 35. Ecological stratigraphy of the brachiopods of the Kössen Formation. There are continuous changes in assemblages concomitant with the deepening of the basin. 1 - *Rhaetina gregaria*, 2 - *Rhaetina pyriformis*, 3 - *Zeilleria norica*, 4 - *Austrirhynchia cornigera*, 5 - *Fissirhynchia fissicostata*, 6 - *Sinucosta emmrichi*, 7 - *Zugmayerella koessenensis* und *uncinata*, 8 - *Oxycolpella oxycolpos*. From GOLEBIOWSKI (1991).

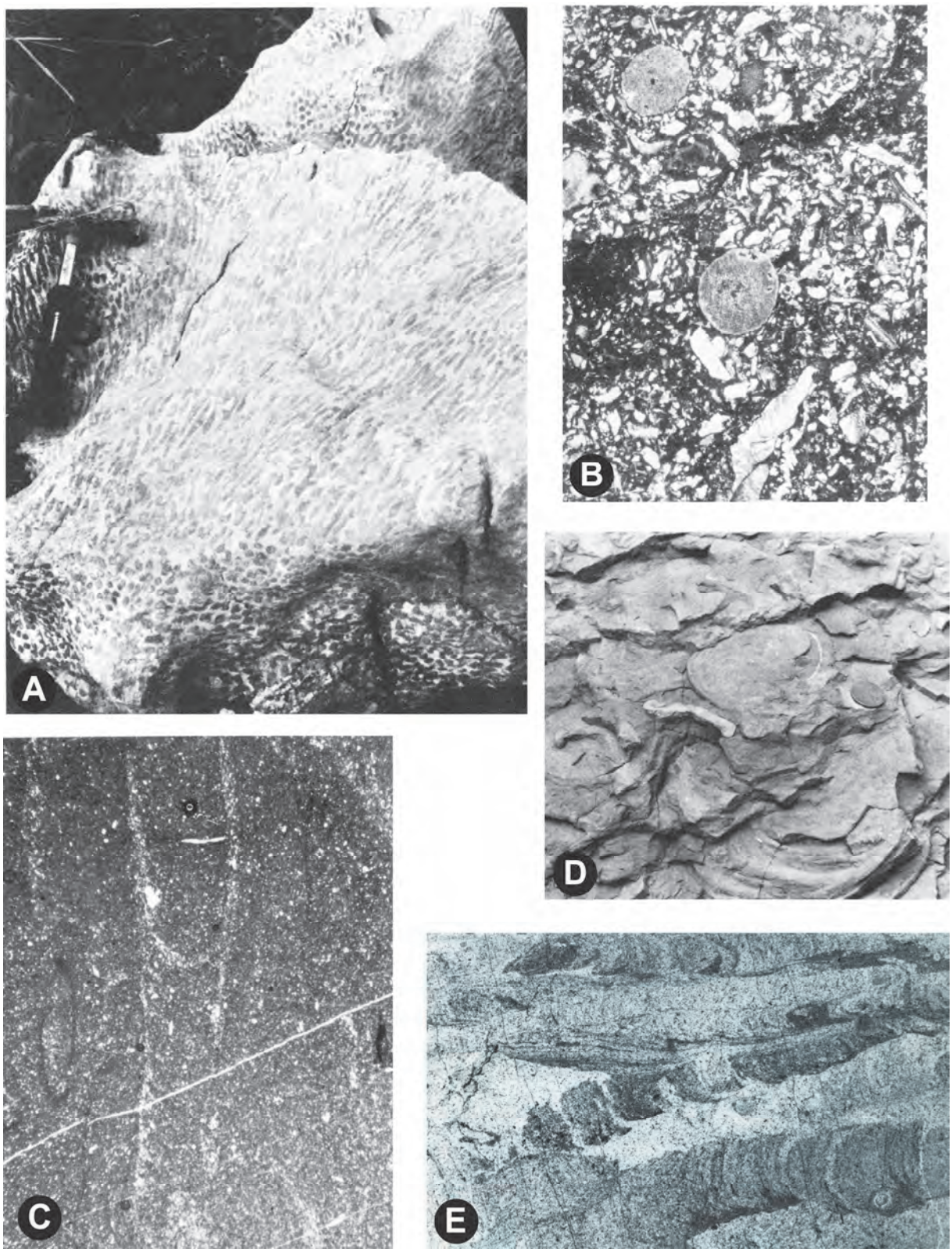

Fig. 36. A) Lithodendron Limestone (hammer for scale); B) Echinoderm bioclastic grainstone with brachiodpod fragments and crinoids, x 7; C) Bioclastic wackestone with sponges spicules and bioturbation, x 4,5; D) Zoophycos traces within the marly sediment, x 0,3; E) Vertical section of Zoophycos traces, together with later burrows, x 1. (All photos from KUSS, 1983).

mudstone and marls. Bonebeds, epifaunal bivalves, the brachiopods (*Rhaetina gregaria*) and the strong bioturbated bioclastic limestone document a high energy, low sedimentation rate, shallow deposition milieu (less than 20m water depth) (GOLEBIOWSKI, 1989, 1991). The shallow water carbonate and bivalves-rich tempestite are no more present in Unit 3 and 4. In this Coral-Limestone Interval, the bioclastic limestones are richer in terrigenous elements and low diversity solitary corals with micritic matrix are the main component. The corals are dominated by *Retiophyllia paraclathrata* RONIEWICZ (GOLEBIOWSKI, 1989, 1991). The Unit 4, the "Lithodendron Limestone" is the most important lithofacies marker of the Kössen Formation (Fig. 36A). The Units 3 and 4 mark a deepening below the wave base (30-50m) and a transition phase between a deep, open marine lagoon (Unit 1 and 2) and the intraplatrform basin deposition milieu of the Eiberg Member. According to GOLEBIOWSKI (1991), the conodonts and in part ammonoids provide a lower Rhaetian age for the Unit 1+2 and the base of the Unit 3 (*Paracochloceras suessi* Zone until 23 m in Fig. 34). The top of the Unit 3, the Unit 4 of the Hochalm Member and the Unit 1 of Eiberg Member belong to the middle Rhaetian *Vandaites stuerzenbaumi* ammonoid Zone.

The Eiberg Member

The Eiberg Member is more monotonous than the Hochalm Member. The sedimentation is marked by grey intraplatform basin limestones and marls with common *Zoophycus* and *Chondrites* burrows (Fig. 36C-E). The conditions of sedimentation do not show much variation. The bivalve biofacies sees the diminution of individuals and species, probably due to a decrease in nutrients, and is dominated by the bassinal form *Oxytoma inaequvalve* (GOLEBIOWSKI, 1989, 1991, Fig. 35). The ostracods record a change from warm to colder water (URLICHS, 1972). These changes indicate a further deepening of the basin to about 50-100 m water depths in the units 1 to 3. The maximum water depth is probably to correlate with the black shales and thin-bedded mudstone of the lower part of unit 3. The Unit 4 is developed as packstones with a shallowing upward trend, thicker bedding, and increasing bioclastic content: fragmented basinal bivalves (*Pinna*), downslope-transported, thick-shelled shallow water bivalves (*Palaeocardita*), and brachiopods (*Oxycolpella*, *Fissirhynchia*) (KRYSTYN et al., 2005), indicating a regressive phase (GOLEBIOWSKI, 1989, 1991). Two thin chert nodule layers – otherwise missing from the Kössen Formation – are useful as marker beds and result from local enrichment of siliceous sponge spicules in this interval. The top 2 cm show a distinct iron- and bivalve-enriched brown hard surface interpreted as a possibly condensed hardground layer. The Units 2, 3 and 4 of the Eiberg Member belong to the late Rhaetian *Choristoceras marshi* ammonoid Zone (Fig. 34).

3.3. The Triassic/Jurassic GSSP (Day 3)

The Triassic-Jurassic GSSP at Kuhjoch is the most expanded marine section in the world and contains the richest marine fauna with an abundant microflora allowing a cross-correlation with the continental realm. It developed in the Eiberg Basin, which continuously subsided in late Rhaetian time reaching 150-200 m water depth. It was, therefore, less affected by the end-Triassic sea level drop which led to widespread and longer-lasting emersion of the surrounding shallow water areas. Instead, marine conditions prevailed in the basin across the system boundary, where a distinct and abrupt lithological change from basinal carbonates to marls and clayey sediments – now interpreted as the result of the Central Atlantic Magmatic Province (CAMP) flood basalt province eruption - record the mass-