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In conclusion, we have identified temperature, productivity and oxygen level gradients subtending planktonic and benthic foraminiferal assemblages from Devinska Nova Ves and have brought new insights on the ecological evolution of this area during the Miocene nannoplankton Zone NN6.

RECENT BENTHIC OSTRACODA FROM THE INNERSHELF OFF CHENNAI, SOUTHEAST COAST OF INDIA - IMPLICATIONS FOR MICROENVIRONMENTS

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Ostracods, which are tiny crustaceans, live in all types of aquatic microhabitats. Fifty-six sediment and 60 bottom water samples were collected from the inner shelf off Karikkattukuppam, near Chennai, southeast coast of India; these samples yielded 51 ostracod taxa. The samples were collected from 12 stations at three-month intervals over a period of one year. Sedimentological characteristics, including sand-silt-clay ratios, organic matter and CaCO₃ content of the sediments, and bottom water characteristics, including temperature, salinity and dissolved oxygen, were determined. These parameters were compared with the ostracod assemblage in each sample. We observed that higher calcium carbonate content of the sediment and higher temperature and salinity of bottom waters favour higher abundances.

Morphological parameters, including carapace-valve (C/V) ratio, predation, colour pattern and ornamentation of the carapace, are utilised to study the microenvironment of the area. C/V ratios indicate a moderately slow rate of sedimentation. Predation, a biological factor controlling the abundance and distribution of the community, supports the fact that the study area is a shallow inner shelf. Carapace colours of white, pale yellow, dark grey and black were encountered. The greater abundances of white and pale yellow coloured specimens indicated that sediments are deposited under normal oxygenated environment.

The relationship between the sculpture in ostracoda and grain size of the substrate was also assessed by direct observation from SEM photography. Of four types of ornate forms recorded in the study area, taxa with smooth and fragile carapaces prefer fine-grained sediments such as sandsilt/silt, whereas highly calcified and ornamented forms prefer coarse-grained silty-sand/sandy substrate. The entire ostracod faunal assemblage off Chennai is consistent with deposition under tropical, shallow water/inner neritic, ultrahaline to euhaline environmental conditions.

END PERMIAN REGRESSION - EVIDENCE FROM MEIOBENTHIC FOSSIL COMMUNITIES FROM THE VELEBIT MT. (SW CROATIA)

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In the area of the Middle Velebit Mt. (SW Croatia) a thick sequence of carbonate sediments were deposited during the Middle and Upper Permian, with continuous

transition to the Lower Triassic (Fig. 1). These, predominantly dolomitic sediments were deposited in shallow marine, supratidal to shallow subtidal environments. Changes in microfossil communities and petrographic features provide the evidence for several regressive episodes during the Upper Permian. These episodes became more common in the uppermost part of the sequence, towards the Triassic boundary.

Fossil associations from these sediments were partly transported by turbide currents, waves or tempests, but many of them were deposited *"in situ"*, or not far from their life positions. These "autochthonous" communities are of different biotic diversity, and reflect the environmental changes during the sea level oscillations. High biotic diversity communities occur within packstones-grainstones. Dominant fossils - gymnocodiacean and dasycladacean algae, together with fusulinids, small foraminifera and encrusting taxa, represent shallow subtidal environment with favourable life conditions.

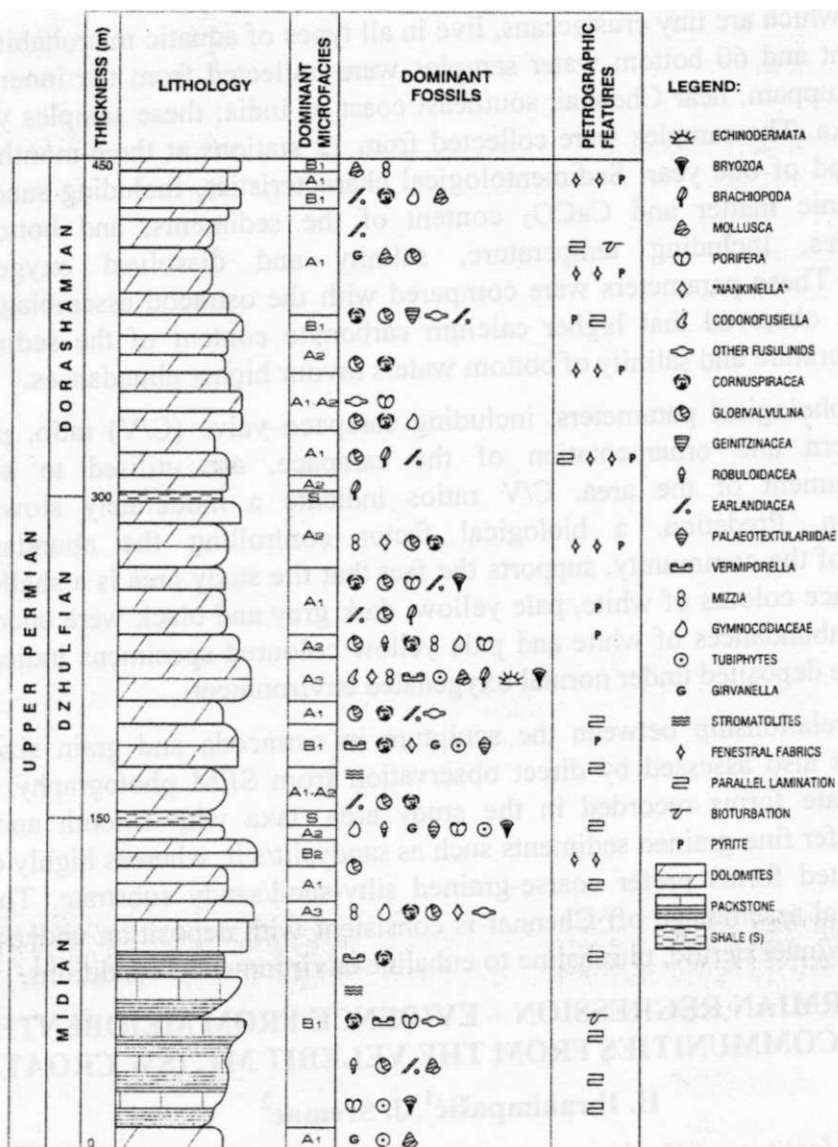


Figure 1. Schematic stratigraphic column through the Upper Permian sediments in the Velebit Mt. (Croatia).

Moderately diverse communities in wackestones are typical for the beginning of the shallowing upward episodes. Number of specimens of calcareous algae decreases, and presence of large fusulinid foraminifera becomes an exception. On the

contrary, globivalvulines, lagenids, miliolids and palaeotextulariaceans take the advantage of environmental changes, and become dominant constituents of the communities. Cyanobacterial oncoids are also common in these sediments. Mudstones with earlandiaceans and scarce lagenids and/or other small foraminifera represent the extremely stressed phase of the regressive cycles.

They appear at several horizons during the Upper Permian, but become dominant during the Upper Dorashamian. Fenestral fabrics, vadose cements, dessication cracks and pyrite grains are also common in these sediments, reflecting the temporary emersions during the uppermost Permian. Early diagenetic stromatolitic dolomites have been found near the Midian-Dzhulfian boundary, also reflecting the regressive cycle, which is typical for this period in Palaeotethys.

Although the uppermost Permian deposits in the Velebit Mt. undoubtedly show the recessive tendencies, which can be well correlated with the regional drop of the sea level, regression in this area does not seem to be as prominent as some of the authors propose for the end of the Permian. Estimated maximum depth of the basin was probably not more than 20 meters during the phase of the optimal life conditions, and the possible periods of emersion were not long enough to enable the formation of some typical continental markers. End Permian anoxic event, which was reported from numerous localities in the area of former Palaeotethys did not affect the extremely shallow environments, and thus could not much affect the investigated sediments. Intercalations of red shales, which successively become more common in the uppermost part of the sequence, support the hypothesis of the continuous transition into the Lower Triassic.

PHYSICOCHEMICAL AND METABOLIC HETEROGENEITY OF THE MAIN PIGMENT OF THE PHOTOSYNTHETIC BACTERIA

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It is common now to find microorganisms being exploited in studies of biosynthesis and metabolism because of their outstanding capabilities in this direction and because they can be grown in environments easily controlled by the experimenter. The contributions that these simple life forms can make to investigations of bacteriochlorophyll metabolism have been realised only recently.

Bacteriochlorophyll *in vivo* exists in different spectral forms and its absorption spectra are different for pigments in complexes with proteins, lipids and other components of the photosynthetic apparatus. The pigment-lipoprotein complexes isolated from photosynthetic membranes of bacterial culture of *Chromatium minutissimum*, with the use of different detergents, are shown to have metabolic similarity with some differences. Gradual fragmentation of the photosynthetic apparatus of this bacterial culture has been made and specific radioactivities of the bacteriochlorophyll of the reaction centre (RC), with its nearest surrounding and light-harvesting complex (B 800-850) have been determined.

Isotopic kinetic studies were carried out on incubated photosynthetic bacteria *Chromatium minutissimum* and *Ectothiorhodospira shaposhnikovii* cultures, to investigate the metabolism of bacteriochlorophyll in the light, in the dark and under