The Lower Middle Triassic (Anisian) can be divided into 2 (MOSHER, 1970) and sometimes into 3 or 4 zones (BENDER, 1967); the Lower Anisian (Hydasp) and Higher Anisian (Illyr), however, can very well be subdivided. An exact delimitation of the Skythian — Anisian was not yet possible; this problem is at present being investigated by the author.

The delimitation of the Upper Anisian-Ladinian by conodonts imposes considerable difficulties. According to MOSHER, 1970, the boundary is defined by the extinction of *Neogondolella constricta* (CLARK). HIRSCH made the attempt to define the boundary quantitatively by means of faunal assemblages; though a clear delimitation of the Anisian-Ladinian is not possible at present. A subdivision of the Ladinian is not yet well founded; it seems, however, that a distinction of 2 zones may be possible.

The delimitation Ladinian-Karnian is clearly defined by the extinction of *Epigondolella mungoensis* (DIEBEL), Karnian itself can be subdivided into 3 zones.

The Norian can be divided into 3 zones (KRYSTYN, 1970). The subdivision is partly based on the appearance of simplified "platform-types" and partly on the appearance of new forms shortly before the complete extinction of the conodonts.

Conodonts die out with the end of the Norian; reports concerning the appearance of conodonts in the Rhaetian (MOSHER, 1970), in the Jurassic (NOHDA & SETOGUCHI, 1967) and in the Cretaceous (DIEBEL, 1956) are either the result of a misinterpretation of stratigraphy or the conodonts were redeposited into these particular series.

Note: A preliminary distribution chart of triassic conodonts was handed out during the lecture.

Dr. R. OBERHAUSER, Geol. Survey of Austria

Excursion to the Dobratsch-Range, West of Villach, Carinthia with comments on general alpine tectonics

The Dobratsch-Range belongs to that part of the Southern Calcareous Alps, which is situated just north of the important Alpine-Dinaric fault separating Alps and Dinarids. The Dobratsch still exhibits the facies of the Northern Calcareous Alps in spite of its tectonic position in the south. The peak of Dobratsch consists of limestones of the Middle-to Upper Triassic transitional beds, rich in corals, calcareous sponges such as *sphinctozoae, hydrozoae,* calcareous algae and abundant problematic organic remains. Megafossils are rare, only gastropods, especially *Chemnitzia rosthorni* HOERNES, are more common. Some finds of cephalopods, namely nautilids, and lamellibranchs (especially pectinids) have been recorded. Foraminifera are very rare, and they are not diagnostic for age determination. The top of the Dobratsch mountain is the type-locality

for a problematic, small tubular fossil: *Lamelitubus cauticus* OTT, and for the thalamid sponge *Vesicocaulis carinthiacus* OTT. Fauna and flora of the Dobratsch is indicative of a reef facies. It was studied in thin slides by OLAF KRAUS and ERNST OTT in 1968. The authors described and photographed the following forms: *Tubiphytes obscurus* MASLOV, *Ladinella porata* OTT, *Lamellitubus cauticus* OTT, *Uvanella irregularis* OTT, *Dictyocoelia manon* (MÜNSTER) and *Vesicocaulis carinthiacus* OTT. The fossil list also includes: *Coelospongia catenulata* OTT, *Girtyocoelia oenipontana* OTT, *Vesiocaulis* aff. *depressus* OTT, *Holocoelia toulai* STEINMANN and big Codiaceae as *Mitcheldeania*.

Literatur

ANDERLE, N. (1951): Zur Schichtfolge und Tektonik des Dobratsch und seine Beziehung zur alpin-dinarischen Grenze. — Jb. Geol. B.-A., Bd. 94. Wien.

KRAUS, O., & OTT, E. (1968): Eine ladinische Riff-Fauna im Dobratsch-Gipfelkalk (Kärnten, Österreich) und Bemerkungen zum Faziesvergleich von Nordalpen und Drauzug. — Mitt. Bayer. Staatssamml., Paläont. hist. Geol., Bd. 8. München.

Prof. Dr. A. PAPP, University Vienna

Global Stratigraphy of the Tertiary

During the last ten years Tertiary stratigraphy has been more and more based upon evolution of planktonic organisms. At present subdivision of the Tertiary rests mainly upon planktonic foraminifera and nannoplancton.

The boundary between the Cretaceous and the Tertiary is characterized by disappearance of Globotruncanas and existence of a „Globigerina-horizon" with *Gl. djaubergensis*, which can be recognized worldwide. Evolution of planktonic foraminifera gives good possibilities for zonation of the Paleocene and Eocene. Besides planktonic forms, larger foraminifera (Nummulites, Assilina, Alveolina a. o.) give evolutionary sequences, which permit zonation of the calcareous marginal facies.

Especially the evolutionary peak in the Middle Eocene offers good possibilities for wide ranging correlations. During the Oligocene evolution of planktonic foraminifera is not characteristic. At the boundary between the Oligocene and Miocene evolution of the genus Globigerinoides begins — which date is often used as definition of the boundary mentioned.

Evolution of Lepidocyclines and Miogypsina gives valuable zone fossils for division of the calcareous marginal facies during the Lower Miocene.

Very important for far reaching correlations during the Miocene is the evolutionary sequence from *Globigerinoides bisphericus* to *Praeorbulina*