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EDITORIAL

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Preface to the Erik Flügel special volume

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One year ago Prof. Erik Flügel passed away at the age of 70 years – much too early for his family, friends, colleagues, students, and for our science. In his unique, congenial manner and in his thorough knowledge, Prof. Flügel influenced and stimulated several generations of scientists in the field of carbonate geology – and he still does. His ideas and concepts are clearly documented in his last milestone, *Microfacies of Carbonate Rocks,* a book that he finished together with his wife, Dr. Erentraud Flügel-Kahler, only a few days before his lifeline faded away. This must have been a great relief for him and his wife. His scientific impact is tightly connected with the Institute of Paleontology that he chaired from 1972 until his retirement in 1999 at the Friedrich-Alexander-University of Erlangen-Nuremberg (see the obituary of Erik Flügel by Freiwald 2004).

The first three issues of FACIES volume 51 offer 42 scientific papers written by former students, colleagues, and young researchers who benefited a lot from Erik Flügel. Almost all of these papers were presented during the 1st Erik Flügel Colloquium "Trends and Developments in Carbonate Sedimentology and Paleontology" held at Erlangen University on 13–15 April 2005, which was attended by 95 participants.

Outline of this special volume

The first article of this special volume by Senowbari–Daryan provides an overview of *fossil names dedicated to Erik Flügel* in order to demonstrate the large impact he has had. The following four articles offer reviews on major issues in Phanerozoic Earth history. *Secular oscillations seen in the stratigraphic record* are presented by Schlager, whereas Wright and Burgess deepen the relatively new concept of *carbonate factories*. A new view of the *Phanerozoic reef distribution* presented by Kiessling is based on data obtained from PaleoReefs and Reefbase data bases, and opens an avenue into one of Erik Flügel's major research interests – the evolution of reefs through time. Evident discrepancies between *modern and ancient growth rates of reef-building corals and coral reefs* are the topic of a review by Dullo.

The following scientific articles are arranged in stratigraphic order, starting with modern environments and then going back in Earth history.

Holocene to Pleistocene topics

A set of eight contributions focus on modern and Pleistocene environments, two of them introduce *sponge species new to science* by Lehnert et al. and by Könnecker and Freiwald, whereas Warnke and Keupp discuss the recent cephalopod *Spirula* as a model for better understanding ammonoids. New insights into the formation and microbial composition of *methane carbonate build-ups* from Crimean shelf cold-seep sites are presented by Reitner et al. The severe ecological effects of the last *coral bleaching event on the Maldives* provide valuable information on the recovery of a number of reef-building corals in a time-series study by Schuhmacher et al. The quantitative effects of *bioerosion in a cool-temperate carbonate setting* are documented by Wisshak et al. along a bathymetric gradient from the euphotic to the aphotic zone. Radtke and Golubic continue with a paper on *bioerosion of microborers in mollusc from the subtropic Safaga Bay, Red Sea*. Landmann and Kempe provide a new method to analyse *the annual deposition of varved lake sediments* from Lake Van, Turkey, in the Late Pleistocene.

Miocene to Paleocene topics

Seven articles cover the period from Miocene to Paleocene. Reuter et al. describe *annual growth bands* in the colonial coral *Porites* in a perfect versus fully recrystallised style of preservation from sediments of Late Miocene age

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from Crete, Greece. New insights into the Miocene evolution of the *Molasse Basin* based on paleoecological analysis of the biota are provided by Reichenbacher et al. A non-marine topic is documented by Sachse, presenting data on a remarkable fossiliferous *mass flow deposit into the Eocene Eckfeld Maar*. A complete *account of the faviid genus Cladocora* in the Caribbean Sea is reviewed by Baron-Szabo. In the Caribbean this genus represents an extant group that had its earliest occurrence in Campanian-Maastrichtian deposits of Jamaica. Nebelsick et al. have developed their *concept of facies dynamics* on Middle Eocene to Early Oligocene shallow-water carbonate facies types from the circumalpine area, which are compared with respect to dominating biogenic components and their distributions along a proximal-distal shelf gradient. Rasser et al. provide a *standard section for tropical carbonate facies of the Ilerdian* (Early Eocene), which were deposited after a time of severe climatic (Paleocene-Eocene Thermal Maximum) and phylogenetic (Larger Foraminifer Turnover) changes. Kiessling et al. depict the *ecological controls of the cosmopolitan scleractinian Haimesiastraea conferta* from the Paleocene of Chubut, Argentina. The occurrence of massive corals at this site is exceptional both because of the siliciclastic depositional regime and the high paleolatitude setting.

Mesozoic topics

Nine articles are related to the Mesozoic era. A synoptic view of the *Cenomanian biosedimentary system in northern Germany* is provided by Wilmsen et al. Samankassou et al. deepen our knowledge on the *origin of peloids,* depicted from Early Cretaceous deposits in Dorset, UK. The *paleoecology of dasycladaceans* which is still not well known, is discussed by Bucur and Sarasan, who adopt an actualistic approach on Lower Cretaceous carbonates from Romania. Leinfelder et al. offer a new concept on the *significance of stromatoporoids in Jurassic reefs and carbonate platforms*, a contribution that certainly will raise intense discussion amongst the scientific community. In a case study from the Upper Jurassic of Germany, Ruf et al. present a *multiproxy approach to sequence analysis by combining sedimentology, chemostratigraphy, and palynofacies*. Cabaleri et al. introduce a *saline palaeolake of Cañadón, Argentina*, from the middle Upper Jurassic. From the Lower Jurassic, Fürsich et al. highlight *paleoenvironmental changes of the upper Shemshak Formation* during a transgressive – regressive cycle. Delecat and Reitner depict a classic outcrop – *the Lower Jurassic sponge communities of Adnet, Northern Calcareous Alps*. From a nearby location Seuß et al. provide important evidence for *end-Triassic holdovers into the Lower Jurassic from the Hochfelln, Northern Calcareous Alps*. Arp et al. evaluate the *palaeoenvironmental significance of lacustrine stromatolites of the Arnstadt Formation*, Upper Triassic of northern Germany. The *distribution, setting, and biota of Upper Triassic reefs* are compared from Northwest and south Tethys realms by Bernecker. The *serpulid worm Filograna* is described by Senowbari–Daryan and Link from Upper Triassic reef boulders found in the Taurus Mountains, southern Turkey. Hornung and Brandner highlight the *biochronostratigraphy of a local black shale event – the Rheingraben Event* of the lower Upper Triassic. Nützel and Schulbert study *gastropod lagerstätten in the aftermath of the end-Permian mass extinction* from two major Early Triassic occurrences.

Paleozoic topics

Eight articles are related to the Paleozoic era. Fagerstrom and Weidlich analysed the *biologic response to environmental stress in tropical reefs* by comparing modern Polynesian coralgal atolls with Middle Permian sponge and microbial reefs. Rigby et al. describe the *first Permian wewokellid sponges* from Iran. Sanders and Krainer take up *Early Permian taphonomy of benthic assemblages,* and discuss the effects of dissolution *versus* precipitation. Leppig et al. highlight the *three- and two-dimensional documentation of structural elements in Upper Carboniferous silicified fusulinoideans* from the Carnic Alps. Kazmierczak and Kremer provide a new look into *early post mortem calcified Devonian acritarchs* as a source of calcispheric structures. Buggisch and Krumm study the isotopic composition and geochemistry of Palaeozoic *cold-seep carbonates* in several localities from Europe and North America. Calner links *Silurian carbonate platform development with extinction events* with an example from Gotland, Sweden. Munnecke and Westphal discuss *variations in primary aragonite, calcite, and clay in fine-grained calcareous rhythmites of Cambrian to Jurassic age* – another provocative contribution to this special volume.

The Erik Flügel meeting

The final message of this editorial is that we envisage the launching of a series of dedicated two-day international meetings under the name of Erik Flügel in the future. In order to keep his memory alive, we intend to provide a high-level discussion platform for young and senior scientists every two to three years to react to emerging topics in the large field of carbonate geology and palaeontology. Therefore, I want to encourage the scientific community to put forward exciting topics that might provide the impetus for the next "Erik Flügel Meeting" in Erlangen in 2008 at the latest.

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Reference

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