

FOREWORD

This book results from a one-day meeting *Giornata di Studi Paleontologici "Prof.ssa C. Loriga Broglio"*, held in Ferrara on June 18th, 2004 and dedicated to Professor Carmen Loriga Broglio who was full Professor of Palaeontology and Palaeoecology at the University of Ferrara. She was born in Guidizzolo (Mantova) on April 15th, 1929. She studied for a degree in pharmacology starting in 1952 at the University of Ferrara and attained a degree in Natural Sciences there in 1955. From 1955 to 1963, she was assistant professor in Geology and from 1963 assistant ordinary professor. In 1980, she became full professor in Palaeontology. She was a member of the Italian Palaeontological Society since 1957 and co-ordinated several research projects such as the C.N.R. and MURST national projects as well as the IGCP 203 "Permian-Triassic boundary" research project. She was responsible for the CNR Italy-Hungary project covering the Lower Triassic and the CNR project (1995-98) concerning IGCP 359 which culminated with the GSSP proposal at the Ladinian-Carnian boundary in the Dolomite area in 1998.

During this period she developed research interests in palaeontological fields dealing with taxonomy, biostratigraphy and palaeoecology of benthic and planktonic foraminifera, sponges, bivalves and brachiopods from Permian-Triassic (Dolomites, Hungary, Calabria), Jurassic, Cretaceous (Dolomites, Venetian area), and Paleogene (Monti Lessini, Colli Berici) sedimentary successions.

From 1962 onwards, Prof. Loriga held the course of Palaeontology for the degree in Geological Sciences and Natural Sciences and was teacher in the Didactics of Earth Sciences for the S.S.I.S. (Scuola di Specializzazione per l'Insegnamento Secondario) at the University of Ferrara.

Despite the administrative demands of directing the Institute of Geology from 1983-1986, organizing the library of the Institute and being responsible of the *Annali dell'Università di Ferrara*, section Scienze della Terra, Prof. Loriga's commitment to the science was maintained especially for the University Museum of Palaeontology and Prehistory "*Piero Leonardi*". She also helped in organising the Civic Museum of Natural History of Ferrara as well as the Museo Ladino of Ortisei (section of Geology

and Palaeontology). In 2000, Professor F. Conconi, Rector of the University of Ferrara, elected Prof. Loriga to represent the University of Ferrara in the National Museum Commission of the C.R.U.I.

The meeting united specialists in late Paleozoic, Mesozoic and Cenozoic sedimentary successions and their palaeontological contents. The contributions were held as plenary lectures at the Aula Magna of the University of Ferrara (Palazzo Renata di Francia). The success of this meeting inspired us to give an international character to the present volume. It includes twelve papers dealing with systematic palaeontology of calcified cyanobacteria, invertebrates (sponges) and vertebrates (fishes), taphonomy, biostratigraphy, palaeoecology and palaeobiogeography.

The papers of this volume begin with Mesozoic topics (Baud, Fürsich and Hautmann, Lombardo and Tintori, Russo, Cherchi and Schroeder) and are followed by Cenozoic to Quaternary subjects (Matteucci and Russo, Bassi, Violanti, Mangano and Bonfiglio, Sala, Robba et al., Rosso and Sanfilippo).

A compilation of recent literature concerning geochemical changes at the Permian-Triassic transition in the Southern Alps and adjacent areas is given by Baud. Major, minor and rare earth elements (REE) data show a marked enrichment in alkaline metals and REE of some levels of the boundary interval. Recent studies show that the low Iridium anomalies and the Osmium and Helium isotope anomalies lack the characteristics of a large extraterrestrial impact event.

Bivalves forming small patch reefs from the Upper Triassic of Iran are described by Fürsich and Hautmann. The bivalve reef constructors may have had a competitive advantage over coral and calcareous sponges in environments with high turbidity and/or nutrient levels. The oysters, which belong to those bivalves forming single taxon reefs in the early and middle Mesozoic, have successfully occupied this niche until today.

The ichthyofauna of the Zorzino Limestone represents an important testimony to the richness and variety of bony fishes during the Norian and marks the beginning of a faunal transition which occurs during the Jurassic. The thousands of specimens and extraordinary preservation found in

the fossiliferous levels of this unit allow the reconstruction of the mode of life and trophic adaptations reached by different groups. Lombardo and Tintori distinguish different morphological specializations within the main trophic categories, which probably allowed the fish to exploit most of the available trophic resources.

The Triassic of the Dolomites includes many carbonate platforms ranging in age from Anisian to Norian- Rhaetian. Russo analyses the biofacies evolution in the Triassic platforms of this area. The main biogenic components of the benthic assemblages during the early Anisian, late Anisian-early Ladinian, late Ladinian-Carnian *p.p.*, late Carnian, and Norian-Rhaetian are described along with their palaeoenvironmental interpretations.

Cherchi and Schroeder describe and illustrate calcimicrobial laminae from the Pliensbachian Massone Member (Calcarei Grigi Formation, Trento Platform). The authors differentiate a new taxon belonging to the family Thaumaporellaceae De Castro, and another taxon provisionally assigned to *Pseudolithocodium carpaticum*.

A Middle Eocene siliceous sponge fauna from Val di Chiampo (Monti Lessini, northern Italy) is analysed by Matteucci and Russo. This first study deals with part of the lower Lutetian fauna consisting of twenty three siliceous sponges and one calcareous taxon. Some taxa are described and illustrated.

A crustose coralline algal pavement, identified in Upper Eocene (Priabonian) shallow water, middle-ramp carbonates in north-eastern Italy (Colli Berici, Southern Alps), represents a rare example of this facies. Bassi analyses this coralline algal facies in term of coralline taxonomic assemblages, coralline growth-forms and taphonomy. The facies formed on a carbonate ramp characterised by relatively low hydrodynamic energy and sedimentation rates.

A synthesis of recent biostratigraphical and palaeoenvironmental studies on foraminiferal assemblages of the Piedmont Pliocene (north-eastern Monferrato, Astigiano, Langhe, and Monregalese) is presented by Violanti. The biozones MP11, MP12, MP13, MP14, and MP15 are discussed for the study area. From MP12 to MP13, foraminiferal assemblages indicate the upper epibathyal zone and suggest palaeoenvironmental conditions similar to those of coeval pelagic successions of Sicily and the Tyrrhenian Sea. Already during biozone MP13, and chiefly in

biozone MP14, less diversified assemblages become more widespread indicating shelf palaeoenvironments. Most inner neritic and shallow outer neritic microfaunas are devoid of biostratigraphic markers in the study area.

Mangano and Bonfiglio explore the San Teodoro cave from north-eastern Sicily and analyse the sedimentary units containing Upper Pleistocene endemic mammal remains. The new data obtained from the fossil assemblages (including vertebrates, invertebrates and vegetal remains) together with the stratigraphic assessment show that the San Teodoro cave still contains rich evidence of the Upper Pleistocene evolution of Sicily.

Mammalian faunas and environment from the Würmian Glacial Maximum of the Italian peninsula are described and summarised by Sala. Steep coastal areas (i.e. Liguria, Amalfitan coast, Adriatic coast), the Po Plain, the hilly strip of Emilia Romagna and Marche, the southern Adriatic coast, the Tyrrhenian coast, and mountainous areas are described in terms of characteristic mammalian faunas.

Robba et al. perform a palaeoecological analysis of a Holocene sand-body in the coastal area of Phetchaburi (Gulf of Thailand). Fossil and modern assemblages are compared. The fossil Holocene molluscan assemblage is a Holocene counterpart of the modern assemblage and reflects the same environmental conditions.

Rosso and Sanfilippo use bryozoans and serpulids on molluscs and rhodoliths to describe spatial utilisation and competitive interaction in Pleistocene skeletobiont communities from Sicily. Oriented growths, differential patterns in microenvironment utilisation of the substrate and spatial competition are analysed.

The edition of this special issue, as an extension of the new series (*Museologia Scientifica e Naturalistica*) of the *Annali dell'Università di Ferrara*, has been challenging with many colleagues contributors to its success. First of all the authors who transcribed their presentations into publications, and secondly the reviewers who considerably increased the quality of this volume: P. Barrier (Centre Polytech. Saint-Louis, Cergy-Pontoise), N. Bianchi (Univ. of Genova), T. Bürgin (Naturmuseum, St. Gallen), M. Foster (Moss Landing Marine Labs, California), P. Gautret (Univ. d'Orleans), T. Kouwenhoven (Univ. of Utrecht), W. Landini (Univ. of Pisa), F. Masini (Univ. of Palermo), R. Melis (Univ. of Trieste), G. Pavia

(Univ. of Torino), J.S. Pignatti (Univ. of Rome La Sapienza), A. Pisera (Polish Academy of Sciences, Warszawa), R. Rettori (Univ. of Perugia), B. Sala (Univ. of Ferrara), M. Stefani (Univ. of Ferrara), A. Stuart (Univ. College London), P.D. Taylor (N.H.M. London), A. Turner (John Moores Univ. Liverpool).

This publication has been made possible by the wholehearted support of the University of Ferrara. We must also thank the management of the University of Ferrara, Ms. Laura Barbaro. Lastly,

we thank A. Broglio, I. Di Geronimo and C. Peretto for their enthusiastic support that made this palaeontological meeting *Giornata di Studi Paleontologici "Prof. C. Loriga Broglio"* possible.

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