Cenomanian-Turonian bivalves from eastern Sinai, Egypt

by

WAGIH AYOUB-HANNA, FRANZ THEODOR FÜRSICH and GAMAL MOHAMMED EL QOT

with 13 plates, 22 text-figures, and 1 table

Abstract

68 bivalve species belonging to 13 orders, 29 families, and 51 genera, are systematically described from three Cenomanian-Turonian sections (Gebel Areif El-Naqa, East Themed, and Wadi Quseib) on the eastern side of the Sinai Peninsula. The stratigraphic range and palaeogeographic distribution is given for each species. Nine species are reported from Egypt for the first time. Due to their taxonomic relevance, the microstructure of the rudist taxa has been illustrated. The bivalve fauna strongly resembles that of other Tethyan regions in southern Europe, North Africa, Middle East, and eastern South America. Therefore, most of the identified taxa have a strong Tethyan affinity. The distribution patterns of bivalves have probably been influenced by east-west directed currents during the Cenomanian. However, due to the presence of geographic barriers, extensive shallow marine shelf areas, and narrowing of the Tethys during that time, the current split up, one branch extending in a clockwise direction to southeastern Europe. The opening of the Trans-Saharan Seaway of southern Tethyan bivalves immigrated to western Africa and eastern South America.

Keywords: Cenomanian, Turonian, Bivalves, Taxonomy, Palaeobiogeography, Sinai – Egypt

Contents

Abstract ............................................... 63
Introduction .......................................... 63
Lithostratigraphy and faunal content ............... 64
Material and methods .................................. 66
Preservational Aspects ............................... 67
Systematic Palaeontology ......................... 67
Abbrevations used ..................................... 67
Palaeobiogeographic remarks ...................... 130
Conclusions ........................................... 133
Acknowledgments .................................... 134
References .......................................... 134
Explanation of the plates ........................... 141

Introduction

Cenomanian-Turonian successions are well-exposed in the central and northern parts of the Sinai Peninsula and yield a rich macrobenthos at many localities. Bivalves are the most common faunal elements, followed by gastropods, ammonites, echinoids, and corals. In the present study, bivalves are represented by 81 % of the total macrofauna at East Themed, 75.54 % at Wadi Quseib, and 57 % at Gebel Areif El-Naqa. The earliest studies of the Cretaceous bivalves of Egypt were carried out by QUAS (1902), WANNER (1902), DACQUE (1903), FOURTAU (1917), GRECO (1917, 1918), ABBASS (1962), and FAWZI (1963). Recently, some other studies have been documented (e.g., MALCHUS 1990, ABOU ELA et al. 1991, KASSAB & MOHAMAD 1996, ABDEL-GAWAD & GAMEIL 2002, ABDELHAMID & EL QOT 2002, KASSAB & ZAKHERA 2002, EL QOT 2006, MEKAWY 2007, MEKAWY &

Authors' addresses:

Wagih Ayoub-Hanna & Franz Theodor Fursich, GeoZentrum Nordbayern, Fachgruppe Paläoumwelt, Friedrich-Alexander-Universität Erlangen-Nürnberg, Loewenichstr. 28, D-91054 Erlangen, Germany, e-mail: wagih_hanna@yahoo.com, franz.fuersich@gzn.uni-erlangen.de.

Gamal Mohamed El Qot, Department of Geology, Faculty of Science, Benha University, Benha, Egypt, e-mail: g_elgot@hotmail.com

© 2014 E. Schweizerbartsche Verlagsbuchhandlung, Stuttgart, Germany

DOI:10.1127/pala/301/2014/63
(c) 2015 www.schweizerbart.com