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The Cambrian sedimentary succession from the Wadi Zerqa Ma'in (northeastern Dead Sea area, Jordan): lithology and fossil content

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Abstract: Results of a facies analysis (with a focus on carbonates) and a litholo gical revision of the sedimentary succession exposed at the classic Wadi Zerqa Ma'in locality on the nor theastern shore of the Dead Sea are presented. Micropalaeontolo gical investigations have been car ried out here for the first time. Micro- and macrofossils are represented b y echinoderms, hyoliths, brachiopods, trilobites, poriferans, calcimicrobes, and trace fossils. The hyolithellid *Torellella* sp. is repor ted for the f irst time from this paleo geographic region. The common trilobite *Kingaspis campbelli* (KING, 1923) indicates a stratig raphically little y ounger position than the onl y other trilobite taxon known from the area, *Palaeolenus antiquus* (CHERNYSHEVA, 1956). The outcrop represents a tidall y influenced, marginal marine, regressive succession, deposited as the f inal act of a shor t-time transgression on the Arabian–Nubian Shield. Shallo w-subtidal to inter tidal, siliciclastic deposition has taken place probably under deltaic and/or estuary influence. Interbedded thin, open-marine, subtidal, and mostly high-energy carbonates point to some minor transg ressive pulses during the generall y regressive, but, discontinuously deposited tendency.

Key words: Cambrian, Zerqa Ma'in, Burj Formation, Dead Sea.

1. Introduction

Cambrian deposits in the Jordan Rift Valley are widely exposed on the easter n side of the Dead Sea and of the middle and southem Wadi Araba (Jordanian side) and, locally, on the southw estern side of the graben (Israeli side), too. The first fossil f inds in the SE Dead Sea area go back to 1884 and w ere made by E. HULL, but, w ere interpreted by him as Carboniferous (noted in B LANCKENHORN 1910). Mainly based on some trilobite remains, a Cambrian age of the successions was firstly assumed b y BLANCKENHORN (1910) and later conf irmed by DIENEMANN (1915), KING (1923), RICHTER & RICHTER (1941), and PICARD (1942). Later palaeontolo gical work on trilobites, brachiopods, hyoliths, and trace fossils came from PARNES (1971), COOPER (1976), BANDEL (1986), SEILACHER (1990), and RUSHTON & POWELL (1998).

Besides these palaeontolo gical and stratig raphical investigations, petrographical, palaeogeographical, and facies aspects were highlighted by BENDER (1963, 1968, 1975), S ELLEY (1972), SEGEV (1984), and SCHNEIDER et al. (1984). The most recent w ork on sedimentology, facies and depositional histor y came from AMIREH (1990), SHINAQ (1990), SHINAQ & BANDEL (1992), AMIRIEH et al. (1994), E LICKI & SHINAQ (2000), GEYER & LANDING (2000), and ELICKI et al. (2002).

All these investigations were mainly focused on the widespread exposures of the souther n Dead Sea area

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