Fossil Echinoderm Studies in China and other countries: historical and new perspectives

This special volume of *Palaeoworld* showcases current studies of stemmed echinoderms from China and other countries. Despite the large number of paleontologists in China, few Chinese scientists specialize in the study of stemmed echinoderms. Museum collections of Chinese echinoderms are rare. Historically reports of Chinese echinoderms have been relatively rare and surely underestimate actual biodiversity. We hope this collection of fifteen papers will serve as a catalyst for the discovery and analysis of additional faunas of stemmed echinoderms from China and adjacent areas in Asia.

China is a mosaic of numerous continental blocks as well as smaller continental fragments and accretionary complexes that have coalesced since the mid-Paleozoic. China contains the geologic history of the convergence between terranes having origins to the north of Paleo-Tethys with those terranes that rifted away from Gondwana during the middle Paleozoic. Echinoderm fossils from this diverse collage generally occur in areas of platform and shelf sedimentation on the margins of larger continental blocks such as North China, South China, and Sibumasu. However, echinoderms also have been collected from sedimentary accretionary wedge facies on active plate margins. Because Chinese terranes were situated on both the northern and southern margins of Paleo-Tethys, they have complex temporal, spatial, and climatic relationships. Many echinoderms tend to be highly endemic, thus their geographic distribution within faunas can play extremely important roles in delineating paleogeographic positions of these terranes through time.

Although individual taxa were figured earlier (Lin and Fürsich, 2015; Stiller and Lin, 2015), Tien (1926) published one of the earliest reviews of echinoderms known from Asia. Tien (1926) and Tien and Mu (1955) also listed known echinoderm occurrences from China and compared these echinoderms with other known faunas. Later papers on Chinese echinoderm occurrences are listed in Bassler and Moody (1943) and Webster (1973, 1977, 1986, 1988, 2003), which provide taxonomic compilations of echinoderms with brief notes on geographic occurrences. Recent, more comprehensive studies of Paleozoic echinoderm communities from China include Chen and Yao (1993), Lane et al. (1997), Waters et al. (2003a, 2003b), and Webster et al. (2010).

Echinoderm studies in this volume span the Phanerozoic, but the majority concentrates on aspects of Paleozoic taxa. Spectacularly preserved Cambrian echinoderm faunas from China

are the topic of five papers. Some are taxonomic (Yang et al., 2015) and others concentrate on morphology (Lin et al., 2015; MacLeod, 2015) or paleoecology (Parsley, 2015). Mao et al. (2015) discuss the highly unusual morphology of the Petalocrinidae and the fact that China was the center of origination for this most unusual family of crinoids. One paper expands the paleogeographic reach of the Cambrian echinoderm fauna to the North China Plate (Ng et al., 2015). Other papers revise the taxonomy of Paleozoic echinoderm genera based on new studies of Chinese crinoids (Sheffield, 2015; Webster and Chen, 2015) or expand our knowledge of Carboniferous crinoid biogeography (Mirantsev, 2015). The beautifully preserved and globally famous *Traumatocrinus* beds in Southwest China are the subject of two papers in the volume. Lin (2015) discusses the history of the discovery of the *Traumatocrinus* beds while Hagdorn and Wang (2015) discuss the crinoid's morphology, ontogeny, and taphonomy. Finally Webster and Donovan (2015) review the species of *Graphiocrinus* from West Timor and Oji (2015) summarizes regeneration, predatory-prey interaction, and evolutionary history of articulate crinoids.

Proposal of this special issue was initiated during JPL's research visit to WIA in the summer of 2013. Lin's (2015) review on a pre-1950 collection of figured material of *Traumatocrinus* from China received positive feedback and attracted more colleagues to submit papers to this special issue. As co-editor-in-chief of *Palaeoworld* Dr. Norman MacLeod (2015) contributed a pilot study on gogiid form variations using landmark analyses. Young scientists from Russia (Mirantsev, 2015) and USA (Sheffield, 2015) contributed taxonomic papers. Many thanks to Dr. Tatsuo Oji and Dr. Frank Stiller for their trust and friendship developed from this project. We would like to express our thanks to the Academician Jia-Yu Rong and Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (NIGPAS) director Qun Yang who gave continuously positive feedback and encouragement for this special issue. As the first Chinese journal issue devoted to fossil echinoderms, we hope this is the beginning of new generations of workers who will devoted their time to study the Echinodermata through the lens of fossil material from China and other countries.

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(Alex) Jih-Pai Lin

Department of Geosciences, National Taiwan University,

P.O. Box 13-318, Taipei 106, Taiwan, China

William I. Ausich

School of Earth Sciences, Ohio State University,

Columbus, OH 43210, USA

Johnny Waters

Department of Geology, Appalachian State University,

572 Rivers Street, Boone, NC 28608, USA

E-mail addresses: alexjplin@ntu.edu.tw (J.P. Lin), ausich.1@osu.edu (W.I. Ausich),

watersja@appstate.edu (J. Waters)