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Göttingen, Germany, 2–9 October 2010

ANDREAS KROH & MIKE REICH (EDS)



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Cover (upper left to lower right): Extinct ophiocistioid echinoderm: *Gillocystis polypoda* Jell, 1983 (Early Devonian of Victoria, Australia), photograph by Mike Reich—Crinoidea: *Heterometra savignii* (Müller, 1841) (Red Sea), photograph by Mike Reich—Holothuroidea: *Chiridota laevis* (O. Fabricius, 1780) (Gulf of Maine), photograph by Mike Reich—Ophiuroidea: *Ophiocoma* sp. (Persian Gulf), photograph by Andreas Kroh—Echinoidea: *Echinometra mathaei* (Blainville, 1825) (Red Sea), photograph by Andreas Kroh—Asteroidea: *Echinaster (Echinaster) sepositus* (Retzius, 1783) (Mediterranean), photograph by Andreas Kroh—Extinct solutan echinoderm: *Dendrocystites sedgwicki* Barrande, 1887 (Kraluv Dvur Fm., Upper Ordovician of Bohemia), photograph by Bertrand Lefebvre.

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Preface—7th European Conference on Echinoderms

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Since the pioneering meeting in 1979 in Brussels, the European echinoderm community has celebrated advances in echinoderm science, biology and palaeontology in what has now become a regular conference series (see Ziegler & Kroh 2012, p. 1–24 of this volume). This reflects the interest of the scientific community in the multidisciplinary field of echinoderm research between biology, palaeontology, physiology, fisheries, aquaculture, medicine and others.

The 7th European Conference on Echinoderms (ECE) was held on October 2–9, 2010 (Fig. 1) in Germany, and was hosted by the Georg-August University of Göttingen. The Göttingen University has a long tradition in echinoderm research. A vast number of naturalists, zoologists, palaeontologists, and collectors, like Pehr Forsskål (1732–1769), Peter Simon Pallas (1741–1811), Johann Friedrich Gmelin (1748–1804), Johann Friedrich Blumenbach (1752–1840), Ernst Friedrich von Schlotheim (1764–1832), Johann Ludwig Christian Carl Gravenhorst (1777–1857), Lorenz Oken [Okenfuss] (1779–1851), Friedrich Tiedemann (1781–1861), Karl Theodor Ernst von Siebold (1804–1885), Wilhelm Moritz Keferstein (1833–1870), Carl Claus (1835–1899), Adolf von Koenen (1837–1915), Emil Selenka (1842–1901), Johann(es) Brock (1852–1889), Hubert Ludwig (1852–1913), Carl Friedrich Chun (1852–1914), Georg Böhm (1854–1913), Theodor Ebert (1857–1899), Otto Hamann (1857–1925), Johannes Wolburg (1905–1976), and Arno Hermann Müller (1916–2004), to mention only some people, were in direct connection with the Göttingen University or studied and worked on echinoderms here during the last 250 years.

All previous meetings were either in Belgium, France, Italy and the UK, making this the first one in Germany. Researchers from 25 countries worldwide (Fig. 2), including such far-away places as Brunei, Costa Rica, Malaysia, New Zealand or South Africa, presented their most recent research on modern and fossil echinoderms and related topics. More than 100 oral and poster presentations as well as 12 plenaries by 215 authors from 32 countries worldwide were presented over a three-day period. All presentations were grouped into themes such as (1) history of echinoderm research, (2) anatomy and functional morphology, (3) systematics, evolution and phylogeny, (4) biodiversity, zoogeography and phylogeography, (5) ecology and behaviour, (6) early fossil record and geologic history, (7) Mesozoic and Cenozoic faunas, (8) reproduction, development and regeneration, (9) physiology and biochemistry, and (10) aquaculture and fisheries.

The list of participants and the detailed programme of the 7th ECE in Göttingen (<http://www.ece2010.uni-goettingen.de>) as well as the abstract volume and the field guide to excursions (Reich et



FIGURE 1. Logo of the 7th European Conference in Göttingen, 2010, showing a dendrochirote holothurian from the Gulf of Aqaba, Red Sea (C. Kaubisch & M. Reich).

al. 2010) were made available for open access (Göttingen University Press).

An extraordinary event at the beginning of the conference was the opening of a special bilingual exhibition on modern and fossil echinoderms in the Göttingen Geoscience Museum, entitled: *Spiny and Colourful—Echinoderms from around the World through Time and History*.

Three daily excursions: (A) Hannover—Late Cretaceous (Campanian) Echinoderm Faunas, (B) Göttingen/Herberhausen—Middle Triassic Echinoderm Faunas, and (C) Berlin/Museum of Natural History—Fossil and Recent Echinoderm Collections, and one two-day trip: (D) Heligoland, North Sea—Recent Echinoderm Faunas, were led by several colleagues (G. Arp, K. Boos, C. Lüter, C. Neumann, N. Schlüter, F. Wiese). Other activities included guided city tours and visiting a beer brewery near Göttingen.

Acknowledgements

General support for the 7th European Conference on Echinoderms was provided by the Georg-August University of Göttingen and the Universitätsbund Göttingen e. V. The conference session on the early fossil record and geologic history of echinoderms was organised under the auspices of the DFG Research Unit FOR 736 and financial support was provided in part by the German Research Foundation (DFG; Project: RE2599/4–1) to M. Reich.

We are grateful to the following plenary and invited speakers that presented their work: Michael F. Barker, Sam T. Dupont, Andy Gale, Andreas Kroh, John M. Lawrence, Bertrand Lefebvre, Jérôme Mallefet, David L. Pawson, Joachim Scholz, Adolf Seilacher, Sabine Stöhr, and Klaus Wolkenstein. Thanks also to all participants and members of the scientific committee as well as the session chairs for all your efforts and all the contributions that lead to a successful echinoderm conference.

Final thanks goes to all members of the local organising team in Göttingen, especially to C. Kaubisch, I. Ringel, V. J. Roden, G. Schmidt, and T. R. Stegemann.

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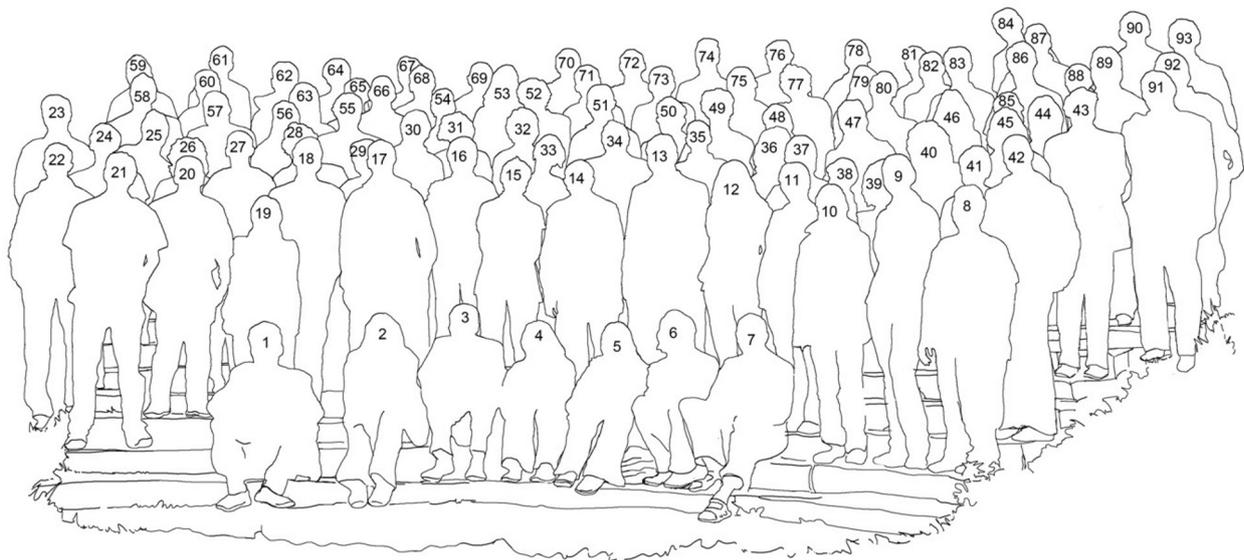


FIGURE 2. A group photo of most of the participants of the 7th European Conference on Echinoderms, held at the University of Göttingen, Germany, October 2010. 1—Joachim **Scholz**; 2—Annina **Böhme**; 3—Adolf **Seilacher**; 4—Tanja **Stegemann**; 5—Lea D. **Numberger**; 6—Ben **Thuy**; 7—Reimund **Haude**; 8—Chinthadevi **Biseswar**; 9—Serena **Tricarico**; 10—Michela **Sugni**; 11—Tania **Pineda-Enríquez**; 12—Andrea Alejandra **Caballero Ochoa**; 13—Mike **Reich**; 14—Ahmed **Thandar**; 15—Heinke **Schultz**; 16—Harilaos A. **Lessios**; 17—Guillaume **Caulier**; 18—Jerome **Delroisse**; 19—Elise **Hennebert**; 20—Jérôme **Mallefet**; 21—Juan José **Alvarado**; 22—Bruno **Pereira**; 23—George **Mirantsev**; 24—David **Jacinto**; 25—Adriana **Villamor**; 26—Rocío **Pérez-Portela**; 27—Sam **Dupont**; 28—José Carlos **Hernández**; 29—Mike **Barker**; 30—David L. **Pawson**; 31—Doris **Pawson**; 32—Joyce **McCullough**; 33—Chantal **De Ridder**; 34—Ramlall **Biseswar**; 35—Sara **García Sanz**; 36—Narimane **Dorey**; 37—Esther **Ullrich-Lüter**; 38—Felix **Lüter**; 39—Catarina **Franco**; 40—Romana **Santos**; 41—Patrícia **Madeira**; 42—Natalia **Charlina**; 43—Bertrand **Lefebvre**; 44—Morana **Mihaljevic**; 45—Irina **Voronkina**; 46—Elise **Nardin**; 47—Carsten **Lüter**; 48—Olga **Ortega-Martinez**; 49—Pablo **Gonzalez Navarro**; 50—Seiichi **Irimura**; 51—John **Keesing**; 52—Andrew B. **Smith**; 53—Sabine **Stöhr**; 54—Karin **Boos**; 55—Bruno **David**; 56—Przemysław **Gorzelak**; 57—Owen **Wangenstein**; 58—Mike **Thorndyke**; 59—Reinhard **Schmode**; 60—Manfred **Jäger**; 61—Christian **Neumann**; 62—Hans-Volker **Thiel**; 63—Masaya **Saitoh**; 64—Yoshiaki **Ishida**; 65—Masanori **Okanishi**; 66—Frank **Wiese**; 67—Ken'ichi **Kanazawa**; 68—Andreas **Kroh**; 69—Jaume **Gallell**; 70—Stuart R. **Stock**; 71—Toshihiko **Fujita**; 72—Benjamin **Pierrat**; 73—Peter **Schultz**; 74—Nils **Schlüter**; 75—George **Sevastopulo**; 76—Gary D. **Webster**; 77—Andy **Gale**; 78—Jan **Bohatý**; 79—Janina **Dynowski**; 80—Klaus **Wolkenstein**; 81—José Luis **Palazón-Fernández**; 82—Timothy **Ewin**; 83—Aaron W. **Hunter**; 84—David **Lane**; 85—Fleur **Noailles**; 86—Thomas **Saucède**; 87—Alexander **Ziegler**; 88—Vanessa J. **Roden**; 89—Frederick H. C. **Hotchkiss**; 90—Yukio **Agatsuma**; 91—Sergey **Rozhnov**; 92—Stefanie **Biermann**; 93—Toshiyuki **Matsui**.



Editorial

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The present volume of *Zoosymposia* contains 27 articles on the topic of ‘echinoderm research’ relating to presentations at the seventh European Conference on Echinoderms that took place at the Georg-August University Göttingen in October 2010. Papers included in this proceedings volume are a reflection of new research and reviews presented during ten sessions of the 7th ECE (Reich & Reitner 2012, this volume).

The first five of these are related to the history of echinoderm research and conferences as well as the application of modern digital imaging techniques on echinoderms and other general themes. The following four articles concentrate on fossil Late Palaeozoic and Late Mesozoic crinoids. Next, a group of papers is concerned with the functional morphology, biology, systematics, and palaeontology of ophiuroids. One paper discusses autotomy in asteroids. The topic of the next three following articles is devoted to sea cucumbers. The next group of seven papers provide insights in morphology, developmental biology, ecology, and palaeontology of echinoids. The final two articles in this volume describe extinct echinoderms from Early Palaeozoic strata.

Together, this set of papers provides a coherent whole that addresses a wide range of issues relating to several topics of echinoderm research today, and reflect and reaffirm the continued fascination, vitality and relevance of “Sea Urchins, Starfishes & Allies”. We hope that this proceedings volume will be useful not only to the participants of the ECE but also to the scientific community in general. In this regard, we furthermore hope that this volume will encourage further research in this broad range of topics concerning echinoderms.

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- Reich, M. & Reitner, J. (2012) Preface—7th European Conference on Echinoderms. *In*: Kroh, A. & Reich, M. (Eds.), Echinoderm Research 2010: Proceedings of the Seventh European Conference on Echinoderms, Göttingen, Germany, 2–9 October 2010. *Zoosymposia*, 7, vii–ix. [this volume]