Bollettino della Società Paleontologica Italiana, 56 (2), 2017, iii-iv. Modena

Foreword to Ichnology for the 21st Century: Proceedings of Ichnia 2016

"ICHNIA 2016 - 4th International Congress on Ichnology" was held early in May 2016 in Idanha-a-Nova, Portugal, organized by Carlos Neto de Carvalho and Joana Rodrigues from UNESCO Geopark Naturtejo, Vanda Santos from the National Museum of Natural History and Andrea Baucon (University of Modena and Reggio Emilia, Italy). It is THE MEETING of the International Ichnological Association (IIA). It was the fourth time that this meeting was held after the seminal congress 2004 in Trelew (Argentina), 2008 in Kraków (Poland), and 2012 in St. John's (Canada). Many of attendants were IIA members, but a considerable proportion of the participants were not members (yet) and this may indicate the attractiveness of ichnology as an intriguing field of science combining paleontologic, sedimentologic, ecologic, and even oceanographic aspects. The next ICHNIA is already planned to be hold in Brazil and the interest to continue this meeting is seen as clear evidence of unremittingly high and still growing interest in ichnology. The role in studying of trace fossils changed tremendously during the last decades as outlined by Dolf Seilacher (2007, p. v) in the foreword of his book: "From objects that were treated in standard paleontology textbooks, at best, under "Miscellanea", together with problematica, coprolites and pseudofossils useless as index fossils, [trace fossils] may have become subject of a special field, ichnology. The journal ICHNOS, Ichnological Newletters and regular workshops have been established, symposia are held, and the literature has increased exponentially. This success stems mainly from the intimate connection of ichnology and sedimentology and the importance of both fields have for paleoenvironmental and basin analysis, which becomes more and more important in petroleum exploration."

In fact the "facies-breaking" multidisciplinary character of ichnology is intriguing and fascinating. ICHNIA was initiated just to meet this aspect. The 1st ICHNIA as formative congress was based on the idea to integrate different facets of ichnology and thus, it was themed "One Ichnology" being intended to bring together colleagues of the various subfields of ichnology, let us call them laxly burrowers, borers, tramplers, plant eaters and so on to foster understanding between those different people and to find common basis in terminology and so on. Many trace fossils are associated with each other even if investigated with different perspective, for example within the muddy substrate on that vertebrates are walking, invertebrates are doing their job and store additional environmental information. Insofar another aspect of ICHNIA is very important, the field trips. As during the previous three meetings, also when attending ICHNIA 2016 the participants have had the chance to spend more time in field trips than in the lecture hall. Also this time an excellently compiled field guide book was provided by Carlos and coauthors. In fact the discussions in the field, the exchange of ideas when looking at the same object and its host sediment and, even more important, the personal contact are an integral part of such a meeting.

What was said in the introduction to the volume containing papers of the 1st ICHNIA still holds true: "The field of ichnology bridges the gap between the areas of paleontology and sedimentology, but has connections to many subdisciplines within these areas. Biogenic sedimentary structures record the behavior of their tracemakers and provide valuable information in palecologic and paleoenvironmental analysis. As in situ ethologic structures, trace fossils or ichnofossils yield valuable insights into the paleoecology of ancient benthic communities and the environmental dynamics of depositional systems. Ichnology is truly a multifaceted field" (Bromley et al., 2007, p. 3).

To show the outcome of ICHNIA 2016 the conveners of this exciting and successful meeting edited this volume entitled "Ichnology for the 21st Century". Although the 21st century is not very aged yet, the title expresses the confidence that ichnology will further develop as it still has a high potential. Trace fossils, ichnofabrics and

bioturbate texture can easily be studied in outcrop and core. As a sedimentologist expressed it during a field trip "These ichnologists must be happy people, trace fossils are everywhere" and even if trace fossils are not present, their absence has an ecologic meaning. Insofar, in combination with evolving analytical techniques and a better understanding of geochemical and microbial processes ichnology provides a tool for the better understanding at the lively interface between lithosphere and hydrosphere or atmosphere. Insofar ichnology itself is lively.

Alfred Uchman and Andreas Wetzel