Proceedings of the 9th EAVP meeting, Heraklion 2011

George Iliopoulos · Eberhard Frey

Received: 3 April 2012 / Accepted: 10 April 2012 / Published online: 3 May 2012
© Senckenberg Gesellschaft für Naturforschung and Springer 2012

Vertebrate palaeontology as a discipline of palaeontology usually acts as a kind of “showcase” for the central exhibits on display in many natural history museums all over the world in that it’s numerous eye-catching and spectacular fossils, such as gigantic dinosaurs, mammoths, among others, catch the eye and interest of the general public. During the last decades prehistoric vertebrates have been the topics of popular TV documentary series and even become “heroes” of mainstream movies. Vertebrate fossils have been found in every European country and are considered part of the natural heritage of these countries. Some of these fossils have significantly influenced not only palaeontology but natural sciences in general. For example, fossils such as *Archaeopteryx lithographica* were not only unique when discovered in the middle of the 19th century, but also provided hard evidence for the theory of evolution, consequently providing an unexpected but welcome gift for Charles Darwin and his epigones. Throughout Europe, the 19th century was a time of exciting discoveries, when the remains of large reptiles—including those of dinosaurs of course—Cenozoic mammals and even hominids, such as those discovered in the Neander valley, not only amazed the international scientific community and the public but also established Europe as a centre of palaeontological research due to the wealth of extraordinary fossilised forms of prehistoric life.

In the years following these initial discoveries, a significant number of researchers active in the field of palaeontology in Europe started defining themselves as vertebrate palaeontologists. This trend has continued up to the present, with present-day vertebrate palaeontologists considered to be the holdovers of this long tradition of European vertebrate palaeontology. It is therefore rather interesting that until recently the European vertebrate palaeontology community was never united in an active Pan-European body or association. The 1st Annual Meeting of the European Association of Vertebrate Palaeontologists (EAVP) was organised in Basel (Switzerland) in 2003, and the first board of the Association was elected during this meeting. Meetings of the EAVP have been held on an annual basis ever since, at different locations throughout Europe, with nine meetings successfully held to date. However, the idea of a vertebrate palaeontologist association with a European character had been in the air for quite some time before that first meeting and had over the years gained several supporters. A notable pioneer setting the foundations for such an association is Ella Hoch, who organised the 1st European Workshop on Vertebrate Palaeontology in 1996 in Copenhagen. Six more workshops were organised thereafter until the EAVP became a reality in 2002. Therefore, the EAVP can be considered to be the historical continuity of the European Workshop on Vertebrate Palaeontology. Its main scope is to encourage regular contact and active collaboration between European vertebrate palaeontologists actively working in Europe, from east to west and from north to south, giving the EAVP a truly European dimension with international perspectives.

This special issue contains eight papers that were presented last year during the 9th Annual Meeting of the EAVP held at the Natural History Museum of Crete of the University of Crete, in Heraklion, Crete Island from 14th to 19th June 2012. The Island of Crete is not only a well-known holiday destination, but it also has a long history of geology and, more specifically, of palaeontology, with several vertebrate localities and unique findings, such as the Cretan endemic Pleistocene

This article is a contribution to the special issue “Proceedings of the 9th EAVP Meeting, Heraklion 2011”.

G. Iliopoulos (✉)
Department of Geology, University of Patras,
26504 Rio Patras, Greece
e-mail: iliopoulosg@upatras.gr

E. Frey
Geosciences Department,
Staatliches Museum für Naturkunde Karlsruhe,
Erbprinzenstrasse 13,
76133 Karlsruhe, Germany

mammals. The Meeting was organised by the Natural History Museum of Crete, in collaboration with the Netherlands Center for Biodiversity Naturalis. A total of 91 delegates attended the meeting from 20 different countries, and this international representation contributed to the success of the meeting. There were 60 oral and 34 poster presentations during the meeting, covering all aspects of vertebrate palaeontology, ranging from fishes, amphibians, reptiles, birds, mammals, trace fossils, functional morphology, taphonomy, to bone histology; there was even a complete session on vertebrate fossils and geotourism. In this respect the eight papers of this special issue constitute a good representative sample of the topics that were presented and discussed during the meeting. For this special issue, the scope of *Palaeobiodiversity and Palaeoenvironments* has been extended, with prior agreement of the Editor-in-Chief, Peter Königshof, so that coherent results of the Crete meeting can be published. The major results of these eight contributions are summarised below.

Susanna B. Kümmel and Eberhard Frey discuss the evolution and function of the digital arcade in rays II–V of the autopodia of synapsids with respect to the mechanical consequences for the standard position of the digits and the propulsion mechanics. The functional impact of sole pads is discussed in the context of the evolution of impact walking within synapsids. These authors show that this arcade was already present in dimetrodontids and was reduced secondarily in a variety of synapsids during later evolution (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0076-6).

Carolyn Kuhn and Eberhard Frey describe the peculiar locomotion modes of pinniped carnivores on land and in the water. Based on the fundamentally different locomotion modes of otariids and phocines, these authors reconstruct evolutionary pathways for each group and conclude that both groups cannot have derived from an immediate common ancestor. This is the first published identification of the lateral undulation of swimming phocines as a modified rowing movement (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0077-5).

Katerina Vasileiadou, George Konidaris and George D. Koufos reviewed a hitherto only partially identified micromammalian assemblage from an argillaceous bed on the south-western coast of Lake Vistonis (Xanthi–Komotini Basin, Thrace, NE Greece) and revealed an unexpected diversity of rodent species of Turolian to earliest Ruscinian (MN13/14) age. The assemblage suggests the presence of a water body and woodland in an otherwise dry area (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0075-7).

Katerina Papayiannis describes remnants of small mammals from two Bronze Age archaeological sites on Crete: Mochlos and Khania. The endemic Pleistocene species *Mus*

minotaurus and *Crocidura zimmermanni* are reported from Khania, and *M. musculus domesticus* and *C. cf. suaveolens* are reported from the Mochlos site. Based on the new material, this author discusses biodiversity changes between Pleistocene and Holocene on Crete and provides new information on the introduction of micromammal species by humans and their impact on the endemic micromammal fauna (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0081-9).

Katerina Vasileiadou and Nickolas Zouros describe the micromammalian assemblage of a new Miocene locality, called Lapsarna (LRN), on the island of Lesbos (Greece). Among other microfossils, remnants of Chiroptera, Insectivora and Rodentia were identified, but only some rodent teeth could be identified to species level. According to radiochronological data, Lapsarna is one of the oldest micromammal localities in Greece known to date. A preliminary reconstruction of life in the early Miocene subtropical forests is presented (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0080-x).

George Iliopoulos, Socrates Roussiakis and Charalampos Fassoulas report on the first carnivore footprint with hyaenid affinities from the Late Miocene of Crete (Greece). The footprint was discovered on a new site with mammalian tracks, called Platýlakkos, in western Crete near the village Voúves. The ichnofossils originate from lacustrine deposits that belong to the Chátzi Formation. The carnivore footprint, which may represent a new ichnotaxon, is of early to middle Turolian age (MN11–MN12) (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0073-9).

Francisco Gascó, Alberto Cobos, Rafael Royo-Torres, Luis Mampel and Luis Alcalá describe a sample of theropod teeth from different Riodeva sites (Villar del Arzobispo Fm) in Teruel, Spain. Their study reveals that the dinosaur assemblage of Riodeva includes a minimum of three different theropod types, such as large non-coelurosaurian tetanurans, middle-sized allosaurids and small dromaeosaurs. All three represent new elements in a dinosaur assemblage consisting of sauropods, stegosaurs and ornithomimids (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0079-3).

Judith M. Pardo-Pérez, Eberhard Frey, Wolfgang Stinnesbeck, Marta S. Fernández, Luis Rivas, Christian Salazar and Marcelo Leppe present an unusually isolated but articulated ichthyosaurian forefin from the Lower Cretaceous Zapata Formation, Torres del Paine National Park, southern Chile. The specimen is consistent with the genus *Platypterygius* but shows a combination of features that are unknown in other *Platypterygius* species. The authors discuss whether or not the specimen actually represents a new species or whether it is just an unknown variety of *Platypterygius* (Palaeobio Palaeoenv 92(2). doi:10.1007/s12549-012-0074-8).