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“Palaeoentomology”: A modern journal for a science dealing with the past

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Palaeoentomology started in the late XVIIIth century, shortly after the 10th edition of Linnaeus' *Systema Naturae* (the foundation of modern taxonomy), when papers on the curiosities of insects entombed in fossil resins were published. The beginning of XIXth century (with the growing interest in geological sciences and prehistoric life) witnessed the first attempts to study and describe insects from sedimentary rocks. This discipline then developed during the XIXth and beginning of the XXth centuries; and resulted in some major works and reviews (summarizing the knowledge on fossil insects and other terrestrial arthropods) published in the geological and biological literature. The XXth century was a period of relatively slow but constant development in palaeoentomology, during which the famous “*Treatise on invertebrate paleontology: Arthropoda 4. Superclass Hexapoda*” (cataloguing the knowledge on fossil insects) was published (Carpenter, 1992). At the beginning of XXIst century, palaeoentomology grew significantly and exponentially; and two major manuals (“*History of insects*” and “*Evolution of the insects*”) were published (Rasnitsyn & Quicke, 2002; Grimaldi & Engel, 2005, respectively). These manuals helped to encourage more students and researchers to work on fossil insects and other terrestrial arthropods.

The first of the eight congresses on Fossil Insects, Arthropods and Amber and the First Palaeoentomological Conference was held in Russia twenty years ago (Moscow, 1998). In the same year, there was the First World Congress on Amber Inclusions in Vitoria-Gasteiz (Basque region, Spain). Prior to that, there was the Fossil Insect Network (1996) based in Strasbourg, France, the headquarters of the European Science Foundation, publishing the free online and print newsletter *Meganeura*. Before that, there were only some national meetings, notably in Germany, and later in Poland, the latter the home of another newsletter,

WrosteK—Inclusion. The interest was such that decided in 1998 to meet at least every four years henceforth and produce a conference volume; it turned out to be nearly every three years due to the popularity of the meetings.

Gondwana responded to this Laurasian initiative in 2000 when the First International Meeting on Palaeoarthropodology was held in Ribeirão Preto (near São Paulo, Brazil) targeting non-marine arthropods and also including the first Brazilian and South American palaeoarthropod symposia. The second conference, now dubbed a congress, was in Poland (Kraków) in 2001 where the International Palaeoentomological Society (IPS) was born. By the third congress in South Africa (Pretoria) common interests resulted in a single, combined congress on insects/arthropods/amber under the auspices of the IPS—and Fossils X3 (for short) was born. The fourth congress was in Spain in 2007, in which the new hardcopy journal *Alavesia* was launched. However, it was unfortunately hit by the European credit crunch and soon ceased publication. In 2010, the IPS had its first congress in Asia in Beijing, China. In 2013 the sixth congress was held in Byblos, Lebanon; the next in 2016 in Edinburgh, Scotland; and in 2019 the eighth congress will be held in the Dominican Republic.

Despite the demise of *Alavesia*, there has been an exponentially growing number of papers on palaeoentomology and related fields (from less than 15 papers annually during the 1990s to over 400 papers today). This growth is so much so, that there has been an urgent need to create this specialized high-quality journal “*Palaeoentomology*” as a platform to bring together recent research and discoveries in an expedited manner. This journal is also the official journal of the International Palaeoentomological Society (IPS). Members of the IPS are also members of international bodies and scientific societies, holding positions in governing bodies. The

interest in palaeoentomology and amber inclusions is a growing sector and nowadays our research is receiving great attention in the media and by the public.

Since its beginning, palaeoentomology covered not only descriptive aspects of terrestrial arthropods (including Insecta, Chelicerata and relatives) but also reconstructions of ancient environments, ecology, evolution and phylogenies. Nowadays and especially since the American film “Jurassic Park” produced by Steven Spielberg in 1993 (based on the eponymous novel of Michael Crichton), scientific interest in amber and its inclusions has gained a high level of interest resulting in a “renaissance” of the discipline with a huge amount of high-quality scientific work and widespread international recognition.

This discipline is undergoing an intellectual radiation with the discovery of new rock and amber outcrops with fossil insects of different geological ages and in various parts of the world, the introduction of new analytical and imaging techniques (including synchrotron, micro CT, confocal microscopy, Py-GCMS) and phylogenetic reconstruction tools. Moreover, the need to calibrate molecular clocks for reconstructing phylogenies is an additional reason for increased interest in data on fossil insects and other terrestrial arthropods. Studies and understanding of phylogenetic relationships among insects and other terrestrial arthropods cannot ignore their fossil record, their palaeodiversity, morphological disparity and palaeodistributions. Recent progress in knowledge of fossil insects improves our understanding of the real effects of global historical and biological crises; and brings to light evolutionary scenarios of the different entomological clades shaped over geological times. Knowledge on fossil insects and other terrestrial arthropods is crucial in understanding the development and sustainability of modern ecosystems. Data from the fossil biota, taxonomic diversity and morphological disparity of insects preserved as fossils are crucial for understanding of evolutionary and ecological processes, at local and global scales. Fossil insects are giving unique insight into co-evolutionary approach with their hosts, enemies, prey and partners.

Due to the growing interest in palaeoentomology and globalization, several serious multidisciplinary and collaborative scientific teams have been formed in many countries, and many new professionals have completed doctorates or are in the process of completing them. What is also really marvelous is the fact that with the present technologies of communication, most of these scientists from all over the world are collaborating remotely in international teams.

Nowadays there is no journal dedicated to palaeoentomology, while high quality research publications on fossil insects, terrestrial arthropods as

well as amber discoveries have flourished noticeably during the past two decades, form a dozens to hundreds of paper published annually. This knowledge and experience is now dispersed among various journals. However, palaeoentomology aims to be more visible and better recognized; thus a need for a specialized journal is now urgent and we aim to fulfill that with the new journal *Paleoentomology*.

We sincerely believe that scientific research on fossil insects and amber will continue to increase and prosper in the future. We are quite sure that significant and surprising results will emerge globally in tandem with new technological developments and the growing interest in this subject. We wish all the success for this new journal which will be a platform for the IPS and the community of amber, fossil insects and terrestrial arthropods lovers.

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