

AMBERIF 2018

International Fair of Amber,
Jewellery and Gemstones

INTERNATIONAL SYMPOSIUM AMBER. SCIENCE AND ART



Abstracts

GDAŃSK, POLAND

22-23 MARCH 2018

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Abstracts

Editors: Ewa Wagner-Wysiecka · Jacek Szwedo · Elżbieta Sontag
Anna Sobecka · Janusz Czebreszuk · Mateusz Cwaliński

This International Symposium was organised
to celebrate the 25th Anniversary
of the AMBERIF International Fair of Amber,
Jewellery and Gemstones
and the 20th Anniversary of the Museum of Amber
Inclusions at the University of Gdańsk

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Foreword

For 25 years, AMBERIF has been gathering people of common passion: Baltic amber (=succinite). Since its first edition, AMBERIF has been accompanied by scientific seminars, which were initiated by Prof. Barbara Kosmowska-Ceranowicz and Wiesław Gierłowski. In its silver jubilee year 2018, the seminar is an International Symposium, organized under the supervision of AMBERIF Project Director Ewa Rachoń.

Science and art have been coming together from times immemorial. They are like a good marriage, supporting and complementing each other, providing creativity and inspiration, opening new perspectives and opportunities every day. Baltic amber, but also other fossil resins of the world, is a perfect example of a link between science and art. It is because succinite in a magical way simply attracts—not only those who just love the secret beauty of amber, but also scientists and artists.

During the two days of the Symposium (22-23 March 2018), we would like to present, in light of the latest scientific reports, the dynamic development and progress of the research areas related to amber in the field of natural sciences, exact sciences and humanities. Four thematic sessions, which will be chaired by members of the Scientific Committee of the Symposium, with the honorary Chair of the Symposium, Professor Barbara Kosmowska-Ceranowicz (Museum of the Earth in Warsaw, Polish Academy of Sciences), include lectures and poster sessions. Our invitation as keynote lecturers was accepted by: Prof. Faya Causey (Getty Research Institute, USA), Prof. Sarjit Kaur (Laboratory of Amber Research, Faculty of Chemistry, M. Vassar College, USA), Prof. Joseph B. Lambert (Faculty of Chemistry, University of Trinity, USA), Prof. Vincent Perrichot (Faculty of Earth Sciences, University of Rennes 1, France).

Session “*Life traces in amber*” chaired by Prof. Jacek Szewo and Dr Elżbieta Sontag (Faculty of Biology, Laboratory of Evolutionary Entomology and Museum of Amber Inclusions, University of Gdańsk) is dedicated to the traces of ancient organisms and their activities, preserved in fossil resins. Its main topic is the inclusion of insects and other arthropods, plants, fungi and other organisms. This session is also a celebration of the 20th Anniversary of the Museum of Amber Inclusions at the University of Gdańsk.

Local and supra-regional traditions in the manufacture of amber objects among European societies of the Bronze and Iron Age is the leading topic of the session “*Stylistics and processing technology of amber products in 3rd-1st millennium BC: local and interregional perspective*” conducted by Prof. Janusz Czebreszuk and Mateusz Cwaliński (Institute of Archaeology, Adam Mickiewicz University in Poznań). The twelve oral communications presented in this session will be summarized in a special final discussion.

The latest achievements in research on amber properties with the use of modern research techniques and applications of these achievements form the main topic of the session “*Highlights of amber properties investigations and current aspects of amber mining.*” This part of the Symposium is also dedicated to very important current problems—also environmental ones—related to the geology and extraction of amber. This session is under the supervision of Dr Ewa Wagner-Wysiecka and Dr Natalia Łukasik (Faculty of Chemistry, Gdańsk University of Technology).

The amazing and captivating world of myths, toposes and their representations in amber artefacts is the subject of the session on “*Myths, collections and conservation of amber,*” led by Dr Anna Sobiecka (Faculty of History, University of Gdańsk).

Instead of a summary—

“Man is unique not because he does science, and he is unique not because he does art, but because science and art equally are expressions of his marvellous plasticity of mind” (Jacob Bronowski)

Ewa Wagner-Wysiecka

TABLE OF CONTENTS

LIFE TRACES IN AMBER

ORAL PRESENTATIONS

PERRICHOT V. From Cretaceous to Eocene: an overview of the fossiliferous amber deposits from France KEYNOTE lecture	7
SONTAG E., SZWEDO J., SZADZIEWSKI R. 20 years of the Museum of Amber Inclusions at the University of Gdańsk	9
ROSS A.J. The remarkable palaeodiversity in Burmese amber	12
GARROUSTE R., CARBUCCIA B., NEL A. Insight in the Lowermost Eocene Oise amber: the collection of arthropod inclusions of the MNHN	17
XING L., MCKELLAR R.C. Recent discoveries of toothed birds and non-avian theropod remains in Cretaceous amber deposits from Myanmar	18
HOFFEINS C., HOFFEINS H.W., KUTZSCHER C., BLANK S.M. Jumping to more knowledge – a new flea in Baltic amber	19
PIELOWSKA A., SONTAG E., SZADZIEWSKI R. Haematophagous arthropods in Baltic amber	20
SIDORCHUK E. A family story told by amber inclusions (Acari: Collohmanniidae)	21
WANG B., SZWEDO J. More than expected – disparity of the Hemiptera (Insecta) in the mid-Cretaceous Burmese amber	23
JIANG T., WANG B., SZWEDO J. The planthopper family Mimarachnidae (Hemiptera: Fulgoromorpha) in Burmese amber	26
BRYSZ A.M. New data on Achilidae (Hemiptera: Fulgoromorpha) from Myanmar amber	28
SZWEDO J., DROHOJOWSKA J., SIMON E., WĘGIEREK P. Sternorrhyncha (Insecta: Hemiptera) from Burmese amber	29
JARZEMBOWSKI E.A., ZHENG D. Dragonflies in amber from the age of the dinosaurs	31
SOSZYŃSKA-MAJ A., KRZEMIŃSKI W., KOPEĆ K. Scorpionflies (Mecoptera) in Burmese amber	34
SKIBIŃSKA K., KRZEMIŃSKI W. Diversity of the family Tanyderidae in the Myanmar amber	36
ZAKRZEWSKA M., GIŁKA W. The Buchonomyiinae (Diptera: Chironomidae) from Cretaceous Burmese amber	37
BARANOV V., LAURINDO F. Revisiting mouthparts development in modern and fossil Chironomidae (Diptera)	39
ŻYŁA D. Dating fossils with molecules – innovative approach to determine the age of Baltic amber. Introduction to the project	40

POSTERS

CARBUCCIA B., ROLLARD C., NEL A., GARROUSTE R. The Araneae of the Lowermost Eocene Oise amber: an unexpected palaeodiversity	42
JORDAN-STASIŁO W., KRZEMIŃSKI W., KANIA I., MIAZGA N. Rhabdomastix Skuse, 1980 in Eocene Baltic amber (Diptera: Limoniidae)	43
KANIA I., WOJTOŃ M., KRZEMIŃSKI W., WANG B. Anisopodidae Knab, 1912 (Diptera, Nematocera) in Cretaceous Burmese amber	44
KASZYCA N., WĘGIEREK P., DEPA Ł., TASZAKOWSKI A. Invertebrates in contemporary, coniferous resins – an insight into the ecosystem?	45
KRZEMIŃSKI W., KOPEĆ K., SKIBIŃSKA K., SOSZYŃSKA-MAJ A., KANIA I. Diptera Nematocera from the Myanmar amber in the collection of the Natural History Museum ISEA PAS	47
PIELIŃSKA A. From the research of the Baltic amber flora	48
TISCHER M., BOJARSKI B., GORCZAK M., PAWŁOWSKA J., SZCZEPANIAK K., WRZOSEK M. The diversity of fossil fungi in Baltic amber	49
WOJTOŃ M., KANIA I., KRZEMIŃSKI W. First Mycetobia Meigen, 1818 in Cretaceous Burmese amber (Diptera, Anisopodidae)	49

STYLISTICS AND PROCESSING TECHNOLOGY OF AMBER PRODUCTS IN 3RD-1ST MILLENNIUM BC: LOCAL AND INTERREGIONAL PERSPECTIVE

ORAL PRESENTATIONS

KAUR S., STOUT E. Elucidation of origin, age and authenticity of ambers through chemical characterization KEYNOTE lecture	51
RAMSTAD M. Neolithic amber in Norway and social dynamics the in 3 th millennium BC in Scandinavia	52
IRŠĖNAS M. Juodkrantė (Schwarzort) amber figurines: between north and south	52
MANASTERSKI D., KWIATKOWSKA K. Late Neolithic amber beads from Supraśl in the light of multi-faceted analysis	57
BUTRIMAS A., KRÓL D., OSTRAUSKIENĖ D. Amber typology of Rzućewo and West Lithuanian Late Neolithic settlements	61
GARDIN C Typology and technology: the example of the amber productions in France during the Neolithic and Protohistory	65
DRENTHE E. Late prehistoric amber from the Netherlands	65
LUŠTINA M. Amber finds in the Bronze Age of Serbia: distribution, provenance and social significance	66
CWALIŃSKI M. One step beyond: towards understanding amber consumption during the Bronze and Early Iron Age in Western and Central Balkans	67
NEGRONI CATAACCHIO N., GALLO V. Analysis of a few amber artifacts as chronological and cultural indicators during pre- and protohistory in Europe	67
HOHENSTEIN U.T., BELLINTANI P., PAVAN F. Amber processing at the site of Campestrin (Grignano Polesine, Rovigo, northeastern Italy)	70
DMITROVIĆ K. Typological frame of the amber from Atenica and its relation to the neighboring area	71
STIPANČIĆ P. Amber in first millenium BC from Novo Mesto, Slovenia	72

POSTERS

PESKA J., KUCERA L., BEDNAR P. Ancient amber in Moravia	75
---	----

HIGHLIGHTS OF AMBER PROPERTIES INVESTIGATIONS AND CURRENT ASPECTS OF AMBER MINING

ORAL PRESENTATIONS

LAMBERT J.B. Molecular analysis of amber and related fossilized materials by nuclear magnetic resonance spectroscopy KEYNOTE lecture	77
VAN DER WERF I.D. Recent developments in amber investigation: succinite vs. simetite	78
SHASHOUA Y. Investigating the degradation of Baltic amber	81
ŁYDŻBA-KOPCZYŃSKA B., MENDYS A. Versatile spectroscopic approach in the investigation of cultural heritage objects	86
MATUSZEWSKA A. Physicochemical transformations of amber illustrated by changes in the oxygen-groups range of infrared spectra	88
KUCERA L., PESKA J., BEDNAR P. Utilization of mass spectrometry for chemical analysis of amber for distinction of its origin in various Baltic regions.	92
KACZMARCZYK I. Baltic amber as a potential source of active agents against selected microorganisms	92
KASIŃSKI J.R., SŁODKOWSKA B., KRAMARSKA R. Amber-bearing sediments of the Polish-Ukrainian border zone stratigraphic correlation	94
MATSUI V., NAUMENKO U., REMEZOVA O., OKHOLINA T., VASYLENKO S., YAREMENKO O. The prognosis of amber-succinite deposits of different age in Ukraine and their prospects of development	99
REMEZOVA O., MATSUI V., VASYLENKO S., KOMLIEV O. Geoecological aspects of amber mining in Ukraine	104
BELICHENKO O., WAGNER-WYSIECKA E. Geological production characteristic of amber deposits and finds in Ukraine. Perspectives of identification by mid-infrared spectroscopy.	108

POSTERS

BELICHENKO O., LADZHUN Y., TATARINTSEVA K. Gemological research of the «treated-color» amber	113
CAI Y., BAO T. The prosperity of Tengchong Amber Market and related industries	114
CYTRYNIAK A., ŁYDŻBA-KOPCZYŃSKA B. Micro IR and Raman spectroscopy as operative techniques in the various fossilised resins screening	115
FRIEDMAN V., LAMBERT J.B., BUGARIN A., KAUR S., STOUT E. Amber in Texas	117
KLIKOWICZ-KOSIOR A., KOSIOR M., WAGNER-WYSIECKA E. Amber Laboratory of International Amber Association - current research activity and perspectives	118
KOMLIEV O., REMEZOVA O. Lacustrine and paludal complexes of Ukraine as amber-bearing objects	121
KOSMOWSKA-CERANOWICZ B., PIELIŃSKA A. Infrared spectra of amber and other resins – results of research by Vladas Katinas, 1988	124
KOSTYASHOVA Z. The amber industry in Kaliningrad region (2007-2017): problems and prospects	129
KRYNYTSKA M., KOVALEVYCH L. The researches of conditions of productive thickness forming of the southern part of Volodymyrets amber-bearing district	134
SKRZYPIEC K., KOMOSA Z., MACIOŁEK U., SOFIŃSKA-CHMIEL W., GAZDA Ł., MENDYK E. Spectral and microscopic study of Lublin amber	138
SKRZYPIEC K., KOMOSA Z., MACIOŁEK U., SOFIŃSKA-CHMIEL W., MENDYK E. The study of natural resins using AFM microscopy	140

MYTHS, COLLECTIONS AND CONSERVATION OF AMBER

ORAL PRESENTATIONS

CAUSEY F. Amber and Africa KEYNOTE lecture	143
GUŠTIN M. Aquileia – the centre of amber production in Roman Times	145
POLYAKOVA I.A. Collecting and displaying amber in culture and everyday life of Prussia during 16 th century	146
KING R. Sisterly Devotion Solidified: Owning the Tears of the Heliades in Renaissance Europe	147
TRUSTED M.H. Baltic Ambers in Britain: a rich and diverse heritage	152
SOBECKA A. A new interpretation of the mythological iconography of the Malbork Casket	153
BAGUŽAITĖ-TALAČKIENĖ S. Amber artefacts of the Palanga Amber Museum Collection. Mythological parallels	156
PAWLĘGA E. Amber in myths, legends and folk tales.	160
KRIEGSEISEN J. Amber in the Sicilian fine arts and crafts	161
ATTULA A. Amber. Reflections on the “political myth” of a fossil resin – The last exhibition in 1943	163
JABŁOŃSKI G. The Fall of Phaeton – myth, legend or secret knowledge. An artistic hypothesis	165

POSTERS

ADAMOWICZ R. Rebuilding and adaptation of the Great Mill in Gdańsk for the needs of a new premises of the Amber Museum	166
RATUSZNA J. Conservation of the 17 th century amber altar from the Malbork Castle Museum collection	166
SADO A. Amber myths – today	167

- Nel A., De Ploë G., Dejax J., Dutheil D., De Franceschi D., Gheerbrant E., Godinot M., Hervet S., Menier J.J., Augé M., Bignot G., Cavagnetto C., Duffaud S., Gaudant J., Hua S., Jossang A., De Lapparent F., Pozzi J.P., Paicheler J.C. Rage J.-C. 1999. Un gisement sparnacien exceptionnel à plantes, arthropodes et vertébrés (Eocène basal, MP7): Le Quesnoy (Oise, France). *C. R. Acad. Sci. (Ila)* 329, 65-72.
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20 years of the Museum of Amber Inclusions at the University of Gdańsk

ELŻBIETA SONTAG, JACEK SZWEDO, RYSZARD SZADZIEWSKI

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Twenty years ago, on 29 May 1998, the Senate of the University of Gdańsk decided to establish the Museum of Amber Inclusions at the Department of Invertebrate Zoology, Faculty of Biology. On a single day, a dream came true for two organisations: the Fossil Insects Section (currently the Palaeoentomological Section of the Polish Entomological Society) and the International Amber Association. And so, owing to the joint efforts of researchers and the Gdańsk-based amber community, the pre-WWII tradition of collecting natural amber artefacts returned to Gdańsk, while a scientific centre focused on gathering and studying inclusions preserved in fossil resins began to develop here. The idea to create a collection of inclusions and raw amber at the University of Gdańsk was successfully implemented owing to the kind support of the UG Rector Prof. Marcin Pliński, the Faculty's Dean Prof. Halina Piekarek-Jankowska, the Chairman of the Fossil Insects Section Prof. Jan Koteja and the Gdańsk-based amber artist Wiesław Gierłowski.

The collaboration between Gdańsk scientists and the amber industry began in the early 1980s when the then doctor, today Prof. Ryszard Szadziewski of the University of Gdańsk, together with the then doctor and currently Prof. Wiesław Krzemiński (Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków) extended their research on contemporary dipterans to include fossil species preserved in Baltic amber, based on the collection of the PAS Museum of the Earth, Warsaw. In 1985, the Fossil Insects

Section was established at the Polish Entomological Society, including biologists, collectors, geologists and amber artists who began successful collaboration, with one common denominator—amber (Szadziewski et al. 2015). Despite the collaboration with Gdańsk amber artists and collectors, a researcher from Gdańsk, the capital of amber, still had to travel to Warsaw, to the PAS Museum of the Earth, to study amber inclusions (oftentimes donated by a Gdańsk-based amber artist). But the 1990s changed a lot: 1994 saw Amberif—the first Amber Fair (it was visited by palaeoentomologists already in 1995), in 1996 the Amber Association was established and in 1998 the Museum of Amber Inclusions was opened. Through this collaboration, this particular symbiosis of science and amber craft, not yet the largest but a certainly unique collection of inclusions preserved in amber was established (Sontag and Szadziewski 2008, Sontag 2008 a, b Sontag 2013, Szadziewski and Sontag 2015, Sontag et al. 2015,).



Fig. New building of Faculty Biology, and part of exhibition "Life in Amber Forest" open in 2013.

Over its first years, the collection grew rapidly owing to a donation of 50 kg of raw Baltic amber from the International Amber Association's President Wojciech Kalandyk. The number of inclusions and natural pieces of amber increased rapidly; they were mostly prepared only on the surface to preserve the specimens valuable to science, called syninclusions (Sontag 2010). The rate of volume growth decreased year on year, but this did not stop the collection from developing. The expansion of the laboratory and the detailed preparation of the pieces made it possible for the collection to acquire the most valuable specimens each year, known as descriptive types, based on which new species have been described. At present, the Museum has over 15,000 inclusions in its collection. As of 8 March 2018, the collection of the University of Gdańsk Museum of Amber Inclusions has 54 types, out of which 12 were described in the past 3 years. Six more have now been described; we are now waiting for the peer-reviewed papers to be published for these holotypes to be formally included in the collection's inventory.

Not only the collection itself has grown over those 20 years; the availability of the material was the reason why a significant research centre was established at the Department of Invertebrate Zoology and Parasitology: Palaeoentomological investigations on non-biting midges started, conducted by Colleagues from the Laboratory of Systematic Zoology – in 2010 by Dr (now Associate Professor) Wojciech Giłka, and since 2013 by Ph.D. student (and now Dr) Marta Zakrzewska. In 2014, to the Laboratory and Museum of Amber Inclusions, after many years of collaboration, both in scientific and trade-show terms, Dr hab. Jacek Szwedo (currently Associate Professor) formally joined the Gdańsk research group. Prof. Jacek Szwedo was the first palaeoentomologist not to have worked on dipterans, with bugs being his favourite group. In 2015, the Museum became part of the Laboratory of Evolutionary Entomology and the Museum of Amber Inclusions, with Dr Eng. Karol Szawaryn joining the team and taking care of fossil beetles. We might say that the insect orders with the largest numbers of inclusions are now "under control" at the Museum, though we still do not have anyone to handle hymenoptera.

The growth of both the collection and the laboratory is also made possible by funding from Poland's Ministry of Science and Higher Education; in 2014 and 2016-18, the collection of inclusions received a Special Research Facility (SPUB) grant, which made the collection available to researchers worldwide. Professional palaeontological facilities were developed to enable a thorough use of the collection. Pieces received 20 years ago are now prepared, to be sometimes turned into 15-20 microscope tiles which make detailed studies possible. This is owing to the precision equipment and the patience of Mr Błażej Bojarski, who wrote his MSc

dissertation at the Department of Invertebrate Zoology and Parasitology based on amber collected on the beach. The collaboration with the IAA Laboratory makes it possible to professionally review the research material, while species description based on a specimen from the collection is always accompanied with the IR spectrum of the piece in which it is preserved.

The twentieth anniversary of the Museum is a very good opportunity to say THANK YOU to all those who have contributed to making this unique collection happen, both to the donors who provided the research material and to the first describers of species, who significantly increased the value of the specimens. Most donors are recorded in documents, but there were also people who came to Amberif and Ambermart, or the Amber Days at the St Dominic's Fair to donate a piece of amber with an inclusion to the Museum, without even leaving their name. The records of the Museum of Amber Inclusions feature these donors: Dany Azar, Danuta Burczik-Kruczkowska, Andrzej Cholewiński, Janusz Cieszewski, Jerzy Cieszewski, Jerzy Cybulski, Jerzy and Stanisław Cybulski, Piotr Czyż, Jonas Damzen, Ewa Depka, Tomasz Dębowski and Maciej Szulimowicz, Zbigniew Dobrowolski, Jolanta Dobryńczuk-Szeler, Janusz Dudnik, Ludwik Dumin, Jerzy Dutko, Sieghard Ellenberger, Roland Ellwanger, Enzo, Janusz Feręc, Janusz Fudala, Knut, Rudolff Geschäftsführer, Gabriela Gierłowska, Wiesław Gierłowski, Mariusz Gliwiński, Barbara Gronuś-Dutko, Adam Grucelski, Joanna Guz, Marta Gwizdalska, Christel and Hans Hoffeins, Jadwiga and Bohdan Hołub, Stanisław Jacobson, Adam Januszkiewicz, Jerzy Jeske, Mateusz Józwiak, Wojciech Kalandyk, Mirosław Kamiński, Friedrich Kerneger, Daniel Kisiel, Jacek Kocieniewski, Tadeusz Kołodziej, Władysław Korzycki, Barbara Kosmowska-Ceranowicz, Jan Koteja, Leszek Krause, Mieczysław Krause, Edward Kruczkowski, Victor E. Krynicki, Waldemar Kulik, Janusz Kupryjanowicz, Krzysztof Lalik, Jacek Leśniak, Doug Lundberg, Sadowski Maciej, Sylwester Maćkowiak, Waldemar Mikołajczyk, Mirosław Mroziak, Przemysław Naciewicz, Jacek Ożdżeński, Mark and Max Pankowski, Roman Pańkowski, Sebastian Pawlak, David Penney, Stefan Plota, Helena and Jan Podzorscy, Paweł Podzorski, Eryk Popkiewicz, Elżbieta and Harald Popkiewicz, Janusz Pytel, Ewa Rachoń, Wiesław Radke, Andrzej Radke, Eugenio Ragazzi, Natalia Romanowa, Andrzej Rynkowski, Jacek Serafin, Edyta Smorawska and Marcin Tomaszewski, Elżbieta Sontag, Krzysztof Sontag, Frauke Stebner, Roman Sujkowski, Ryszard Szadziewski, Mirosław Szulc, Jerzy Tofcik, Marek Trocha, Piotr Twardowski, Ryszard Uliński, Jolanta Walkiewicz, Małgorzata Wąsowska, Piotr Wedekind, Wolfgang Weitschat, Dale Wicks, Elwira and Leszek Widanka, Monika Wilczak, Renata and Andrzej Wiszniewscy, Honorata Wojciechowska, Dariusz Wojtała, Dominika and Marek Wojtkiewicz, Renata Woźnica, Tomasz Zając, Sadowski Zdzisław, Eliaz Żelazowski.



Fig. A. Paleoentomological Gallery on Amberif'2002. Left to right: Janusz Fudala (deep inside), Jacek Serafin, Jonas Damzen, Wolfgang Weitschat, Roland Dobosz. **B.** Paleoentomological Gallery on Amberif'2003. Left to right: Ryszard Szadziewski, Jacek Szwedo, Hans Hoffeins.

To mark the 25th Anniversary of Amberif, we need to emphasise that, to palaeontologists who study extinct organisms, Amberif has practically become *the* place to meet where each year researchers and collectors exchange experience and share their passion with the show's participants. The small back office of the Palaeontology Gallery has seen heated discussions about inclusions and palaeontology, while at Amberif we have had the opportunity to meet celebrated palaeontologists and collectors, including: Wolfgang Weitschat, Brigitte and Günter Krumbiegel, Wilfried Wichard, Andrew Ross, Dany Azar, Yuri Popov, Jan Koteja, Wiesław Krzemiński, Ulf Erichson, Ed Jarzembowski, Dan Bickel, Piotr Węgierek, Aleksander Herczek,

Jacek Serafin, Jonas Damzen, Janusz Fudala, Doug Lundberg, Christel and Hans Hoffeins, Alexandr Krylov. The discussions were not the only reason for meeting; Amberif also provided an opportunity to see extraordinary, unique specimens. Everyone usually focuses on their own area of interest and were it not for Amberif, probably few of us would ever see an inclusion of a scorpion, lizard or solpugid (a unique arachnid), or the only real singing cicada found to date. (And—one more thing: would any of us have an opportunity to see such beautiful amber jewellery?).

On behalf of all the members of our Palaeoentomological Section of the Polish Entomological Society, we wish to thank the Amberif Project Director Ewa Rachoń for having seen and found a place for the Palaeo Group at Amberif right from the start, so we can follow and develop our passions in the midst of the friendly amber community.

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The remarkable palaeodiversity in Burmese amber

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The known palaeodiversity of organisms trapped in Burmese amber from Myanmar has increased dramatically over the past few years. Theodore D.A. Cockerell (1916) was the first to record inclusions in Burmese amber and by 1920 had described species of insects, pseudoscorpions, a mite and a millipede. The first plant was recorded by Dixon (1922). These specimens were in the R.J.C. Swinhoe collection which was deposited at the Natural History Museum in London (NHM) and was the only public collection of Burmese amber for 80 years. I started work as the museum's Curator of Fossil Insects in 1993 and realized there were some interesting undescribed inclusions in the Burmese amber collection. Subsequent visits by Prof. Alexandr Rasnitsyn and his colleagues from the Paleontological Institute, Moscow (PIN), confirmed this. Rasnitsyn (1996) mentioned the first records of spiders, a scorpion, a snail and reptile skin, and the latter three were figured by Ross (1998). Shortly afterwards a Canadian mining company started exporting Burmese amber and it became available again. New collections were built up by David Grimaldi at the American Museum of Natural History, New York (AMNH) and George Poinar at Oregon State University (OSU). Grimaldi et al. (2002)

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