

FIELD-GUIDE OF THE EXCURSION ON SEPTEMBER 13TH 2008, AN INTRODUCTION

Freddy DAMBLON¹, Stéphane PIRSON¹ & Philippe GERRIENNE²

1. Royal Belgian Institute of Natural Sciences, Department of Palaeontology

2. University of Liège, Department of Palaeontology

Research overview

The first charcoal analyses by a Belgian palaeontologist were performed in 1932 by Prof. Suzanne Leclercq (University of Liège) on the archaeological sites of Mitoc Malul Galben and Ripiceni Izvor in Romania (Leclercq, 1932). Later some attempt was made on the Palaeolithic site of La Belle Roche cave, Belgium (Fairon-Demaret, 1984). From this time, anthracology has been used in Belgium as a tool for past plant systematic, palaeo-ecology, palaeo-climatology, archaeology and dating, not only on Quaternary sites but also on material from other geological periods.

Since the nineties, the investigations in palaeobotany at the Royal Belgian Institute of Natural Sciences have been mainly focused on Quaternary plant remains. Charcoal and pollen analyses were performed on loessic deposits, cave infillings and peat deposits to define marker assemblages in sequences, allow palaeoecological reconstruction, provide material for dating and contribute to chronostratigraphy.

The investigations were mainly directed towards archaeological sites from the Atlantic border up to Siberia because large excavations give access to wide loess sections that make detailed stratigraphic studies possible and systematic collection of charcoal samples easier (Damblon, 1997, 2006; Damblon *et al.*, 1997; Haesaerts *et al.* 1996, 2003, 2005). Not only loess and loam deposits from open field were investigated but also silty and loamy infillings of caves in Belgium (Damblon *et al.*, in press). Some traces of wildfire were detected in some sequences. The results obtained on Scladina cave are explained hereafter (Pirson *et al.*, 2008).

Presently, the results are included in the EURASIAN MACROFOSSIL DATABASE (Program QUEST-Deglaciation) as a contribution to palaeo-mapping tree taxa during the last pleniglacial (Universities of Oxford, Southampton, Bristol).

The Department of Palaeontology also entered in collaboration with various foreign laboratories to promote new research on ancient charcoal material stored in the collections of the Museum. In this way, investigations started on several sites attributed to the Wealden in Belgium as Bernissart, Baudour and Hautrage. The main results are explained by different contributions in the present volume (Dejax *et al.* 2008; Gerards *et al.*, 2008; Gomez *et al.*, 2008).

The excursion of September 13th 2008

The field trip will be divided in two parts:

In the morning, visit of the clay/sand quarry of Hautrage (Mons basin) of the Wealden (Lower Cretaceous, Barremian/Aptian: about 130 - 112 Ma).

The site is estimated to be contemporaneous to the site of Bernissart which contained the famous Iguanodons exposed at the RBINS Museum (see contribution by Godefroit). New investigations were performed at the occasion of new drilling at Bernissart, while other Wealden sites were investigated, notably Hautrage with a

very rich fossil plant flora. Not only leaves and fruits were found but also big pieces of trunks, some of them being charcoaled, and deposited in an alluvial context. The main results will be presented in different documents by the multidisciplinary team from Namur, Mons, Liège, Brussels, Paris and Lyon.

In the afternoon, visit of the Scladina cave at Sclayn (Meuse basin, nearby Namur).

This Middle Palaeolithic site is famous thanks to the discovery of human remains of Neandertal type. Another major interest of the site lies in a very fine pedostratigraphic study which allowed to understand the sedimentary dynamics and to carry out a multiproxy study combining sedimentology, micromorphology, geochemistry, anthracology, palynology, ^{14}C dating, magnetic susceptibility, macro- and micromammal studies. Preliminary results show a very good coherence between each discipline notably due to a high precision sampling in a detailed long sequence that may be compared with the long Upper Pleistocene cave sequence of Walou (Vesdre basin) and with the Belgian loess sequence.

References

- DAMBLON, F., 1997. Palaeobotanical study of representative Upper Palaeolithic sites in the Central European Plain: a contribution to the Sc-004 Project. *Préhistoire Européenne*, Liège, 11: 245-253.
- DAMBLON, F., 2006. Les restes paléobotaniques à Mitoc-Malu Galben. In: Otte, M., Chirica, V. & Haesaerts, P. (dir.), *L'Aurignacien et le Gravettien de Mitoc-Malu Galben (Moldavie roumaine)*. Etudes et Recherches archéologiques de l'Université de Liège (ERAUL), 72: 67-80.
- DAMBLON, F., in press. Les analyses anthracologiques du site de Walou. In: Draily, C., Toussaint, M. & Pirson, S. (éd.), *La grotte Walou : fouilles 1996-2004. Volume 2 : les sciences de la vie et la chronologie*. Monographie (Etudes et document – Archéologie), Namur, Ministère de la Région wallonne.
- DAMBLON, F., HAESAERTS, P. & VAN DER PLICHT, J., 1996. New datings and considerations on the chronology of Upper Palaeolithic sites in the Great Eurasian Plain. *Préhistoire Européenne*, 9: 177-231.
- DEJAX, J., PONS, D. & YANS, J., 2008. Palynology of the Wealden facies from Hautrage quarry (Mons Basin, Belgium). This volume.
- FAIRON-DEMARET M., 1984. Paléontologie végétale. Végétaux fossiles récoltés dans les paléokarsts de la Belgique. In : Ek, C. & Pfeffer, K.-H.(éd.), *Le karst belge. Karstphänomene in Nordrhein-Westfalen*, Cologne.Kölner Geographische Arbeiten, 45:107-116.
- GERARDS, T., YANS, J., SPAGNA, P. & GERRIENNE, P., 2008. Wood remains and sporomorphs from the Wealden facies of Hautrage (Mons Basin, Belgium): palaeoclimatic and palaeoenvironmental implications. This volume.
- GOMEZ, B., GILLOT, T., DAVIERO-GOMEZ, V., SPAGNA, P. & YANS, J., 2008. Palaeoflora from the Wealden facies strata of Belgium - mega- and meso-fossils of Hautrage. This volume.
- HAESAERTS, P., F. DAMBLON, M. BACHNER & G. TRNKA, 1996 - Revised stratigraphy and chronology of the Willendorf II sequence (Lower Austria). *Archaeologia Austriaca*, 80 (1): 25-42.
- HAESAERTS, P., BORZIAK, I., CHIRICA, V., DAMBLON, F., KOULAKOVSKA, L. & VAN DER PLICHT, J., 2003 - The East Carpathian loess record: a reference for the middle and late pleniglacial stratigraphy in Central Europe. *Quaternaire*, 14(3): 163-188.
- HAESAERTS, P., CHEKHA, V.P., DAMBLON, F., DROZDOV, N.I., ORLOVA, L.A. & J. VAN DER PLICHT, 2005 – The loess-palaeosol succession of Kurtak (Yenisei basin, Siberia): a reference record for the Karga Stage (MIS 3). *Quaternaire* (Paris), 16 (1): 3-24.
- LECLERCQ, S., 1932.A propos de l'étude microscopique des Charbons de bois des foyers préhistoriques. *Annales de la Société Géologique de Belgique*, 55: 218-221.
- PIRSON, S., COURT-PICON, M., HAESAERTS, P., BONJEAN, D. & DAMBLON, F., 2008. New data on geology, anthracology and palynology from the Scladina cave pleistocene sequence: preliminary results. This volume.

**KONINKLIJK BELGISCH INSTITUUT
VOOR NATUURWETENSCHAPPEN**

**INSTITUT ROYAL DES SCIENCES
NATURELLES DE BELGIQUE**

ROYAL BELGIAN INSTITUTE OF NATURAL SCIENCES

**MEMOIRS OF THE GEOLOGICAL SURVEY OF BELGIUM
N. 55 – 2008**



**IVth International Meeting of Anthracology
Royal Belgian Institute of Natural Sciences, 8-13 September 2008**

Charcoal and Microcharcoal : Continental and Marine Records

Hautrage (Lower Cretaceous) and Sclayn (Upper Pleistocene)

Field Trip Guidebook

Edited by

F. DAMBLON, S. PIRSON & P. GERRIENNE

Excursion leaders:

Dominique BONJEAN – ASBL "Archéologie Andennaise" (Belgium)
Mona COURT-PICON – Royal Belgian Institute of Natural Sciences (Belgium)
Freddy DAMBLON – Royal Belgian Institute of Natural Sciences (Belgium)
Jean DEJAX – Musée National d'Histoire Naturelle de Paris (France)
Thomas GERARDS – Université de Liège (Belgium)
Philippe GERRIENNE – Université de Liège (Belgium)
Bernard GOMEZ – Université de Lyon I (France)
Stéphane PIRSON – Royal Belgian Institute of Natural Sciences (Belgium)
Paul SPAGNA – Faculté Polytechnique de Mons (Belgium)
Johan YANS – Facultés Universitaires Notre-Dame de la Paix (FUNDP), Namur (Belgium)

*Cover illustration : Hunters in snow (1565), Pieter Bruegel the Elder
© Kunsthistorisches Museum Wien (Austria)*

CONTENT

FIELD-GUIDE OF THE EXCURSION ON SEPTEMBER 13TH 2008, AN INTRODUCTION	3
FREDDY DAMBLON, STÉPHANE PIRSON & PHILIPPE GERRIENNE	
AN OVERVIEW OF THE GEOLOGY OF BELGIUM	5
STÉPHANE PIRSON, PAUL SPAGNA, JEAN-MARC BAELE, FREDDY DAMBLON, PHILIPPE GERRIENNE, YVES VANBRABANT & JOHAN YANS	
130 YEARS AGO: THE DISCOVERY OF THE BERNISSART IGUANODONS.....	27
PASCAL GODEFROIT	
SEDIMENTOLOGY OF THE WEALDEN CLAYS IN THE HAUTRAGE QUARRY.....	35
PAUL SPAGNA, CHRISTIAN DUPUIS & JOHAN YANS	
PALYNOLOGY OF THE WEALDEN FACIES FROM HAUTRAGE QUARRY (MONS BASIN, BELGIUM)	45
J. DEJAX, D. PONS & J. YANS	
PALAEOFLOTA FROM THE WEALDEN FACIES STRATA OF BELGIUM - MEGA- AND MESO-FOSSILS OF HAUTRAGE	53
BERNARD GOMEZ, THOMAS GILLOT, VÉRONIQUE DAVIERO-GOMEZ, PAUL SPAGNA & JOHAN YANS	
WOOD REMAINS AND SPOROMORPHS FROM THE WEALDEN FACIES OF HAUTRAGE (MONS BASIN, BELGIUM): PALAEOCLIMATIC AND PALAEOENVIRONMENTAL IMPLICATIONS	61
THOMAS GERARDS, JOHAN YANS, PAUL SPAGNA & PHILIPPE GERRIENNE	
NEW DATA ON GEOLOGY, ANTHRACOLOGY AND PALYNOLOGY FROM THE SCLADINA CAVE PLEISTOCENE SEQUENCE: PRELIMINARY RESULTS	71
STEPHANE PIRSON, MONA COURT-PICON, PAUL HAESAERTS, DOMINIQUE BONJEAN & FREDDY DAMBLON	