

Original article

The Cenomanian amber of Fourtou (Aude, Southern France): Taphonomy and palaeoecological implications

L'ambre cénomanien de Fourtou (Aude, Sud de la France) : taphonomie et implications paléoécologiques

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Abstract

The discovery of new amber outcrops in France in the last fifteen years and the reinvestigation of outcrops that had been forgotten provide new sources of palaeontological data. One of these forgotten localities is the Cenomanian outcrop of Fourtou in the Aude department, Southern France. Mentioned in old manuscripts since 1700, perhaps known and used since the Palaeolithic, the Cenomanian amber of Aude is still poorly studied. Here we present a synthesis of the data obtained on this amber, focusing on the outcrop of Fourtou that provided the largest quantity of amber in the area. Systematic and taphonomy of Fourtou amber inclusions are described and discussed in order to propose a hypothesis about the environment in which Cenomanian Fourtou amber was produced.

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Keywords: Amber fossils; Cretaceous; Palaeoenvironment; Resiniferous forest; Taphonomy

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Résumé

Depuis une quinzaine d'années, de nouveaux gisements à ambre ou de gisements « oubliés » depuis longtemps ont été (re)découverts. Mentionné dans des écrits dès 1700, peut être connu et utilisé depuis le Paléolithique, l'ambre cénomanien de l'Aude (sud de la France) en est un bel exemple, tout particulièrement le gisement de Fourtou. Dans cet article, nous faisons une synthèse des données existantes sur l'ambre de ce gisement jusqu'alors peu étudié. La systématique et la taphonomie des inclusions ambrifères de Fourtou sont présentées et discutées afin de proposer une hypothèse sur le milieu de production de cet ambre cénomanien. © 2013 Elsevier Masson SAS. Tous droits réservés.

Mots clés : Crétacé ; Forêt résinifère ; Fossiles de l'ambre ; Paléoenvironnement ; Taphonomie

1. Introduction

Amber is widely present in France, especially within the Cretaceous deposits, and numerous localities were known as soon as in the 18th and 19th centuries. Most of these historical outcrops have been completely forgotten. Re-development of amber studies in France, since the end of the 20th century, allowed their rediscovery. In the present paper, we present one of them: the outcrop of Fourtou (Aude, Southern France).

Aude amber is known at least since the beginning of the 18th century. It is mentioned, indeed, in a “Mémoire sur l'ambre jaune” written by the Académie Royale des Sciences in 1705 (Cassini, 1723; Anonymous, 1730) that, in January 1701, the famous astronomers Jean-Dominique Cassini (1625–1712) and his son Jacques Cassini (1677–1756), together with Mr Maraldi, discovered a kind of yellow amber in a jet mine close to a mountain called Bugarach. This reference constitutes the first report of the Aude amber and probably the first from Fourtou. Indeed the mine debris of Fourtou, that contain the amber presented here, are located on the north side of the Mount Bugarach. According to Cassini and Maraldi, the amber was at that time burnt with coal and lignitic wood to serve as fuel by the local people and that the main activity of the mines was the extraction of jet, locally used in manufacturing jewellery (Anonymous, 1730). In November 1739, the botanist Le Monnier joined the Jacques Cassini's son, César-François Cassini, and visited again what he called the jet mine near Bugarach (Cassini de Thury, 1744). Le Monnier's description of the mine (a pile of coal against a high rock) evokes the outcrop in Fourtou, although Le Monnier suspected that several other mines existed in the vicinity. Gensanne (1778) mentioned that jet extraction had ceased, and no more evoked the use of amber. Later in the 1820s, some coal was extracted near Fourtou from different Late Cretaceous levels but these works were abandoned in 1830 (Vène, 1834).

In the present article, we focus on the locality of Fourtou that provided the greatest quantity of amber. In reality the name of Fourtou comes from the nearest town Fourtou built on a Turonian basement, but the so-called amber outcrop of Fourtou is located on the Cenomanian part of the Fourtou area, i.e. close to the Mont Bugarach. Historically, amber from this outcrop is called Fourtou amber, but it might be better to call it Bugarach amber. However to avoid any confusion with previous studies, we maintained the term of Fourtou amber. Here we present the different data available on the sedimentology of this locality and on the amber in order to propose a model of reconstitution of the Cenomanian amber forest of Aude. Comparisons with coeval amber forests

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