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Alluvial gold mining in the Belgian Ardenne in the Late Roman Empire

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Introduction

Mining structures for alluvial gold in Belgium are located mostly on the southern edge of the Stavelot-Venn massif and in the Serpont massif around Libramont. They are also found near Sainte-Cécile in the metamorphic zone that extends east of the Givonne Massif, near Suxy and in the eastern part of the Massif de Rocroi (fig. 1).[1] With the exception of the Suxy region, they are almost all located in, or on the edge of the Cambro-Ordovician massifs, formed by a set of deposits that have undergone the successive stresses of two large periods of intense deformation. During these periods of complex deformation, the geological layers have been intensely folded and cut by numerous faults and veins. These faults and veins have allowed certain elements, after a slow migration under the effect of pressure and temperature constraints, to concentrate and settle in mineralization that has aroused the interest of humans.[2]

The structures attesting of gold panning activities

The gold-mining sites are located along watercourses, sometimes with very low flows. J. Godfroid[3] established the typology of three types of structures linked to the exploitation of alluvial gold: excavations (pits of exploitation), mounds made up of the excavated soil (gravel and sand) which range from a few meters to 53 m in diameter and are rarely more than 5 m high and finally channels used either as a pit to mine gold deposits or to allow water supply to wash materials from other pits of exploitation. These three types of structures may or may not be located on the same site. Mounds may be located at a significant distance from the present-day watercourse. Extraction could reach 2,4 m in depth. The product of gold panning was generally small to very small gold grains and rarely small nuggets. The average dimension of the grains would be around 1 mm.

The latest inventory of gold mining sites was carried out by Amaury Baudoux[4] under the supervision of Geoffrey Houbrechts (University of Liège) and Bruno Van Eerdenbrugh. Using the LiDAR, he identified 150 groups of mounds, or 3235 mounds (minimum) distributed between different sectors (fig. 1).

Discovery of the gold mounds in Belgium

The gold panning mounds of Belgium were identified as such around 1876 by J. Jung, mining chief of a mining company on the banks of the Sieg, a tributary of the Rhine.[5] Many alluvial gold-mining sites were identified and J. Jung, convinced that these sites were still quite rich, obtained several mining leases and thus initiated the rediscovery of gold in the area.[6]

Examples of gold mining sites disappearing are unfortunately legion at least since 1876 already and the number of vestiges is decreasing. A study of this issue is thus really urgent.

Chronological attributions

Numerous proposals for chronological attributions have been made, essentially to the Celts.[7] All the authors who have attributed the alluvial gold exploitation sites to the Celts, whether amateurs, archaeologists or geologists, based themselves either on hypothetical arguments or on previous authors and on the datings published by J.-M. Dumont.[8] More

1 Baudoux 2018.

2 o.a. Detaille & Van Eerdenrugh 2014; Bruni & Hatter 2017.

3 Godfroid 1980.

4 Baudoux 2018.

5 Dewalque 1896.

6 Giesen 2017.

7 Draily 2022.

8 o. a. Esser 1880; Bastin 1911 (réédition 1951); Stainier 1926; Gillet 1970; Bruni & Hatert 2017; Grailet 1998; Detaille & Van Eerdenbrugh 2014.

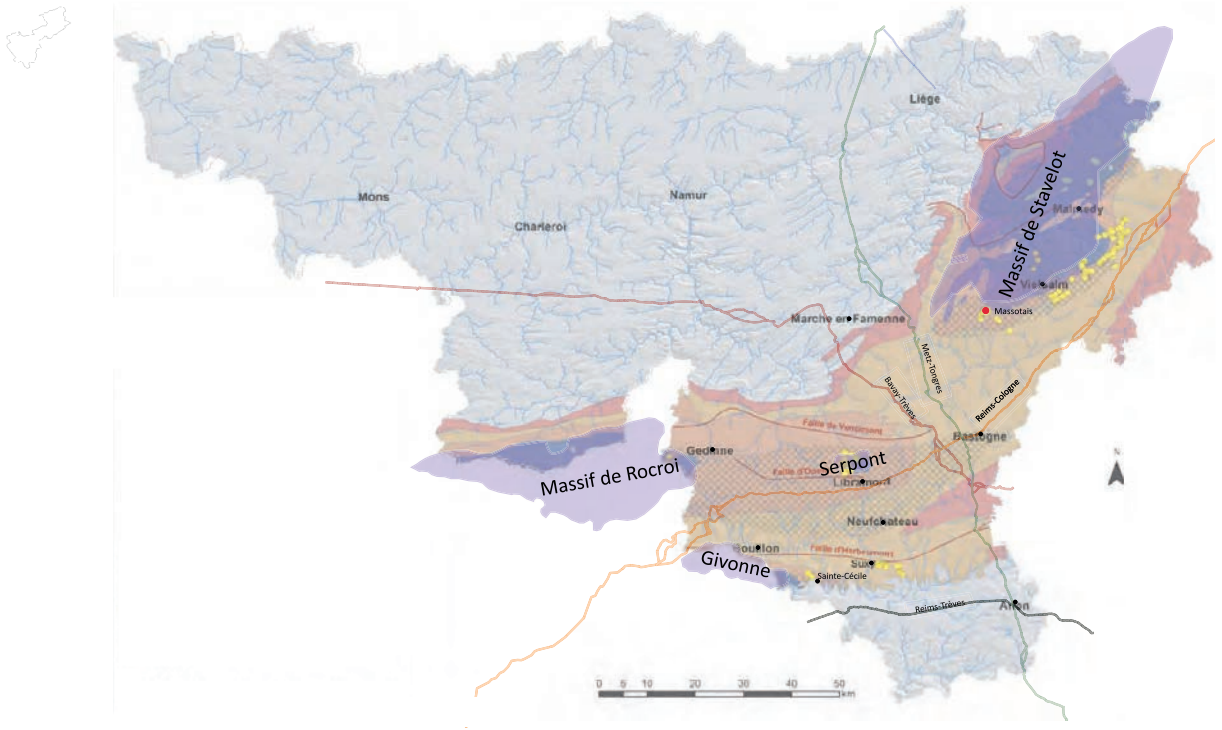

Fig. 1. Map of Wallonia with location of the Cambro-Ordovician massifs in mauve and area with gold burial sites on geological map background. The yellow circles represent the areas of alluvial gold mining sites inventoried by A. Baudoux. Red points: Roman villa of Montenau and mine gallery of Massotais. Tracings of the Roman roads Bavay-Trier, Metz-Tongres, Reims-Cologne and Reims-Trier made by M.-H. Corbiau (2017a; 2017b) (© Geomatics J.-C. Sainte, SPW).

recently, M. Van Ruymbeke[9] proposed an hypothesis that attribute the origin of the mounds around the abbey of Stavelot to the Merovingian.

Only J.-M. Dumont carried out ^{14}C datings from which he extracted those that could confirm the attribution of the gold panning activity to the Celtic period. These datings have been questioned[10] and it seems that they are not reliable. This conclusion was reached especially by re-examining J.-M. Dumont's publications[11] in confrontation with the inventory of UCL laboratory dating published by E. Gilot[12] and based on the absence of stratigraphic records.

J.-M. Dumont's datings were made on the peat lying just under the mounds. He thought that there was a cessation of peat growth under the dumps so the dating of the latest layer of peat should indicate the date of the exploitation. In 1979, he sampled in the *Réserve naturelle domaniale des Anciennes Troufferies* in Libin, at the foot of the Serpont massif, next to and under a gold-mining mound. He had eight ^{14}C datings made and published the one from the top of the peat under the gold panning mound.[13] It gave him an age of 20 BC ± 55 years or between 75 BC and AD 35 and he attributed the exploitation to the Celts. E. Gilot[14] published the non-calibrated date, 1970 ± 55 BP (Lv-973) which, in current calibration,[15] gives an age (at 2σ) between 54 cal BC and 211 cal AD, much more likely to be in the Roman period than in the Iron Age.

Nevertheless, J.-M. Dumont believed that a single date was not sufficient to confirm that the Celts were responsible for the alluvial gold exploitation of the Ardenne.[16] He decided to make new samples at the plateau of Les Tailles at the *Fange Lepeuque* or *Bonnes Fanges* and obtained four new dates under a mound. He published only one of them, which he wrote to be

9 Van Ruymbeke 2021.

10 Draily 2022.

11 Dumont 1979; 1980.

12 Gilot 1997.

13 Dumont 1979.

14 Gilot 1997.

15 Calib Radiocarbon calibration program © 1986-2020 M. Stuiver & P. J. Reimer.

16 Dumont 1980.

the date *for the top of the peat layer,* namely at 2270 ± 40 (Lv-1107), between 360 and 280 BC. The dating is currently calibrated at 400-204 cal BC[17], which, this time, lies well in the second Iron Age.

Unfortunately, this date cannot be relied upon. According to E. Gilot, J.-M. Dumont had in fact four ^{14}C datings under this mound and there were non consistent. In E. Gilot's publication, date LV-1107, base of the mound according to J.-M. Dumont, comes from a sample taken in the peat at *70 cm sous le remblai d'orpaillage* and the date LV-1101, 3000 ± 45, or 1396-1056 cal BC, corresponds to peat taken at *60 cm sous le remblai d'orpaillage*, that is 10 cm higher than LV-1107. There is thus a much older date above the 'Celtic' layer and coming also from the peat (fig. 2).

The date which attributes the base of the gold panning mound to the Iron Age is therefore, in our opinion, not reliable. Until now, it was thus not possible, on the basis of current data, to attribute these alluvial gold exploitations to the Iron Age, Roman or later period.

New dating and prospects

One of us, Thomas Hennuy, is currently studying the structures linked to the exploitation of alluvial gold and the alluvial deposits in the Rougerie valley (Vielsalm) and the Schinderbach valley (Amel). By using alluvial coring, topographic technology and Optically Stimulated Luminescence dating, he aims to get a better understanding of the gold panning operations, their geomorphological impact on the sites and downstream, and to propose new chronological data.[18]

In 2024, we made a stratigraphic section in a mound of La Rougerie at Bêche (fig. 3) and found an important amount of charcoal just at the basis of the mound. The charcoal, determined at the IRSNB, consisted in *Quercus* sp and *Alnus* sp. Given the alder's shorter lifespan, it was chosen for ^{14}C dating at IRPA.

It gave a dating of 1,754 ± 25 BP (RICH-36261) or between 230 and 380 cal. AD[19] (95,4% of probability).

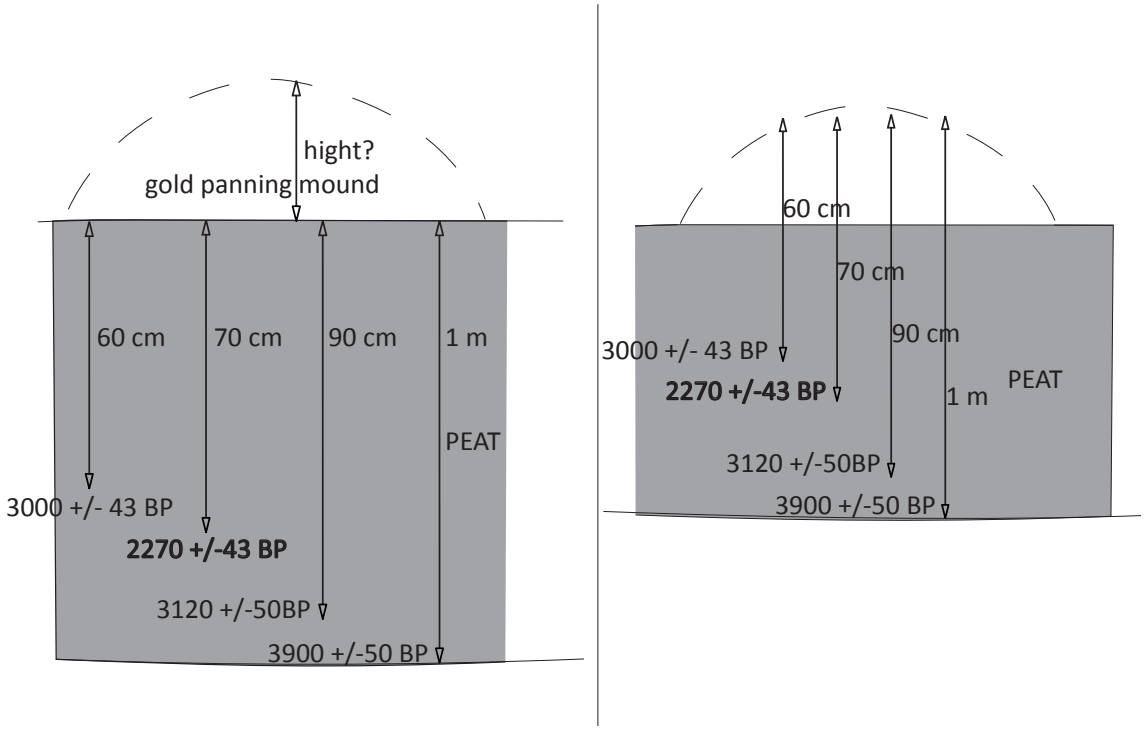

Fig. 2. Diagram showing the inconsistencies between J.-M. Dumont's stratigraphic description and the position of samples taken for ^{14}C dating from the *Fange Lepeuque* at Les Tailles (infography: S. Leduc © SPW – AWaP).

17 Calib Radiocarbon calibration program © 1986-2020 M. Stuiver & P. J. Reimer.

18 Hennuy 2025.

19 Calib Radiocarbon calibration program © 1986-2020 M. Stuiver & P. J. Reimer.

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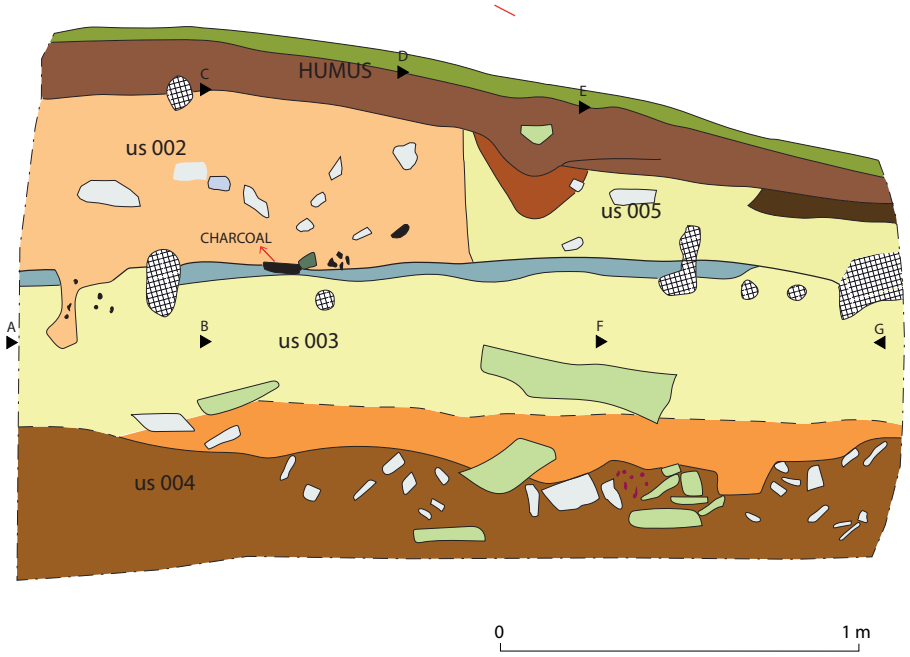

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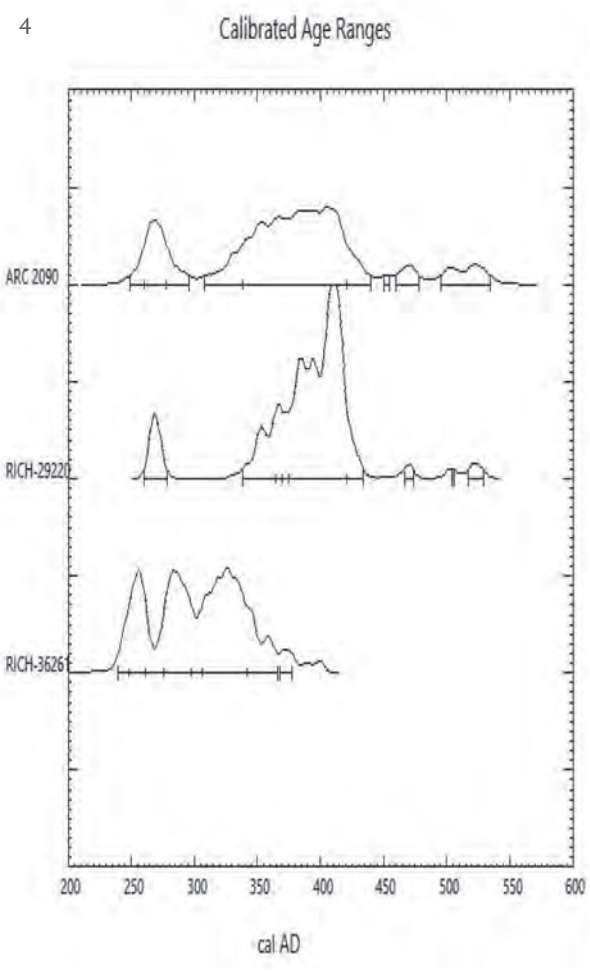

Fig.3. Stratigraphic section in a mound of La Rougerie at Bêche. The black line represents the base of the mound with the charcoal just above it (infography S. Leduc © SPW-AWaP).

Fig. 4. Comparison of the calibrated ^{14}C dates of the charcoals from the base of the mound of the Rougerie in Bêche, a wooden spile and the wooden shovel of the Trou des Massotais (Calib radiocarbon calibration program © 1986-2020 M. Stuiver and P.J. Reimer).

This is really interesting as it confirms a gold exploitation of the Belgian Ardenne during the Late Roman Empire. At the Trou des Massotais, on the plateau des Tailles, in the vicinity of alluvial gold exploitation structures, a small hard rock mining exploitation was dated to the same period (fig. 4).[20] It seems that the Belgian Ardenne was mined for gold during the Late Roman Empire which is a new perspective for the history of this region and this period. This surely involves establishments and economic relations that are as yet unknown. It is also worth it to note that the important Roman roads Reims-Cologne and Reims-Trier[21] are not so far from the main gold mining sites (fig. 1).

20 Draily *et al.* 2022.

21 Corbiau 2017a; Corbiau 2017b.

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