

OUGSME FIELD TRIP TO THE PROVINCE OF LIÈGE

23 January 2010

OUGSME members attending the AGM in Brussels on 23 January visited some of the geological features of the country around the River Amblève 20 km south of Liège, Belgium.

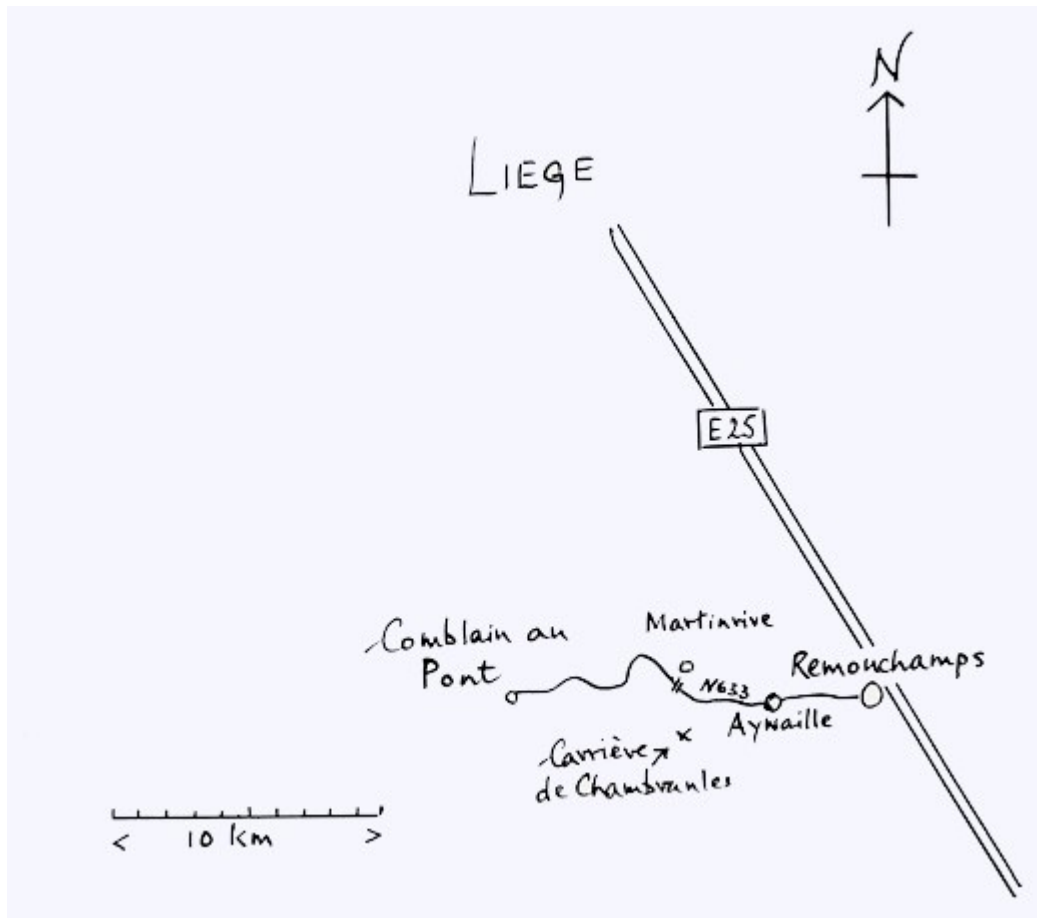


Figure 1: Location of the features visited by OUGSME on 23 January 2010 (based on Macar, et al., 1965).

The morning was devoted to the disused quarry at Chambranles about 200m south of the N633 at Martinrive (approximately $50^{\circ}28'34''\text{N}$ $5^{\circ}38'58''\text{E}$ of Greenwich). The visit was guided by Camille Ek, chargé des cours honoraire at the University of Liège, who had co-authored a paper on some of its features (Macar et al. 1965).

Access to the quarry is through a 60m long cutting which is now quite overgrown. By today's standards the cutting is very narrow at 2m wide, and would not permit lorries or mechanical equipment to pass, however, exploitation ceased in about 1945 when other, larger quarries became more economical.

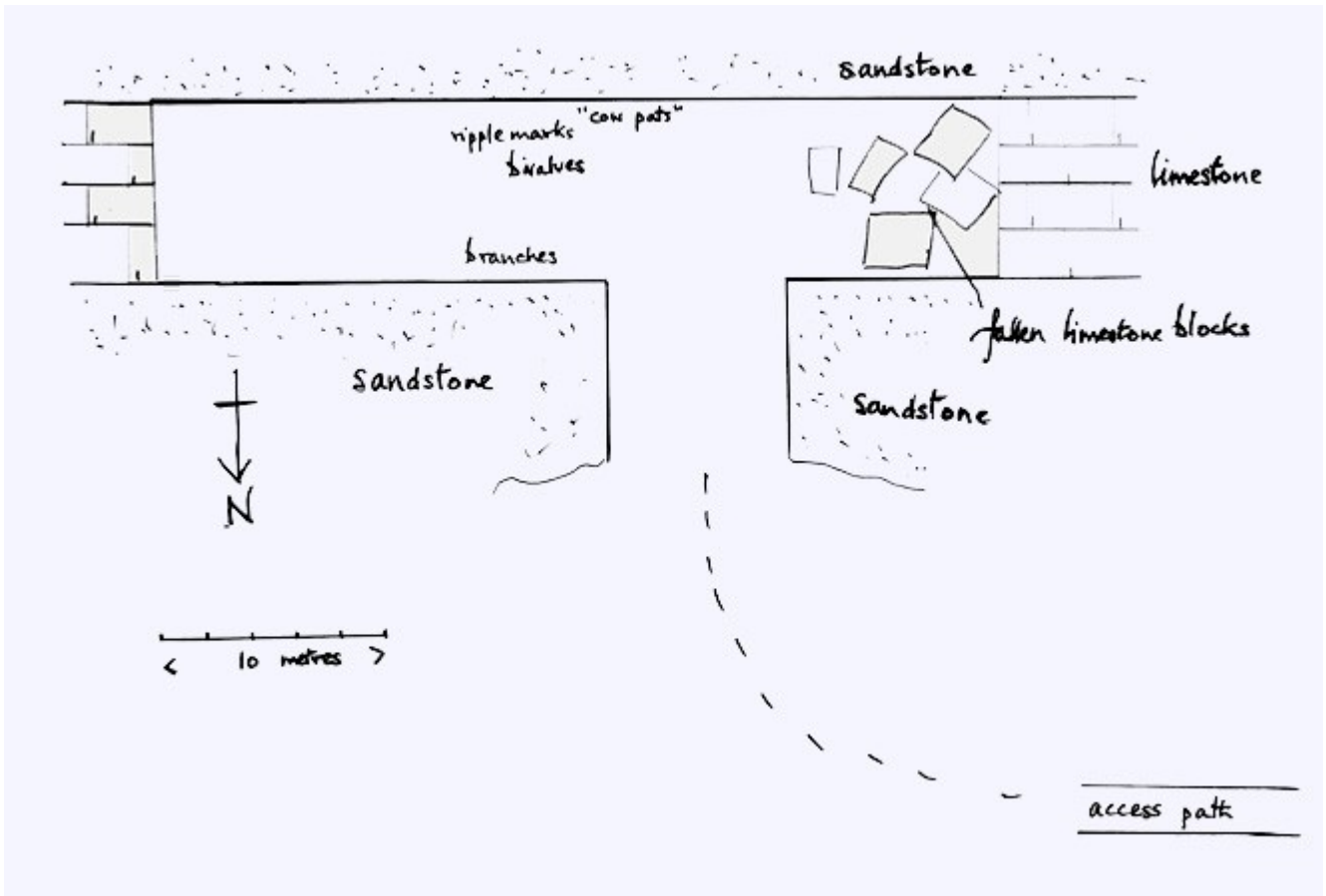


Figure 2: The quarry at Chambranles and some of the features mentioned in the text.

Today it is only visited by geological students and the occasional hiker.

The quarry face confronting one on entering is a vertical wall of sandstone laid down in the Famennian period of the late Devonian, 375-359 Ma, when Belgium and England were south of the equator. According to Ek the quarry face became vertical as a result of folding during the Variscan (end Silurian to Late Carboniferous) when, a series of terrains were compressed together as the Rheic Ocean closed (Hunter - 2001). The land would have been above our heads.

The wall of sandstone displayed several layers often only a centimetre or two thick. Features seen included what looked like a series of small cow-pats 30 to 40 cms in diameter (Figure 3), which Ek interpreted as being made by sea or river erosion of sand which had been partially consolidated by calcium carbonate, these lay above a bed of clear, even ripple marks (Figure 4) indicating a shallow water beach.



Figure 3: Cow pat features (photo Terry Warrington).



Figure 4: Ripple marks (photo Neil and Eileen Lawley).

A bed of fossils, probably bivalves, was also visible (Figure 5). Note that the sandstone itself had a black matrix, indicating the presence of organic matter, and indeed some plant fragments were discovered.



Figure 5: Bivalves (photo Neil and Eileen Lawley).

Above the sandstone was an 8m thick layer of limestone which had been quarried away but which was visible at the ends (see plan in Figure 3). Access required a certain amount of scrambling over fallen blocks of stone. This bed was interpreted as being laid down during a marine transgression.

A further bed of sandstone stood “above” (i.e. southwards of) the limestone. Still Famennian. Remains of branches were clearly visible embedded in the rock face (Figure 6).



Figure 6: Branch fossils (photo the author).

The morning was rounded off by an exposé by Ek, using the buildings of Martinrive as examples, of the use of Famennian sandstone and “pierre bleu” (Carboniferous limestone) in traditional Walloon construction.

One could tell the wealth of the original owners by the relative proportions of the two, given that “Pierre bleu” is both more handsome and more costly than sandstone!

Peter Blackie

REFERENCES:

Hunter A. (2001) "The geological history of the British Isles" Open University, Milton Keynes.

Macar, P. and Ek, C. (1965) "Un curieux phénomène d'érosion Famennienne: Les "pains de grès" de Chambranles (Ardenne belge)" *Sedimentology* 4, 53-64.