Realized by
**GEOLOGIC DIFFUSION**
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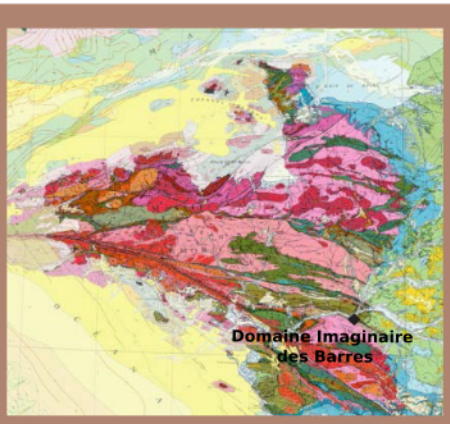
*Domaine's name*

# GEOLOGICAL HISTORY

English version




Detail of the geologic map of the French geological survey (BRGM, 1/1 000 000 scale), showing the Armorican Massif and the location of the "Name of the Domaine".


Google Earth view showing the "Name of the Domaine", localised on south facing slopes, between the Loire and Layon rivers.


Google Earth view with the geological map from the French geological survey (BRGM, 1/50 000 scale), drapped on the topographic surface. To the north, the orange colored rocks belong to the St-Georges-sur-Loire Complex, that formed between 470 and 382 Myr. The dark green colored rocks correspond to the Lower Loire Coal basin, where the "name of the Domaine" is localised. To the south, the light green rocks belong to the old Mauge Domaine, which is up to 550 Myr in age.

## DOMAINE'S NAME GEOLOGICAL SETTINGS

The wineyard of "name of the Domaine" is localised in the French district called "Maine et Loire", between the towns of Ardenay, St-Aubin-de-Luigné and Chaudefonds-sur-Layon. The grapevines of the "name of the Domaine" wineyard are growing on a siliceous soil associated with Carboniferous siliciclastic rocks that are about 320 Myr (million years). These rocks belong to a wide geological domaine including the French Brittany, the western part of the "Pays de la Loire" and of the Normandy. This geological domain is called the Armorican Massif (mainly in pink and red colors on the geologic map, on the left). The Armorican Massif results of the effects of plate tectonics that formed a mountain realm with a similar size compared with the Himalaya or the Alps, called the Variscan mountain realm. During the Variscan realm growth (380 to 290 Myr), a sedimentary basin called the "Lower Loire Coal basin" openned along the right-lateral Layon fault. The sedimentary rocks of the "Name of the Domaine" deposited insinde this basin.

## ROCKS FROM THE DOMAINE

Conglomerates, sandstones, clays and volcanic ashes deposited in the "Lower Loire Coal basin". Conglomerates, sandstones and clays are siliciclastic sedimentary rocks resulting of cementation of pebbles, coarse-grained and fine-grained mineral fragments, respectively. These pebbles and these mineral fragments result of erosion, transport and deposition in fluviatil and lacustrine environements, around 320 Myr. The volcanic ashes came from a volcano probably located in the Mésanger town, about 25 km west of the "Name of the Domaine" and deposited in lakes, with the other siliciclastic rocks.

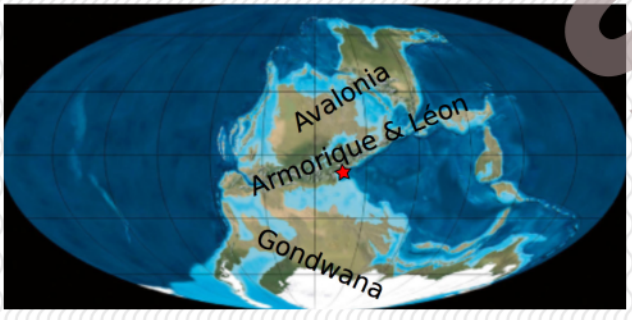


*Nom du Domaine*
NOM DE I'AOC

Pictures of the different Carboniferous rocks of the "Name of the Domaine". From the left to the right: conglomerate, sandstones witf fern fossils, coal-bearing clays resulting of the accumulation of plant debris and coarse-grained volcanic mineral debris (white and pink mineral: feldspaths); Photographies from Y. Poprawski.

Pictures of plant fossils commonly found in the "Lower Loire Coal basin". From the left to the right: Calamites (horsetail plant) and Lepidodendron (trunk of tree fern); Photographies from Y. Poprawski

Landscape reconstitution during the Carboniferous times (around 320 Myr) in the Lower Loire Coal basin.




Globale tectonic plate reconstitution during the Carboniferous times, modified from Scotese (2001). The red star roughly represents the location of the "Name of the Domaine".

## LANDSCAPES AROUND 320 MYR

In the Lower Loire Coal basin, abundant plant fossils are present, especially fern trees and horsetail plant fossils, like Calamites and Lepidodendrons. The landscape during the Carboniferous was dominated by mountains, volcanoes, lakes and rivers with a dense cover of fern trees and horsetail plants. The presence of coal in the area that have been largly mined during the 19th and 20th century, is explained by the accumulation of plant debris during the Carboniferous.

## PLATE TECTONICS

The Variscan mountain realm, where the Lower Loire Coal basin opened formed in response to a complex collisional setting between different tectonic plates: South Gondwana to the south, Armorica and Leon in the central area and Avalonia to the north. The opening of the Lower Loire Coal basin results of right lateral motion between the Gondwana and Armorica plates. On the global plates reconstitution to the left, the collision between the Leon and Armorican plates already occured. Currently, the southern part of French Brittany is a remain of the Gondawana plate, central Brittany together with western Normandy and the area north of the Layon river correspond to a remain of the Armorica plate. The remains of the Leon plate are located in northern French Brittan and those of the Avalonia plate are located in Devon in England.



### REFERENCES

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