



# PREAMBLE

## THE KING AND MARBLES

Marble is a noble material utilised to construct and decorate palaces and monuments since Antiquity. Louis XIV used it liberally at Versailles, taking inspiration from the ancient world and mythology. At the start of his reign, having conquered Flanders and Hainaut, he employed Belgian marbles extensively, with a particular preference at Versailles for the red ochre of Rance or the black of Belgium. Furthermore, he asked Colbert to have the kingdom and the Mediterranean basin searched in order to census its wealth of marble stone and quarries. So as to present to the King the diverse varieties of marble available, an ingenious mechanism was invented. At the Manufacture des Gobelins, 'catalogue' tables (sample tables) were created in a hard-stone workshop. Each of their plateaus was composed of a mosaic of squares of different samples of marble.

Curiously, the mosaic's base for a certain number of these tables, including the most beautiful example at the Chateau of Versailles, was made out of cement. Two of them are in Montpellier. One is the property of the Counts of Colbert at the Chateau of Flaugergues, whilst the other is part of the heritage of the University of Montpellier, where it was rediscovered and studied at the laboratory of Geosciences. These ancestors of today's catalogues were a lot heavier than their modern-day equivalents!

*Left-hand page: Photograph of the plateau from the 17th century sample table from the University of Montpellier. The width of the plateau is 57.3 cm and the length is 138.2 cm. The 180 samples, with a thickness of 0.4 cm, are squares of 6.3 to 6.5 cm.*

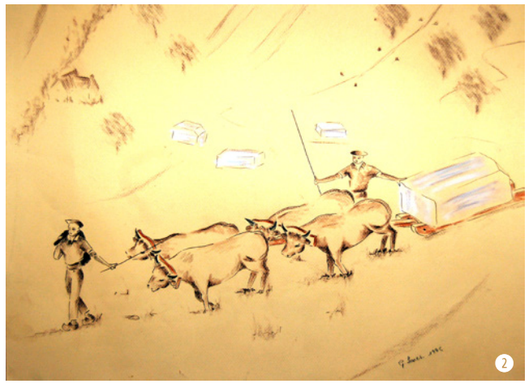
# FROM QUARRIES TO WORKS OF ARTS

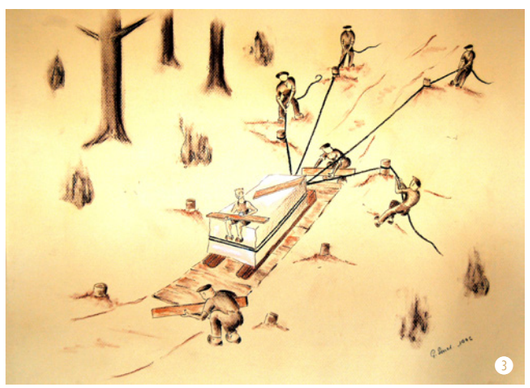
So, how were these rocks extracted from the mountains and transported to their place of use, and to Versailles in particular? The quarries are sometimes found in steep mountainous areas, which can be difficult to access. The weight of the stones can also be considerable, for example, the monolithic columns of the Grand Trianon weigh around 7 tonnes each.

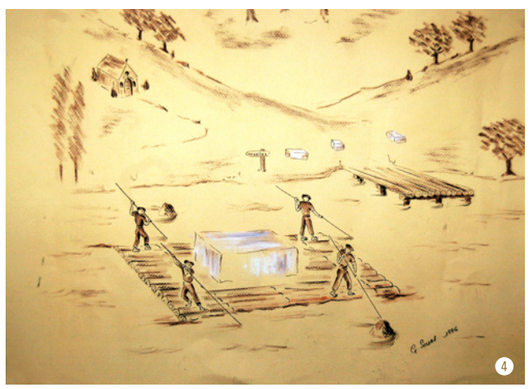
The extraction work was completely manual and varied from one quarry to another according to the layout of the rocks. Once the rock was detached from its place of origin came the problem of transportation. The type of transport used depended on the geographical location of the quarry in relation to the final delivery destination of the stone. Often several methods were employed – the overland route from the quarry, then the waterways.

We won't focus on the different extraction methods in this book. They, along with the transportation methods in the Pyrenees and towards Paris, are detailed explicitly in previous studies (see 'For More Information', page 268).

We will, however, give an example of how the marbles were transported in the era of Louis XIV from the quarry of Campan-l'Espiadet, situated at an altitude of 1,100 metres in the Pyrenees. The different phases of this transport have been described by S. Gion and illustrated by G. Serres.


*Illustrations by G. Serres (1996):* ❶ *Blocks in quarry, ready to be transported.* ❷ *Transportation over flat and hilly land requiring a variable number of cattle.* ❸ *Transportation down the descents on the constructed pathways known as* 'Chemins de Lisses' *(smooth pathways).* ❹ *Transportation by river.*


❺ *A table can be seen at the Chateau of Versailles with a top, as shown here, containing a marquetry of different marbles made in 1684 by C. Couplet. The goal was to show to the King, on a map of France, the main rivers of the kingdom as well as the Canal du Midi, opened in 1682.*

Until 1713 the blocks of marble were transported on carts pulled by cattle that descended into the Valley of Campan and then, after passing by Bagnères-de-Biggorre, Cieutat, Mauvezin and the Lannemezan plateau, arrived at Montréjeau (called 'Montréal de Rivière" at the time). At times harnesses of up to 35 pairs of cattle were required to cross the numerous hills in their path. In 1713 the overland passageway was shortened when the Duke of Antin opened the mountain pass over Beyrède – the only peak that had to be crossed in order to reach the River Neste. Only 22 pairs of cattle were necessary to haul the largest blocks up a slope which had a gradient of 9% at a speed evaluated at 1 km/h. The blocks, however, had to be slowed down on the descents so were carried by sleigh on a *Chemin de Lisse* built especially for that purpose. The blocks were then loaded onto barges and went down river to the port of Montréjeau where they joined the waters of the Garonne river and continued to Bordeaux.
In Languedoc the blocks of marble were only ever dispatched by land, until the opening of the Canal du Midi, between Sète and Toulouse, in 1682. From then onwards, the blocks were loaded on boats at the port of Puichéric on the Canal du Midi, before joining up with the Garonne at Toulouse, and docking at Bordeaux.

Once at Bordeaux, seafaring vessels of the Royal Navy or the Dutch Navy transported the blocks to the mouth of the River Seine. They were then dispatched to Paris and stocked in the *magasins du roi* (king's stores) whilst waiting to be used in the royal residences and Versailles. These stores were situated on the docks of the Seine where the Louvre stands today.

When the climate was favourable, and barring technical hitches, the total time that it would take to complete the journey, in excess of 1,850 kilometres, from the quarries of the Pyrenees to the *magasins du roi*, was estimated at between 42 and 62 days.

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# MARIE-ANTOINETTE'S BEDCHAMBER

The original decor of the Queen's bedchamber has disappeared; all that remains is a beautiful fireplace in morello-red marble from Félines-Minervois, decorated with gilded bronze. The outer hearth is a rectangular plaque of the same marble, framed in white marble. The fireplace is topped by a bust of the Queen in white Carrara marble.

The majority of the furniture, however, has found its place again. The most outstanding is the sumptuous jewellery cabinet ordered by Marie-Antoinette at the end of the 1780s from cabinetmaker Ferdinand Schwerdfeger and bronze-maker Thomire.

It is one of the most lavish pieces of furniture ever created–inspired by antique motifs that were rediscovered during Marie-Antoinette's time. The exterior is inlaid with mother of pearl and diverse gems, whilst the interior parts are lined with marble, in particular crimson-red marble from Caunes-Minervois.

# THE HIGH ALTAR

The high altar was made with several polychrome elements in gilded wood and classic baroque-style marble. The front of the altar displays garlands and flowers intertwined with arabesques made from polychrome marbles of the Languedoc and the Pyrenees, set in white marble. The *fleurs de lys* of Louis XIV are embedded in the centre.

We can also admire here, inlaid in the white Saint-Béat marble, some dark morello-red *œil de perdrix* marble from Félines-Minervois, marble known as 'mill green' of *roc de Buffens*, *grand mélange* and green marble from Campan, as well as a red from Caunes-Minervois with white patterns, so frequently used in Versailles. In the arabesques, surrounding the dark red marble of Félines, we can also observe orange marbles with grey patterns: *brèches* from Trets in Provence. This is composed of light-orange marble from Pourcieux and a darker orangey-red marble from the Hermitage of Saint-Jean-du-Puy.

# THE MARBLES OF FÉLINES-MINERVOIS

## A DIVERSITY OF MARBLES

Quarries are situated in the commune of Félines-Minervois in the Hérault department, bordering Caunes-Minervois.

Forty-seven varieties of marbles from Félines-Minervois have been recorded by René Fabre from the different quarry faces exploited through the ages. He has created an abacus from samples of marble in order to present their diversity. Some are similar to the marbles from the neighbouring commune of Caunes-Minervois whilst the most well-known are the *griotte* (morello) marbles, so called for their aspect and colour that evoke small morello cherries. The rock displays pinkish red to dark red nodules bound by sinuous dark lines.

In certain zones, a white-coloured ellipse can be observed in the centre of the nodules. The variety of marble, where these elliptic white marks are common and regularly dispersed, is known as '*griotte œil de perdrix*' (morello partridge eye). If, however, these white marks are equally numerous yet scattered around the rock, modifying the general appearance, we use the term *cervelas* marble.

In any case, whenever this nodulated appearance is noticeable and even if the dominant colour is not red, we use the term *griotte*, for example, *griotte vert* (green morello).


*Varieties present at Versailles:* ❶ *griotte œil de perdrix (morello partridge eye)* ❷ *griotte rouge (morello red)* ❸ *griotte verte (green morello) and* ❹ cervelas.

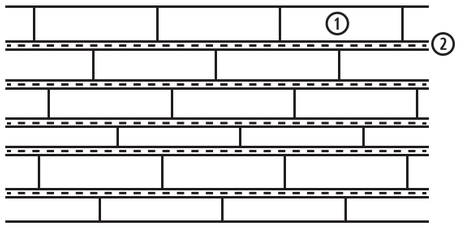
# THE HISTORY OF THE ROCK

In a limestone rock, levels of limestone with a centimetric thickness ❶, alternate with levels with a millimetric thickness ❷ of clay particles associated with metallic oxides, in particular iron oxides.

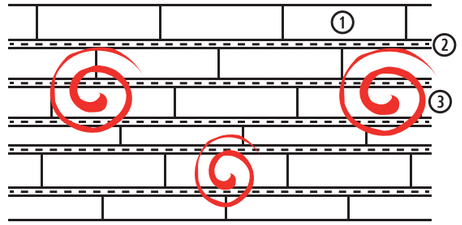
During the creation of the Hercynian mountain range, the limestone rock was greatly compressed and slightly heated, causing a flattening of the rock. As it was heterogeneous, certain zones were more resistant than others, flattened less and appeared as nodules highlighted with sinuous black lines where the clays and iron oxides were concentrated.

In the *œil de perdrix* variety of marble, a bubble of air or a void remained trapped within goniatite shells, which were stretched and flattened by the compression. Late fluids, rich in calcite in solution form, were percolated in these empty spaces and deposited calcite in the form of crystals of pure calcite. This is where the white colour originates.

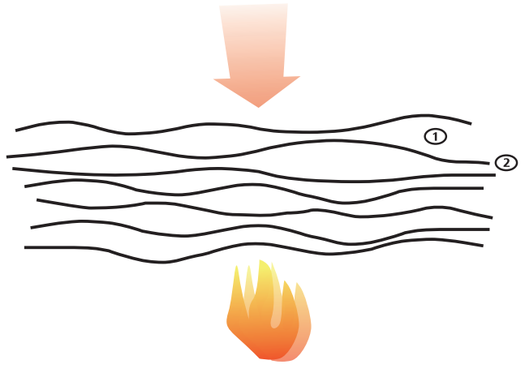
Limestone rocks ❶ alternating with fine layers of clays rich in metallic oxides ❷.



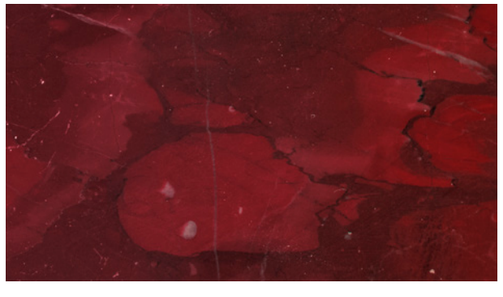

Limestone rocks ❶ alternating with fine layers of clays rich in metallic oxides ❷. Presence of goniatite fossils ❸.

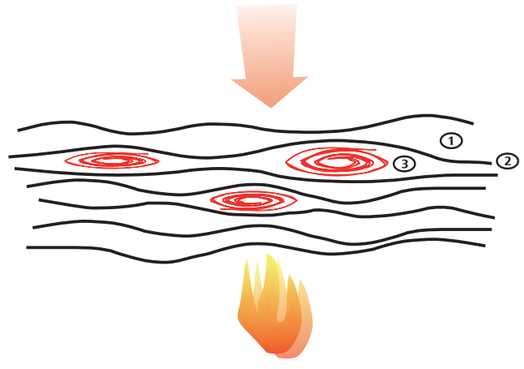



During the formation of the mountain range, under the effect of the pressure and heating, the limestones flatten, the harder parts are moulded by the layers of clays and become nodules. When fossils, often goniatites, are present they too are flattened.
Later, in the central vacuum of the shell, the percolating liquids deposit white calcite.




**Result:**
morello limestone






**Result:**
morello *œil de perdrix* limestone