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BELGIAN STONE, A REVIEW

by E. GROESSENS (*)

Abstract - The stones have been exploited since the days of the Romans who were the first to polish them, and since then, right through the Renaissance and until the present time, they have decorated important public and private buildings, churches, cathedrals, castles and palaces such as, for instance, the palace of Versailles in Paris. Sadly, some of these fascinating stones are no longer quarried, although hopefully this is only a temporary state and they may re-open in the future. But there is still available a large selection of grey, black and red marbles which is reviewed here. Many other building stones are quarried in Belgium nowadays. Except the Balegem stone, all of them are produced in the French speaking part of the country.

Résumé - Les matériaux de construction extraits du sous-sol belge sont nombreux et diversifiés. Depuis la période romaine, jusqu'à nos jours, les marbres furent exploités et commercialisés dans le monde entier. Beaucoup de gisements prestigieux sont actuellement abandonnés, il reste cependant une large gamme de matériaux disponibles dont un répertoire actualisé est établi ci-après.

INTRODUCTION

"Belgium, one of the founder members of the EEC, has a small but by no means insignificant minerals industry. Essentially it is an important producer of four groups of minerals: - carbonates, such as limestone, dolomite, and whiting; synthetic materials in the form of soda ash and sodium sulphate; silica and sand; and construction materials, including a wide range of Belgian marbles. The country is also a producer of barytes, silica-alumina sands, and silex, and it the past was a source of phosphates". So did Lee Pettifer introduce a article reviewing the operations of the major companies producing industrial minerals in Belgium in 1981. And indeed, Belgium is one of the Europe's leading producers of dolomite. The main areas of production are centred around Marche-les-Dames (Namur) in the middle of the Meuse valley. The country is without question Europe's largest exporter. But, the production of limestone is Belgium's major extractive industry. The main areas of output are all in the French speaking part of the country - along the Meuse valley and around Tournai. From the table it is apparent that the main uses for limestone within Belgium are as an aggregate and

for iron and steel production, whilst smaller quantities of crushed or ground higher grade material are used for sugar processing, glass manufacture, and industrial chemicals production. So far as Europe market are concerned, Belgium is a significant producer in the vicinity of Mons of the chalk whiting variety of calcium carbonate fillers.

Belgium is also one of only four world producers of silex grinding mill-blocks. The others are Yugoslavia, Spain and China. It has long been recognised as a producer of good quality quartz sand. The main centres of production are near Mol and Maasmechelen. At Anhée-sur-Meuse, two companies account for a large proportion of the Belgian production of silica-alumina sands.

In addition to limestone, Belgium produces a wide range of materials for road building and construction purposes. These include porphyry, sandstone, and sand and gravel. The production of porphyry is concentrated exclusively in the southwest of Brussels. Although sandstone is produced by a much larger number of producers and in a much wider range of locations, annual output runs

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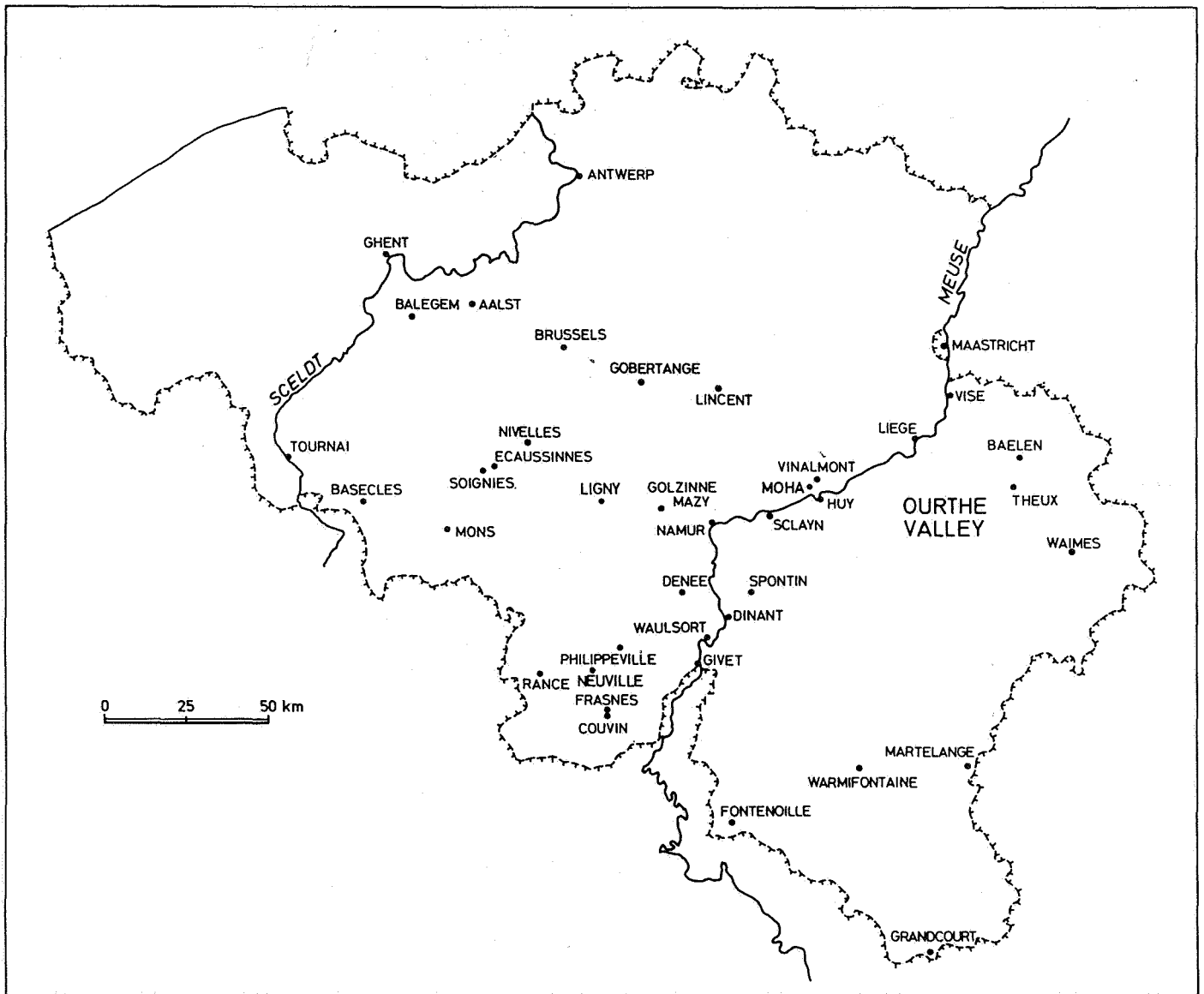


Figure 1. Localization of listed town names.

at about 50 % of that porphyry. Capacity is in the hands of around fifty producers which, apart from two operating near Mons, are based throughout the Ardennes.

Belgium has been a renowned producer of marble for over 2 000 years. The name "marble" is used here in its commercial or technological sense and not in the way understood by petrographers, because historically it has been applied in this way to describe those rocks which take a good polish, have an attractive appearance, and are used for decoration in building and for furniture and other objects as well as for carving fonts, etc.

All are hard limestones from the sedimentary deposits of the Upper Devonian or Lower Carboniferous times. They are stones of low porosity and with a number of different minerals giving to them a variety of colours, often enhanced with the remains of fossil organisms such as shells, ossicles of crinoid, coral colonies, and sometimes also with white calcite veins.

All our limestones are of marine origins and all were deposited during the interval between the Upper Devonian and the Lower Carboniferous. Belgium has produced hundreds of different varieties of these hard limestones and was until the middle of this century one of the

main world producers.

Not only marbles were produced in Belgium, in fact, because of its high rate of population density and its corollary which is the construction business, almost all hard rocks which could be used as building material have been quarried in the past. Many of these stone quarries are completely abandoned nowadays, others are reopened for occasional restorations, some others are still worked and are listed below.

HISTORY

The Belgian marble industry has always offered to architects the good and fashionable material they needed to improve the aesthetic value of the buildings they wished to decorate. The Romans not only imported ornamental stones from far away but they also opened many quarries, and archeological discoveries show that the stone cutters already worked most of the varieties which are found in Belgium today. When the Roman Empire fell, marble-working skills disappeared almost completely for some centuries.

During the 13th century, Tournai became an important centre for local black marble carving. Thanks to the river Scheldt, the fonts and tombstones were dispersed over the whole of Europe.

Many of these beautiful fonts are nowadays found in British cathedrals, others are to be seen in Belgium and in churches or museums in other countries. Flagstones were also made at Tournai. The beautiful tomb of the French queen, Blanche of Castilla (1185-1252) which is to be seen at St Denis Cathedral in Paris, is worth pointing out. At the same time, craftsmen searched for similar material in other parts of the country and reopened deserted Roman quarries or started new ones. Fonts and tombstones were then made from dark to black limestones outcropping along the river Meuse. The black marble of Dinant was, for instance, used for the carved tomb of Jean-sans-Peur (1371-1419) displayed at Dijon.

If the Tournai limestone was in the western part of the country, the main building stone during the Norman period; the Gothic period increased the use of the Balegem stone which lightness allowed the carving of slender mullions, lintels and all the flamboyant ornamentation of our town halls and churches. In the eastern part of the country, the Upper Cretaceous Maastrichtian stone or the Lower Paleocene Lincent calcarenite were mainly worked. Unfortunately, those white limestones are subject to decay by atmospheric pollutants and were thus gradually replaced by other materials as the Gobertange stone, essentially till the end of XIXe century and the French limestones in later restorations.

The Italian Renaissance gave a new impetus to the marble industry; the red and black marbles were then exported and used in the decoration of the duomo of Florence and the Vatican City palaces. The campaigns of the French kings in Italy (1498-1559) gave the French nobles a taste for rich and fascinating decoration and furnitures, and when they returned home they enhanced their castles with marbles from all parts of Europe.

The fame of the colourful Belgian marbles was greatest during the Baroque period (17th-18th century) when all churches were enhanced with a majestic and voluptuous decoration.

The apogee for the marble business was certainly the enlarging by Louis XIV of the palace of Versailles (1680) when columns, staircases and floortiles were carved in marbles coming from all part of the kingdom, and especially from its then northern province of Flandres. From there came the names Rouge de Flandres for the Belgian red marbles and "granit de Flandres" which has sometimes been given to the Petit Granit. The famous "Hall of Mirrors" of Versailles is decorated with the most prestigious of all red marbles - the red marble of Rance. This splendid palace was not only imitated by all European sovereigns, but by prosperous people living throughout the world. Among many other examples are the chamber where the holy relics of the prophet Mohamed are displayed at the Topkapi palace of Istanbul which is ornamented with Belgian red.

Many new quarries were opened at that time but the end of this period of prosperity approached because the French Revolution (1789) when war and insecurity on one side, and the loss, on the other side, of

their main customers (the noblemen and churchpeople) retarded the progress of all sectors of trade and industry.

With the First Empire, our marble business recovered its prestigious state, not only because of the creation by Napoleon of a new aristocracy and middle class but also thanks to the British naval blockade hindering the importation of Italian marble blocks into France. This period saw also the industrialisation of the marble industry.

After the abdication of Napoleon, new kingdoms were created. Belgium and the Netherlands had for 15 years a joint venture. From that time, to protect their own production, the French government established high rates of importation taxes. Many Belgian marble cutters whose business was mainly oriented to Paris, left their country and emigrated to northern France where they founded new companies. The trade with other countries of north Europe and with Britain and its overseas empire was improved.

The second apogee of the Belgian marble trade came in the second part of last century and lasted till World War I; a revival took place during the interval between the two worlds wars but the increased costs of the Belgian marbles due to high salaries, and the introduction of substitutes, caused the loss of many markets and the decline of the Belgian marble business which with the exception of a short period after World War II, when new techniques were introduced, became even worse with the creation of the Common Market.

I would take too long to analyse all the reasons for this regression, but I would point out the loss of our technological advantage to Italy and the appearance of new uses for marbles as well as the increase in the demand for white or pale varieties of stone not generally produced in Belgium. One figure only will illustrate this trend: we now import 36 times more Italian marble than in 1962, the year the Common Market was established. This figure does not include granites which are not produced in Belgium. Actually a few quarries are still active, and the potential for future activities is still enormous and worth emphasising.

PETIT GRANIT

The major stone is the Petit Granit or Blue Stone which is a Tournaisian crinoidal dark blue limestone composed almost entirely of fragments of the skeletons of echinoderms. As each plate of this skeleton is a single crystal of calcite the rocks formed by those fragments have a similar aspect to a granitic rock. In 1982, 72,000 m³ of Petit Granit slabs were sawn or polished.

This limestone has also been called in the past Marbre of Ligny from the name of a particular village. From its local quarry a fairly dark variety was extracted and mainly used in France. For instance the Pantheon of Paris (1764) is floored with tiles made from Ligny marble. During the reign of Napoleon I, the

Clypot
NEUVILLES

Hainaut
SOIGNIES

Gauthier-Wincqz
SOIGNIES

Scoufflény
ECAUSSINNES

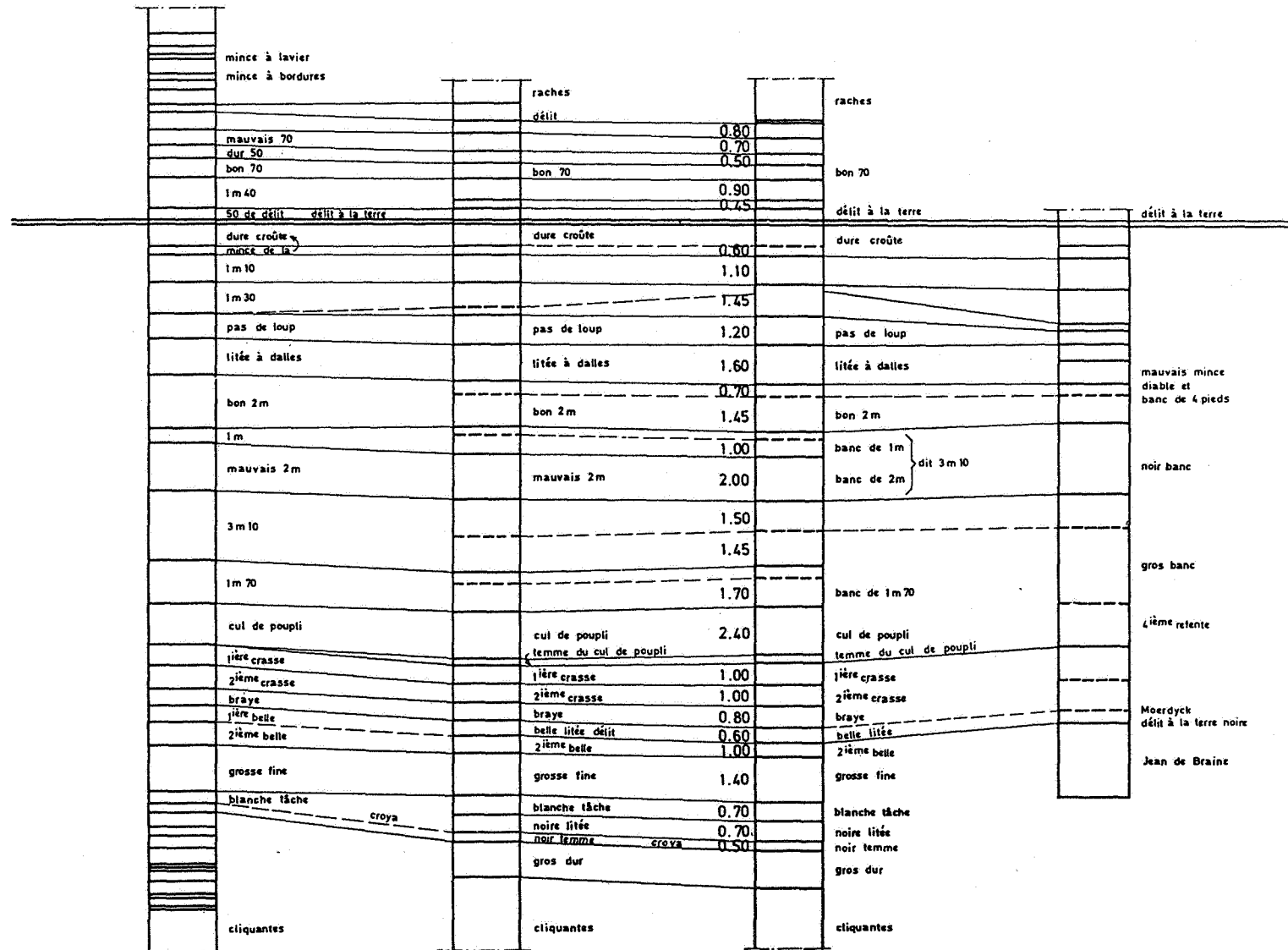
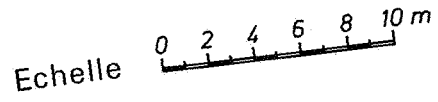


Figure 2. Stamps. Bassin d'Ecaussinnes, Neuvilles, Soignies.

CARRIERE DE GORE

A THON - SAMSON

COUPE TRANSVERSALE



LEGENDE

- Terre
- Coumayes
- Pierre de 2e qualité
- Tinrass
- Moulon
- Bancs agréés
- Dolomie
- moellons d'enrochements
- moellons débrutis
- moellons piqués
- moellons débrutis
- moellons d'enrochements
- Pierre de taille 1ère qualité

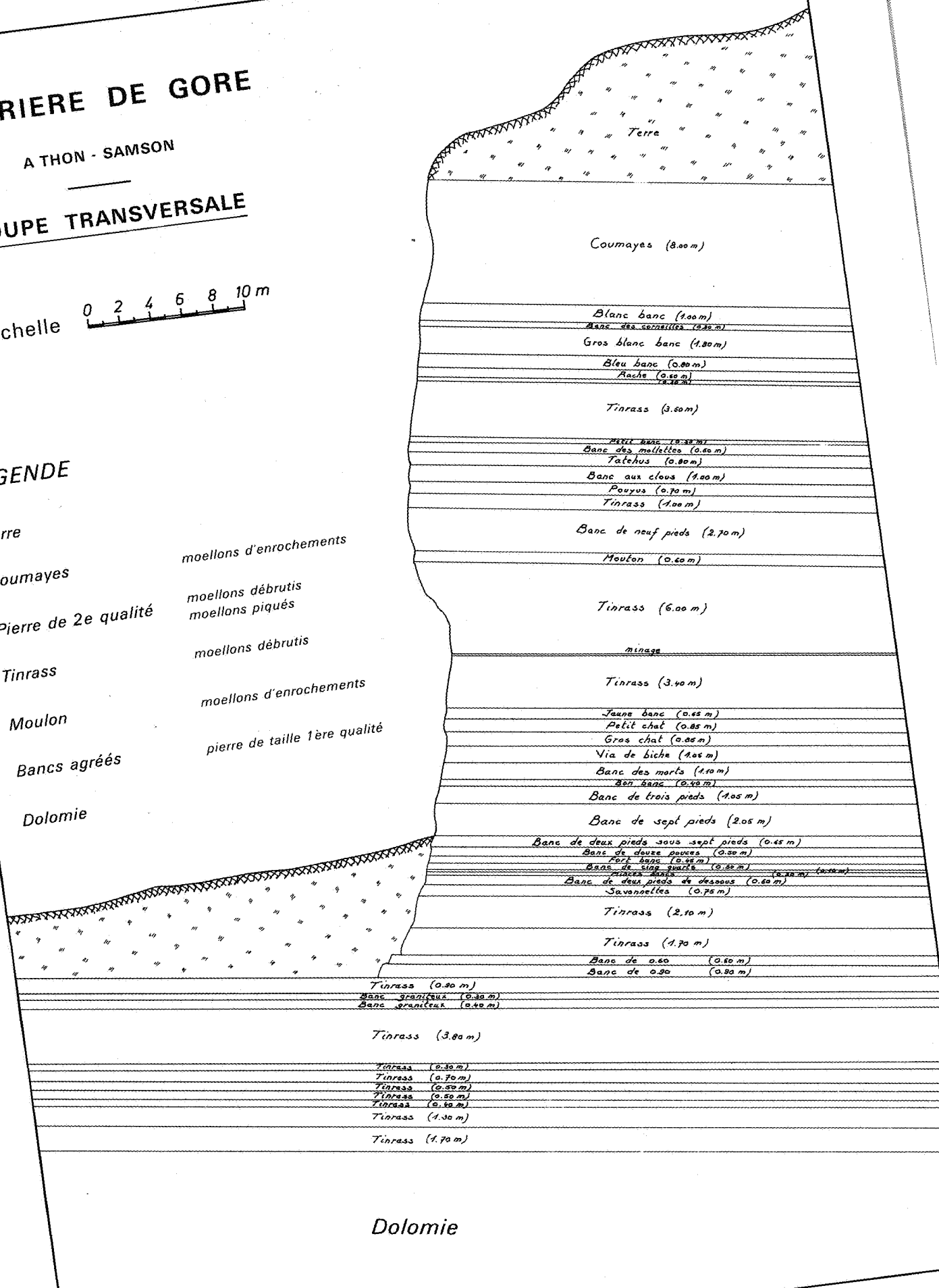


Figure 3.

fashion was to cover the furniture with this material, then called Marbre Empire. Actually, this material is known abroad as Ecaussines or Pierre de Soignies (after the two main quarrying localities) or Belgian crinoidal marble.

Above 80 % of the production comes from the area around Soignies-Ecaussines, in the south-western part of the country. The other 20 % is produced in the Ourthe Valley, in the north-eastern part of the country, and in Denee and Spontin in the south-central part. The total thickness of the different extracted beds represents 40 meters.

The Belgian crinoidal marble is one of the best building stones in Europe. It is composed of more than 95 % of CaCO₃ and its colour varies from pale grey to blue after surface cutting and to black when polished. It hardly alters, as can be seen on the old buildings in Belgian cities. It is inert to frost, rain or salt-laden wind, and is very resistant to sulphurous smoke.

Belgian crinoidal marble is nowadays quarried from two different geological units within the Lower Carboniferous.

A Middle Tournaisian limestone from the Landelies Formation is quarried under de name "Petit Granit du Bocq" at

CARRIERES DES NUTONS
Rue des Rivières 33
5311 SPONTIN

The Upper Tournaisian Petit Granit is mainly quarried at and near Soignies where three companies operate open cast mines and these are as followed

1. S.A. CARRIERES DU HAINAUT
7400 SOIGNIES
2. S.A. CARRIERES GAUTHIER & WINCQZ
7400 SOIGNIES
3. S.A. C.C.B. - Division "Carrières du Clypot".
7470 NEUFVILLES-SOIGNIES

In the Eastern part of the country, near the Rivers Ourthe and Amblève a number of quarries work the Encrinite of Ourthes Formation, also Upper Tournaisian in age. Most of those companies joined a sales office called "GROUPEMENT DES CARRIERES DE PETIT GRANIT, LIEGE-NAMUR S.A.". rue Joseph Potier 13 - 4060 SPRIMONT

1. S.A. CARRIERES DE LA PREALLE
4058 CHANXHE-POULSEUR
2. S.A. CARRIERES DE MONT ET VAN DEN WILDENBERG
4070 AYWAILLE
3. S.A. CARRIERES DE SPRIMONT
4060 SPRIMONT
4. S.A. DES CARRIERES DE CHANXHE
4058 CHANXHE-SPRIMONT
5. S.P.R.L. JULES JULLIEN & FILS
5296 LES AVINS

Another company is member of this grouping but is situated in the Namur Province :

6. S.A. BELGE DES MARBRES, PIERRES & GRANITS (M.P.G.)
5642 DENEÉ

A nationale grouping is located at 7400 Soignies and called "FEDERATION DES CARRIERES DE PIERRE BLEUE-PETIT GRANIT". One only quarry is situated in the Luxembourg province and named "S.A. CARRIERES DE BENDE-JENNERET".

Some 80 % of the production goes to local use, the remaining 20 % is exported mainly to the Netherlands, France, Germany, Switzerland and the Scandinavian countries.

CALCAIRE DE MEUSE - VINALMONT

The limestones which outcrop on both sides of the river Meuse, between Namur and Liege, have been largely quarried in the past under the general designation of Calcaire de Meuse. Actually, only the Visean limestones are still used for ornamental or building stones. The stratigraphically youngest of these Lower Carboniferous limestones is quarried in a single quarry along the river. It produces a dark blue limestone, much thinner grained than

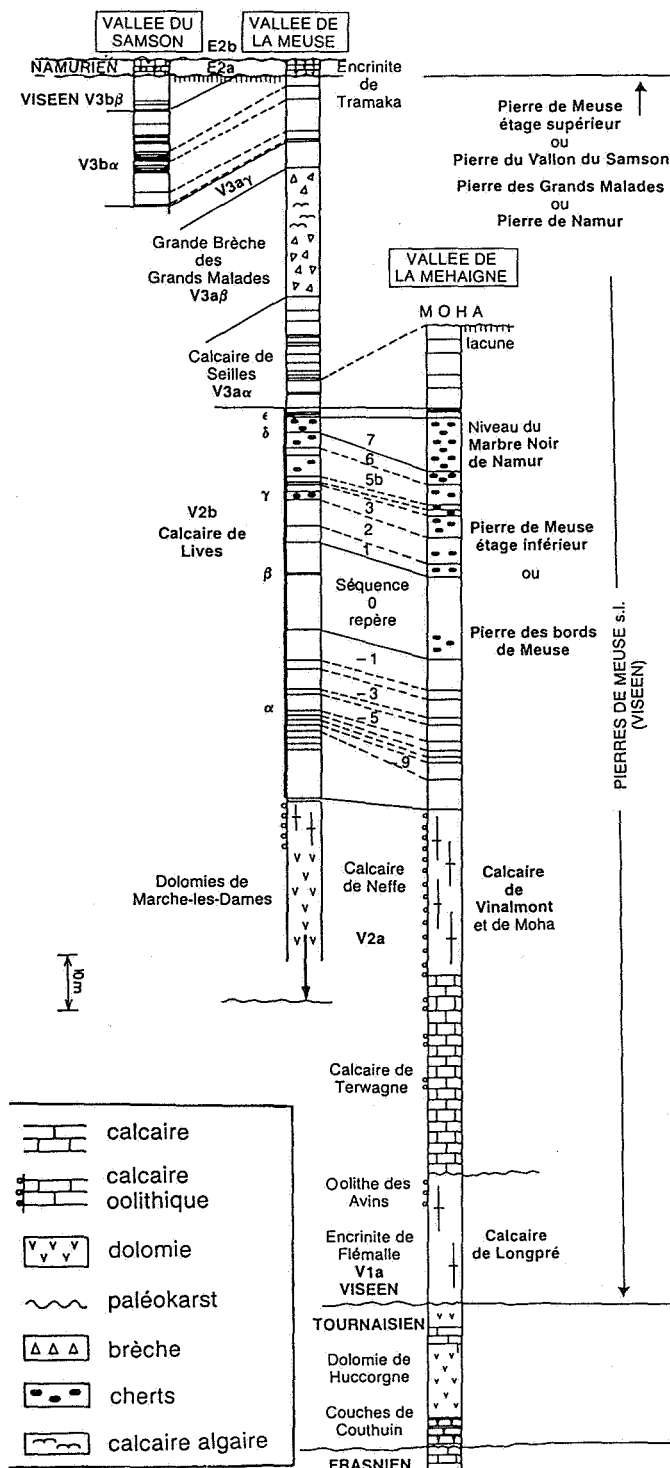


Figure 4. Log of the Dinantian in the Namur Syncline (After CSTC/NIT 163).

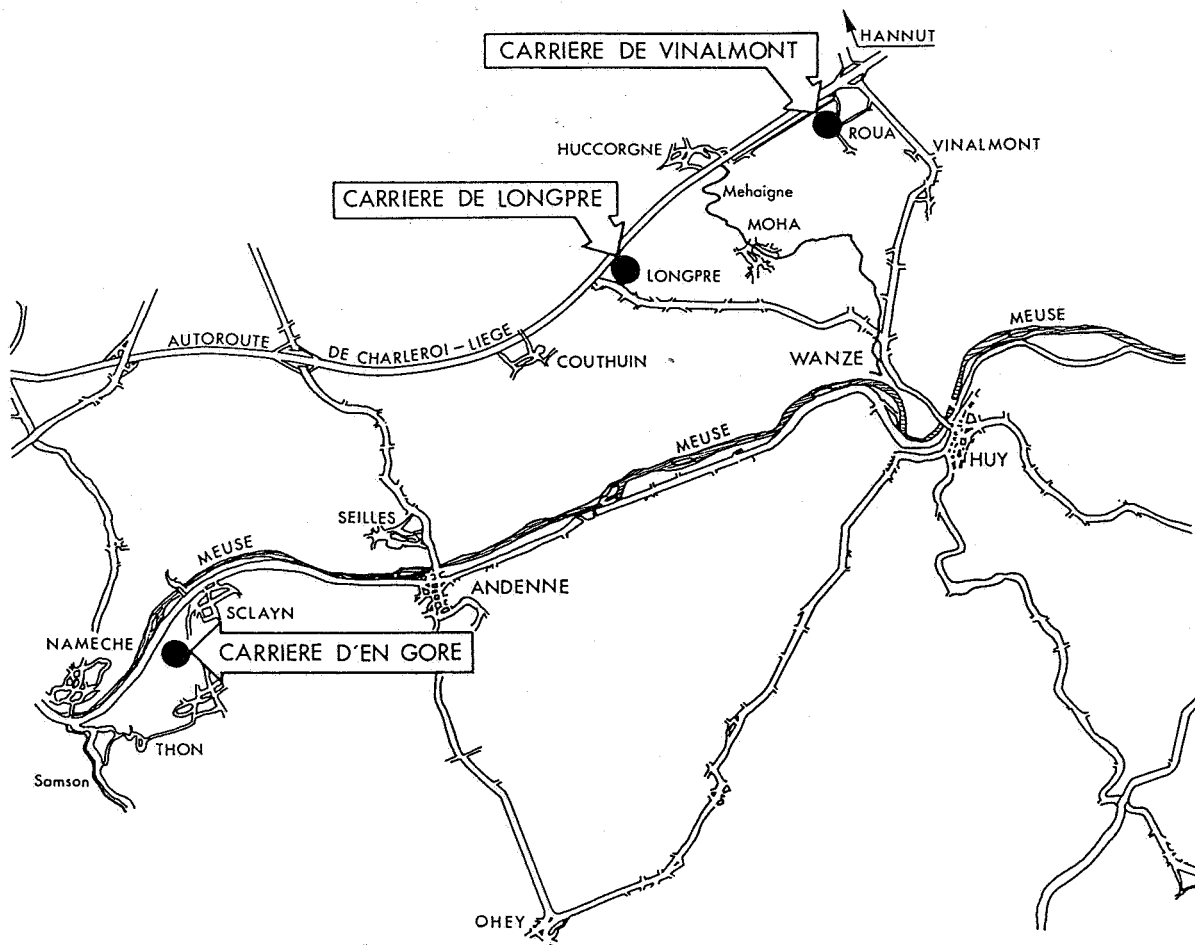


Figure 5. Localization of "Pierre de Meuse" quarries (After CSTC/NIT 163).

the Petit Granit, and which is only produced for official buildings at the GORE quarry at Sclayn.

A stratigraphically older stone is a pale-grey oolitic limestone weathering into white and showing nice sedimentary structures when exposed outside. This limestone may also be polished into a uniform grey marble. The rock is composed of 99 % of CaCO₃ and is inert to frost. The only working quarry is located in Vinalmont, and a part of the production is exported mainly to the Netherlands and Germany. The stone of Vinalmont is commercialized by S.A. DE MONT & VAN DEN WILDENBERG at Aywaille.

Another pale limestone is produced by J.Cl. BRIOT at Longpre (Wanze) near Vinalmont, from a stratigraphically older level. The Longpre stone was formally used for the restoration of old buildings ; more recently the quarry has produced some 100 m³ a year to be used as ornamental stone. Actually this company also buy blocks of Vinalmont at the lime quarry at Moha. The marble work J.Cl. BRIOT is located at

Rue de l'Industrie 27
7000 NAMUR

All the "Pierre de Meuse" are sawn or transformed as randomashlar. Only the Vinalmont stone is produced in polished slabs.

THE BELGIAN BLACK MARBLES

The speciality of my country has always been, and is still, the black marbles.

Although they were quarried from different localities and from different stratigraphical units, they are known abroad under the general designation of Belgian Black, and they have in common their microscopic grain size, their purity and their homogeneity. Most of them were Lower Visean in age, as those of Dinant, Theux and Basecles. The black marble of Namur came from selected beds of the stratigraphically youngest level of the previously mentioned Calcaire de Meuse.

All these Visean black marbles are from thin beds of pure black limestones intercalated with shales or coarse grained limestones generally grey in colour and used for local building purposes. They were quarried by the Romans and during the Middle Ages and the Renaissance, because on one side large but thin blocks were easily extracted and used for carving tombstones and making floortiles, and on the other side nice compositions were made, mixing black and white marbles, or black marble enhanced with brass. In spite of their great reputation, all of these mainly underground quarries were closed because of the high percentage of waste compared with the good quality black marble.

The only active quarry, which is also an underground exploitation, is situated at Golzinne near Mazy and commercialized by

S.A. MARBRE NOIR DE GOLZINNE
Rue de Suisse 2
1060 BRUSSELS

This Belgian Black marble is also the only one quarried from Upper Devonian sediments, or more precisely Middle Frasnian. The useful beds are only a few meters thick and only traditional extracting techniques are used to preserve the extraordinary qualities of this material. Some 400 to 500 m³ are produced each year, and are mainly exported. The first quarry in the region was opened in 1645 and the first underground quarry started in 1859.

Two Lower Carboniferous - Tournaisian limestones are also quarried for black marbles. One is called Noir de Denée and is selected within the upper beds of the Petit Granit -(M.P.G.) quarry of Denée. It is mainly composed of a black micritic limestone, still loaded with crinoids and bryozoa which are the main component of the underlying Petit Granit. The Noir de Denée may also be obtained with geodes constricting with the black background. The annual production of the quarry is almost 1 000 m³ of which a third is black marble.

The other Tournaisian black marble is the famous Noir de Tournai produced by

"LA PIERRE DE TOURNAI"
Carrières et Cimenteries LEMAY
Vieux Chemin de Mons 12
7520 VAULX-LEZ-TOURNAI

This company is the only one able to supply Tournai limestone for restoration and the rebuilding of old monuments, and also produces marble blocks and tiles for floor and wall decoration.

THE RED MARBLES

Ancient reefs, or mud-mounts occur at different stratigraphical levels in

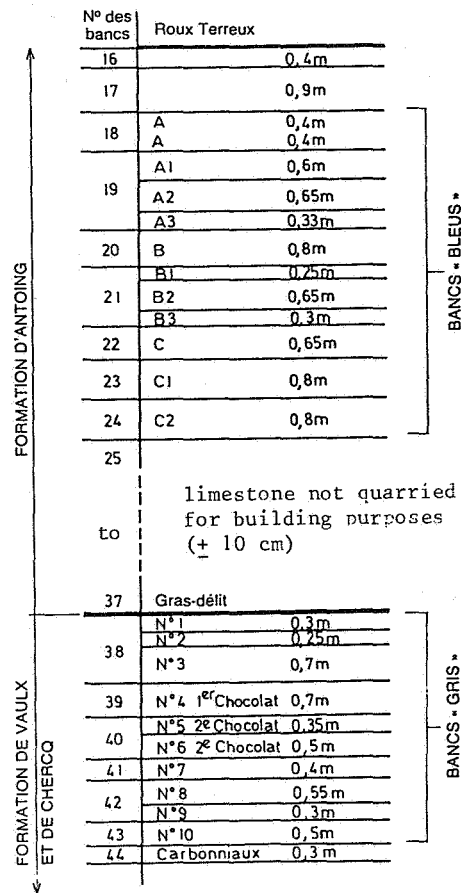


Figure 6. Log of the beds of "Pierre de Tournai" at Lemay quarry.

the Belgian Paleozoic, but red mud-mounts only appear in the Uppermost Devonian - two horizons in Frasnian, and one horizon in the Famennian and also one doubtful horizon which is in relation with the Waulsortian facies of the Lower Carboniferous.

The quarry from which this last marble was extracted was located near Dinant, but has been completely filled up and only small debris may be collected attesting to the activity in the past. The only Famennian mud-mount known in Belgium pro-

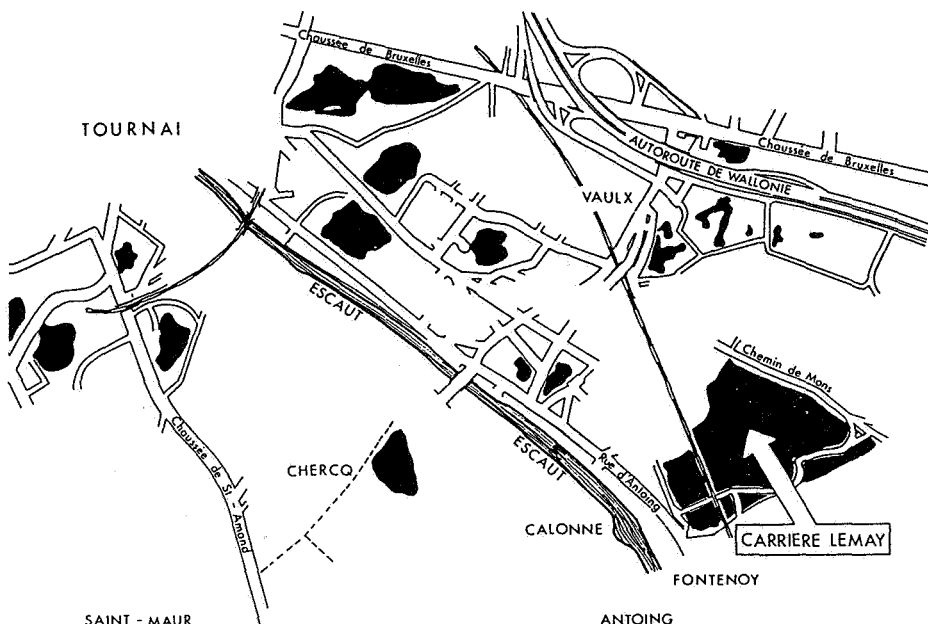


Figure 7. Localization of Lemay quarry at Tournai.

duced in the past a very fascinating red marble called Marbre de Baelen.

During the Frasnian, reefs or mud-mounts grew at different stratigraphical intervals. The older reefs produced mainly grey marbles which were little used. The base of the oldest horizon produced locally a red marble in the type-region of Frasnian horizons, more than 200 quarries have been opened successively beginning in Roman times until the present day, with a few quarries still active.

The different reefs grew mainly at the southern margin of the Dinant Basin along a curve passing through Rance, Frasnes, Givet and in the direction of Liege. Nevertheless, the great majority of them are located around Philippeville, where quarrying activity is still going on.

The general shape of such a mud-mount is a dome surrounded on all sides by shales. Within this reef, the colour varies with the position in this dome structure. The name which has been given to the marble differs of course with the more or less pronounced red colour, after the locality of the quarry, the fashion of the time, the owner, etc. This explains why hundreds of different trade marks have been given to these marbles but we can give them a common designation - Belgian Red to replace that of the Red of the Flanders which has been used in the past.

Actually four quarries are active at Philippeville. The only one where marble sawing and polishing is done on the work is CARRIERE DE ROCHEFONTAINE (S.C. CO-MARBLE) at 6344 FRANCHIMONT where "Versailles Grey" and "Rochefontaine Pink".

The three other ones produce marble blocks which are enhanced and polished on a major marble works.

1. CARRIERE DE TAPOUMONT
6354 NEUVILLES (Philippeville)

from where "Royal red" and "Byzantine-Red" of Tapoumont, as well as "Rosy-grey of the Ardennes" are produced by S.A. CARRIERES GAUTHIER & WINCQZ at 7400 SOIGNIES.

2. S.A. CARRIERE DE NEUVILLES

This quarry produce mainly the dark "Griotte" variety which is enhanced at the MARBRERIE DE MAZY - 5830 MAZY-GEMBOUX under the name "BELGIAN RED OF NEUVILLE".

3. THE HAUT-MONT QUARRY at 6364 VODELEE (Doische) produce a "RED MARBLE OF PHILIPPEVILLE" which is worked by S.A. CARRIERES DE SPRIMONT at 4060 SPRIMONT.

THE NATURAL WHITE BUILDING STONES

BALEGEM STEEN

The stone of Balegem also called "LEDIAN LIMESTONE or SANDSTONE" is a Middle Eocene sandy limestone (30 to 40 % quartz) pale grey, weathering into yellowish by alteration of its glauconitic contents.

Most of the mediaeval monuments in Brussels and in the Flanders were build with Ledian limestone.

In the past this famous stone was quarried in many places around Balegem, east and west of Aalst and around Brussels. Actually the only place it is worked is at its type locality where it occure into one or two regular beds into Upper Ledian sands. The actual owners of the quarry are N. & W. VERLEE - 9510 BALEGEM.

PIERRE DE GOBERTANGE

The Lutetian (Eocene) sands are locally interstratified by 8 to 10 solid white limestone beds. The thickness of those beds varies from 20 to 40 cm, but the coherent usefull part of them do not extend 10 to 15 cm in thickness.

The CaCO₃ content varies from 73 to 83 %. Some varieties have yellowish to reddish stains due to the weathering of glauconite.

For many years, this limestone (also called Brusselian ashlar - moellons bruxelliens) was quarried for local use near Nivelles (Plancenot, Loupogne, etc.) and East of Brussels (Zaventem, Diegem, Woluwe, etc.) but the best quality has always been and is still worked at Gobertange, near Jodoigne.

The Gobertange stone was very estimated last century, it was than, together with the Petit-Granit the leading buildingstone in Belgium. In the past, it was mainly quarried in underground galleries starting from a pit, actually, an open quarry is active at Gobertange and produces random ashlar.

M. DEWART
Rue de Gobertange
5904 MELIN

Blocs coming from the same quarry are sawn and enhanced by another company

ENTREPRISE COLEN S.P.R.L.
Zone Industrielle
5900 JODOIGNE

PIERRE GAUMAISE

A pale yellow-ochre shelly limestone, Bajocian in age, called "CALCAIRE DE GRANDCOURT" in Belgium, is quarried near the crossing of the Frontiers of France (where it was worked at Audun-le-Tiche, Villers-la-Chèvre and Tallencourt), of Luxemburg (quarried at Rumlange [Tetange] and Differdange) and Belgium, where the Bajocian limestone only outcrop on a little streak extending from Torgny to Halanzy. The sawned surfaces of this stone shows nice "haring bone" sedimentary structures.

The only active quarry has been reopened a few years ago by Mr. Slegten at Ruette who produces as well sawn stones as sawn bedded wallings and random ashlar for inside and outside uses.

LA PIERRE GAUMAISE
Route de la Malmaison
RUETTE

Table 1. After CSTC, N.I.T. 80, 1970.

Technical characteristics									
		compression breaking load (kg/cm ²)	volumetric weight (kg/m ³)	width of the groove (mm)	porosity (Po %)	λ_e (kcal/mh°C)	saturation factor	ϕ of pores at 10 % Po (μ)	sonic speed
<i>Balegem</i>	<i>Min.</i>	557	2305		5,7		0,61	8,7	3895
	<i>Med.</i>	826	2400		10,9	1,8	0,66	9,3	4073
	<i>Max.</i>	1225	2513		13,2		0,73	9,92	4472
<i>Gobertange</i>	<i>Min.</i>	645	2322		6,7		0,43	0,7	4134
	<i>Med.</i>	822	2404		10,3	1,8	0,64	1,4	4385
	<i>Max.</i>	956	2479		12,9		0,89	2,64	4670
<i>Fontenoille</i>	<i>Min.</i>	702	2363		4,4		0,48		4142
	<i>Med.</i>	945	2471		7,8	1,8	0,66	0,35	4323
	<i>Max.</i>	1141	2568		11,9		0,79		4838
<i>Pierre Gaumaise</i>	<i>Min.</i>	152	2020	0,600	20,6		0,68	31,1	2770
	<i>Med.</i>	187	2068	0,990	22,6	< 1,45	0,71	40,3	2940
	<i>Max.</i>	213	2120	1,500	24,6		0,73	73,3	3110
<i>"Tuffeau" de Maastricht</i>	<i>Min.</i>	4	1216	2,30	52,7		0,80		1201
	<i>Med.</i>		1253	3,31	53,8	0,60	0,82		1277
	<i>Max.</i>	30	1451	4,90	62,2		0,84		1334

Aire d'extraction de la pierre de Gobertange.

Vestiges de puits relevés en 1973 par

Alfred Lefèvre.

- Limite de la zone d'extraction de la pierre.
- Vestiges de puits d'extraction.
- ⊙ Vestige d'extraction à ciel ouvert.
- Route principal
- ⊕ Eglise

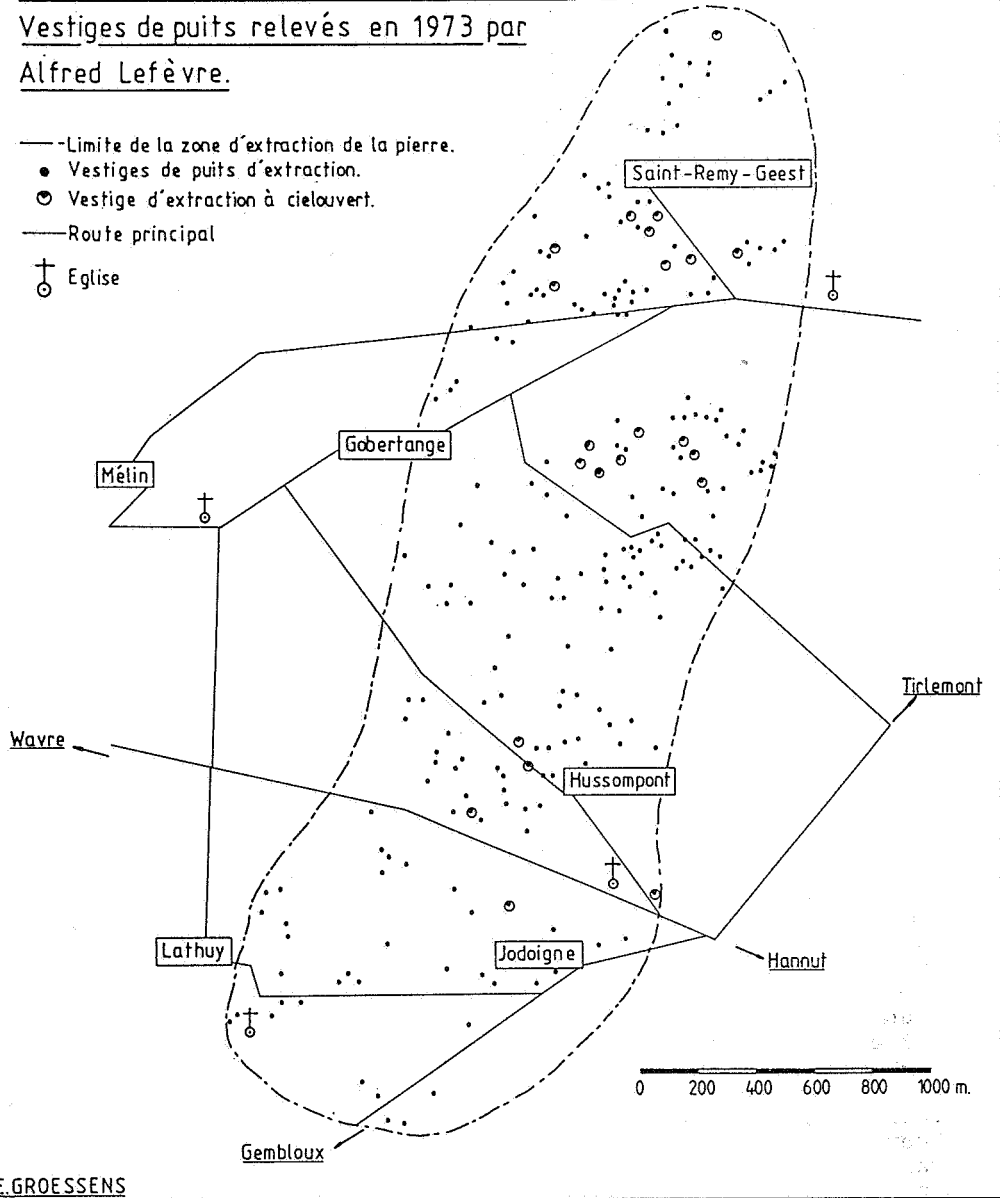


Figure 8. Localization of extraction pits of the Gobertange Stone near Jodoigne.

LOCALIZATION OF SOUTH LUXEMBURG BUILDING STONES

0 10 20 km

E. Groessens 1987

LEGEND :

- APPROXIMATE LIMIT OF MESOZOIC UPON PALEOZOIC
- STATE FRONTIER

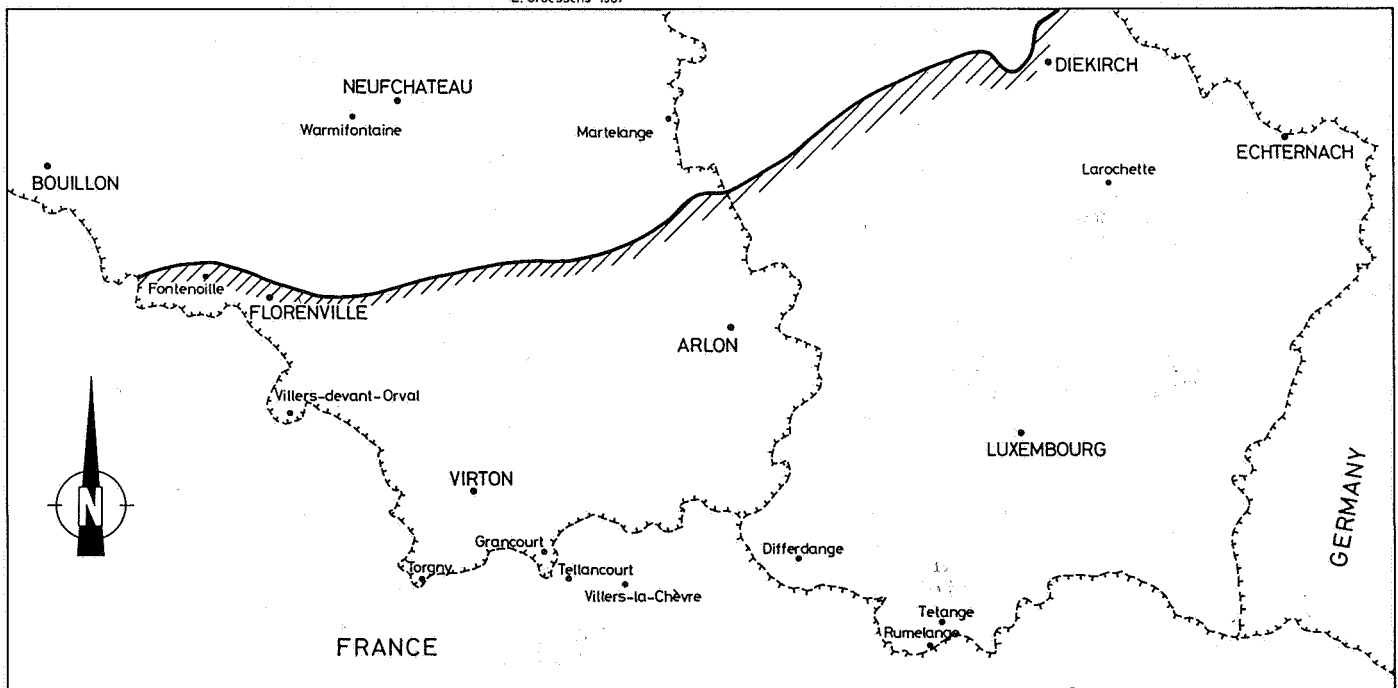


Figure 9. Localization of South Luxembourg building stones.

PIERRE DE FONTENOILLE

The Jurassic sandy limestone, called "CALCAIRE GRESEUX SINEMURIEN" has been quarried in many places of southeastern Belgium and Luxemburg (The Pierre de Larochette was famous last century).

Actually, a pale yellow ashlar is produced from two open cast quarries, opened in the Florenville Formation.

The thickness of the compact and fine grained beds varies from 5 to 40 cm, sometimes more and their CaCO₃ content varies from 50 to 90 %.

The "Pierre de Fontenoille" is produced by

1. CARRIERE G. MILLARD
rue du Haut-Courtil 12
6808 IZEL
2. CARRIERE DARGENTON
rue de Montauban 29
6743 BUZENOL

THE DEVONIAN ASHLAR

In the past, many formations of the Paleozoic have yield siliceous rocks use for building purposes : Dongelberg quartzite from the Cambrian, Lower Devonian conglomerate rocks and sandstones, Upper Devonian "QUARTZITE DU CONDRUZ" and many Upper Carboniferous sandstones. The Malmedy Conglomerate which is suppose to be of Permo-Triassic age has been used for building stone at Basse-Bodeux.

Actually, only Devonian rocks are quarried as material for road construction and building purposes. Only a minor part of the more than 50 working companies do produce ashlar.

Lower Devonian (Gedinnian) arkoses are very good buildingstones, very resistant and inert to frost. Some quarries produce ashlar from different colors, especially around the Stavelot Massif.

Many old sandstone quarries disappeared because of the competition of the Famennian sandstones. These sandstones better known as "PSAMMITES DU CONDRUZ" or "GRES DE L'OURTHE" are quarried almost everywhere they outcrop but the biggest quarries are situated in the Ourthe Valley (Esneux-Comblain), at Tavier, at Rhisnes and on both sides of the River Meuse.

Most of the producers are member of the "FEDERATION DES PRODUCTEURS DE GRES"
rue de Tailfer - LUSTIN

SLATE

Production of slate in Belgium occurs exclusively in two regions in the Ardennes - around Neufchâteau towards Arlon and in an area between Stoumont and Vielsalm which lies partly in Liège and partly in Luxemburg province.

The producer around Neufchâteau is

ARDOISE BELGE
rue de Tournay
6620 WARMIFONTAINE

and at Martelange is

ARDOISIÈRES DE MARTELANGE
Route de Bastogne 6
6630 MARTELANGE

In all, seven small firms have slate operations in the Stoumont-Vielsalm area. Two companies S.P.R.L. CARRIERE BURTON-GRANDJEAN and ALBERT MEYER have underground mines at Vielsalm. The following companies all have open cast pits : S.A. PIERRE JACQUES at Vielsalm ; CHRISTIAN BERNARD at Lierneux ; JOSEPH NEUVILLE and JULIEN DAINEF at Chevron ; and GEORGES GIET at Rahier.

CONCLUSION

Many famous Belgian stones and marbles have not been listed here because all extraction has stopped. Among the best known are Blue belge, Grand Antique de Meuse, Florence, Lilas, Notre Dame de Dieupart, Saint-Anne, Grand and Petit Antique, etc. But the potential for these marbles is still enormous and people are getting more concerned today that we cannot let this prestigious sector of our activities disappear completely. World crises and the difficulties of the building sector however do not unfortunately help to resolve this problem. Efforts are nevertheless made in different directions by promoting exhibitions, creating new products, informing potential customers and students in architecture etc.

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Préfacé par Hubert CURIEN (ancien Ministre de la Recherche et de la Technologie, père de la fusée Ariane) et par d'éminents savants étrangers (URSS, USA, Japon, Italie, Nouvelle-Zélande) ce livre sera utile à tous.

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