

“Norwegian Granite Industry”

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Norwegian Granite Industry

ALTHOUGH granite has been used in Norway for many centuries, it is only within the last forty years that the industry has assumed important dimensions and a large export trade been established. The growth of the export trade has been steady and continuous, reaching in 1913 a total of 233,439 tons.

Indirectly, too, the granite industry plays an important part in the economy of the State, giving, as the export does, a considerable profit to shipping. The importance to shipping will be seen when it is stated that in 1913, 71,000 tons were exported to Argentina alone, the freight charges being in excess of the value of the goods f.o.b. steamer in Norway.

Up to 1904 Great Britain had been the one great foreign market for Norwegian granite, exports to that country having increased from 69,289 tons in 1900 to 149,078 tons in 1904. From the latter date exports to Great Britain began to decrease rapidly, until by 1913 they had declined to only 37,301 tons. During this period, however, other markets had been found for Norway's granite, especially in Argentina and Belgium. The two countries took in 1913 a total of 71,215 tons and 45,171 tons respectively.

According to a report by the United States Consul-General at Christiania, the Norwegian granite industry depends largely upon the export trade for its prosperity, and for this reason is confined chiefly to the district near the entrance of the Christianiafjord, between this and the Swedish frontier. Export to a less extent takes place also from the Drammen district and from Larvik of the so-called larvikite, or "labrador."

The most important quarries are situated at Iddefjord, near the Swedish frontier, known as the Smaalene district, where 70 per cent to 80 per cent of Norway's granite is produced. Hvaler, the group of islands at the entrance of the fjord, forms also an important district, in which many quarries are found, the largest being the Sand quarry on Skjaeren.

The Norwegian quarries are worked, on the whole,

in the same manner as in other countries, although modern improvements in the way of machinery, transport rails, etc., are not so far advanced as in other places. The quarries are generally quite close to tide-water, and the granite lies near the surface and, in large tracts, entirely exposed and free from foreign material. They are consequently easily worked, and require little machinery and less handling than in other parts of the world. Only such stone as is easily accessible is worked, and it is so near the surface that deep cuttings are not required. The quarries generally are small, and it is therefore not convenient to employ much machinery. As regards its quality, a series of tests has been made which prove that it is a very solid material with an extremely high resistance to pressure, exceeding that for granites in general. The investigations also show that Norwegian stone belongs to the best classes for quality, and stands high in its resistance to frost and surface disintegration.

The polishing branch of the industry is still in a rather primitive state. Methods that were discarded in the United States and elsewhere many years ago are still used in Norway. The working days in the quarries during the summer months consist of ten hours, except on Saturdays, when they are only six and a half hours, making for the week 56½ hours. During the winter months, when there are so few hours of daylight, the hours of employment are only seven per day, or a total of 42 for the week.

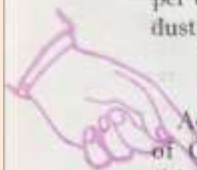
Quarrymen and journeymen are paid on the average of 12½ cents per hour, and granite cutters from 16 to 20 cents per hour. These rates, however, are very seldom used, as practically all work is paid for by the piece. Quarrymen apprentices are unknown in Norway, except in cases where a boy sometimes helps his father when doing piecework. Granite-cutters' and paving-cutters' apprentices receive from \$2.75 to \$4.00 per week. Paving cutters work entirely on the piecework system. It is impossible to state the rate of earnings per hour, as there is no

supervision of the workmen and no account kept of the time consumed on each job.

The cost of transportation from the quarry to tide-water depends entirely upon the location of the quarry. In many cases there is no cost whatever, as the quarries are often situated right on the water, and a crane is all that is necessary to load the granite into the boat. The cost per cubic foot on rough granite as quarried is as follows: Gray granite, 80 cents; red granite, 95 cents; black granite, \$1.35. The cost per linear foot on dressed curbstone is about 55 cents, including the material. The cost per square foot of dressed-granite surfaces is 35 cents for dressing 1 superficial foot (ten cut).

Steel used in the manufacture of tools for quarrying and cutting has about trebled in price since the war. The powder used costs about double as much as in normal times. While some other industries in Norway are enjoying great prosperity the granite industry has been severely hit by the war. With the increased cost of building materials and labor, building operations have practically ceased. Very few building contracts are being made, and therefore the demand for building stones is small compared with what it was in former years. The export trade has been greatly hindered by the high freight rates which have prevailed since the outbreak of war. Only about 10 per cent of the workmen normally employed in this industry are at present occupied.

Sculpture for the Covington Cathedral



According to a Columbus newspaper, the latest work of Clement J. Barnhorn, Cincinnati, sculptor, whose work has won wide and deserved recognition, is a high relief of the "Assumption of the Blessed Virgin Mary," which was ordered by the late art-loving Bishop of Covington, Rt. Rev. Camillus P. Maes, to fill in the tympanum, 18x13 feet, over the main entrance of the beautiful St. Mary Cathedral—itsself a Gothic masterpiece, built under the lamented prelate's personal direction, and planned after the famous Notre Dame, Paris. Since Bishop Maes' death, Mr. Barnhorn sought and received the authorization of Rt. Rev. Bishop Brossart, to complete his predecessor's commission, and the stone for the relief—Bedford limestone—being already in place, the sculptor began cutting the grouped figures, in a pleasing border of ivy, grape, oak and maple leaves. The piece of sculpture will be finished by August 15, feast of the Assumption, when the Bishop will doubtless have fitting dedicatory exercises carried out.

The Blessed Virgin, as seen in Mr. Barnhorn's working model, is the central figure of his new composition. She rises, with arms outstretched, above a finely posed group of male and female figures that surround the empty sepulcher in which the Apostles had placed the body of the Blessed Mother. The sculptor has adopted the lovely Christian tradition which says that only roses filled the vacant tomb of

Our Lady when it was opened; for we see here strewn the blossoms, which will be cut, with marvelous delicacy, out of the solid stone. St. John the Apostle and SS. Peter and Paul are prominent in the crowd of holy men and women shown in the relief, which is replete with rare artistry and a deeply religious symbolism. Together with Barnhorn's noble Madonna (also above the entrance) this last achievement will add materially to the Cathedral's varied beauties.

The Structural Materials of Mississippi

The structural materials of Mississippi consist of limestone for building purposes, for the manufacture of lime and cement, and for road metal; sandstones and ironstones for building purposes and for road metal; cherts, sand and gravel for concrete and road metal; clays for Portland cement, terra cotta and brick; and sand for glass manufacture, ceramic and molding purposes.

The rocks of the State containing stone suitable for building purposes are confined to a few formations and to limited areas. The oldest formations of the State, the Devonian and Sub-Carboniferous, contain the most promising materials for building purposes. Less promising sources are the Ripley, the Clayton, the Tallahatta buhrstone, the Vicksburg and the Grand Gulf formations. Very limited quantities of building stones have been obtained from Selma, the Wilcox and the Lafayette.

Limestone suitable for structural purposes may be obtained in sufficient quantity, and of good quality, from the Devonian and from the Sub-Carboniferous formations which outcrop in Tishomingo County. More limited quantities of good stone have been found in the Selma, the Ripley, the Clayton and the Vicksburg formations.

Plan Amalgamation of Stone Quarries

According to newspaper reports a plan is on foot for the consolidation of all the stone quarries in and around Baltimore by powerful financial interests which control another line of building material in Baltimore and other eastern cities. The plan involves a large number of local quarries, some of which, it is understood, are already under option, while others are the subject of negotiation. Just whether the deal is consummated, it is said, depends on whether the interests are able to secure all of the quarries, it being their desire to corral not the principal ones alone, but the city's entire crushed stone output.

Use of Gypsum for Land Plaster

Among the notable increases in the use of gypsum in 1916 was that shown by the larger quantity sold for land plaster, the sales being 81,879 tons as compared with 69,256 tons in 1915. The average price per ton for all calcined plasters jumped from \$3.68 in 1915 to \$3.97 in 1916.