

# “Famous Quarries of the World”

(The Carrara Marbles Quarries in Italy; the Pentelic and Paros quarries in Greece; the marble quarry at Brandon, Vermont; & the marble quarry at Rutland, Vermont, in the United States)

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“Situated in a beautiful valley, shut in on three sides by high mountains, and open, on the fourth, to the sea, four miles distant, is the busy town of Carrara. Its population of seven thousand inhabitants exist entirely by the employment afforded them in the quarrying and working of marble.

“The town is a cluster of studios and workshops. In ever (sic) street, and in almost every house, can be heard the clang of hammers and the click of chisels, and in the studios can be seen the finest architectural and ornamented work ever executed in marble; but those of ideal sculpture, whether original or copies from the antique, are of an inferior quality. They always lack a proper finish, and are often deficient in proportions. The price at which they are sold in an apology for the former, and ignorance is an excuse for the latter – if for ignorance there be any excuse. The town is full of fine casts of the celebrated Greek statues of Rome and Florence; but it is seldom that a satisfactory copy is produced; and they are often made in marble of second quality, while modern originals, that are a disgrace to the men who produce them, are made of the purest marble to be found in the quarries, on the same principle, perhaps, that a bad picture needs a splendid frame to sell it. They are well aware that the poorer the work, the better must be the marble; for, the first thing that many modern connoisseurs speak of, in viewing a work of sculpture, is the quality of the marble: if pure, they congratulate the artist on his *wonderful success*.

“The government of Carrara has, for many years, endeavored to improve her citizens in taste and knowledge of the fine arts. They have a free academy of design, containing casts of all the most celebrated Greek statues, where artists can study under competent teachers; but in the midst of the most splendid models, and enjoying all the advantages of tuition, there is no approach to the original talent of former ages. Every year there is a subject given out by the council for a *bas-relief*, which must be produced in a given time, without the assistance of drawings or models. The students who contend for the prize are searched to see that they have nothing that will assist them, and locked into separate apartments, where they work until the time expires, when their works are compared, and the student that evinces the most talent is sent, for three years, to Rome to study in the academy of St. Luke at the expense of the government. It is surprising to see the conventionality that exists among them; their *bas-reliefs* are so near alike, in composition and in sentiment, that one would suppose they were all done by the same artist, who made slight changes in his design. It is not always the most promising one who becomes the pensioner; many a poor fellow has been rejected, who afterwards, by his own exertions and perseverance, has become eminent, while his successful rival remained for ever in obscurity. A striking instance of this fact is the celebrated French artist, Delaroche, who, when a student at Paris, was not thought by the learned council of the academy to have talent enough to warrant his being

sent to Rome, as a pupil in the government academy. His attempts to accomplish that object all proved unsuccessful; he was rejected with contempt by men who have since paid him homage. He has been, for many years, president of the institution that would not receive him when he needed their assistance. His transcendent genius has eclipsed all his former rivals who, with every advantage and encouragement, have gone down to oblivion.

“Of the multitude of artists that study in this, and in other schools of design in Italy, very few are ever heard of out of their own city. In one room of the Carrara institution, are casts of the best works of sculptors, who acquired their first ideas of art in this school of design. They are few in number, and one reads the names of most of their authors for the first time; among them, however, I saw the name of Tenerani, who is still living in Rome, and whose name belongs with those of the great men of Italy.

“In some of the studios I visited, they appeared to be working for the American market. They were manufacturing all kinds of busts of Washington, except such as would be considered faithful likenesses; and in another, they had busts and statuettes of Franklin in every state but the finished, and that state they seemed to have no acquaintance with. I met a gentleman there who had bought a bust of Washington that he wished my opinion of. I gave it; I did not think it well done, nor a good likeness according to the authentic portraits. He replied: ‘What could you expect for such a price?’ I admired his love for Washington, but I despised it for art.

“He could not afford to get a good likeness, so he got a bad one.

“The ornamental branch of sculpture is much more extensive and successful. In that department they have few equals. Nearly all the ornamental work for architecture that is called for in Europe, and also many of the fountains, and all the garden statuary, is executed in this vast manufactory. While at Grand Cairo, Egypt, I saw a large and costly fountain in the villa of the Pasha, at Shoobra, that I recognized at once as the Carrara work. Upon inquiry I was informed that the fountain and the floor of the great mosque, now building in the Citadel, were made at Carrara.

“The quarrying of this world-renowned marble is quite another thing from working it in a quiet studio. To have a just impression of the immense labor and danger that attend it, one should visit the caves in a week day, when everything is in operation. The path from Carrara to the quarries lies beside the torrent Torano, which flows through a village of the same name; after passing the village you enter the fine gorge, partly artificial, between the Monte Grestola and the Poggio Silvestro, when you reach the quarries of Grestola and Cavetta. The former supplies the best statuary marble in the world. There are upward of two hundred quarries that are now worked, but out of this number there are but five or six that yield the first quality or statuary marble.

“Even these sometimes produce nothing but second quality marble for months. The statuary marble from the Grestola quarry is superior to all others in hardness, transparency, and delicacy of tint, which brings it much in demand for nude statues. It is often too transparent for a portrait bust, or for small works; but, for the ideal busts and statues it is unsurpassed.

“Some of the other quarries turn out marble of good quality; being generally less transparent, it is better suited to bas-relief sculpture, and statuettes, as too great transparency destroys the force of light and shade where the cutting is delicate. It will all take a good finish except the kind known as ‘Bituglia,’ which appears good, but is too soft.

“The Serevezza marble, which is quarried ten miles further south, in the same range, is, by some sculptors, preferred to all other. It will take a higher finish than any other marble in Italy. It is a close-grained stone, not very transparent, and admirably adapted for small works. The vein is, unfortunately, worked out, but they hope to strike another in the course of time. Some years ago, the Emperor of Russia got the lease of the quarry for a given time, for the purpose of getting out marble for a church; before his lease expired, he had succeeded in exhausting the vein of all that was suitable for sculpture. What little there is left in the hands of the marble dealers, readily sells at four dollars a cubic palm, which is a large price when the blocks are small.

“The Brandon quarry of Vermont produces marble that bears a close resemblance to the Serevezza, but the former is a stratified stone, that renders it unfit for statuary. By going deeper into the quarry they will find the marble free from this objection.

“The best quality of veined marble found in the quarries of Carrara, is the ‘Ravazzone.’ The cave is three miles further up the ravine, under ‘Monte Sagro.’ This portion of the quarry district is most picturesque; the view from the summit is extensive and grand. On the one side is seen the town of ‘Massa’ and the Mediterranean Sea – on the other, a range of lofty mountains, with warm grey peaks, that give evidence of inexhaustible mines of marble.

“The quarries are always dug into the face of the mountain, often at a height of fifteen hundred feet above the valley, and four thousand feet above the sea. They commence the quarry by blasting off the discolored and broken surface of the rock, until the sound marble is reached, which is cut into blocks – drawn to the mouth of the cave, and launched into the valley beneath.

“While there the last time I saw a quarry that was opened a few days previous to my visit. They drilled to the depth of thirty-two feet, at an angle of forty degrees, into the face of the mountain, after which they inserted a copper tube, and poured through it a large quantity of diluted muriatic acid, which decomposed the marble, until the bottom of the cavity was of immense size, they then charged it, with seven hundred pounds of powder, which threw off the whole face of the cliff. Thousands of tons of refuse marble, slid into the gorge beneath. Such operations are not of infrequent occurrence, and it is the most reasonable thing they do, for they are far behind the age in all the facilities afforded by mechanics.

“I am sure that those quarries, in the hands of American or English directors, would produce double the quantity of marble, with one fourth the labor and expense. I have been over the grounds many times, and I see nothing to prevent the construction of a railroad from the ‘Marina’ to the farthest quarry. The ascent is gradual, and the distance only eight miles. Such an improvement would reduce the price of marble at least one-third. The blocks that now require two weeks’ time and from fifty to an hundred head of cattle to move them, could be taken to the shipping place in a few hours.

“There might also be some means devised of getting the marble from the cove into the valley, without such loss of material as they are now liable to. The last time that I visited the quarries I was accompanied by an English sculptor, who had never seen them before. His astonishment at their Cyclopean operations was amusing. We stood on a high jutting rock that overlooked the ravine for miles. Some distance below us they were throwing the marble from a cave, high up the face of the mountain, into the gorge, a thousand feet beneath. I pointed it out to my companion, who replied that he could see nothing but some small fragments rolling down. The transparent atmosphere, peculiar to that country, had deceived him with regard to the distance.

He had been accustomed to looking through a London fog; but when he heard the thunder that their fall causes, rumbling through the valley, he exclaimed, 'Truly this is a fearful place.' Upon returning, we passed some of the blocks we had seen coming down the mountain. One of them I measured, and found it would weigh over fifty tons. The first fall that it made was from a ledge upwards of a hundred feet high; it then struck an incline, and bounded until it reached the lowest point of the ravine – a depth of nine hundred feet – nor did it stop then, but rebounded and landed sixty feet higher on the opposite side of the gorge. It was of course much bruised and broken, and its value greatly diminished. If such blocks were squared in the quarry and slid down an inclined plane into the valley, by machinery, they would more than pay for the extra expense of doing it, and in any but an Italian country it would be done.

“Tiles for floors are wrought in the caves and brought down the rugged paths by the women who are employed in the quarries. They make about six journeys a day, carrying each time from fifty to seventy pounds of marble upon their heads. For this laborious work they receive one Tuscan paul, or ten and a half cents per day.

“There are no labor-saving machines among them. It was only year before last that they had any means of shipping the marble, but to take it from a sandy beach, with a flat boat, to the vessel, which was compelled to lie at a distance on account of shoal water. In August, 1852, an English marble dealer built a pier, on his own account, which the Italians look upon as a new era in the business, and probably the Grand Duke of Tuscany thought the marble would get out of the country too easily, for soon after that he levied a tax upon every pound of marble that was exported. It is now all weighed with steelyards, for they have no idea of scales, where cart and all can be weighed without unloading. This process is as slow as it is laborious, and greatly adds to the first cost of the marble.

“I asked a gentleman who has an interest in the quarries there, why he did not try to introduce some improvements among them; for instance, the method we employ for splitting rocks of granite termed the ‘feather and wedge’ – a process too simple to require more than a single demonstration.

“He replied that he had tried to enlighten them in various ways, but found it was of no use; that they could or would not comprehend anything that was not manual labor. Such, I am confident, is the case, from what I know of Italian character, and their laws are such as forbid the employment of any labor-saving machines. There is not a steam-engine in Central Italy. All the boards and timber used for building and other purposes are sawed by hand.

“I have seen nearly all the quarries of marble in the world, and I am sure that none of them are, or have been, worked to such a disadvantage as the quarries of Carrara.

“The Pentelic quarry, in Greece, and also that of the famous Paros, were worked with the greatest economy and knowledge of the material. The caves to this day plainly show it. The former furnished the marble for the Parthenon, and for many other temples of Athens, some of which are still in good state of preservation, having resisted the elements for more than two thousand years. Such would hardly be the case, had the marble been blasted from the quarry with gunpowder. Previous to 1687, the Turks had possession of the Acropolis, which was, even then, used as a fortress. They had long been in the habit of hewing their cannon balls from the marble of the temples; the Parthenon, with exception of what it had suffered from their

depredations, was perfect. Time was willing to spare it, for the wonder and admiration of ages to come, but the destroyer's hand was against it. It was besieged in the above year by the Venetian army, under command of Morrosini, when a bomb-shell fell through its roof, causing the explosion of a magazine, that hurled its proud coums to the earth, and scattered its glorious sculptures to the winds.

“The quarry of Paros, that produced the Parian marble, is, in one respect, unlike all others. It was commenced at the top of the mountain, which formed a vast pit, from which the marble was raised to the surface; it had not been worked for twelve centuries, when the French Government, in 1840, got permission to quarry marble enough for the tomb of Napoleon at Paris. The marble is known by its coarse granulation, exhibiting when broken, shining sparry crystals. It is usually of a warm, and sometimes a pinky hue, that probably made it a favorite marble with the ancients for nude statues – the Apollo Belvidere, the Venus di Medicis, and many other of the celebrated statues, are made of it.

“The blocks from these quarries were never of large size; probably the largest block of statuary marble ever got out, was the one used for the group known as the Farnese Bull now in the museum at Naples.

“While last at Carrara, I saw the largest block ever got out of those quarries. It was free from veins or defects of any kind, and measured twelve hundred and thirty Genoese palms, or more than one thousand cubic feet, and was valued at eight thousand dollars. It had not then undergone the perils of an avalanche, which will more positively decide its value. When considered as a *precious* stone, it is the largest size, but, when viewed alone, as a stone, it would not be noticed by the side of many of the products of the ancient quarries of Egypt. The obelisks, some of which have been carried to Rome, are larger blocks of stone than any that are quarried in these days. The one erected in the Piazza del Popolo is often mentioned as being seventy-six feet long, nine feet square, and the companion of the one now standing on its original foundtion at Heliopolis, in Egypt. I think there is a mistake in the account of its dimensions, or in that of its having occupied that position, for I made an accurate measurement of the latter, and found it to be seventy-two feet high from its true base (which was reached by an excavation of five and a half feet), and nine feet by seven feet and a half at the base. It is well known that the obelisks occupied either side of the entrance to the Egyptian temples, which would lead one to infer that they were of equal length.

“The one in the Piazza of the Church of St. Peter is eighty-three feet in length. It formerly stood in an ancient circus that occupied the site of the sacristy of the church. It was moved out, and placed in its present position, in the fourteenth century, at an expense of ten thousand pounds sterling.

“The column known as Pompey's Pillar, that formerly stood in ancient Alexandria, but which stands one hundred and ten rods from the walls of the modern city, is composed of a base, surmounted by a solid shaft of red granite, twelve feet in diameter, and ninety feet long, upon which is a cap, sixteen feet square at the top, and ten feet high. Some of the blocks, now lying in the walls of the Temple of the Sun, at Baalbec, in Asia Minor, contain six thousand cubic feet, and one that is still in the quarry, and handsomely squared, measures nine thousand. I saw many others, in the deserts of Egypt, of sizes that would hardly be credited, but, as my object is merely to give some illustrations of what has been done, in the way of quarrying, that will show what might be done at Carrara in these enlightened times, I have said enough.



“The marble quarries of America are yet to produce the marble that will be called for in the United States; the time will come when little or no marble will be imported from Italy. Experience has shown that the mountains of our own country contain the marble best adapted to our climate, but as yet we have not gone deep enough to find the first quality. The Brandon quarry, of Vermont, before alluded to, produces marble of a fine grain and delicate tint, but it is a stratified stone, which renders it unfit for the purposes of sculpture. By going deeper into the ledge they will, undoubtedly, find it of a coarser granulation, and consequently, free from this objection. The Rutland quarry in the same state, produces marble similar to the ‘Bittulgia,’ of Carrara, but inferior, as it contains veins of flint, that make it very difficult to work.”

“The exports of Carrara to this country are almost as great as those to all the rest of the world. This marble is indisputably far superior, in beauty, to any we have yet discovered, but if the attention and enterprise of our people were earnestly directed to the subject, I believe that our own country would be found as rich, in this product, as she has proved to be in many others that were thought to belong alone to the old world.”

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*A photograph of the Carrara marble quarries is available in the “Carrara marble” section of Wikipedia.*

[http://en.wikipedia.org/wiki/Carrara\\_marble](http://en.wikipedia.org/wiki/Carrara_marble)

*Other articles about the Carrara marble quarries are available on our web site, Stone Quarries and Beyond, at the following links:*

- \* “**The Quarries of Carrara,**” in *Scientific American*, Vol. LII, No. 7, New York, February 14, 1885, pp. 103-104.  
[http://quarriesandbeyond.org/articles\\_and\\_books/pdf/quarries\\_of\\_carrara\\_scientific\\_american\\_feb\\_14\\_1885.pdf](http://quarriesandbeyond.org/articles_and_books/pdf/quarries_of_carrara_scientific_american_feb_14_1885.pdf)
- \* “**Carrara**” (Marble),” article from *The Monumental News*, March 1893, pp. 123-125.  
[http://quarriesandbeyond.org/articles\\_and\\_books/pdf/carrara\\_italy\\_monumental\\_news\\_mar\\_1893.pdf](http://quarriesandbeyond.org/articles_and_books/pdf/carrara_italy_monumental_news_mar_1893.pdf)
- \* “**The Carrara Marble Industry,**” *Scientific American Supplement*, Vol. LIII, No. 1376, New York, May 17, 1902, pp. 22045-22046.  
[http://quarriesandbeyond.org/articles\\_and\\_books/pdf/carrara\\_marble\\_industry\\_scientific\\_american\\_may\\_17\\_1902.pdf](http://quarriesandbeyond.org/articles_and_books/pdf/carrara_marble_industry_scientific_american_may_17_1902.pdf)
- \* “**The Marble Quarries of Carrara,**” by Day Allen Willey, in *Scientific American*, Vol. XCVII, No. 20, New York, November 16, 1907, pp. 353, 361-362.  
[http://quarriesandbeyond.org/articles\\_and\\_books/pdf/marble\\_quarries\\_of\\_carrara\\_italy\\_scientific\\_american\\_nov\\_16\\_1907.pdf](http://quarriesandbeyond.org/articles_and_books/pdf/marble_quarries_of_carrara_italy_scientific_american_nov_16_1907.pdf)