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To Build on the Past: A Foundational Database of the Vermont Marble Company Archives

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Abstract

This thesis took advantage of the rare opportunity to look into the business records of the Vermont Marble Company. A study period of 1924-1927, and about 1,000 contracts from the company were first recorded in a digital database and then examined. As a preliminary study of this material, this thesis suggests future uses of the Vermont Marble Company archive and recounts the information gathered from this venture. Architectural trends related to the Beaux-Arts, City Beautiful, and Art-Deco movements were observed, as were trends related to specific marble types and building project locations.

Keywords

Vermont Marble Company, marble, Philadelphia, Beaux-Arts, City Beautiful

Disciplines

American Art and Architecture | Architectural History and Criticism | Historic Preservation and Conservation

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TO BUILD ON THE PAST:
A FOUNDATIONAL DATABASE OF THE VERMONT MARBLE COMPANY
ARCHIVES

Kaitlin Virginia Pluskota

A THESIS

in

Historic Preservation

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Introduction

In 2014, the University of Pennsylvania acquired a large majority of the materials that make up the former Vermont Marble Company's archives. Examination and analysis of these materials can benefit the United States preservation field in several ways. The information embedded in this archive sheds light on the way in which marble and marble working shaped American architecture at a very key point in its history: the late 19th & early 20th, a period corresponding to the heyday of the City Beautiful movement and of Beaux-Art influence in the architecture profession. This thesis will attempt to answer the questions: What advances can the interpretation of the Vermont Marble Archives make in understanding marble use in the United States during the 1920's? How can the information gathered contribute to preservation/conservation projects?

The history of architecture is commonly communicated through names of architects and architectural-styles. Generally, American architecture is not told through the context of building materials. For this reason, there is very little written about the use of marble in architecture from the 19th and 20th century that relates to this study. This archive provides a rare opportunity to look at a specific period through the lens of a specific material, marble. The records from the largest marble-producing company in the world can shed light on the gaps that exist. Though the archives from the Vermont Marble Company do not encompass every building that used marble in the country, it seems that the information gathered from this record can give insight to how the country at large had been using this building material. Having such an exquisitely detailed

account of information is an incomparable opportunity, an inside look to the past that would not be possible through any other means. This thesis hopes to establish that the archive does possess useful information about past projects that can be implemented in projects and research for the future.

Following the literature review, this thesis opens with an overview of Vermont's marble industry, and then delves the formation, rise, and business practices of the Vermont Marble Company. To begin to understand the materials in the archive it is important to understand the marble trade in the U.S. and how the Vermont Marble Company was involved. An evaluation of Vermont's marble industry compared to its counterparts in the remainder of the country offers insight into the specific conditions that allowed Vermont Marble to rise to the top. Emphasis will be placed on Redfield Proctor, the founder of the Vermont Marble Company. Though he was not the only major actor for the business, the success of the company began with him.

The next chapter will give brief descriptions of conditions of the United States during the 19th and 20th centuries, in the categories of immigration, industrial advances, capitalization, and the railroads, and how they relate to the Vermont Marble Company. It is necessary to include information regarding these topics because the Vermont Marble Company did not exist independently from the happenings of the United States, each event, trend, or change in the country is reflected in the records of the company. The argument is that the precise conditions of the country are what led to the ultimate rise of the Vermont Marble Company. The timing of these changes is fundamental, as it is hard to believe the Vermont Marble Company could have been even a fraction as successful without the perfect integration of each.

The contents of the Vermont Marble Company archives, the basis of this project, are explained in detail in the following section. Each component of these archives has a specific purpose and relation to the others. An understanding of what was documented from the projects the company commissioned, and why these items were documented, indicates the sorts of projects and research that can be completed with the information. Additionally, an initial written clarification of the intricacies of the records is provided for future users of the archive. Though these archives document only the Vermont Marble Company, studying them could help us better comprehend the inner-workings of the marble industry at large during the 19th and 20th century.

The final chapter describes in detail some of the ways in which the Vermont Marble Company archive can be used. An account of a test-process of the information gathered from the sample ledger book and the digital format they exist in is provided here as well. Along with the project sheet knowledge it felt necessary to include preliminary stone-type details for cross-referencing and a more inclusive study, which are attached as an appendix. Using these resources, I propose a survey-like use of the archive that examines their information on a large scale and a conservation-oriented use utilizing the knowledge of stone type and a more detailed examination of a few projects. These proposed uses are by no means comprehensive. They are meant to be suggestive showing the research potential of a complete digital archive.

The conclusion is where the study's findings will be concisely stated and explained. Though this project has proven to be an eye-opening look into the world of the Vermont Marble Company, it has also presented many challenges. Unexpected knowledge was gained through this venture, which will be discussed as well. My

conclusion will discuss both the difficulties and the opportunities this archive presents and offer future researchers some guidelines for their work. Two appendices are attached containing supportive information for continuing archival work.

Literature Review

Ancient Use of marble

Marble has been used as a building material since ancient times. Its reputation for beauty and an attractiveness not available anywhere else persists to the present day. The status of marble allows it to almost sell itself, especially in those times when it was a popular item to have. Who wouldn't want a pristine white marble building, or attractive tabletop if they could afford it? In promotional literature, The Vermont Marble Company states the prominence of marble as a building material for some of the world's finest structures. Using carefully constructed phrases such as, "It was used over twenty centuries ago in the classic structures that form the highest expressions of ancient civilization." And "The principles of good design never change because they are eternally *right*. And good materials that are *inherently right* persist through ages of use in Man's finest structures.", The Vermont Marble Company asserted its opinion that marble had been a premier material for centuries, and should continue in this fashion into the future. To further their point, they pointed out that three of the Seven Wonders of the Ancient World were constructed of marble.¹

Ancient marble structures are often portrayed with images of grand structures built of pristine, white marble. Museums house sculptures and artwork carved from marble that give examples of the way that the stone was used in the past. Although

¹ The Vermont Marble Company, *Vermont Marble Company: The Story of an American Institution* (Proctor, 1964), 4-5.

marble, certainly ancient marble, is synonymous with white, colored marbles have been popularly used as well. Ancient marble was supplied by European quarries. An example is Carrara marble from Italy. Carrara marble, a constant rival for Vermont marble, has been quarried for over 2,000 years according to Architect Michael Crosbie who made a visit to an Italian Quarry in 1995.² This marble was shaped in the quarry and then shipped to Rome, where it can be seen today. Though Italy has been quarrying marble for a much longer time than the United States, it is not the only place that benefitted from these geologic deposits. Marble's formation began during what is referred to as the mountain-building time by Historian Jan Albers. The combination of time, physical pressure from shifting tectonic plates, and mineral deposits determines the availability of a certain stone type for a region.³

Geologic History of Vermont Marble

It may be common knowledge that marble is limestone that has metamorphosed due to pressure and heat. Marble has a similar chemical makeup to limestone, but has larger grains, is highly compact and less porous.⁴ Vermont's geology is rich in limestone and slate, accompanied by marble. Geological surveys of New England discuss slate, limestone, and marble deposits throughout the area. The most useful information to be gained from the surveys is the specific location of the stones by type, especially the

² Michael J. Crosbie, "Carrara's Mountains of Marble," *Progressive Architecture* 76 (1995): 55.

³ Jan Albers, *Hands on the Land: A History of the Vermont Landscape* (Cambridge: The MIT Press, 2000), 18-23.

⁴ K. Lal Guari, and Jayanta K. Bandyopadhyay, *Carbonate Stone: Chemical Behavior, Durability, and Conservation*, (New York: John Wiley & Sons, Inc., 1999), 24.

marble.⁵ When they were first published the surveys were used to locate stone deposits for those seeking a place to open a quarry. Knowledge about the types of marble, how they were formed, and their composition can be used to make determinations about how they may deteriorate and need to be treated for the future. Geologic surveys, such as the one published by the Middlebury Historical Society, can be helpful in this venture.

The formation of the marble in Vermont started about a billion years ago apparently originating with sedimentary deposits in seawater. Remains of shellfish or corals covered by mud were transformed, under pressure and heat, into the rocks we are familiar with today. This process took what the Middlebury Historical Society's published material called an 'indefinitely' long time, and resulted in areas of stone that are 1,000 to 2,000 feet thick.⁶ Jan Albers explains that rocks within the Green Mountain Range were formed as a result of the pressures of the process of several mountain-buildings. Over millions of years great pressures folded solid rock three times into what are now the now marble-filled mountains of Vermont to create the stone.⁷ Only a small percentage of this mass of rock was actually transformed into what is considered commercial grade marble, but even with that amount Vermont has been able to sustain a marble-quarrying business for over 200 years.

The pressure required for the current marble stone formation came in the form of shifting plates of the earth's crust, which, with enormous amounts of pressure, pushed into each other and formed the mountains visible today. This is why so much of the marble can be found on or around the mountain formation, and why it made it difficult to

⁵ Middlebury Historical Society, *The Marble Border of Western New England*, (Middlebury, VT: Middlebury Historical Society, 1885).

⁶ Middlebury Historical Society. *The Marble Border of Western New England*.

⁷ Albers, *Hands on the Land*, 23.

quarry at some points. The geology of the area afforded Vermont a precious commodity, but its natural form also provided some difficulties for those who wanted to take advantage of the resource. Removing marble from its resting place was not a simple task and quarrymen regularly needed to cut deep into a mountain just to access the stone they wanted. These were often dangerous undertakings and were not always successful.

Vermont has not only an assortment of stone types in this mountain region, but is also home to many types of marble that possess a plethora of colors. While Vermont is associated most commonly with pure white marble, other colors such as blue, green, gray, and white veined marbles were all in abundance in this region as well. After the Vermont Marble Company began buying and associating itself with marble companies in other parts of the country the assortment of colors available for their sale was the largest in the country. Their large collection of marble options attracted buyers from across the country and was shown in the Vermont Marble Company's showroom for customers to choose from for their purchases.

History of Commercial Marble in Vermont

Vermont's lucky location placed it in the middle of the United States marble production industry. Marble was by nature an abundant commodity in Vermont. Redfield Proctor, who founded the Vermont Marble Company, wrote an account titled "American Quarrying", boasting the superiority of Vermont's marble business compared to the rest of the world. In his article Proctor describes technological advances, ingenuity of the business owners, and the fortunate placement of quarries that he believes all contribute to

Vermont being at the forefront of the marble business.⁸ It is debatable which of these was the leading cause of Vermont's success, but it is certain that Vermont obtained a near monopoly in the early stages of the marble industry that put it ahead of all other marble-producing states, and even Italy for a period.

Some researchers have a very clear answer about why Vermont was able to build such a business out of marble production. Paul A. Gopaul, a student who wrote a graduate thesis on the Vermont Marble Company, discusses the geologic fortune Vermont experienced. He states "Vermont has become a marble center because she is endowed by nature with a terrain that geologically has suited her to be the competitor and successor of those nations which produced and used marble from the days of antiquity."⁹ This is a fair claim. Without the marble deposits the state would have never been in the trade at all. In the early 19th century, the residents of Vermont were unsure about what trade would be their claim. They needed a resource that was relatively easy to access, but hard for another area to produce. Marble was the perfect solution because it took an indefinite amount of time to form, existed in plentiful quantities in Vermont, and was not as plentiful in many other places. However, there were other areas, Colorado, Georgia, and Tennessee for example, that were abundant in marble deposits as well. So how did Vermont get ahead of these places? Was the area's marble better or were the businessmen better?

There is some debate over the location of the first marble quarry in Vermont. Small quarries were started without plentiful results, and these are mostly ignored in this

⁸ Redfield Proctor, "American Quarrying".

⁹ Paul A. Gopaul, "A History of the Vermont Marble Company" (Master of Arts. St. Michael's College, 1954), 1.

disagreement. In his paper Redfield Proctor says that it is impossible to trace with detail the history of quarrying in the area. He continues by saying that the oldest marble gravestones in cemeteries date from around 1795, but where they came from and the exact date of their beginning is too hard to pinpoint.¹⁰ David Gale says that the one opened in the town of Dorset around 1785 was the first quarry, not only in Vermont but also in the entire northern continent.¹¹ Major B. Jenks, a former student who wrote his graduate thesis on marble quarrying in Vermont, states that the Fisk Quarry was opened in 1664 for lime burning, and sometime around the opening of the Dorset quarry's opening it began to quarry marble as well.¹² Though the exact quarry site and open date are unknown, several marble quarries appeared around this time, marking the start of the marble quarrying business in Vermont. The finished products of these early quarries were generally gravestones and fireplace backers. These were sold locally, used in the homes of family and friends of the quarry men. However, it did not take long for the business to expand.

Once entrepreneurs realized the vitality of the marble quarrying business in Vermont the business and number of quarries in the state exploded. Michael Austin, who received his Doctorate of Philosophy in History, explains the number of quarries opened by high hoped men who wanted to cash in on the marble money making train. He explains that early quarries were started where the marble was visible from the surface, but many of these were not large deposits and the men who worked them did not succeed.

¹⁰ Proctor, "American Quarrying".

¹¹ David C. Gale, *Proctor: The Story of a Marble Town*, (Brattleboro, Vermont: The Vermont Printing Company, 1922).

¹² Major B. Jenks, "Marble Quarrying in Vermont." (Master of Arts, University of Vermont, 1932).

Other quarries were started with deeper marble deposits, but without real knowledge of the makeup of the stone it was not an easy bet that the marble would be good for commercial use. Eventually tools were employed to determine if the deposit of marble was deep enough to be a profitable venture. Many hopeful businessmen were disappointed in the early days of marble quarrying in Vermont. Though there were many failures some were capable of making a good business, and there were a few families that became rich through marble quarrying.¹³ However, no business in Vermont did as well as the Vermont Marble Company.

As the most affluent members of the community, marble company owners were often involved in the governing of their communities. Larger marble company owners often ran in local elections, further asserting their dominance and lobbying for legislation that would assist their companies. Opposing candidates were often from competing companies.¹⁴ One outcome of the political differences was the separation of Rutland into different towns, the town of Proctor being one of them. Marble companies in the town had competing social ideologies, priorities, and needs. In 1886 Redfield Proctor, already well established as a marble company owner, along with others, got a bill passed to separate the village of Proctor from West Rutland using arguments about how it would benefit the village to have their own government. He argued that being included in West Rutland was actually a disadvantage for everyone because the amount of social and economic power concentrated in West Rutland from the growing number of marble

¹³ Michael L. Austin, "Carving Out a Sense of Place: The Making of the Marble Valley and the Marble City of Vermont," (PhD Diss, University of New Hampshire, 2002).

¹⁴ Paul M. Searls, *Two Vermonts: Geography and Identity, 1865-1910* (Hanover: University Press of New England), 35.

companies was unbalanced compared to the surrounding areas.¹⁵ The separation of the towns added to the competition between marble businesses and those who fought against him in West Rutland no longer held Proctor back. The success Proctor had at getting his way in the town separation also showed his place at the top of the business and political world set the stage for the following decades. As Michael Austin observes, “When Sutherland Falls became a separate town and received the name of Proctor, the new name was a public acknowledgement of the social and political influence of Redfield Proctor.”¹⁶

The Proctors constantly had a hand in politics, which became heated at times. An especially heated situation was between the Proctors and the Clements. This disagreement went from a local battle to the state level with both parties struggling over the power. Austin states that Proctor and Clement disagreed over many issues, both wanting to pass legislating that was best for their own business interests and beliefs. The difference in opinion between the two powerful men led the workers to establish a unified Labor Party, just one example of how the workers came together to rebel against the men who controlled them.¹⁷ This trend became important in the coming years with strikes and media involvement and changed how marble companies operated.

The Vermont Marble Company

Not much has been published specifically about the Vermont Marble Company by outside parties. The company is mentioned briefly in many marble-production contexts,

¹⁵ Searls, *Two Vermonts*, 73.

¹⁶ Austin, “Carving Out a Sense of Place,” 121.

¹⁷ Austin, “Carving Out a Sense of Place.” 123.

however, as being at the top of their field. The company itself produced promotional literature, which boasted the importance of marble as a material and the company's influential hand in the business. Some company papers are also available, which also claim their dominance. The Vermont Marble Company produced a plethora of books and packets for its customers.¹⁸ These often tell the history of marble as a building material through the ages, stress the importance of the continued use of the material, give a history of their company, and discuss their current standing in the business and all of the uses for marble.¹⁹ Books the company published used attractive images of marble headstones, sculptures, buildings, etc. to give examples of the many uses they offered to their customers and like a catalog consumers could order directly from what they saw. These items had standard pricing, available in pricing manuals, with changes in price according to alterations.²⁰ By looking at resources such as pricing manuals and the catalogues from one year to the next, it is possible to track the growth of and changes within the company and also the demand from their customers. These resources obviously do not give negative facts about the company, or discuss details about their competition.

David Gale details the town of Proctor's history, which is largely related to marble. Gale goes through how the Vermont Marble Company, out of all of the marble companies in Vermont, succeeded in becoming the most prosperous. According to him it was a combination of fiscal responsibility, the Proctor's gaining respect from their workers, community, peers, and the country, good sales tactics, and an attitude that pushed them to never give up. The Vermont Marble Company did more than just provide

¹⁸ The Vermont Marble Company, *Speaking of Marble* (Proctor: 1920).

¹⁹ The Vermont Marble Company, *The Story of an American Institution*.

²⁰ The Vermont Marble Company, *Modern Memorials in Marble with Price List* (Vermont: 1922).

jobs for a town; it gave the town of Proctor, Vermont and its people an identity they could be proud of.²¹

One fact that has been agreed upon across the literature is that after its creation, The Vermont Marble Company quickly rose to the top of the marble-producing industry. Some published material on Redfield Proctor, the founder of the company, credits his innovative business practices for the growth. Most other material does not give a reason for the Vermont Marble Company's ascent to the top. Michael Austin states, "By 1891, the Vermont Marble Company had reached a pinnacle that no other marble company in the United States had achieved."²² This dissertation further explains the details of how Proctor and his son's political influence enabled them to create an environment where American marble businesses, particularly theirs, flourished in the late 19th and early 20th century.

The obvious bias of materials published by The Vermont Marble Company prompted investigation into other prominent marble companies. Susan Williams Knowles, in her History dissertation, describes a process similar to that of the marble history in Vermont. While it boasts that Tennessee Marble can be seen in most building uses, it never claims to have ownership of the largest marble producing company or place.²³ Jerome G. Daneker writes about the marble market in Georgia and gives a similar story to that of Vermont. The geographic location and natural marble deposits allowed Georgia to have a flourishing marble business as well. Again, however, the marble

²¹ Gale, Proctor: The Story of a Marble Town.

²² Austin, Carving Out a Sense of Place," 62.

²³ Susan Williams Knowles, "Of Structure and Society: Tennessee Marble in Civic Architecture" (PhD diss., Middle Tennessee State University, 2011).

business in Georgia did not surpass that of Vermont, or the Vermont Marble Company specifically. In fact, the largest marble company in Georgia, the Georgia Marble Company, began a partnership with the Vermont Marble Company in the 1900's.²⁴ The Georgia Marble Company was not the only company the Vermont Marble Company bought or worked with. The Vermont Marble Company had its hands in almost every marble-producing area in the country: Colorado, Tennessee, New York, Georgia, and more, and even some areas outside of the country, like Italy. Although it did not directly produce all of this marble, the company was able to make a profit by having orders go through their business for marble from different companies. The Vermont Marble Company also had offices all over the country to ease sales and transport all over the country. By doing this, the Vermont Marble Company ensured that they were involved in every marble sale they could be.

Another source of information about the Vermont Marble Company is newspaper articles. Articles, however, were written only when "big news" was available and they are written as interest pieces, so they do not include the detail one might wish for. One point of heated interest for the country was the price competition between marble suppliers. Since marble had become such a booming business and a coveted commodity, prices had gotten out of control. A large part of Redfield Proctor's history in the marble business was using his political power and negotiating skills to benefit marble business sale prices. A Rutland Daily Herald article from February 1880 announced the election of Proctor as the president of the Rutland Marble Company. This article and a few more over the

²⁴ Jerome G. Daneker, *The Romance of Georgia Marble* (Baltimore & New York: Thomsen-Ellis Company, 1927).

course of the 1880's relayed the current news on the marble price competition. A New York Times article detailed the creation and dissolution of The Producer's Marble Company, an agreement between five of the largest marble companies in Vermont to cut competition by regulating sale prices. Redfield Proctor spearheaded this agreement, which was the beginning of the Vermont Marble Company's apparent monopoly in the marble trade.²⁵ An 1880's Vermont Marble Company report, held in the Vermont Historical Society Archives, reports that the company was responsible for 54.7% of the sales in the Producer's Marble Company.²⁶ The Producer's Marble Company's dissolution was January 1, 1888, each company got a share of the profits dependent upon what they produced over the course of the company's existence. The Vermont Marble Company, which has been doing the majority of the business, benefitted from this arrangement. The Vermont Marble Company monopoly had caused tensions during and after the operation of the Producer's Marble Company, which are documented in several newspaper articles from The Rutland Daily Herald, New York Times, and The Patriot in Harrisburg. The number of articles and geographic area that they span show that interest in the Vermont Marble Company spread further than just Vermont.

An 1891 New York Times article reports the combination of the two largest marble companies in Vermont, the Vermont Marble Company and the Sheldon Marble Company. The article states "the new arrangement will put all but some small marble concerns in the state under one management."²⁷ Articles such as in the Patriot in 1887,²⁸

²⁵ "The Vermont Marble Quarries," *New York Times*, March 6, 1889.

²⁶ "Untitled Report" (Company Report, From the Proctoriana Collection at the Vermont Historical Society; Folder 127:1 General, Proctor, Vermont, 1880's)

²⁷ "Marble Companies Unite," *New York Times*, October 22, 1891.

the Salt Lake Tribune in 1889,²⁹ and the Patriot in 1889,³⁰ all tell the same story of the Vermont Marble Company's growing dominance over the marble trade. Newspaper articles about the successes of the Vermont Marble Company were frequent in the late 1800's and early 1900's, but dropped off towards mid-1900. This is probably related to the drop in marble business around this time.

Marble sales went down with the Great Depression, and the business continued to lag thereafter. Some attribute the change to architectural style changes, and others believe that the transition of the Vermont Marble Company from small business to big business was to blame. The Vermont Marble Company, specifically, exhibited changes in the way it was run when it moved away from paternalism. In the early days, marble companies were not just employers. Many provided housing and stores, some even provided schools and healthcare. The conditions varied between companies, and some had established systems that actually were detrimental to their workers. The Vermont Marble Company and the Proctor's specifically gained a reputation for going out of their way to take care of their workers and families. Houses were supplied at reasonable costs, the company supported the schools, and a hospital was created for not only the workers, but their families as well. Brian Yates explains the correlation between workers strikes, the shift away from paternalism, and the effects it had on the company.³¹

²⁸ "Vermont's Marble Monopoly: The Great Pool to be Broken when the Present Contract Expires," *Patriot*, November 1, 1887.

²⁹ "A Great Vermont Marble Trust: Americans must Now Trust to Utah Marble or be Bled," *Salt Lake Tribune*, January 4, 1889.

³⁰ "Consolidating Marble Interests," *Patriot*, January 4, 1889.

³¹ Brian Yates, "Hitting Rock Bottom: The Decline of Paternalism at the Vermont Marble Company and the strike of 1935-36" (Yale University, 2010).

Worker strikes could be disastrous if they were not handled properly. The Vermont Marble Company, along with other marble producers, experienced strikes throughout their existence. David Gale's book on Proctor, and Michael Austin's dissertation on the Marble Valley tell the story of the early strikes which were easily settled negotiations between the sympathetic Proctor family and worker's unions. Art Historian Frances Pohl gives a more radical representation of the strikes in the mid-1930s, alluding to changes in the marble business and the politics of the country. The resulting negative public image and tension within the business brought on by these particular strikes was a huge blow to the company's workings.³²

The decline of marble sales for the Vermont Marble Company coincided with the 1935-36 strikes. The Vermont Marble Company officially disbanded in 1994; their sales by that point had declined dramatically and they were no longer anywhere near being the largest company in the world. There is not much written about the later years of the company's history. Most of the available sources ended their descriptions of the company around the 1940's. What happens between this time and the end of the company's existence is not clear, but it is safe to say that the company did not do as well as they had in earlier years. Whether this was because of change in the market or the company itself is unclear, but it was probably a combination of the two that eventually led to the company's end.

³² Frances Pohl, "Rockwell Kent and the Vermont Marble Worker's Strike," *Archives of American Art Journal* 29 (1989): 50-60.

Commercial Marble Use in the United States

Marble has held onto its reputation as a premiere material. As architectural and aesthetic styles changed, the types, colors and uses of marble changed as well. Architectural movements, such as the City Beautiful, Modernism, Art Deco, and Beaux Arts, employed the use of marble in large quantities. The material is versatile and was used for both older-looking styles, and new and exotic purposes. The span of colors available allowed for its versatility, which helped its ongoing sale and use. However, white marble is usually the type that comes to mind first.

The City Beautiful Movement especially used pure white marble. Based largely on neoclassical architecture, marble was a natural fit for the movement's architects. William H. Wilson explains the movement from beginning to end. Wilson explains that many buildings mimicked Greek and Roman forms, with large pillars and massing; the same ancient types of buildings that are examples of marble use.³³ Philadelphia is a good example of this movement's architecture, explained by David Brownlee. Marble was a choice material for this movement because of its ability to convey beauty and its association with ancient monumental forms, both important aesthetic pillars for City Beautiful. The movement was not confined to colossal city buildings. City Beautiful influences can be seen in cemeteries where loved ones were given monumental resting places; many of these were made of marble as well.³⁴

³³ William H. Wilson, *The City Beautiful Movement*, ed. Gregory Conniff, Bonnie Loyd and David Schuyler. (Baltimore and London: The Johns Hopkins University Press, 1989).

³⁴ David B. Brownlee, *Building the City Beautiful*, ed. Sherry Babbitt (Lunenburg: Meriden-Stinehour Press, 1989).

As previously stated, Middlebury Historical Society's publication on New England's marble discussed the plethora of types in the area. Knowledge about the chemical and physical composition of these specific types was used to determine the markets for different stones. A marble that was known not to have a composition worthy of building uses was quarried for interior finishes or statuary purposes. Marketing for these materials depended largely upon their composition, something that was only considered after a number of years and instances of failing material. As was true with building styles, other marble uses stayed relevant as well. Marble statues continued to be a thing of fashion well into the 1900's. A 1939 New York Times article announced the unveiling of a marble statue of Will Rodgers in Statutory Hall, and continued to describe the practice of memorializing men in marble. Marble was, and is, seen as a good material for memorialization because of its beauty and reputation as a premier material.³⁵

Advances in technology changed not only quarrying and transportation methods, but also the ways in which marble was to be used commercially. Michael Austin explains these changes from the early days of splitting marble along natural fault line for making grave markers, to using steam engine power to form channels and remove large blocks of marble that could be used as dimension stone for building. It is hard to determine if technology advances and advertisement prescribed the way that marble was used, or if aesthetic trends led the way.³⁶

Jenks states that marble was used primarily for headstones until the mid-1830's when Underhill and Strong wanted marble from Dorset for the US Bank Building in Erie,

³⁵ Duncan Aikman, "Americana in Marble," New York Times, June 4, 1939.

³⁶ Austin, "Carving Out a Sense of Place."

PA. Headstones, as the primary use, were simple to produce because of their shape. Once marble began to be frequently requested for other uses however, the business grew exponentially. The marble market's demand exceeded the supply before Rutland and Italian marbles became commercially available. From this point, marble was a large commodity, which is what made it so attractive to new business entrepreneurs, architects, and customers.³⁷ As was stated previously, advances in technology allowed for more varied uses, different finishes, and a larger business overall.

Newspapers articles in the early 1900's often discussed new buildings or renovations with details about the materials being used inside and out.³⁸ Headlines such as "Marble-Clad Buildings Brighten Midtown Manhattan" in the New York Times in 1965, where the writer raved that all of the marble used was of United States origin, show that well into the 1900's the American marble trade is still a viable source for building materials.³⁹ A project description from 2012 where reclaimed marble was used quote a mason saying, "I can now begin to understand and appreciate why this noble material has been a choice material utilized by masons, carvers and artists through the millennia." showing that though use of the material has dwindled significantly, marble is still a building material to be appreciated.⁴⁰

³⁷ Jenks, "Marble Quarrying in Vermont."

³⁸ "Local Architect Will Design New Hostelry and Highspire Bank," *Patriot*, 1920.

³⁹ Thomas V. Ennis, "Marble-Clad Buildings Brigten Midtown Manhattan," *New York Times*, Jan 31, 1965.

⁴⁰ Green Product Focus, Reclaimed Marble Masonry & Ventilated Wall System, 2012.

Vermont's Resource and Company

Vermont Marble

Vermont Marble and the Vermont Marble Company are found to be seemingly interchangeable in literature and ideals. However, they are two very different things. Vermont Marble, as a product, encompasses more than just The Vermont Marble Company, as there have been many companies that quarried marble in Vermont since the 18th century. The company dealt with much more than purely Vermont Marble; once their company had expanded they took charge of quarries all over the United States. This can lead to confusion when a building is stated to have been made of purely Vermont Marble, because that does not necessarily mean it has any association with the company, and while marble use on a large scale is of interest here, it has to be remembered that the only information held in the archives is related specifically to the Vermont Marble Company and the quarries that it controlled or had partnerships with.

However, since the history of both are intertwined with each other, it is important to discuss the state's marble affairs as well. In its early years Vermont struggled with finding a purpose, identity, and economic driver for its people. Its earliest economic driver was sheep, but when that declined it was imperative that Vermonters found a new industry to keep them afloat. It was really by luck that residents of Vermont had marble deposits at their disposal, but that they were able to make them a lucrative business was the product of hard work and use of their knowledge about the resource. As early as 1792, long before the industry boomed, there were documented considerations about

using the marble deposits as the states source of commerce.⁴¹ Just a few years later the first commercial quarries began to open in Vermont.

Early marble entrepreneurs include names such as Isaac Underhill, the Humphrey brothers, and William Barnes among many others. The business began to expand at a rate that seemed exponential almost instantly. However, for every new quarry that opened there were closures due to bankruptcy and inadequate marble deposits. Early quarries were established where marble deposits were visible on the surface, without advanced technology it was difficult to establish quarries in any other manner. Deposits that looked promising from surface outcroppings often ran dry or produced sub-par quality product and had to be abandoned. Much larger deposits remained concealed and awaited discovery; however, when these were unearthed the marble industry boomed.⁴²

By the mid-1800s the people of Vermont had realized that a geological survey of the state could offer huge benefits to determine where certain stone deposits were, as their biggest chance for future income seemed to be marble.⁴³ A geological survey showed that areas of Vermont were part of a much larger ‘marble belt’ that encompassed the surrounding states, and that there were a variety of stone types throughout the state.⁴⁴ With this knowledge further excavation and expansion of the trade was carried out; the most common method of quarry exploration continued to be through the trial and error process though, which resulted in almost constant quarry openings and closings.⁴⁵

⁴¹ Middlebury Historical Society, *The Marble Border of Western New England*, vi.

⁴² Austin, “Carving Out a Sense of Place” 26-27.

⁴³ Middlebury Historical Society, *The Marble Border of Western New England*, 12-13.

⁴⁴ Middlebury Historical Society, *The Marble Border of Western New England*, 15-23.

⁴⁵ Jenks, “Marble Quarrying in Vermont,” 7.

The area around Rutland, specifically, possessed a very high quality product. The superiority of Rutland's deposits was soon realized and a great number of quarries opened in the area. By 1850 Rutland claimed to have quarried more marble than the rest of Vermont, and maybe even in the world; it also supplied the largest number of varieties of marble.⁴⁶ Even into the early 1900's a rival for the quality of marble found in the Rutland area was yet to be found.⁴⁷ Soon Redfield Proctor would enter the marble business and change it entirely. However, even before The Vermont Marble Company was established, Vermont, specifically around Rutland, was beginning to benefit from a flourishing marble quarrying business.

The Vermont Marble Company

Redfield Proctor started the Vermont Marble Company in 1880, but he began his career in the marble business even earlier. Despite the state of Vermont having a long history of marble quarrying before the Vermont Marble Company's conception, no company made as big of an impact as the Vermont Marble Company did. Though the company started as a small, family-run company, it expanded to become the largest marble company in the country, and arguably in the world.

In 1869 Redfield Proctor made his debut in the quarrying of marble through a legal avenue. Two quarries, the Sutherland Falls Marble Company and Dorr & Myers, a short distance apart from each other both were in a state of financial trouble. Promise of large monetary benefits led to some companies, like these, expanding too rapidly and in turn they could not weather economic fluctuations. Proctor, who eventually came to run

⁴⁶ Austin, "Carving Out a Sense of Place," 33.

⁴⁷ Jenks, "Marble Quarrying in Vermont," 9-10.

both quarries, realized that combining the resources of both companies would be extremely beneficial to the quarrying process. Proctor combined the two companies to create a new Sutherland Falls Marble Company in Sutherland Falls. He moved his family from Rutland to Sutherland Falls, about five miles away.⁴⁸ Proctor's move to be closer to the quarry is an early symbol of his commitment and involvement in his company, which he withheld through his entire career.

Proctor began expanding his company as early as 1875, when he created another branch of The Sutherland Falls Marble Company in Toledo, Ohio. By 1878 he had established connections to the cities of Boston, New York, Philadelphia, and San Francisco as well.⁴⁹ This expansion continued throughout his career and the existence of the Vermont Marble Company. Throughout the 20th century the Vermont Marble Company had distribution offices in all of the major cities in the country, strategically placing them at the center of each city's development.

In 1880 Proctor was named President of the Rutland Marble Company. Knowledge of his superb management skills of his own company had travelled and he was asked to apply those skills to Rutland Marble, which was suffering. At the end of that year Proctor combined the two companies he controlled into the Vermont Marble Company, this gave him control over more than half of the marble trade in the Rutland region. In the 1890's Redfield Proctor stated in one of his papers that although much of the state held marble deposits, the most valuable deposits, and therefore quarries, were in the county of Rutland.⁵⁰ Proctor had gotten himself into a position where he controlled

⁴⁸ Austin, "Carving Out a Sense of Place," 44-48.

⁴⁹ Austin, "Carving Out a Sense of Place," 49-50.

⁵⁰ Proctor, "American Quarrying."

more than half of the most valuable marble in the state. From here the situation of the company would grow into what we now remember it for. By the early 1900's, just about twenty years later, it was the largest marble company in the world.⁵¹

In 1883 the Producers' Marble Company was created between Redfield Proctor and four other marble company presidents. The goal of the agreement was to standardize marble prices and avoid excessive competition and inflation by any one company. These five companies were some of the largest marble-producers in the world; of the marble produced by Producers' Marble Company, the Vermont Marble Company produced about 60%. The monopoly that Proctor was felt to have led to the dissolution of the agreement in 1888.⁵² Though it was still early in his marble-quarrying days, Redfield Proctor was already making a name for himself as a business tycoon.

A newspaper article from 1891 announced the consolidation of the Vermont Marble Company with the Sheldon Marble Company under the management of the Vermont Marble Company. It goes on to state that the Vermont Marble Company "is the largest marble producing concern in the world, and the Sheldon Company ranks next". With this arrangement all but some smaller marble producers in the state came under the management of the Vermont Marble Company.⁵³ After the state of Vermont's marble was mostly under the control of the company, expansion over the rest of the marble industry could really blossom.

By 1886 the Vermont Marble Company had nine distribution points in Boston, New York, Philadelphia, Toledo, St. Louis, Chicago, Cleveland, Detroit, and San

⁵¹ Austin, "Carving Out a Sense of Place," 52-53.

⁵² "The Vermont Marble Quarries."

⁵³ "Marble Companies Unite."

Francisco. Two years later Cincinnati and Kansas City were added to the list of distribution points, putting the total at eleven. Less than ten years after its conception the Vermont Marble Company had achieved full country distribution with an office location in San Francisco, Redfield Proctor was quickly expanding his business. Around 1880 Proctor added the sale of Italian marble to his company. Though this seems to contradict his stance on domestic marble sales, it was a shrewd business move to get involved with the Italian marble trade.⁵⁴

Redfield Proctor stayed on as president of the Vermont Marble Company until 1889. His son, Fletcher Proctor, took control over the company when Redfield Proctor left to serve as Secretary of War. Fletcher Proctor ran the company with the same paternalist views as his father until his death in 1911. After Fletcher Proctor's death in 1911 a man named Frank Partridge, who had been vice president, became president of the company. He ended the legacy of paternalism within the company and focused more on economic goals and control.⁵⁵

By the time the first two generations of Proctors left the Vermont Marble Company it was a well-established business. However, times were changing and by the end of the 1920's marble's economic power began to waver, being replaced by granite. In the 1930's worker's strikes spread across the country and the Vermont Marble Company was not spared. The company had been cutting wages, decreasing the services it provided, and laying workers off to stay afloat. Some events during the strikes ended in fatality, it was safe to say that any paternalistic practices that had existed were forgotten. There was no longer an understanding or respectful relationship between workers and

⁵⁴ Austin, "Carving Out a Sense of Place," 56-58.

⁵⁵ Austin, "Carving Out a Sense of Place," 213-216.

their superiors. By 1940 the marble trade was in serious financial decline.⁵⁶ The Vermont Marble Company continued to operate, but encountered real economic hardship around the Great Depression, from which it never really rebounded.

In-depth accounts of the history of the company stop around 1940, the same time marble began to experience its economic troubles. The Vermont Marble Company continued its function until the official dissolution in 1994. However, the years after the Great Depression until the dissolution of the company were not easy ones. Though there is very little written about the workings of the company for its last fifty years it can be assumed that they were not extremely profitable or as promising as they had been 100 years before. The legacy the early years left behind, however, was enough to keep the company alive longer than would be expected.

⁵⁶ Austin, "Carving Out a Sense of Place," 216-226.

A Changing Country

How did Vermont get to the top of the marble trade? We know that other areas in the United States had quality marble deposits that were being quarried as well, but Vermont seems to have advanced far beyond other marble producers. The Vermont Marble Company's own booklet from 1920 asks, "Why is it that Vermont marble has come to the front and stayed there?"⁵⁷ Was their marble better, or were the businessmen in Vermont better? The white marble in Vermont has been compared to the White Carrara Italian Marble, and this may be why it was so popular initially. Albert Sidney Bolles stated "And yet an article can be found in the United States fully as fine as the Carrara marble. We refer to that which comes from Rutland, VT."⁵⁸ The fact that they could provide a similar product to the coveted Italian Marble, at a reduced rate since it was local, gave them an edge compared to the rest of the marble being quarried and sold in the country. Bolles also stated that Vermont "yields the largest variety and choicest specimens", though he also says that some marbles in Maryland and Knoxville, Tennessee have quality that is nearly equal that of Vermont.⁵⁹

Vermont marble, as a product, seems to have gotten to the top by being of such superior quality. It also helped that some deposits were so similar to Italian Carrara marble. The Italian Marble, whose pristine white color was rare, had been imported from across the ocean for hundreds of years. Even after marble quarrying in the United States began to gain momentum, Italian Marble continued to dominate the American market for

⁵⁷ The Vermont Marble Company, *Speaking of Marble*, 7.

⁵⁸ Albert Sidney Bolles, *Industrial History of the United States: From the Earliest Settlements to the Present Time* (Norwich: The Henry Bill Publishing Company, 1889), 757.

⁵⁹ Bolles, *Industrial History of the United States*, 758.

some time. Proctor states, “The introduction of American marble for monumental purposes was a hard and up-hill fight, owing to the strong prejudice in favor of the Italian product.” Though Vermont had a seemingly endless supply of white marble varieties, a suitable marble to replace that which was imported from Italy had yet to be found. Discovery of a material that was suitable to the needs of statuary purposes in color and composition was what the United States needed. It wasn’t until 1889, when the total value of stone shipped from Vermont totaled \$2,169,500 and the stone imported from other countries was only valued at \$701,518, that the trend changed, with a push from Proctor himself. Additionally, of all of the marble used in the United States that year, 62% of it originated in Vermont.⁶⁰ Before the 20th century even began Vermont was leading the industry.

Part of the reason the American marble quarries pushed ahead of Italy’s can be attributed to technology. William Barnes, one of the early marble quarrymen in Vermont, was at the forefront of new quarrying technology. Traditionally marble was extracted either through careful separation along the bedding planes of the stone using hand tools or with explosives. The expenses related to damaging the stone through these means of extraction often caused problems for quarry owners.⁶¹ Barnes began using a method that cut, or channeled, around a block of marble instead of blasting it. The tool he used was called a long churn drill. This method proved to not only damage the stone less, but also turned out to be more economical.⁶²

⁶⁰ Proctor, American Quarrying

⁶¹ Donna J. Rilling, *Making Houses, Crafting Capitalism: Builders in Philadelphia, 1790-1850* (Philadelphia: University of Pennsylvania Press, 2001), 120-123.

⁶² Austin, “Carving Out a Sense of Place,” 30.

Quarries in the United States were established in great number around the time period of large technological advances. New methods of extracting, working, and transporting stone were readily available and there were plenty of entrepreneurs looking to take advantage of them. This afforded American quarries methods that harmed the stone less than traditional methods, and sped up production. In Italy, on the other hand, quarrymen stuck to traditional methods of blasting stone out of the ground and allowing it to fall from great heights, which often harmed the stone making pieces unusable. About this, Redfield Proctor states “Compare it with the same kind of work carried on in Vermont, and how quickly is noted the difference between the results of American ingenuity, and push, and of Italian adherence to antiquated methods.”⁶³ Innovation and the desire to take chances by Vermonters presented the Italian marble industry with real competition.

After the marble of Vermont made a name for itself in the market, businesses could begin to make names for themselves as well. Redfield Proctor got to the top of this market using politics, business and marketing practices, and having the good fortune to have control over a quality product. Proctor and his successors’ willingness to branch out and take charge of hundreds of quarries across the entire country helped establish the Vermont Marble Company as number one. Regardless of the company growth, Proctor remained involved with the details. The base of this rapidly expanding empire he created was a locally owned business which seemed to keep the company grounded.

⁶³ Proctor, American Quarrying.

Consolidated Capitol

The Vermont Marble Company reached a point in its operation where it controlled the sales of a variety of quarries across a large expanse. Consumers who wished to purchase marble of almost any kind had the option to deal with only one company and still have access to a large selection of marble types for their project. Coupled with satellite offices in cities across the country, the ownership of rail lines for transportation, and a practice of completely processing any marble the company quarried, Proctor achieved vertical integration. This process of vertical integration was the same way that Andrew Carnegie and John D. Rockefeller became titans of their respective industries. Proctor is, understandably, less well known than Carnegie and Rockefeller, but his business accomplishments should be recognized similarly.

Traditionally marble quarries preferred to send a roughly finished piece of marble to their customers because the possibility for damage during the transport process was too great a risk.⁶⁴ Edwin Freedley discusses the prominence of Philadelphia as a marble-working hub as well as a city whose buildings were made largely of marble. Philadelphia had been a city with high marble demands before the industry was established in the United States and raw pieces of marble had to be imported from Europe; the marble-working mills provided the city with local ports for marble importation and working. At these mills machinery was used to saw the stone into the desired dimensions; these mills also had sculptors to finish decorative pieces.⁶⁵

⁶⁴ Rilling, *Making Houses Crafting Capitalism*, 123.

⁶⁵ Edwin T. Freedley, *Philadelphia and its Manufactures: A Hand-Book of the Great Manufactories and Representative Mercantile Houses of Philadelphia in 1867* (Philadelphia: E. Young & co., 1867), 425-428

Under the direction of Redfield Proctor his marble company began to saw, finish, and sculpt their marble pieces before sending them to consumers as a finished and ready to install product, practices that were gaining popularity across the industry. This change in the quarrying company's role cut out the need for the marble mill middlemen. In 1876, while he was still in control of the Sutherland Falls Marble Company, he added monumental finishing of the marble the company sawed to his business. Shortly after, in 1880, he added the finishing process for exterior building products.⁶⁶ Though he was not the first to make this change, Proctor's adoption of completing the marble from quarrying to finishing gave him complete control over his product. The added bonus of controlling a railway, explained in a following section, which transported the stone from quarry to shop, furthered their control. The Vermont Marble Company was involved in exact completeness of each piece of stone they sold, they ensured that their finished pieces were the correct dimensions with architectural drawings of the buildings their stone was commissioned for.

Around the middle of the 19th century, small marble quarry or processing businesses were eventually pushed out of the industry by larger, more established ones. There were four main reasons for this shift: as quarries increased in value, lands with marble deposits increased in price; marble resources within a quarry were not never-ending, and often a quarry would run dry; as quarrying technology advanced the price of the machinery and start-up costs rose; and the integration of finishing into the quarry's business expectations added another expensive component many entrepreneurs could not

⁶⁶ Austin, "Carving Out a Sense of Place," 50.

afford.⁶⁷ Proctor was one of the minority quarrymen during this shifting period that successfully entered the marble industry and came out on top instead of ending in bankruptcy.

As the number of marble quarries increased competition between the companies grew. Larger, more established companies had the ability to sell their product at a lower price than the smaller and newer companies. To cut out some of the competition between companies Proctor established the Producer's Marble Company in January of 1883.⁶⁸ The horizontal integration that Proctor established through the creation of the Producer's Marble Company regulated marble sales in a manner that was suitable to Proctor's own ideals as an advocate for domestic business rights. As the five companies involved in the Producer's Marble Company had control of a majority of the quality marble trade, this trust agreement regulated most marble prices nation-wide.⁶⁹

The Producer's Marble Company disbanded five years after its establishment, in December of 1887.⁷⁰ After this point Proctor began a process of conquering smaller marble companies to include them under his control. By 1891 the Vermont Marble Company possessed most of the West Rutland marble deposit, all of the main deposits of white marble, and all companies it had been in association with in the Producer's Marble Company.⁷¹ Redfield Proctor was now faced with the task of combining a diverse assortment of marble companies and management strategies into his own company's

⁶⁷ Rilling, *Making Houses Crafting Capitalism*, 124.

⁶⁸ Jenks, "Marble Quarrying in Vermont," 55.

⁶⁹ Rilling, *Making Houses Crafting Capitalism*, 1203-3.

⁷⁰ "The Great Marble Pool," *Rutland Daily Herald*, November 15, 1887.

⁷¹ "Vermont Marble Companies to Unite," *New York Times*, March 24, 1901.

business model.⁷² This process was one that the company would become familiar with as they continued to absorb marble companies.

The increase in use of marble for building purposes at the start of the 20th century resulted in the re-opening of quarries that had failed and closed because their deposits were not suitable for monumental work. Danby, Vermont was a location where this occurred in a large quantity. The new surge of quarry openings brought on a whole new market of quarries for the Vermont Marble Company to acquire. Beginning around 1905, the Vermont Marble Company began to purchase quarries in Danby, and through these actions they gained control of the Danby marble market.⁷³

Exponential growth of the company in the early 20th century through the process of partnering with or buying competitors led to the influential status the Vermont Marble Company achieved. By the 1920s the company had a hand in most of the marble production in the world, including a great number of endeavors overseas. The Vermont Marble Company sold stone imported from Italy, Algeria, and France, not to mention from across the United States, including Alaska. Though the company did business throughout the world, the Vermont Marble Company held onto the image of a Vermont company, perpetuating with it the ideals of the state's people.

In the early years Proctor's paternalist practices with his workers and their families forged a strong bond that helped hold the company's owners and workers together in the later, harder years. His obvious commitment to his business interests and successful practices were noted all over the country. Redfield Proctor took two failing marble companies and created an extremely successful legacy, a feat that required

⁷² Jenks, "Marble Quarrying in Vermont," 57.

⁷³ Jenks, "Marble Quarrying in Vermont," 59-60.

innovative and calculated decisions. Now, with more than half of the best quality marble trade in the state under his control his involvement with the Rutland Marble Company secured his powerful position.

As stated previously, because of Proctor's affluent position as a large company owner he was deeply involved with political happenings. However, Proctor was also very involved in politics before and after his affiliation with the marble business. Proctor ran for, and won, quite a few Republican political positions. He used his political power to put protective tariffs on marble while he was involved in the industry. These tariffs helped put American marbles ahead of imported products, providing an added security to American marble businesses. Proctor was appointed to the U.S. Tariff Commission in 1882, which gave him a significant influence on the matter, and formed an alliance with marble companies in Georgia to combat the Italian competition.⁷⁴ Proctor knew that he had to personally take control of the market to get what he wanted, and needed, to advance his company.

Proctor used his political power to combat the sale of Italian marble directly in Italy as well. He replaced the American Consul in Carrara with a man he knew would promote the interests of the Vermont Marble Company.⁷⁵ With alliances formed at home, a hand in the control over tariff laws, and a trusted person to advocate for him in Italy, Proctor's business was politically covered. Coupled with a hand in the Italian Carrara marble market and control over the majority of the quality marble in the United States, he had an unequalled formula for success. This strategy assured that the issues of price and distribution of his company's marble were settled. Although some of what Proctor did

⁷⁴ Austin, "Carving Out a Sense of Place," 49-57.

⁷⁵ Austin, "Carving Out a Sense of Place," 57-58.

benefit other domestic marble companies, no one benefitted as much as the Vermont Marble Company.

Immigration

Vermont's population decreased over a period of time in the mid-1800s. Compared to the rest of the country Vermont had an extremely high rate of poverty, lack of building expansion, and poor education, resulting from a lack of interest in progression. Those who wished to take part in advances in the country moved elsewhere, to cities and areas where there was progression.⁷⁶ This decrease in population occurred just before Proctor's start in the marble industry, leaving him a smaller number of potential laborers who were less motivated than an employer would hope for. Luckily, this was also a period of large-scale migration to the United States. Similarly to other businesses at the time, the Vermont Marble Company employed a large number of the rapidly arriving immigrants.

Proctor aggressively recruited immigrants to his company. Proctor was responsible for relocating hundreds of immigrants to the area surrounding Rutland, Vermont to work in his quarries. Due to the numerous potential jobs and the active recruitment, by the mid-1880's more than half of Rutland's population was immigrants or first generations. Though the rural population of the state continued to decrease, the overall population increased, similar to a form of urban expansion for a small town. As with many other places, clashes occurred between groups of nationalities resulting in problems in the workplace. More good than bad came of these events for Proctor though,

⁷⁶ Freedom & Unity: The Vermont Movie: One State, Many Visions, Anonymous, 2013.

because the large immigrant pool he had to work from meant an almost endless number of laborers.⁷⁷

With a large work force of immigrants, Proctor was able to better control his business and workforce by providing employee comforts such as houses and stores. Proctor's position as not only employer but also surrogate father to his employees created a loyal bond between the two parties. His paternalistic practices were another step towards his ultimate success.

Railroads

In the early 1800's canals were the primary mode of transport for goods.⁷⁸ Up until 1825 plans for new canals were being made, this was also the year that the first plans for railroads were discussed in the United States. Canal work stopped immediately and the first rails were built in 1826 for horse-drawn carts. These first railways were constructed for only short distances and for specific products, not for general movement of people or goods. South Carolina, in 1830, was the first city to run a steam locomotive for profit through the transport of goods and passengers.⁷⁹

Rapid railroad construction began all over the United States during this time, making the transportation of goods between areas easier than ever for farmers and businesses. Railroads provided transportation options that were faster, cheaper, and easier than any previous mode of transportation. Advances in railroad technology were quickly advanced as well. Engineers were constantly discovering methods for faster and more

⁷⁷ Searls, *Two Vermonts*, 67-79.

⁷⁸ "Carving Out a Sense of Place," 12.

⁷⁹ Bolles, *Industrial History of the United States*, 619-626.

economical locomotive function through the 19th century. By 1875 the trip from New York to San Francisco, two cities the Vermont Marble Company had located distribution offices, took only three and a half days.⁸⁰ Without this fast-travel capability the Vermont Marble Company would not have been able to so easily sustain a business that supplied marble throughout the country.

During the time of early commercial quarrying the majority of extracted stones were confined to being used locally due to the cost and hardness of transport.⁸¹ In the 1830's Vermonters got involved in the railway expansion with hopes of connecting their state to areas that were currently out of reach. The state had a wealth of goods and resources, but the people were in a state of poverty with no manner in which to transport what they wanted to sell.⁸² By 1852 there were four railroad lines that passed through the marble-hub of Rutland. As was stated before, the Vermont Marble Company purchased its own railway, ensuring its production sequence was in its own hands. Heavy involvement with the advancing transportation technology placed the company at the forefront of these changes.

Proctor also established control of a railroad for transportation of his product. In 1885 the Vermont Marble Company gained ownership of the Clarendon and Pittsford Railroad. The railroad was eventually built to connect all of the quarries that the company controlled, easing the task of transport between locations for milling and the like. Ownership of the railroad decreased transportation costs for the company, and provided

⁸⁰ Bolles, *Industrial History of the United States*, 634.

⁸¹ *The Carpenters' Company of the City and County of Philadelphia, Building Early America: Contributions Toward the History of a Great Industry*, ed. Charles E. Peterson (Radnor: Chilton Book Company, 1976), 74.

⁸² Austin, "Carving Out a Sense of Place," 13-15.

free range and ease of jurisdiction over their transportation requirements. By 1888 the two primary properties, Proctor and West Rutland, were connected by the railroad.⁸³ With ownership of the connection between the two main outlets and additional quarries that it created, the Vermont Marble Company had virtually no limits for local transportation.

Industry Advances

Without the advent of steam-powered capabilities the modern world would be very different, this is no different for the world of marble. As steam power began to gain popularity new inventive methods were employed at marble quarries using steam power and replacing laborers.⁸⁴ Not only did it make certain facets of the production possible that had not been before, but also it improved efficiency all-around. Steam power was used to power machines for quarrying, shaping, and transporting the marble; without it the manufacturing process would have been impossible at the scale it reached.

Early quarries used explosive methods and man labor to extract blocks of stone from their beds, move, and process them.⁸⁵ The advent of steam power provided options that required less manpower and were more reliable. Though mechanization of these processes cost more money initially for quarry owners, they assured a more stable process, and therefore business. Less man-power also meant that there were less wages to pay to workers, so though the initial cost of the machinery was high, the long-term saving benefits were substantial.

⁸³ Austin, "Carving Out a Sense of Place," 59-60.

⁸⁴ Austin, "Caving Out a Sense of Place," 30-31.

⁸⁵ The Carpenters' Company, *Building Early America*, 75.

The entrepreneurs in Vermont contributed to the state's success, and in turn the Vermont Marble Company's. Many men with high hopes and innovative ideas fled to Vermont to get a hand in the marble business. The willingness of these fortune seekers to experiment with the newest technology resulted in positive outcomes. Although there were many failures and bankruptcies among the marble quarrymen, there were also successes that led to technological and production advances for the whole industry. Steam-power and, later, electricity were incorporated into the quarrying process shortly after their respective advent. The Vermont Marble Company began generating electricity for use at their quarry to aid in the process in 1905, before its use became widespread.⁸⁶

Proctor's entry into the marble industry was perfectly timed, advances that eased the quarrying process were happening quickly. Just one year after Proctor began dealing in the marble industry, new drilling technology was introduced in the Rutland quarries that revolutionized the industry.⁸⁷ The fact that such large advances in the marble industry were occurring in the place where the Vermont Marble Company began was good for the progression of its business. As new technologies were introduced and experimented with in Vermont, the company was able to employ them and stay at the forefront of its industry.

Much of the success of the Vermont Marble Company may be attributed to the growth of the marble trade and the industrial changes in the United States from the 19th into the 20th century. Without the demand for marble the full extent of the company's potential would never have been realized. Similarly, widespread industrial growth and advancement benefitted the marble industry in a way that nothing else could. If Proctor

⁸⁶ Austin, "Carving Out a Sense of Place," 83.

⁸⁷ Searls, *Two Vermonts*, 66.

had tried to start his marble business even 25 years earlier, before the industrial advances, he would not have been as successful.

Still, Proctor was a business genius. In a Senate memorial address after Proctor's death Mr. Dillingham, a fellow Vermont Senator, stated, "Under his direction every department of the business was thoroughly organized with a responsible head; new properties were purchased, new quarries opened, improved methods of operation instituted, and new markets sought and found."⁸⁸ Redfield Proctor was a true business innovator whose hard work and risks paid off in a big way. He saw a failing business as an opportunity for something great, rather than as a money pit. He used political power to advance his industry, and took advantage of opportunities presented to him. His ingenuity and attitude, which were passed onto his successors and workers, were the reason that his vision was seen through to completion.

As with everything though, the company could not stay on top, or continue forever. Challenging business climate, starting during the Great Depression, affected the company negatively. With the challenging economic climate, commercial demand for marble as a standard building product decreased. The Vermont Marble Company came to a close almost 100 years after it officially began. Its legacy continues as some of its quarries are still mined today, under other companies' ownerships.

Otto T. Johnson, a man who took great interest in Vermont's history, wrote a great deal about the Vermont Marble Company in the 1930's. He stated, "That the concern occupies an enviable position in the business world cannot be denied. It has been built up largely by a strict adherence to the old fashioned and yet sound business

⁸⁸ Redfield Proctor- Memorial Addresses, 1909, 15.

principles, and this too, in spite of greatness and speculative nature of the industry itself. It has not let itself be led astray by unsound theories that one can eat the cake and still have it.”⁸⁹ Despite the hardships brought on by decreased interest in marble and the depression, the Vermont Marble Company held its position as a profitable company. Even with the changes in management and trend away from paternalism, management of the business adhered to some traditional business practices that helped it through hard times.

⁸⁹ Otto T. Johnson, *The Marble Industry of Vermont*.

Use in Architecture

Marble's widespread use in architecture and fast-growing quarrying go hand in hand. The study period for this project, the mid-1920's, is a period in which many styles of architecture co-exist. However, the two primary schools of style this period falls between are the Beaux-Arts and the Modernist/Art-Deco. The architectural styles of the late 19th and early 20th centuries enhanced marble sales; though they are founded on dissimilar principles, all saw marble as a material fit for their projects. As the industry expanded cost of the product became more manageable for more people, and those prominent architects who used it set the trends.

Overview

Initial use of domestic marble in the United States was contained to small products such as fireplace details, gravestones, steps, and other ornamental purposes. These early uses were carried out before quarrying became widespread and lucrative. The pleasing appearance and ability to withstand high temperatures made it ideal for use around fireplaces. Its tendency to split easily into slabs made it a good material for grave markers. However, the finishing technology early on had not been progressed, and large machinery and labor forces for quarrying were not available. The consumers of the product were few, kept mostly to those involved with the quarrying process and residents of the area surrounding the quarries.⁹⁰

⁹⁰ The Vermont Marble Company, *Speaking of Marble*, 4-5.

During the early to mid-19th century marble began to be favored as a building material. Public and federal building projects were the largest consumer of building stone at the time, and those in charge of these projects had been debating on what stone was best to use. Thomas Ustick Walter, an early marble-using architect, was just one consultant for government works in the late 1830's who advocated for marble over granite because of past experience. Around this time the House Committee on Public Buildings chose marble as a suitable replacement for the recent poor-quality sandstone they had been receiving for projects. Compared to granite, marble was fairly priced, more easily carved, and more readily available.⁹¹ Knowles states, "By the 1840's, the growing debate over which building materials were more appropriate for government buildings had ben resolved in favor of marble."⁹²

The years following the Civil War saw a reduction in building due to an economic downturn. Quarried marble at this time was used primarily for statuary, limiting the quarries that were profitable to those who had monumental-quality marble. After the country weathered the post-Civil War depression in the late 1870's, the nation went on a building spree; the country began to build at a faster rate than previously and constructed larger buildings.⁹³ In the late 1800's marble surpassed both granite and limestone as a building material.⁹⁴ An article in the *Rutland Daily Herald* from 1880 gave its thoughts on the growing marble industry. It stated,

When our architecture was ready for marble, then marble was uncovered, quarried, and supplied. As architecture approached elegance, and as increased

⁹¹ Knowles, "Of Structure and Society," 107-110.

⁹² Knowles, "Of Structure and Society," 123.

⁹³ Austin, "Carving Out a Sense of Place," 50.

⁹⁴ Bolles, *Industrial History of the United States*, 757.

prosperity enabled the popular taste to respond to the allurements of luxury, marble as a material for buildings and ornamentation, attained to a pronounced demand.⁹⁵

This article described the changes in the country's architectural trends towards a style that afforded marble a spotlight. One of the earliest large-scale marble buildings from this period was Girard College in Philadelphia.⁹⁶ The rise of the City Beautiful Movement occurred in the late 19th century. Its aesthetic values called for impressive looking building materials, such as marble. During this period use of marble as a building stone increased further, correlating to an increase in marble quarry re-openings of those that had closed because they had not had the monumental-quality marble.⁹⁷

After World War I the country experienced an increase in building. The 1920s marked a plateau of marble's popularity. Around the 1930s marble use slowed due to an increasing interest in granite as a building material and the economic troubles of the Great Depression. However, marble was continuously used for building purposes throughout the 20th century. A 1965 New York Times article claims a 'renaissance of marble' in the mid-1900s. It gives examples of both newly constructed and renovated buildings using marble cladding in New York City in the 1960s. These few marble-clad skyscrapers stuck out as distinctive features among the increasing number of modern glass and metal buildings.⁹⁸

⁹⁵ *Rutland Daily Herald*, January 12, 1880.

⁹⁶ Bolles, *Industrial History of the United States*, 757.

⁹⁷ Jenks, "Marble Quarrying in Vermont," 59.

⁹⁸ Ennis, "Marble-Clad Buildings Brighten Midtown Manhattan."

The Movements

The idea of beautification was most directly expressed through the City Beautiful Movement starting in the 1890's and continuing on through into the early 1900's. The City Beautiful Movement emphasized neoclassicism and the same ideals taught by Beaux Arts programs, both of which had already established marble as a prime building material for their styles. Due to its extremely attractive appearance, marble was the perfect building material considering the intense focus on aesthetics and monumentality in the City Beautiful Movement.

Additionally, a changing-tide related to the role of the architect transformed the world of architecture permanently, starting slowly at first in the late 18th century. The rise of the professionalism of architecture through the 19th century started as somewhat of an elitist club with restrictive rules and ended as a more inclusive field in terms of both people and design.⁹⁹ The first university programs for architecture in America were started around 1870. Until this point the trade was learned through office training. The growing number of university programs opened the profession up to those who had not been included previously, and allowed those students who graduated more freedom with designs for their buildings in a time where many established professionals, like Ware, hoped for more uniformity.¹⁰⁰

The Ecole des Beaux Arts, and U.S. architectural schools based on that model, stressed architecture as a fine art, where the architect should be able to express themselves through their designs however they please. Beaux-Arts education practices

⁹⁹ Mary N. Woods, *From Craft to Profession: The Practice of Architecture in Nineteenth-Century America* (Berkeley and Los Angeles: University of California Press, 1999) 9-52.

¹⁰⁰ Woods, *From Craft to Profession*, 66-67.

were increasingly embraced by American institutions towards the end of the 19th century and they changed American architectural work.¹⁰¹ In the 1890's there were only 9 architectural schools, and by 1912 there were 32 school and triple the number of enrolled students of 1890, which then was less than 400.¹⁰² The increasing number of schools and students in this school of thought perpetuated these ideals.

The social structure of the profession cultivated a system in the architectural profession that lent itself to a new form of professionalism. The sustained belief in private office in America “educated and socialized architects into the culture of professionalism.”¹⁰³ This belief correlated with aesthetic decisions made on the part of the architect based on what they believed to be the most appropriate, instead of what was expected of them. “Private enterprise shaped the entire building industry, not just the architectural profession, in nineteenth-century America”¹⁰⁴ As architects moved towards an imaginative method of attempting to create incomparable architectural feats the desire for more brilliant looking materials grew.¹⁰⁵ As the building industry became increasingly specialized and private enterprise began to shape the field in the late 19th century, building materials began to come into the spotlight in a way that hadn't happened previously.¹⁰⁶

Generally, but not as a rule, the bank, school, and government commissions during this time most commonly exhibited Beaux-Arts designs. McKim, Mead and

¹⁰¹ Woods, *From Craft to Profession*, 80-81.

¹⁰² Woods, *From Craft to Profession*, 172-173.

¹⁰³ Woods, *From Craft to Profession*, 73.

¹⁰⁴ Woods, *From Craft to Profession*, 170-171.

¹⁰⁵ Elizabeth G. Grossman, “Architecture for a Public Client: The Monuments and Chapels of the American Battle Monuments Commission,” *Journal of the Society of Architectural Historians* 43 (1984): 126.

¹⁰⁶ Woods, *From Craft to Profession*, 73.

White, famed architects who designed in this style, are listed repeatedly as architects on projects that procured marble from the Vermont Marble Company. In an 1890's work, the Metropolitan Club Building, the firm received white marble from Rutland as a second choice when their first was unavailable, it may have been this occurrence that solidified McKim, Mead & White's loyalty to the company.¹⁰⁷ No matter the reason, the firm had repeat business with the Vermont Marble Company into the 1900's with large commissions such as Burlington, Vermont's City Hall and the Olin Memorial Library in Middletown, Connecticut. Another architect featured in the archive who often designed Beaux-Arts style commissions is Horace Trumbauer. This prominent Philadelphia firm, that gained popularity by catering to elite society clients, designed buildings for Duke University and many buildings in Philadelphia using marble from the Vermont Marble Company.¹⁰⁸

The 1920s were also the beginning of a period of a shift away from Beaux-Arts to a new style of architecture. The Modernist and Art Deco movements starting in the 1920's rejected many of the core pillars of the Beaux-Arts school of thinking. Art Deco, most prominently recognized for its excessive detailing, colors, and geometry, reached its height in the late 1920's.¹⁰⁹ Ralph B. Bencker, a Philadelphia-local, was a Modernist/Art Deco architect. His name shows up repeatedly in this ledger book for his designs of dozens of Horn & Hardart automats and the Rittenhouse Plaza Apartments. It was the Art Deco Movement that placed importance on the ornamentation and architecture of

¹⁰⁷ Frank G. Matero and Alberto A. Tagle, "Cleaning, Iron Stain Removal, and Surface Repair of architectural Marble and Crystalline Limestone: The Metropolitan Club," *Journal of the American Institute for Conservation*, 34 (1995): 51.

¹⁰⁸ Woods, *From Craft to Profession*, 101.

¹⁰⁹ Kate Holliday, "Walls as Curtains: Architecture and Humanism in Ralph Walkers' Skyscrapers of the 1920s," *Studies in the Decorative Arts* 16 (2009): 39.

previously overlooked buildings such as department stores.¹¹⁰ The Horn & Hardart automats designed by Bencker incorporated colorful marble details and perfectly express this trend.

American private practice experienced a resurgence starting in the 1950's through to the 1970's, a direct correlation to the 'marble renaissance' referred to in the previously referred to 1965 New York Times article. The ability for an architect and their firm to practice privately, without regulation from a government body, kept the architectural field growing and changing. The competitive spirit between architects to design the most beautiful and stylish building was a primary driver for marble sales.

Though government works and private building projects were constructed according to different standards, both factions of architecture found marble as a suitable material. It was durable, could be found at a reasonable price, aesthetically pleasing, and came in a large variety of colors and patterns. Due to its growing popularity between two types of projects marble became the number one building stone in the country. The project sheets in the archives show the variability of construction types that marble was employed in as well.

The sample-size of the archived materials shows a large variety of uses for the Vermont Marble Company's products. Banks, schools, private homes, public buildings, religious places, and office spaces are some examples of types of projects that can be found in the ledger books. As the industry expanded, so did the material's applications. The different aesthetic qualities of the new architectural styles created fresh markets for

¹¹⁰ Richard Pells, "Modernism in the Marketplace," in *Modernist America* (Yale University Press, 2011), 86-88.

marble sales. What had long been a material used to express affluence became commonplace in schools and small office buildings.

Its initial movement from an occasional and regional decorative element to a sought-after building material showed the success that marble made in the building industry. Aesthetics and ornamentation, which had been studied and written about in detail, were met by mounting interest in technical knowledge about materials at the start of the 20th century. Increasing scientific knowledge about the makeup of certain marble types decided where the varieties could be used in the building industry, setting the trends alongside aesthetic preferences.¹¹¹ Prominent architects who used vast amounts of marble in their larger building designs influenced the material's status as a premiere building stone and paved the way for the uses in buildings, like schools, that were less expected.

¹¹¹ John Fitchen, *Building Construction before Mechanization* (Cambridge: The MIT Press, 1989), 16.

The Archives

As stated in the introduction, the Vermont Marble Company Archives were bought by The University of Pennsylvania in 2014 from their former owners who had been keeping them in Proctor, Vermont. The archived material has a few large components: the ledger books, stone samples, index card catalogues, and drawings. Records in the archive date back as far as 1869, the years when Redfield Proctor still managed the company under the name the Sutherland Falls Marble Company.

Each component of the archives yields useful information in its own right. However, when the respective parts are employed in combination, the archive provides a vast amount of insight into the workings of the Vermont Marble Company. The company's record-keeping system, though not too complex, nonetheless requires some explanation. The archives indicate that the Vermont Marble Company had a specific and detailed method of recording their sales, which is helpful in the use and analysis of their materials.

The Components

The easiest means of researching a specific job is to use the company's own index card catalogue. As with any other catalogue of this type, the Vermont Marble Company's index card catalogue allows any person to look for a specific job based on its location, year, or name. The job is listed on the card with the project number, which corresponds to the project sheet number. Some of the index cards, primarily for jobs in later years, list simple descriptions of what the project entailed such as "marble for toilets". More details

about the job are on the project sheet, which is then easy to find, as they are all numbered and boxed according to these numbers. Earlier jobs are not documented in the card catalogue though, as this system did not start until after 1930, so those must be looked for simply by going through the project sheets themselves.

The ledger books detail each project on individual sheets, which will be referred to as project sheets in this paper. Each one has a unique number, lists the project name, date, architect, the contracting party, the project's city and town, the office the project ordered their product from, the types, quantities, price of marble used, and many more details. The project sheets make up one of the most information intensive components of the archives, and can in large part be interpreted pretty clearly on their own. However, the addition of a project drawing and/or knowledge about the stone type used, if they are available, would enhance the information gained from these project sheets. The information held within these sheets alone is eye opening for a researcher, or anyone interested in the company, architectural history, industrial history, and/or marble.

The stone samples Penn received are of a variety of sizes, but approximately 12 inches by 8 inches. There are hundreds of samples in the collection, one of each type of stone the Vermont Marble Company sold, distributed, or worked with. These stone samples were displayed to potential clients in a variety of ways to maximize their appeal. Travelling salesmen had briefcases that held 10-20 small samples of the most popular marble types to showcase the products the Vermont Marble Company offered. Additionally, when a customer came directly to the offices of the Vermont Marble Company he could see a display of the larger variety of marble types. Some types had additional larger samples, about the size of a small wall, to show the affect the stone

could have on a larger scale. Each of these stone samples have the name of their type on them which correlates to the stone type recorded elsewhere in the archives. Some of these stone samples have information on the backs of them on labels, such as the location it was quarried. Information on these stones is especially important if used to trace a building stone to its origin. The Vermont Marble Company's expansion through acquisition of other quarries makes it more difficult to pinpoint the exact quarry location that each project's stone was mined from.

Along with the stone sample collection there exists a card catalogue of stone types the Vermont Marble Company dealt with that includes hundreds of descriptions and number correlations to stone samples. A comprehensive book written by J.J. McClymont in 1929 exists in the archives as well. It contains detailed descriptions, including colors, quarry locations, and conditions, of thousands of marble types commercially sold worldwide. In conjunction with the physical stone samples, the written descriptions provide another useful layer of information about the stone being used in building applications by the company.

The Vermont Marble Company architectural project drawings the university possess are varied and unorganized, but are a valuable resource to be sifted through. The Vermont Marble Company would often procure architectural drawings of the project they were providing material for to obtain exact measurements for custom projects. Further investigation of a drawing alongside a project sheet from a ledger book could explain more about where certain stone types were used, as the project sheets are not specific about this detail. We do know that the Vermont Marble Company did all of the finishing of their products at their own mills, which means they would have known the size, shape,

and use of each piece they quarried. Though some of this information is noted on the project sheets, it is impossible to correctly visualize and identify without another source like the drawings.

One important use for the database would be comparing and classifying buildings based on the type of stone used for each project. The project sheets for each project specify the type of stone sent to that job. In some instances, the project sheet information even includes the location from which the stone quarried. Current conservation knowledge can be furthered with this type of resource by comparing conservation techniques between buildings with similar material types.

Shortcomings

Although the archive in its current state is unique and captivating, it is not inherently easy to navigate. Means of recording this archive that would ease the processing of the information contained there are available through present day technologies. Navigating through thousands of project sheets, marble samples, and drawings is inefficient, even with the convenience of the index card catalogue. A digital database would allow for intelligent search capabilities that would in turn make further research simpler. Though the value of the Vermont Marble Company archives in its current form is extraordinary, a digital resource will allow the user more robust capabilities.

The true value of this archive in a digital format would be the share ability of its contents for preservation and conservation purposes. Ease of searching, cross-referencing, and re-organization capabilities, modification, remote accessibility, and the

ability to share information are some reasons that a digital resource would be beneficial. In addition, much of the paper in the archive is already reaching a state of fragility that will only get worse over time. If it is expected that this archive will be a resource with many users the materials should be digitally scanned or reproduced in a manner that does not put them in danger of being harmed.

Another issue is that full understanding of each aspect of the project sheets is not inherent. Additional knowledge of the specifics of how the company processed its marble is necessary, but maybe not feasible to access, to understand the intricacies of each sheet. For example, each marble type listed on the sheets has a shop specified with a letter next to it where it was presumably worked. As we know that the company finished its own pieces. Knowing what shop each letter corresponds to could give us insight to what type of uses those stone types carried out. Small notations such as this, though not imperative, prevent a full understanding of the industry processes of the Vermont Marble Company.

The Project

This thesis and its findings are based primarily on the ledger books with a look at individual project sheets, and the vast amount of information these sheets hold collectively. However, I have learned that with my limited knowledge of the inner-workings of the Vermont Marble Company it is nearly impossible to find the full value of the information in the ledger books without the assistance of other materials. Architectural drawings, marble type descriptions, and the stone samples are all supplementary materials that add a layer of knowledge to the system.

One large gap in current literature about marble use is not only the types of buildings that used marble, but also the types of marble used. This information is available if an architecture firm or someone in the building kept accurate records, but it may not be readily available. A visual survey of the built environment gives a bit of insight to what types of buildings used marble, but this is problematic as well as many buildings have marble only on the interior, which is harder for us to access. The country is expansive and has a lot of buildings, and a great number of buildings that had used marble have been demolished. The only way to truly gain the type of knowledge to get a complete survey of the built environment of the past is some type of record, such as this archive. Information about the demolished buildings, specifically, will provide little useful information for further preservation efforts. However, because these buildings are not part of the contemporary landscape it could provide a great amount of insight about trends in marble use and perceptions of the material from different eras.

The archived material we have access to can provide a great deal of information. The information can be readily available in a digitized format for those who need to use it. Making associations between buildings can provide useful preservation commonalities. For example, searching for all buildings that used marble on just the interior, or who used Verde Antique marble will allow us to see the frequency of these events, and any associations based on the type of building, the place it is located, the architect, etc. The digital format of a database would allow for mapping of these sets of information as well. A visual representation of this information (where stones were quarried, worked, sold from and incorporated into a building) would be powerful and demonstrate the company's proceedings in a way that is not possible with the written word.

For any of these uses though, a great deal of frontloaded interpretation is required before an all-inclusive digital store can be produced. It may be necessary to delve deeper into the company's records for a more complete understanding of what the project sheets tell us. The work I've done with the archived material is minimal compared to what exists and there are still many things that are to be discovered. The following 'case studies' have been performed for the purpose of showing some of potential uses of this resource; they also include problems I have encountered and further work to be carried out to make them possible.

Case Study 1: Processing Large-scale information

A record like the one kept at the Vermont Marble Company can hold an immeasurable amount of information, and this one does. One huge benefit for a digital

database is that this seemingly never-ending record can be searchable. That is to say, instead of having to go individually go through paper accounts and counting, a person can have that done for them. This capability is extremely useful for large-scale investigations, and can be used to gather information on trends from any archive. In this specific scenario, there may be interest about interior vs. exterior applications, popularity of marble types or colors, notable architects who used the material, or cities with many projects.

For example, what if we wanted to know whether marble was used as more of an exterior or interior finish in the years from 1924-1927? To do this with the paper version of the ledgers would require a person to go through about 1,000 ledgers and count how many of these are noted as using marble for interior finishes, exterior finishes, or both. An added complication to this process is that you would have to count both exterior and interior and how many projects are actually in the bunch because not all sheets have the exterior/interior indication, and there are some sheets that have more than one sheet, and some sheet numbers that are skipped or missing. Using the digital database, this process is quicker and there is less of a chance for error. In either case the response will be that the majority of jobs (with recorded use) that the Vermont Marble Company did from 1924-1927 used marble for interior finishing.

This is just the tip of the iceberg though. What if you wanted to do further research on this topic? Maybe more projects used marble for interior finishing than exterior, but how about the quantity that each used? One way to determine this is to compare the amount of money spent for each purpose. To do this on paper would require a person to manually add up hundreds of numbers to get a conclusion, something that

would take an immense amount of time. However, a digital database possesses the capability to be manipulated easily to determine this answer. The digital format of the record allows for queries of multiple categories of information arranged in whatever manner is needed to provide a response with just a few maneuvers in the form of mouse clicks.

Here follows a few more large-scale (really small scale considering the ~1,000 project sheet sample size) observations taken from the test database. These are merely things that stood out from the data as it was presented in the digital format.

- Light Cloud marble variety was used frequently in the 1924-27 sample period. More than half of the projects Light Cloud was employed for were funerary structures, primarily mausoleums or vaults. This classification of marble actually encompasses a few different types from a number of quarries that look extremely similar, many of which were quarried in West Rutland by the Vermont Marble Company. The body of Light Cloud marble is a bluish color with darker clouds (hence the name) and/or veins, though the general appearance is almost a cohesive white color when looking from afar.¹¹² All varieties of this marble are available only in slab-form, which is likely one of the reasons it was used for mausoleums so often.
- Corona, a marble type that has almost no information available, was the most used stone from the Vermont Marble Company from the 1924-27 project sheets examined. It is classified as a hard white marble with some color, and was used

¹¹² George H. Perkins, Report of the State Geologist on the Mineral Industries and Geology of Vermont 1931-1932, (Burlington: Office of State Geologist, 1932), 190-191.

almost exclusively for exterior applications. It was sold only in panels, and was a cheaper alternative to Imperial Danby marble for those who wanted the pristine white look but could not afford the higher price.

- The number one and two types of contracts the Vermont Marble Company received during the 1924-27 period were funerary structures and banks, respectively. Funerary structures, which include vaults and mausoleums, were about 26% of the contracts. Together, these two classifications of projects made up almost half of the business that the company did over this period. The funerary structures primarily used a variety of Brocadillo or Light Cloud marbles. Both have similar appearances (cream colored base with blue/green/gray clouds or veining) and were on the less expensive side of the spectrum.
- Bank projects appear frequently in this sample size, and make up about 16% of the projects recorded. This occurrence is in direct correlation with market over-extension in the 1920's leading up to the Great Depression. The implications of a market boom and then crash, coming with the Great Depression, is represented by this seemingly excessive number of built banks in the study period.
- The majority of the sales, almost 20%, the Vermont Marble Company made were for projects located in the state of New York. Pennsylvania came in second, about 15% of the total, with about half of those projects being in the city of Philadelphia.
- Philadelphia was the individual city with the largest number of projects during this period. The projects, a total of 62, in Philadelphia included mausoleums, religious, medical, and office buildings, and even the schools designed by architect Irwin T. Catherine. Only four of the projects were funerary structures, leaving 58 others to

be building projects. This is by far the largest number of buildings for an individual city from this group.

- Surprisingly, Chicago and New York City did not have the largest number of projects, and the majority of those that were located in these cities were funerary structures. Chicago's total number of buildings for this period was fourteen, and New York City's was only five. These numbers are unexpectedly low for two of the largest and most rapidly growing cities in the country.
- Columbus and Cleveland, Ohio, and Albany and Rochester, New York all equal or surpass the number of buildings constructed in Chicago in this period.
- Notable architects featured are McKim, Mead & White, Irwin T. Catherine, Horace Trumbauer, and Philadelphia native Leroy B. Rothschild, among others.
- As was stated previously, the Vermont Marble Company had satellite offices in a few cities across the country to take orders for sales. Distribution of sales between Albany, Boston, Chicago, Cleveland, New York, and Philadelphia is fairly competitive. Philadelphia, however, is the leading office in number of sales from the project sheets examined; New York City follows closely behind.
- The roaring twenties was also a time of private wealth. During the mid-1920's a large number of private residences were built as mini-mansions.
- Upon further investigation of the marble types used by the Vermont Marble Company from 1924-1927 it became apparent that a decent number of them are varieties not quarried from Vermont.

From just this relatively small sample size, it is possible to recognize trends in the manner in which marble was used for architectural purposes. Cities and states that the Vermont Marble Company received the most business from were undergoing periods of growth and building booms. Philadelphia stood out as a city whose economic and construction health was booming in the mid 1920's, and who held onto their position as a city who consumed large amounts of marble since the mid-1800's.¹¹³ Details contained in this archive link directly to the city of Philadelphia, its built fabric, and its history.

Case Study 2: Comparison between a few specific projects

With information about specific quarry locations, marble types and the properties of that marble, I believe that conservation treatments of marble components on buildings in this archive can be more exact due to more comprehensive knowledge about the materials. The database will help in this regard because it is simple to search through the entries based on marble type and receive results stating which buildings used the same marble type. The next step is to collect information on the specific type, as thoroughly as possible. It was extremely helpful for me here to have contemporary sources to the period of the buildings I was looking at, as names and descriptions were more consistent that way.

The reason that this archive, specifically, is so important to this process is that it is the fullest, most detailed, and most exact account of this information that exists. The manner in which the company recorded the projects' details lends itself to additional information for the researcher. For example, a few marbles were sometimes sold under

¹¹³ Freedley, Philadelphia and its Manufactures, 425.

one commercial name because they had similar appearances, but were actually quarried in different locations. The location of the quarry the material was procured from is important, and notes on the project sheets often give that information.

For the purposes of this mini-case study, I will use a simple example. The 1927 Stewardson and Page addition to the University of Pennsylvania Museum, Horace Trumbauer's 1924 Public Ledger Building, and McKim, Mead & White's Olin Memorial Library from 1926 all used the Imperial Danby marble in exterior applications. These three architects used marble in their design applications frequently, creating stunning masterpieces through a combination of colors and patterns. Not only does this information point to well-known architects and their marble preferences, it provides an opportunity for cross-reference between buildings for future conservation projects.

Imperial Danby marble was quarried from the Imperial Quarry in Danby, Vermont starting around 1905. Its color was mostly white, sometimes purely white, with some occasional light golden/yellow or green/gray tints, but not many.¹¹⁴ Marbles from Danby tended to be harder and more coarsely crystalline than those in areas such as Rutland, which made them good stones for exterior building applications.¹¹⁵ This marble was used extensively as a building stone in the early 1900's due to its brilliant appearance and sturdy composition. Imperial Danby is a coarse calcite marble, with a grain diameter of 0.07 to 1, mostly 0.17 to 0.62 mm, classifying it as a grade 5 marble. This stone contains sparse quartz grains, minute black specks, some pyrite, and occasional muscovite scales; the last two are what cause its streaks or clouding. Its crystalline

¹¹⁴ "Stone Quarries and Beyond," last modified 2015,

http://quarriesandbeyond.org/name_and_origion/d1.html

¹¹⁵ George H. Perkins, Report of the State Geologist on the Mineral Industries and Geology of Vermont 1913-1924, (Burlington: Office of State Geologist, 1914).

structure allows Imperial Danby to take a high polish, though inconsistencies and ‘little beds’ in the stone sometimes affect it.¹¹⁶

Located on the east side of the northern part of Dorset Mountain, the Imperial Quarry where this marble is found is 1,690 feet above sea level, and was first quarried in 1842. The quarry took the shape of an underground tunnel, claiming to be the largest in size of its type. Along with Imperial Danby, there were a few other marble types quarried from this location, all with their own underground layers. “Between various marble beds, which are about 4 to 8 feet thick, are often thin veins of micaceous schist. In some of the schist beds are calcite crystals of large size, for marble, some an inch in diameter. Quartz grains are sometimes found in the marble.”¹¹⁷

Details concerning porosity, grain size, bedding patterns, and mineralogy all affect the manner in which a stone will deteriorate and how it is treated in a conservation project. The Vermont Marble Company commercially sold both calcite and dolomite marbles, with a large variety of crystal structuring and mineral inclusions. Each of these variables can be considered when choosing a treatment that will most appropriately fit the needs of the project. The project sheets, and the act of sharing what they contain, are the avenue through which those who perform masonry restorations can gather additional information to assist them in their endeavors.

Unfortunately, the Vermont Marble Company’s marble sample card catalog is not comprehensive, so obtaining specific stone type minutiae for all of the types will be more difficult than originally assumed. The card catalog often falls short on providing a useful

¹¹⁶ T. Nelson Dale, *The Commercial Marbles of Western Vermont*, (Washington: Government Printing Office, 1912), 109-110.

¹¹⁷ Perkins, Report of the State Geologist 1931-1932, 188-189.

description of the marble variety, and sometimes does not even have a correlating record at all. Whether these records exist somewhere else, or were not considered to be a necessity by the company is unknown. Luckily, geological surveys were carried out often in Vermont, especially around Rutland, during the height of the marble industry. Considering the number of surveys that exist and the thorough information that they include, there is almost a complete detailed description of each marble variety the Vermont Marble Company dealt with provided for these purposes already.

A process of attempting to tease out secrecies such as which names refer to the same stone, and what the small differences are between the types, and what qualifying descriptions such as ‘light’ and ‘dark’ after the stone’s name meant was an important initial step. Some of these small differences may not be important for aesthetic-based research; each variety looks similar enough that it is unnoticeable. However, for a thorough conservation-based research project it could make a larger difference.

Some marble types that appear on the project sheets are complete mysteries, as there is no information on them in any resource, even in the Vermont Marble Company’s own marble card catalogue. This leads me to believe that they are varieties of another named product, or some type of moniker used by employees of the company that were not broadcasted to the commercial world. Using the sources at hand, and gathering the information available, I have created the start of a detailed of a description for each marble type mentioned in the project sheets from my experimental sample size; it is located at the end of this paper as Appendix A.

Clearly, more work is necessary to fully complete this aspect of the project, but the resources are available and it is a worthwhile course. To complete the project it will

be necessary to use outside sources, as was stated before the archive is not comprehensive in its own right. Concerns related to this are attached in note form as Appendix B. A continuing process of adding information to the database about what buildings have undergone treatments, and a link to that information would be beneficial as well. Though it may be a long shot, an all-inclusive database with this information could give conservators an invaluable resource for masonry projects.

Conclusion

As established, the state that the country was in lent itself to the establishment of monopoly-seeking businesses, such as the Vermont Marble Company. Remembering the Vermont Marble Company is important. It is the perfect example of an early American business growing to its full potential and being involved and affected by other aspects of what was going on in the country at the time. The Vermont Marble Company exemplifies the social, industrial, and political changes that took place during the 19th and 20th century. Without the Vermont Marble Company's success, the historic use of marble may certainly have been altered, and the archive may not exist.

The information contained within the archive can be used in myriad ways to increase the limited amount of knowledge we have about marble use in architecture in the United States. The importance of this information is paramount, as it can enhance current perceptions about the built environment. Investigating just a fraction of the archive showed definite architectural trends, and changed some pre-conceived notions I had starting this project. More extensive research will almost definitely advance knowledge about the use of marble in buildings.

The archive, though organized, takes more exploration to understand than originally anticipated. Missing components also leave gaps that may make it difficult to form a fully cohesive story. Through working with the archive more intimately I have made unexpected discoveries, but there is more to be learned before the usefulness of this rare resource can truly be exploited.

The sheer amount of material in the archives is enormous, making it difficult for one person in a short period of time to sift-through and truly understand. Though many mysteries were solved through the investigation of these materials, more questions were presented in return. It is safe to say that any complete translation of this archive into a digital format is going to take an immense amount of time, not only because of the number of entries necessary but also because of the interpretation that is necessary. However, it is possible and worth the effort required to produce such a valuable resource.

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Appendix A: Marble Descriptions

#2 Rutland

No description found

American Pavonazzo

Quarried from Vermont Marble Company Quarries, West Rutland, Vermont.

Description: milk white with dark blue-greenish plicated beds of irregular width and distribution.

or

Quarried from from Eastman's Quarry, West Rutland, Vermont

Description: similar to the one described above, takes fair polish.

Avenatto

Quarried at Florence, Vermont

Description: white with brown veining, which almost covers the white. Some of the veins are so faint that they are almost lost in the white, takes fair polish

B #3

No description found

Bank Stock

No description found

Belgian Black

Also known as: Noir Belge, Noir Fin

Quarried from Noir Belge Quarry

Depth of quarry about 160 ft, floor on incline of 20*, tunnel or "galler" on 4 ft in height, total thickness of suitable marble is 4.4 ft made up of following layers and thicknesses: 1st floor "C" 12" – 2nd floor "D" 11" – 3rd floor "E" 17" – 4th floor "F" 12" – "D" layer has crinkly bed near center which is of no value and is not shipped for export, "F" layer is considered best bed

Description: brownish jet black color, takes good polish, will not stand weathering. 1st quality block 11" to 12" thick. Second quality blocks 14" to 22" thick.

Bellisum Black

No description found

Best Light Cloud

Also known as: B. Light Cloud

Quarried at West Rutland, Vermont.

Description: nearly pure white containing a small amount of cloud and veins, takes medium polish, available in slabs and blocks fairly large

Black and Gold

Also known as: Portor Marble

Quarried on the Isle of Palmaria in the Gulf of Spezia and at Portovenere, near Spezia, Liguria, Italy

Description: three grades, all are generally black colored with yellowish, yellow, reddish yellow, or brown veins varying from small wavy lines to large flat markings, 2nd and 3rd grades have grayish white veins as well, and fewer yellow colored veins

Blanco P

Also known as: Bianco P

Quarries near Carrara and Massa, Italy

Description: three grades, bluish white with varied clouding

Blue

No description found

Blue Belge

Also known as: Bleu Belge, sometimes called Grand Antique Belge or Belge Grand Antique

Quarried at Namur and Bioulx, Namur, Belgium. One variety quarried at Couillet, near Charleroi, Haunaut, Belgium.

Description: Dark blue-black with slender white markings. Takes high polish.

Botticino

Varieties: Dark and Light

Quarried from Botticino Quarry, Brescia, Prov. Lombardy, Italy

Description: light brown with patches of near white and slender brown veins, takes a high polish. Light Botticino has a light cream background, Dark Botticino has a dark cream background

Breche Violet

Also known as: Breccia Violetta

Quarried from: Versilia district (Lucca) / Stazzema Quarries near Seravezza, Italy

Description: is a very solid material, big sizes up to 15-18 ft long available, cream-like veining can vary for a more or less deep violet coloring. Blocks are sawn across the bed to get nice decorative veining, good to polish, but not so easy on dark violet veins. Hardness 1.5 – light purple filler with fragments of white, red or brownish purple, takes high polish

Brocadillo

Also known as: Broccadillo

Quarried at West Rutland, Vermont

Description: Greenish white ground crisscrossed with veins and clouds some-times running to green or lighter shades. Takes medium polish.

Bronze Slate

No description found

Carthage

Many varieties- from Jasper County, Mo.

Champlain Black

See Swanton Black

Champville

Quarried in France

Description: cream yellow color, with occasional rose coloring. It is a fine grained dense marble. Takes medium polish.

Cipollino West

Also known as: Cipollino Medium (American)

Quarried from Vermont Marble Company's Quarry at West Rutland, Vermont.

Description: Various shades of slightly yellowish green with waves of a slightly darker shade and veins of light green to brownish green. Takes medium polish. There are other varieties of Cippillino as well.

Corona

Quarried at Proctor and Florence, Vermont.

Description: A hard, white marble carrying some color.

Cream Avenatto

No description found

Cream Pavanazzo

Quarried at Brandon, Vermont

Description: cream background with veins of varying shades

Cream Veined Statuary (liked Cream Statuary)

Quarried at Eastman's Quarry, West Rutland, Vermont

Description: delicate cream color with very pale brown minutely places waves up to 1" wide, takes medium polish

Danby

Also known as: Mountain White

Quarried from Imperial Quarry Danby, Rutland County, Vermont.

Description: faintly cream-tinted, somewhat translucent with yellow greenish gray irregular streaks or mottlings, takes medium polish

Danby “J”

No description found, likely a layer variety of Danby

Danby Imperial

No description found, likely a layer variety of Danby, though Danby and Imperial may be one in the same

Dark Botticino

See Botticino

Variety: Smoky type, so-called, located about 10 miles from Brescia

Dark Florence

Same as Pittsford Valley

Dark Veined Famosa

No description found, likely a variety of Famosa

Dove Blue

Quarried at Vermont Marble Company's Quarries, West Rutland, Vermont.

Description: gray blue color, fairly uniform, takes medium polish

English Veined Italian

Numerous types

Quarried from different areas of Italy

Description: generally bluish white with veins or clouds of varied shades and defiance

Escalette

Quarry located S.E. of St. Girons, France near the village of Balacet from quarry named Escalette Alpha.

Description: pink and white with violet, red, and brown markings, takes high polish, could be obtained in large blocks

Eureka

Also known as: Eureka Danby

Description: exterior marble, similar to Corona, but carrying more color

Extra White Rutland

Quarried at West Rutland, Vermont

Description: white background with few dark markings, slabs only

Florence

Varieties: Florence "X", Florence "W", Light Florence

#1

Quarried at Hogback Quarries near Florence Station, Pittsford, Vermont.

Description: Light bluish gray, with fine dark gray streaks, is sawed across the bed, takes medium polish

#2

Quarried from Hogback Quarries near Florence Station, Pittsford, Vermont.

Description: Light bluish gray with irregular mottlings of dark gray, is sawed with the bed, takes medium polish

Florentine Blue

Quarried at Vermont Marble Company's Quarry, East of Biddie Knob, miles west of Florence, Pittsford Township, Vermont

Description: light or dark dove blue, besides the numerous dark blue lines there are a few that are nearly black and as in most of the blue marbles there are white spots

French Gray

Also known as: Lepanto, sometimes Pink Lepanto

Quarried at Bluff Point, south of Plattsburg, New York

Description: gray with fossils of red and pink, takes good polish

Grand Antique

Could be French, Italian, or Belgian

In 1920's: modern name for Nero Antico or Noir Antique

In 1947- T.K. was using Belgian instead of Blue Belge

Description: generally black colored with white fragments or veins, takes good polish

Or

Could be Cipolino Grand Antique:

Description: light green ground tone with light to dark green violet veins, takes high polish

Gravina

Quarried at Tokeen, Alaska

Description: bluish white background, fairly uniformly marked with grayish blue veins, takes high polish

Gray

No description found.

Gray Rutland

No description found.

Gray Sienna

Could be Siena Gray Galena or Siena Old Covenant Gray

Gray Tennessee

Varieties: Gray Eagle Gray, Gray Knox Gray, Consolidated Gray, McMullen Gray, and Ross Gray

Most likely Gray Knox Gray, since VMC has known working relationship with Knox Quarry

Quarried from Gray Knox Quarries near Knoxville, Tennessee

Description: Light pinkish gray with crow foot veins, takes high polish

Green Cippilino

No description found.

Green Vein

Possibly Green Veined Cream

Green Veined Cream

Quarried from Eastman's Quarry, West Rutland, Vermont

Description: white, bluish white, to decided pink, with numerous veins varying from yellowish to brown to green and yellow. Takes medium polish.

Or

Green Veined Statuary:

Quarried from same quarry

Description: milky white thru which are very delicate light green veins. Takes medium polish.

Green Veined Dorset

No description found.

Hauteville

Also known as: Escalia

Quarried from Chateau Hauteville quarries, near Hauteville, Ain, France

Description: Buff color, fairly uniform, takes good polish, in American Hauteville from this quarry takes the trademark of C.H. and is also known as Genuine Hauteville

Highland

Also known as: Highland Danby (No description found)

or

Possibly Highland Blue

Highland Blue

Quarried at Brandon, Vermont

Description: dark blue with occasional waves or bands of lighter shades, some slabs may have white dots, takes medium polish

Imperial

Quarried at Imperial Quarry, Danby, Vermont

Description: A hard marble with white background and a small amount of veining.

Imperial Danby

Similar or the same as Imperial and/or Danby

I.M.V.

SEE TAVERNELLE – Industria De Marmor Venzencia

Industria dei marmi vincentini imv is supplier?

Inferior

No description found.

Inferior Pittsford Valley

No description found.

Inferior Rutland

No description found.

Italian

Could refer to any variety of Italian Marbles

Varieties: Statuary (three grades), Breddias, Monotones, Serpentine, White (four grades listed under White Italian), Dove Marbles, Travertines, Veined Marbles, other stones

Likely a marble from Carrarra, due to Proctor's known connection to that quarry area

Italian Pavanazzo

See Pavanazzo

Italian White

Also known as: White Italian

Jasper

Quarried at Swanton, Vermont

Description: Decided red to lighter, almost pinkish, coloring with white or pink fragments of varying size. Takes high polish.

Jaune Fleuri

Also known as: Jaune Lamartine

Quarried at: Pratz, Jura, France

Description: yellow to brick reddish brown with veins of brownish red and gray

Kasota

Quarried from: The Babcock Company, Kasota, Le Sueur County, Minnesota

Description: came in pink and buff or yellow – different varieties sawed with or across the bed

Lepanto

Also known as: Pink Lepanto.

Quarried at Bluff Point, south of Plattsburg, New York.

Description: Gray with fossils of red and pink, takes good polish.

Levanto

Also known as: Rosso di Levanto, Rosso Verde

Quarried at Levanto, Italy. Purple to red with dark green veins. Takes high polish.

Light Cloud

Quarried from Vermont Marble Company's Quarry at West Rutland, Vermont.

Description: Bluish white with light clouds and veins. Takes medium polish.

Obtainable in slab form only, but good sized.

or

Quarried near West Rutland, Vermont named Clarendon Quarry.

Description: Pure white with a few dark veins and clouds. Takes medium polish.

Light Cloud Italian

Quarried from Vermont Marble Company's Quarry at West Rutland, Vermont

Description: Bluish white with rather distinct clouds and veins, takes fair polish

Light Cloud Rutland

Also known as: Light Cloud Vermont, Vermont Light Cloud

Quarried from Vermont Marble Company's Quarry at West Rutland, Vermont

Description: Bluish white with light clouds and veins of darker shades, takes medium polish

Light Corona

No description found, likely just a lighter version of Corona

Light Eureka

No description found, likely just a lighter version of Eureka

Light Face Rutland

Possibly Light Rutland Italian

Light Famosa

Also known as: Formosa

Light Florence

Also known as: Pittsford Valley

Quarried from Florence No. 2 Quarries, near Fowler, Vermont

Description: bluish white with veins or lines of darker shade, takes medium polish

Light Inferior

No description found, likely just a lighter version of Inferior

Light Inferior Rutland

No description found, likely just a lighter version of Rutland and/or Inferior

Light P.V.

Also known as: light Florence which is Florence No. 2

Quarried near Fowler, Vermont.

Description: Bluish white with veins or lines of darker shades. Takes medium polish.

Light Rutland Italian

Quarried from Vermont Marble Company's Quarries in West Rutland, Vermont

Description: white with dark lines and markings, takes medium polish

Light Vein

Also know as: Light Vein Rutland

Quarried in West Rutland, Vermont.

Description: White slightly bluish background with light veins, takes medium polish

Light Westland Cippolini

No description found, likely just a lighter version of Westland Cippolini

Light Yellow Sienna

No description found, likely just a lighter version of Yellow Sienna

Listavena

Similar to: Jackman and Light Smith

Quarried at West Rutland, Vermont.

Description: Veins of green or olive alternation with bands of white or pinkish white. Takes medium polish.

Livido

Quarried at Vermont Marble Company's quarries in Rutland, Vermont.

Description: bluish gray coloring with veins and spots of darker shades, takes medium polish.

Mariposa

Quarried in Vermont.

Description: light gray nearly white with fairly pronounced blackish markings

Metawee

No description found

Mountain White

Also known as: Danby

Description: Mostly pure white, some indistinct veins and clouds of light green or light brown.

Napolean Gray

Quarried at Phenix, Missouri - Carthage Marble Co.

Description: dark gray with shades of pinkish glow and with bluish beings at regular intervals.

Neshobe Gray

Same as Dove Blue Vermont

Northern White Pearl

No description found

Northern Ivory

No description found

Northern Ivory Green

No description found

Numidian

Quarried at Kleber, on an elevated plateau known as Djebeler-Roos or Mountain of the Capes, about twenty miles northeast of Oran in the western part of Algeria and near Simittu Colonia, modern Chemtou, in the Medjerda Valley, Tunis

Description: variety of types including Numidian Pavonazzo, Numidian Pink, and Numidian Yellow – unsure which the archive refers to without reference to color

Numidian Yellow/Yellow Numidian

Also known as: Giallo Antico

Quarried from either Chemtou, Tunis, Africa or Kleber Quarries, Oran Province, Algeria – almost identical in color and texture

Description: Warm yellow often tinged faintly with pink and streaked with markings of brown.

1923- Tunis quarries not operating

Old Convent Sienna

Also known as: Sienna Old Convent Gray, Brocattelo, Gray Mixed, Yellow

Quarried at Monterenti, Italy

Description: Gray: Group D, light gray mottled and marked with faint bluish purple veins, Mixed: light gray mottled running to yellow mottling all marked with faint purple veins

or

Siena Old Convent Yellow

Description: yellow and brownish yellow mottlings with a few purple and almost dark black veins DO I NEED THIS?

Old French Gray

No description found

Old Sienna

Likely the same as Old Convent Sienna

Olivo

Quarried in West Rutland, Vermont.

Description: White with olive or yellowish green veins in cloudy, feathery forms. Blocks are not usually large—comes in slab form only.

Olympian White

No description found

Oriental

Quarried at Swanton, Vermont.

Description: Very hard and takes a high polish. A mottled red marble of very rich color. Deep red and brown and small spots of white. Most satisfactory for wainscot, stairs, treads, counter tops, deal plates, drinking fountains and similar uses.

Reasonable sizes can be obtained and the quantity is ample.

P+G

No description found

Pink Lepanto

See Lepanto

Pink Lepanto Veined

No description found

Pink Tennessee

Could be: Gray Eagle Pink, Gray Knox Pink, Bond Pink, Craig Pink, Cedar Pink, Knox Pink, Rose Pink, or Asbury Pink

Pittsford Italian

Varieties: Pittsford Italian "C", Pittsford Valley "L" Layer, #2 Pittsford Valley, P.I.X., Pittsford Italian X, Light P.V., Pittsford Italian White, Pittsford Valley "P"

Quarried from Turner Quarry, near Powler Station, Pittsford Township, Vermont.

'there are several varieties of the Pittsford Italian, the only two are recognized in trade. There are the D layer and the Y layer. In the D layer the ground is shaded, white in some parts, yellow in the very light shades elsewhere and one charm of the marble is in the manner in which the white and yellow are intermingled. Running thru the ground are distincy veins of yellow-brown and olive, or in another part of the stone these may be dark grey or even black. These veins are all narrow much crumpled and irregularly distributed.'

In the layer Y we have more intricate entanglement of veins and bands of a dark bluish tint. These veins never seem to coalesce as in many marbles, but although constantly changing their direction they do not mingle. Although, there are the dark veins mentioned, they are not sufficiently abundant to essentially darken the marble which is always very light in general tone." – Report of Vermont state geologist
Takes fair polish.

Plateu

Also known as: Plateu Danby or Dorset B (Building Stone)

Quarried at Plateu Quarry, near South Dorset, Vermont

Description: light cream color clouded with light gray to smoke tint or white with gray-green clouding

Premier White Italian

No description found

Red Levanto

Also known as: Verde di Levanto

Quarried near Levanto, Liguria, Italy

Description: dark green, veined with dull green and occasionally white soap stone veins, takes a good polish

Or:

Also known as: Rosso di Levanto, Rosso Verde, Levanto

Quarried in Levanto, Italy

Description: purple to red with dark green veins, takes high polish

Red Numidian

Also known as: Numidian Red

Red Verona

Also known as: Rosso Verona Brocato, Red Verona Brocato, Rosso Verona Brocato Extra, Red Verona Brocato Extra, Rosso Verona Medio, Red Verona Medio, Rosso Sanguino

Quarried from Rosso Verona, Verona District in Italy

Description: Variagated pink with occasional red veins.

Riverside

Varieties: Riverside "X", Riverside "W"

Quarried from Riverside Quarry, near Proctor, Vermont.

Description: Bluish white with dark gray spots and bands at irregular intervals

Riverside Corona

No description found

Riverside Pavanazzo

No description found

Rojo Alicante

Also known as: Alicante, Red Altico, Spanish Red

Quarried in a valley near Monovar, Spain

Description: mass formation with no distinct beds, fairly sound

or

Rouge Clair

Quarried from Novelda Quarries, Alicante, Spain

Description: mottled reddish brown with white and transparent veins.

Rosatto - May be Rosato Marble

Quarried in the mountains of the Val Policella, near Verona

Description: rose color

Rose Tavernelle

See Tavernelle Rose

Royal Antique

Quarried at Pittsford, Vermont.

Description: Bluish white and pure white with wavy veins or clouds, of many tones from light green, almost white, to a live and dark green. There are several subvarieties of Royal Antique known as M Layer, N Layer, and O Layer.

Royal Red

Also known as: Pompeian red

Quarried at Swanton, Vermont.

Description: dark reddish brown with irregular slightly lighter clouds and some whitish streaks

Rubio

Varieties: Rubio "P"

Quarried at West Rutland, Vermont.

Description: delicate pinkish tint with thin placated greenish veins.

Rubio "P"

Likely a "P" layer of Rubio

Rutland "A"

No description found

Rutland "B"

No description found

Rutland Building Marble

Quarried at Vermont Marble Company's Quarry in Rutland, Vermont

Description: there are several subvarieties of this marble all of white are white and generally without much veining

Rutland Crinkly

No description found

Rutland Italian

Quarried at Rutland, Vermont

Description: faintly bluish white with faint irregular grayish and yellow brownish mottlings

Rutland White:

Varieties: Rutland "C", Rutland "A",

Many varieties from different quarries throughout Vermont

San Russel Rose

No description found

San Saba

Quarried from San Saba, San Saba County, Texas.

Description: Variegated buffish brown, not available, takes high polish

Second Statuary

Second statuary Italian

Quarried in Italy

Also known as: Italian second statuary

Description: white or creamish white that contains clouds, veins, or other blemishes that prohibit its use as Statuary

or

Second Statuary Rutland

Also known as: Rutland Second Statuary, Vermont Statuary

Quarried from Vermont Marble Company's Quarry at West Rutland, Vermont.

Description: Milk white with faint grayish or yellow clouds, takes medium polish

Select White Cloud (Maybe Selects?)

Quarried from: Claredon's Quarry near West Rutland, Vermont.

Description: Pure white with faint dark veins and clouds, takes medium polish

Selected P.V.

No description found

Selects

Description: A hard white tile with minimum veining

Sienna

Also known as: Siena

Quarried near Siena, Tuscany, Italy

Siena Marbles not produced from the Montarenti Quarries are generally known as Siena Galena while those from the Montarenti Quarries are known as Siena Old Convent, Old Montarenti, New Montarenti, or Brocatello

Sill Stock

No description found

Silvestre

No description found

Skyros

General name for marbles quarried on the Island of Skyros in the Aegean Sea west of Greece.

Description: generally white or cream colored, with a variety of veins or markings in different colors.

Slate

No description found

St. Genevieve

Varieties include: Golden Vein, Rose, and Breche Rose, all coming from Ozora Quarries, near St. Genevieve, Missouri.

Description: take good polish

Standard Green

Quarried at West Rutland, Vermont.

Description: Varied with fields of light green, smaller ones of white and pinkish white, or light bluish white, with winding veins blanding into clouds, and occasionally bands of pinkish white

Standard White

No description found

Striped Brocadillo

No description found

Swanton Black

Also known as: Ebony, Isle La Mott, Vermont Black, Fish Black

Quarried on the Isle La Motte in Lake Champlain, Vermont.

Description: Dark Grayish Black. Takes low polish."

Tavernelle:

Also known as: I.M.V. or CHIAMPO

May be: Chiampo Flurie or Tavernelle Flurie

Quarried from I.M.V. Quarries near Chiampo, Venetia, Italy

Description: creamish yellow with fine bluish markings, takes high polish

Tavernelle Clair

Also known as: Chiampo Perla

Quarried near Chiampo, Venetia, Italy

Description: light creamish yellow, slightly variegated, takes high polish

Tavernelle Rose

Also known as: Chiampo Rosato

Quarried from two beds of the Chiampo main formation in Italy.

Description: dark to light pink colors available. Very compact, hardness under 1.8, sawing across bed not advisable, polishes well enough, some plastering required, available in big sizes, not good under chisel, clear edges obtainable

or

St. Florient Tavernelle Rose

Quarried near Lourdes

Description: greenish gray with red markings or patches.

or

Quarried from I.M.V. Quarries near Chiampo, Venetia, Italy

Description: light creamish yellow slightly variegated with rose markings, takes high polish

Tokeen

Quarried from Tokeen quarries, marble island, Alaska

Description: White, bluish black veins and clouds, fine and crystalline, takes good polish

Top White:

Also known as: Rutland Top White

Quarried at Rutland, Vermont.

Description: Creamish white; hard but does not polish well. Takes low polish.

Travertine

Also known as: Travertin, Travertino, Tiburtino, Roman Travertine

Quarried at Tivolia, about twenty minutes from Rome, Italy.

Description: Cream colored with numerous voids of irregular shape and size. Takes no polish

or

American Travertine

Also known as: Biexanz American Travertine

Quarried at Winona, Minnesota

Veined Rutland

No description found

Venoso

Description: a special veined tile of unusual character

Verde Antique

Also known as: Vermont Serpentine, Vermont Verde Antique, Champlain Green

Quarry located at Roxbury, Vermont

Description: Dark Green with white markings and mottles

Verdella

Also known as: Verdillo

Quarried from Verona district, Italy quite limited and not reliable regarding quality

Description: Creamy brown background with thin green veins. Takes high polish.

Verdoso

Also known as: Verdosa

Quarried at West Rutland, Vermont

Description: Apple green to dark green, sometimes almost black with occasional white markings.

Verona

See White Marbles of Clarendon, Dorset, Rutland, Brandon, Pittsbord, and Proctor

Vermarco Delft

No description found

Vermoir

No description found

Vermont Blue

This term is applied to all of the various bluish, or blue marbles quarried at West Rutland, Vermont. All of which are used extensively for electrical switchboards

Verte Corail

Could be Verte Corail Claire or Verte Corail Fonce – no further info

West Cream

Also known as: Westland Cream, Rosaro

Quarried from Vermont marble Company's Quarries, West Rutland, Vermont.

Description: Light Yellow with more or less salmon tone, with light brown and olive veins. These veins are often quite shadowy in their indistinctness.

Westland Cream

See West Cream

White Coronoa

No description found

White Vermont

See White marbles of Clarendon, Dorset, Rutland, Brandon, Pittsford, and Proctor

X.S.P.V.

No description found

Yellow Numidian

See Numidian Yellow

Yellow Siena

Also known as: Siena Old Convent, Yellow, Montarenti, New Montarenti, or Siena Galena Yellow

Appendix B: Archive Notes

- Intricacies such as letter additions to the end of marble varieties are unexplained. 'Florence' is often noted with an 'X' or 'W' after its name on the project sheets. This is referred to in a few written marble descriptions, but the reason is not explicitly stated. Florence is a marble that was quarried in two places, Florence #1 and #2; it is known that at one quarry the stone was cut with the grain, and at the other the stone was cut across the grain for different building applications. It is possible that one letter stands for each of the cuts, but there is no evidence in the archives or literature that has been explored.
- It is unclear whether Danby and Imperial are the same marble or not. Some sources refer to them as the same product, while others state that Mountain White and Danby are the same. There is no conclusive evidence either way.
- Some marble types that are listed on project sheets I was unable to find anywhere.
- Surprisingly, there were no real canonical buildings listed in the 943 project sheets recorded. It seems curious that the largest marble-producing company would not have a hand in a project such as the Tribune Tower, or others.
- I did not incorporate the architectural drawings into this project as I had hoped. Though I looked through them and found interesting material, when I attempted to connect the architectural drawing to a project sheet in the ledger it was harder to find than expected. The same problem occurred when we used the card catalog to find a project. Neither the number on the architectural drawing or the index card matched to a project sheet in the ledger book the way we expected them to. This will take further investigation.
- The database I created worked fine for the purposes of this thesis, but a software with more advanced capabilities may be necessary. The biggest problem I encountered was that I ran out of columns to put marble types in.
- The manner in which I arranged the database also limits the amount of information that can be input. Knowing what I know now I would certainly change any future database arrangement.
- The marble type card catalog that is part of the archives was deceptive. There is surprisingly little information contained on the cards about the varieties. Most of the cards only state the name of the marble, which is not very useful.
- I did find some resources produced by the Vermont Marble Company and geologists that would assist in further marble typology. These include quarry information, characteristics, and more detailed information than the other sources used. However, I was unable to fully delve into these resources and compile a full written account of that information.
- Some sheets indicate that the order was completed at a facility other than the main office. Swanton is the most popular facility mentioned in these cases. There were not enough in this sample size to see any trends, but it may be useful to see over a larger sample size if there are any correlations.

- Some of the marble types written on the project sheets indicated that they came from a specific quarry, but the majority of them did not. This information can be very useful when it is provided.

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