A PRELIMINARY STUDY OF THE BROWNSTONE QUARRYING INDUSTRY IN THE TOWN OF PORTLAND, CONNECTICUT

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Portland is one of the two northern towns of Middlesex county. It was first known as East Middletown, being constituted the Third Society of Middletown, in 1714. In 1767, it was incorporated as Chatham, that township also including the societies of Middle Haddam and East Hampton. In May 1741, that part which was known as the First Society of Chatham was set off as a separate town, with the name of Portland. It is bounded on the north by the town of Glastonbury, on the east by Chatham (East Hampton), and the Connecticut River forms its western and southern boundary. It is nine miles long and three miles wide... It is chiefly celebrated for its fine quarries of brown or sand stone...

(from J.B. Beers History of Middlesex County, Connecticut)
Throughout Portland's history the brownstone quarries were a potentially exploitable natural resource. It was, however, only in the 19th century that this industry had a significant impact on the town's economic, social and architectural development. The expansion and development of the industry was predicated not only on the existence of the natural resource of brownstone, but also on the influx of cheap labor provided by Irish immigration, a concurrent increase in demand for brownstone as a building material in the major cities of the country, and readily available ships to transport the product. By the late nineteenth century, the brownstone quarrying industry and the men who owned and directed its operation had made Portland a town with a distinct character, a character quite unlike that of the neighboring towns of East Hampton, Cromwell and Middletown of which once formed a part.

A high proportion of the substrata of southwestern Portland, and in particular the area along the eastern bank of the Connecticut River opposite Middletown, is composed of a form of sandstone whose high content of ferrous oxides gives it a reddish-brown hue. The easily worked, relatively durable and monumental qualities of this "brownstone" make it particularly well suited as a building stone, a fact evidenced by its extensive use in masonry construction throughout a large portion of the United States prior to the advent of reinforced concrete and curtain wall construction techniques around the turn of the twentieth century.

Portland was hardly unique in terms of the extensive nature of the brownstone deposits which lay beneath its surface. For example, some of the land in other northern Middlesex County towns, including Cromwell and Middlefield, contain similar deposits. The primary difference between the deposits in Portland and those in other communities was, however, that some of the brownstone in Portland lay in exposed outcroppings along the river when settlement began in the area in
the 1650's. This fact not only made its existence more readily apparent, but also far more accessible to Middletown's early settlers. And the value of this durable and highly accessible building material was both recognized and husbanded by town inhabitants at a very early date.

At a town meeting September 4, 1665, it was voted -- That who-soever shall dig or raise stone at ye rocks on the East side of the Great River for any without the town, the diggers shall bee none but the inhabitants of Middletown and shall be responsible to the town 12 pence per tunn for every tunn of stone that he or they shall digg for any person whatsoever without the town, this money to be paid in wheat or pease to ye townsmen or their assigns, for use of the town, within six months after the transportation of said stone.

But while the value of this resource was recognized early on, extensive quarrying would not begin for another 100 years. For the most part, it appears that brownstone was primarily used in these early years for relatively small scale work, such as house foundations, stone walls and gravestones, by residents of the lower Connecticut River valley and by those living in Middletown itself.

A number of factors help to account for this lack of early exploitation of this abundant natural resource. Certainly in the seventeenth century, the corporate nature of rights to the land, the generally accepted concept that the town's land was available for every established male's use but not his full, unrestricted exploitation, retarded such a development. Evidence of this factor can be seen in the town's early eighteenth century prohibition of all sale or shipment of the stone to outside communities.

At a town meeting March 4th, 1715 the town by voat doe prohibit all persons getting any stone in the town Quarry on the East side of the Great River for transportation out of town, and whosoever shall presume to get and to transport any stone for the futur contrary to this act of the town shall forfeit the sum of 20 shillings a stone for every stone by him or then transported out of the town or sold in order to transportation (one half to him who complains and the other half to the town). 2

At least part of the reason for this prohibition can be attributed to the fact that the Proprietors of Middletown were attempting to preserve the rapidly disappearing outcroppings along Portland's riverbank, an indication that while the
townsmen recognized the value of their resource, they did not yet realize its full extent.

Similarly, the fact that the principal occupation was still farming, and like virtually all other trades, quarrying still played only a subsidiary economic role would have proven significant, as would the lack of a developed market economy and the subsequent inability to market the product on an extensive or highly profitable scale. For while demand for brownstone clearly existed in the immediate environs of Middletown as early as 1665, it seems fair to assume that the relatively small, localized scale of this demand, combined with the lack of a dependably continuous mode of transportation for large bulk shipments of stone, did not make quarrying profitable enough even as a principal subsidiary trade until about 1736. (It must be remembered that Middletown's development into a major commercial shipping center did not begin until well into the second half of the eighteenth century.) Significantly, a house constructed for Thomas and Lydia Hancock in Boston of "Middletown Stone" cut by Thomas Johnson of Middletown Upper Houses (now Cromwell) during that year is the first known, documented case of production of large amounts of brownstone for long distance shipping. 2

This agreement between Johnson and Hancock for building stone for the future economic potential embodied in brownstone quarrying and the nineteenth century development of Portland. It also clearly indicates that by that time the town's prohibition on export of stone had ceased to be effective, and a market for brownstone, albeit limited, had begun to develop in the older and more firmly established social and commercial centers, such as Boston, Newport and New York. It was, perhaps, inevitable that communities such as these should become the first significant market for brownstone. Their location on the water greatly eased the problems of transporting heavy bulk goods like stone. The fact that these cities had already emerged as major commercial centers meant that their merchants had already begun the process of accumulation of wealth. Given that one of the
earliest and most popular means of self-expression of material success was the
construction of monumental stone houses, it is not surprising that the demand
for the durable and easily worked Portland brownstone began to increase.

By the end of the 1770's, this limited demand for brownstone had increased
to the point where quarrying was beginning to rival farming as a principal
occupation for a number of Middletown area inhabitants. In this sense it had
began to parallel the increasingly formalized commercialization of what had
been other major part-time area occupations -- commerce in Middletown, and
shipbuilding in most of her outlying communities. In short, quarrying as an
occupation was beginning to adapt itself to the initial stages of the development
of the modern market economy. But while the economic importance of area commerce
and shipbuilding was to experience a gradual decline in the first half of the
nineteenth century, the significance of the quarrying industry burgeoned to the
point where, by 1840, it had established itself as a modern, major industry in
its own right, far surpassing shipbuilding, farming or local commerce as the
principal economic determinant of Portland's future development.

The history of the Portland quarries as a modern extractive industry really
began in 1783 with the formation of the commercial quarrying partnership of
Hurlbut and Roberts. The two men began excavations that year after purchasing
a shallow, existing quarry hole which townsmen had opened in the mid-eighteenth
century along the riverbank slightly north of the road now known as Silver
Street. The partnership maintained operations until 1812, when the business
was sold to Erastus and Silas Brainerd, two brothers from nearby Middle Haddam.
The business was then operated under the firm name of E. & S. Brainerd until the
death of Silas in 1837, when it was renamed Erastus Brainerd & Company. It
was finally incorporated as the Brainerd Quarry Company in 1884, retaining that
name until the 1890's when it merged with the Shaler and Hall Quarry to form
the Brainerd Shaler and Hall Quarry Company. The second major quarrying firm established began as a partnership formed by Nathaniel Shaler and Joel Hall in 1788. Like Hurlbut and Roberts, these two men began excavations in a previously opened pit (slightly northwest of Commerce Street). They soon expanded their operations, opening a second pit on land which they had purchased near the river slightly south of Silver Street in 1791. The firm continued to operate under the name of Shaler and Hall Quarry until its merger with the Brainerd Company. In 1819, a third quarrying company was formed, once again as a partnership, by Daniel Russell and Robert Patten. Russell and Patten began digging slightly north of the original Shaler and Hall hole that same year. Later known as Russell and Hall, the firm was finally incorporated as the Middlesex Quarry Company in 1841.

Although we still know relatively little about the specific circumstances surrounding the industry’s formative years (1780-1820), the manner in which these companies were established suggests several important aspects regarding the nature of the early years of commercial quarrying. For example, the fact that each firm was formed as a partnership probably proved financially risky, and perhaps required an initial capital outlay which exceeded the means of a single individual. Pooling of resources in this fashion would, therefore, not only help to insure each partner against potential individual losses, but also increase the initial probability for the successful establishment and continuing operation of the firm. It also follows the generally recognized pattern of economic development exhibited in the establishment of other infant commercial ventures of the period. The ability of three successive firms to successfully establish themselves over this forty year period also indicates that market demand was experiencing a gradual but steady increase. Though the particulars relating to this growth in demand still need to be studied in greater depth, the fact that this period coincides with the era of the emergence of the modern
architectural profession in America is, to say the least, a somewhat compelling association, especially in light of the fact that one of the more influential of these native born architects was Ithiel Town of New Haven. The fact that Town spent much of his productive career practicing from his New York office may prove extremely significant with regard to the emergence of New York as the principal market for Portland brownstone in the mid and late nineteenth century. But if the actual causes for the continued growth in demand for brownstone remain unclear, it is clear that this increase in demand served as an important stimulus with regard to reshaping the socio-economic character of both the industry and the town as a whole. For if increased demand fostered increased production, increased production necessitated a corresponding, proportional growth in the size of the industry’s labor force.

Quarrying is by nature a labor intensive industry. And as the following excerpt from J.B. Beers’ History of Middlesex County, Connecticut suggests, even the introduction of nineteenth century technological advances such as steam power and blasting did not alter this fundamental character of the industry. The principal import of such advances was that they allowed deeper and hitherto less accessible stone to be extracted.

The work of excavation is materially assisted by the rocks being broken up into natural beds by parallel or nearly parallel fissures extending downward to an infinite depth, sloping to an angle of 25 degrees. These fissures are called by quarrymen "joints." Right angles to these joints are "keys" or cracks extending to one or more strata, so that blocks of stone "lie in beds from two to twenty feet thick, from 20 to 100 feet wide, and from 50 to 300 feet long, with a generally southeasterly dip." These joints and keys facilitate the work of quarrying. The earth and rubbish are first removed until the rock is exposed. It is then split by wedges and hammers when cut parallel to the strata, if contrary to the strata, greater force must be used and, and blasting is resorted to if the strata are very deep and close. The large mass being broken up the stone is readily cut. 

Most of the evidence presently at hand indicates that quarrying operations during the last two decades of the eighteenth century were principally family based activities. The bulk of the unskilled tasks appear to have performed by younger members of both the immediate and extended family, while the skilled
functions such as carving, dressing, and marketing stone were effected either by one of the original partners—the family patriarch—, elder sons and nephews who has risen through apprenticeship, or by skilled craftsmen who had migrated into the town and joined the operation on an equal footing with the original principals. In this respect the early organizational structure of the quarry industry paralleled most other commercial enterprises of the eighteenth century. But by the end of the first decade of the nineteenth century, and perhaps somewhat earlier, the market demand for brownstone appears to have begun to outstrip the effective production capability which this type of traditionally based economic structure could provide. Market demand, therefore, began to force the adoption of a supplementary paid labor force to achieve the desired increase in production. We know, for instance, that the Shaler and Hall Quarry employed roughly 30 people by 1820. We also know that the Shaler family had effectively dropped out of the business by that time, and that members of the Hall family known to have been directly involved in the business can only account for, at best, about 40 percent of the total workforce. From this we can deduce that a significant change had begun to take place in the basic social and organizational structure of the workforce. In short, the traditional economic structure was being transformed into a more modern system of employer and employee, a transformation which was accelerated by the tendency of the firms’ principals to send their sons to college rather than taking them directly into the business through the apprenticeship system. Most of the hired labor force in these early years was undoubtedly drawn from the immediate area, probably sons of farmers who could no longer be provided for by their fathers due to the diminishing available land resources, or farmers whose holdings had been reduced, as a result of the practice of partible inheritance, to the point where they were forced to supplement their income from the land. But the continuing increase in demand for brownstone rapidly began to outstrip
this supply of native born surplus labor, for which the quarries were forced to compete with both the local shipbuilding and the inducements provided by out-migration. This competition for labor must have proven considerably difficult for the quarry companies given the fact that the bulk of the positions they needed to fill were unskilled and low paying. This crisis in labor supply in the face of burgeoning market demands could have proven insurmountable had it not been for the providential influx of Irish immigrants to this country in the 1830's.

The continuing failure of the potato crop in Ireland had produced severe food shortages in Ireland in the early nineteenth century, and the first Irish immigrants began to arrive in major American port cities by the 1830's. We do not actually know what brought the Irish to the Middletown area, although it is suspected that the long established commercial shipping bonds which existed between Middletown and New York, and the relationship which had begun to develop between the quarries and local shipping interests, the critical need for labor in the quarries, and the inability for most Irish to find jobs in New York probably all worked in concert to draw them to Portland. In the ensuing years, immigrants may have arrived in America with the foreknowledge that Portland was their destination, for we know that many of them came from the same counties in Ireland, suggesting that earlier immigrants communicated with their friends and families back home. A review of Portland’s vital records of this period not only confirms that large numbers of Irish came to Portland, but the recurrence of the names of places of origin, such as county Cork, suggests the establishment of family and kin networks in this group, a finding which has also been observed in other areas with significant Irish immigrant populations.  

From a surviving account book of the Shaler and Hall quarry, we are fortunate enough to be able to get a glimpse of the life of the average Irish immigrant laborer. With few exceptions, Irish males entered the quarry labor
force at the lowest level, taking on the arduous, hazardous, unskilled positions that could not (or would not) be filled from the available local native labor pool. (An examination of Portland's Vital records indicates that most immigrant females were, as expected, either employed as domestic servants or in similar occupations such as "washladies"). This account book also reveals that, by 1840, a definite hierarchy had become established among quarry workers. This hierarchy can be divided into two basic groups: skilled and unskilled. If we take the decade of the 1840's as representative, it can be seen that skilled laborers, such as stoncutters, surveyors, teamsters and foremen, usually received wages 25 percent higher than the average "quarryman" or "common laborer" ( $5.00 per week as opposed to $15.00 per month). While some immigrant laborers, especially in the following decades, did obtain such skilled positions, the great majority remained in non-skilled positions throughout the first several generations. Surprisingly, while the work period of each laborer usually only lasted from May through December of each year, we find that the list of individuals employed by the quarries generally remained the same over the ten year period from 1840-1850. This, of course, indicates that they were permanently settled somewhere in the immediate area.

While the 1840 and 1850 Federal Census reports clearly indicate that some of the Irish immigrant workforce lived across the river in Middletown, the extensive number of Irish "quarrymen", "common laborers" and "domestic servants" listed in the Portland Vital Records reveals that the majority probably lived in town. The Shaler and Hall accounts and the town's land records indicate that the quarry companies owned houses both on and off the immediate quarry grounds which were rented to their immigrant employees. (Examples of this type of housing still stand at 8, 10, and 12 Silver Street, 228-230 Main Street, and along many of the streets in the Diggins Avenue area.) Many workers were also boarded out in privately owned nearby houses belonging to native born residents.
The 1851 Clark Map of Middletown, which includes a small portion of southwestern Portland, indicates that three small Irish neighborhoods ("Cork", "Belfast" and "Dublin") were also located in the area which now forms the town's industrial park by the river near the present Arrigoni Bridge. While we do not know for certain that the quarry properties extended this far south, the fact that these structures, unlike virtually all of the other individually owned properties listed on the map, do not have names listed next to them suggests that these were tenement properties directly or indirectly connected with the quarries.

In general, the Shaler and Hall account books indicate that the more highly skilled members of the immigrant labor force were usually placed in single family dwellings, while their unskilled counterparts were either placed in multi-family tenements or boarded out. These account books also reveal that the Shaler and Hall Quarry owned a company store, where its workers could buy goods on credit, which became a particularly important factor during the winter months when the quarries were closed. Occasionnally, the company also appears to have extended credit to their employees in a more general fashion, probably as advances on their future pay, although the extent of this practice remains unclear.

Although neither of these practices was unusual in nineteenth century industrial America, we have no evidence to suggest that the quarry bosses took advantage of their workmen by price gouging at the "company store" or by raising rents, customs which tended to promote the dependence and subservience of the worker. "Enlightened" company owners of the period, however, were at best paternalistic in their outlook, concerned primarily with inculcating "moral" (good) work habits in their labor force. In the early industrial period this was a particular problem. Work habits had to be reshaped; workers had to accommodate to time schedules... governed by the clock and the days of the week... not the seasons of the year. First generation industrial workers raised in
farming communities, in particular, were unused to working from dawn to dark on a daily basis in industries where they were employed in the same repetitive tasks. Although many of the Irish immigrants were also from a rural background, they had far fewer occupational options, and appeared more adaptable than their native born peers, which may explain their higher proportion in the labor force as compared to native born workers, particularly at the unskilled levels.

That this was the case in Portland is confirmed by the account books. Not only was the bulk of the permanent labor force Irish immigrants, but the small portion of the labor force which was comprised of the native born was usually provided under the auspices of native born private contractors acting as labor brokers. In these cases one individual was paid a lump sum to supply a group of five or six workers. Out of this sum, the "broker" would pay the wages of those who worked under him. As we have suggested, in virtually all of these cases the laborers involved were native born. Commonly members of long established families from the outlying parts of town, they were perhaps supplementing their income from farming on a seasonal basis, by working in the slack period between planting and harvest. We also know that all workers had to sign stringent agreements stipulating the general terms of their employment, which included not being late or absent from work without prior permission from the company. That these work arrangements were enforceable is implicit, especially with regard to the immigrant labor force. Retaliation would be swift for failure to abide by them. Not only was a man's job at stake, but also housing for himself and his family. Taken together with their accumulating indebtedness to the company through loans and credit at the company store, these men would have had few options.

Considering the dangers involved in the quarrying occupations, an examination of the town's vital records reveals that the accidental death rate in the quarries was surprisingly low. For example, over the fifteen year period from 1840-1855, the number of deaths attributed to quarry related accidents averaged
less than three per year in an average total workforce of approximately 125.

Given the fact that falling into one of the excavation pits or being trapped or crushed by one or more of the large stones was a common peril, combined with the fact that blasting was beginning to be extensively employed, this fact seems extraordinary. A far more recurrent cause of death among quarry workers seems to have been "consumption," but it remains unclear whether this disease was directly related to the dusty working conditions, especially since consumption was often used as a catch-all phrase, and also proved to be a major cause of death, although at a slightly lower rate, throughout the population of the town as a whole.

Despite these problems, within a few generations life began to improve for the Irish immigrant laborer. By the 1860's the average number of employees working at each of the three major quarries had increased to about three hundred. While the Irish continued to form a large portion of this workforce, by this time a high proportion of the workers were also Swedes. Swedish immigration appears to have begun in the 1860's. In general, the growing influx of this group seems to have pushed many of the Irish up the scale in the occupational hierarchy of quarry life. While the Swedes began to assume the more hazardous, nonskilled tasks, the Irish began to move into the skilled jobs which had formerly been dominated by native born workers. Land records from the 1860's and 1870's also reveal that there was a proportional growth in the personal real estate holdings among those of Irish descent. When taken in combination, these two factors strongly imply that a process of social assimilation of the Irish had begun to occur.

Although he never worked in the quarries himself, one of the most indicative examples of the extent to which this process of social assimilation had taken place by the last quarter of the nineteenth century can be found in the figure of James Laverty. Laverty had emigrated to Portland from Ireland with his
father in 1849. In 1854, he opened a small store on the corner of Main and Silver Streets, marketing dry goods and wholesale and retail liquors. By 1876, he had become extremely prosperous through this trade. (Much of his success was undoubtedly due to the extensive patronage of his fellow Irish working in the nearby quarries.) By 1896, he was not only prosperous as a merchant, but considered by his native born Portland contemporaries as a pillar of the community, his virtues being extolled in the Portland section of the 1896 Souvenir Edition of the Middletown Tribune on an equal footing with prominent members of long established native families such as Leroy Brainard, John Hall, and Jonathan Sage.

While the period from 1840-1860 was one of struggle and dependency for the Irish immigrant, by contrast, the members of the families whose forebears had helped found the quarry companies had emerged as a true managerial class in the modern sense. They were now principally occupied with the financial and marketing aspects of the industry. Not only were they no longer involved in manual labor (e.g. the occupation of Daniel Russell's son Frederick was listed in the vital records as "care of his own finances"), they had clearly assumed the most prominent social and political positions in the town, serving in and controlling both the state and local political offices. Much of this expansion in involvement in civic affairs and civil authority was undoubtedly due to the fact that their corporate managerial roles provided them the leisure time to participate in such affairs. But while public service undoubtedly proved a motivation for this growing interest and activity in civic affairs, their involvement was as much an expression of self-interest and class interest as it was public interest. Control of the town's political structure played a crucial role in the maintenance of social stability, particularly among the uneducated, non-propertied immigrant population which was rapidly swelling in the town's emerging central business district. It was crucial, not only in regard to maintaining "law and order", but also the continuation of the social status of the "old guard"
residents of the town, as well as those involved in quarry management. While
the full extent to which labor unrest was a problem has not yet been studied
in depth, the fact that one of the principal perceived advantages of the
influx of Swedish immigrants into the labor force in the 1870's was, from a
managerial standpoint, their lack of inclination to strike, suggests that the
problem of labor (and hence, social) control was an ever present one as far as
the corporate civil authority was concerned. And the fact that the quarry
companies' management controlled not only the town's economic base (the three
firms had established a mutual agreement regarding wage scales, labor control,
and prices, etc. by 1840), but also the power of civil authority undoubtedly
served to mitigate both the fears of the native born population and the demands
of the growing immigrant population. In short, by 1840 Portland had, in a very
real sense, become an industry town. And like most industry towns, the
financial success and growth enjoyed by the quarry companies and its managerial
class proved highly significant in the continuing economic prosperity and
development of the town.

Like her sister communities in the greater Middletown area, Portland
initially developed as an agricultural community. And like those neighboring
communities, the growth of Middletown as the principal Connecticut River valley
commercial shipping center, combined with their proximity to both the river
and abundant supplies of raw materials, helped to make shipbuilding one of the
more important early subsidiary economic activities in the town. In fact, by
the end of the eighteenth century, shipbuilding and its associated activities
had clearly begun to emerge as the principal occupational roles of many of those
living in Chatham (now Portland and East Hampton). But by the end of the second
decade of the nineteenth century, Middletown was on the decline as a major port.
This decline was, of course, closely tied to Middletown's inability to effectively
recover from the restrictions and loss of trade during the embargo of 1807 and
the War of 1812. Her inability to recover was, in turn, largely due to the
growing concentration of trade in deep water coastal ports such as Boston,
Newport and New York, a process accelerated by the increasing size and draft
of new trading vessels and the navigational difficulties posed to these newer
vessels by the shoals at the mouth of the Connecticut River. Perhaps more
significantly, a major cause of this inability to recover can be attributed to
the inability and/or unwillingness of most local shippers to adapt to new market
conditions.

This decline of commercial activity caused a subsequent decline in demand
for vessels produced in local shipyards. While some of the larger and more
successful area builders, such as Jesse Hurd of Middle Haddam, did manage to
maintain significant operations until the 1840's, by the end of that decade
shipbuilding had, with one major exception, virtually ceased to play a signi-
ficant economic role in Middletown's outlying communities. The one major
exception was, of course, Portland. By 1840, the annual tonnage produced in
Portland actually began to increase, despite the fact that the number of
producing shipyards had dwindled to one. In fact, shipbuilding was to remain
a significant factor in the town's economy until the end of the nineteenth
century, and did not totally die out until the 1930's.

To some degree this paradox resulted from the entrepreneurial skills of
the prominent nineteenth century shipyard owner Sylvester Gildersleeve.
Largely through his own efforts, Gildersleeve established and maintained
markets for his ships in an era when most other local shipbuilders failed.
For example, through his son Henry, a principal partner in the New York
City based shipping firm of Bentley, Gildersleeve and Company, he had established
formal ties to that rapidly growing commercial trade center. Even a brief
examination of New York's nineteenth century shipping records reveals the
significance of this network, for a number of the ships built by S. Gildersleeve
and Sons of Portland were registered out of New York. And though much of
Gildersleeve's ability to survive as a commercial shipbuilder can also be attributed to his diversification of economic interests, such as sawmilling, and wagon and mattress manufacturing, the principal reason for his success was his connection with Portland's burgeoning nineteenth century brownstone quarrying industry.

The full extent of Sylvester Gildersleeve's involvement in Portland's three major quarrying companies has not yet been determined. But there is strong evidence which suggests that the existence and growth of local quarrying played a critical role in his success. An examination of the probate records of his estate shows that he owned considerable amounts of stock in each of the town's three principal firms. The town's joint stock company records from the period indicate that by 1840, Gildersleeve sat on the board of directors of at least one of these firms, the Shaler and Hall Quarry. Similarly, his two sons, Henry and Ferdinand, sat on the board of directors of the Middlesex Quarry Company by 1841. There is also little question as to the important market which the quarry industry provided for Gildersleeve as a shipbuilder. Of the 103 major vessels which his shipyard produced between 1824 and 1871, 40 were either owned outright by one or more of the quarry companies, or sailed by captains who are definitely known to have worked the brownstone carriage trade during the period. Another 18 of these 103 vessels were owned, either wholly or in part, by Gildersleeve himself, and there is strong evidence in the Shaler and Hall 1840-1860 accounts which suggests that these ships were employed carrying brownstone at least part of the time. Including this latter group, therefore, 56 percent of the ships built in the Gildersleeve yard were involved in quarry related business. This figure does not, of course, include any of that shipyard's extensive barge and scow production which formed the principle mode of local transportation of stone in the second half of the century.
The growth of the town’s principle nineteenth century financial institutions, the Freestone Savings Bank (est. 1865) and the First National Bank of Portland (est. 1865) were also based on the wealth which the quarries had established. These institutions were created, and their boards of directors controlled, by those who held the most substantial financial interests in the quarries. Another direct economic spin-off of the quarries was the Connecticut Steam Brown Stone Company. Formed by the local sawmill operator E.I. Bell following the destruction of his mill by fire in 1884, this company mechanized the process of providing, according to builders and architects specifications, individual architectural detail elements, such as entablatures, columns and balustrades, for later shipment and assembly at the building site. (This process of precutting the stone had, of course, been practiced manually by the quarries most highly skilled stone cutters at least as early as 1788. 7) Like the earlier banks, most of the financial backing for the establishment of this company, which remained in operation until 1921, came from those holding substantial interests in the quarries. And like the earlier banks, this company’s board of directors was both composed and controlled by members of this same group.

The quarry industry also functioned indirectly in terms of stimulating the economic and industrial development. Its growing labor force undoubtedly provided the principal market for the produce of local farmers, and stimulated the development of a growing merchant class within the central business district. Perhaps most importantly, the quarries provided the town with a vibrant economic base, one which began to attract other non-extractive manufacturing enterprises such as the Pickering Governor Company (est. 1862), the Eastern Timeware Company (est. 1898), and the American Stamping Company (est. 1889). Nor was it long before an economic interrelationship began to develop between these manufacturing firms and the quarries through indirect reciprocal purchasing of stock shares by individual members of management from both industries. A particularly
good example of the development of this economic cross relationship can be found in the fact that John Hall, whose family owned a principle interest in the Brainerd Shaler and Hall Quarry Company, assumed the presidency of the Pickering Governor Company following the death of Thomas Pickering in 1895.

By the beginning of the 20th century, however, the market demand for brownstone as a structural material had waned considerably. As we have already mentioned, the principle reason for this decline was the growing widespread use of reinforced concrete and curtain wall construction techniques which had been developed in the last two decades of the nineteenth century. This technological advance in building techniques had at least two major advantages over traditional forms of masonry construction, particularly in the large and still expanding cities such as New York, which had formed the principal market for Portland brownstone throughout most of the nineteenth century. It allowed buildings to be constructed much taller than standard masonry construction, an extremely important factor in large urban areas, where growing intensification of land use was making available building sites both scarce and increasingly costly. The relatively low material cost of reinforced concrete in comparison to brownstone and the decrease in construction time which curtain wall techniques provided substantially reduced the cost per square foot for new construction, an economy whose value increased proportionately the larger the structure became. And, indeed, with the growing centralization of social, economic and political functions in large cities, larger buildings were needed. This need was fulfilled by the modern urban skyscraper.

Although Portland’s quarries continued to operate until the 1930’s, their output decreased rapidly following the turn of the twentieth century. And as the town’s economy was closely tied to the quarry industry, with the decline in the demand for brownstone came a concurrent decline in the town’s economic
base. The town's loss of its major source of wealth was reflected in the subsequent decline of Portland's two most significant secondary industries, shipbuilding and manufacturing. For Portland, the era of continual growth and increasing prosperity... the great brownstone era... was at an end.

A brief walk through Portland's present downtown area clearly evidences the important effects which the town's nineteenth century quarrying industry had on its physical development. We know from an 1826 map of the Middletown area drawn by students of the American Literary, Scientific and Military Academy (now Wesleyan University), that during that period the social and economic hub of Portland was located in the village of Gildersleeve (formerly known as "Chatham Village"). But by the 1850's the hub of town life had clearly shifted to the lower Main Street area, the area by the quarries which forms the town's present central business district. And it was this part of the town which experienced the heaviest architectural development and population growth for the remainder of the nineteenth century.

By the 1840's, members of those families who owned major interests in the quarry companies had begun to build new and more fashionable homes along lower Main Street and western Marlborough Street. Some of these residences, such as the Alfred Hall House and the Erastus Brainerd House, were even being constructed of brownstone, an appropriate and highly tangible expression of the important role played by the quarrying industry in the development of this part of town. But while these larger and more fashionable houses were being erected, the scattered, earlier eighteenth and early nineteenth century houses remained, particularly those standing on the streets which ran west from Main Street toward the quarry pits. Many of these older residences were soon purchased by the quarry companies for use as housing for the expanding immigrant labor force, or run as boarding houses by private individuals. When these existing structures proved insufficient to handle the growing size of the workforce, the quarry companies, which owned the bulk of the undeveloped land
between Main Street and the river in southwestern Portland, began constructing small groups of houses and tenements such as those on Silver Street and in Diggins Avenue area further north. This form of housing expansion appears to have continued from about 1840 to 1870.

Larger and more fashionable houses continued to be erected in a northerly direction along Main Street from the 1850's through the end of the century. Some of these structures, like their slightly earlier neighbors to the south, were erected for members of families whose wealth was directly derived from quarrying. But from the 1860's through the last quarter of the century, this group was being increasingly joined by commercial shipping families involved in the brownstone carrying trade, members of the town's growing legal and medical professions, highly successful tradesmen and building contractors, management level manufacturers, and factory owners. During this same period (1860-1890) middle income neighborhoods began to develop extensively on the lands abutting Main Street to the east, along the streets now known as Church Street, Waverly Avenue, Spring Street, and East Main Street. With few exceptions, these areas remain virtually unchanged from what they were like when they developed during this period.

Today, Portland is a small, quiet, suburban community maintaining close social and economic ties with both Middletown and Hartford. In this sense she closely resembles her sister communities of East Hampton and Cromwell, and, of course, many other lower Connecticut River valley towns. But while these similarities exist, Portland also retains its own very distinct character, a character derived from its heritage as the center of one of the eastern 19TH CENTURY seaboard's most important and successful extractive industries, a character which visibly reflected in the architecture of the town's central commercial district.
NOTES

1. Middletown Town Votes and Proprietors Records; 9/4/1665

2. Ibid.; 3/14/1715

3. C.C. Adams, Middletown Upper Houses pg.

4. J.R. Beers, History of Middlesex County, Connecticut pg. 520

5. See H.G. Cottman's Work, Culture, and Society

6. J.R. Beers, History of Middlesex County, Connecticut pg. 520

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