A BRIEF HISTORY OF THE GRANITE INDUSTRY IN SAN DIEGO COUNTY

The Journal of San Diego History
SAN DIEGO HISTORICAL SOCIETY QUARTERLY
Summer 1974, Volume 20, Number 3

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Images from the article

When Juan Rodriguez Cabrillo sailed into San Diego Bay in 1542, one of his main objectives was to find mineral riches for Spain.[1] Unfortunately, Cabrillo's efforts went somewhat unrewarded; in fact, it was not until some 300 years later that the first mineral deposit would be worked commercially in San Diego County.[2] In the late 1840s, the discovery of gold unleashed multitudes of miners into the mountains and hillsides of California. In San Diego County, the search for gold proved something of a failure and many miners began turning their attention to the huge granite boulders which pocked so many of the surrounding mountains. Soon a granite industry was born in an area which possessed one of the few deposits of rare black granite in the entire world.[3] This industry would provide stone for roads, buildings, dams, and jetties in San Diego. Today, little is known about the history of the granite industry which was so instrumental and important in the development of San Diego.

Although it is difficult to pinpoint the exact birthdate of the granite industry in San Diego, it is probable that this industry was introduced by E. Cook in 1873.[4] On April 8, 1873, the *Daily San Diego Union* had this to say about the event: "Another new industry is about to be established in San Diego by Mr. E. Cook, who arrived here about three weeks ago from Nebraska City, Nevada." The article further stated that the new business in question was termed a "stone cutting" operation.

Cook planned to import stone to San Diego from the Coronado Islands.[5] However, since the Coronado Islands were a possession of Mexico, he was forced to pay costly duties for removing the stone.[6] This fact, coupled with the gradual discovery of the scarcity of stone on the islands, prompted Cook to comb the hillsides of San Diego in an attempt to locate a new source of stone.[7]

Many other miners and quarrymen followed the same pursuit. Within a short period of time, San Diego was peppered with stone quarries. In 1886, W. J. Holmes and Aaron Frost discovered an excellent deposit of granite in Temecula Canyon. On December 1, 1886, *The San Diego Union* aptly described the event in an article entitled, "A Fine Strike of Granite." According to the article, a gentleman well acquainted with granite considered the stone in Temecula Canyon to be the finest in the state. W. J. Holmes and Aaron Frost formed what was to be called the San Diego Granite Company which shipped stone to San Diego and Los Angeles.

In 1889, three years after the Holmes-Frost discovery, A. Haskin opened a granite quarry in Temecula which was billed as one of the "richest granite quarries in the United States."[8] Haskin sent a piece of his granite to the chief engineer of the Chicago and Northwestern Railroad to be tested. A cubic inch of the granite withstood a pressure of 10,660 lbs. before crushing.[9] Prior to this time, 7,000 lbs. was the most pressure that a sample of granite had withstood.[10] Soon the news spread that San Diego had the hardest granite that Chicago had ever tested.[11]

The rare hardness of San Diego's granite became extremely important in later years. However, in 1889, the hardness was of significance primarily to railroads which used it as rail-lining material in urban areas.[12] This constituted only one of the many uses for granite in the late 1800s.

One of the most important uses of granite was created by the need for "riprap." This rather unusual term is used to describe a wall or foundation of broken stones thrown together irregularly. So riprap is a collective term which may be used to describe the foundations of such structures as dams, breakwaters, and flood control channels. Most Californians who live on the coast have noticed the use of riprap in the construction of jetties in harbors.

In 1894, A. E. Babcock secured riprap from a deposit of granitic rocks near Foster for construction of a breakwater in San Diego bay.[13] The huge granite boulders which make up this structure have withstood the tests of time and may be viewed today, although many of them are disguised by the beautiful green mosses and barnacles which cling to them. It is a safe bet that the granite of this breakwater will be around for a long time. Most granite will withstand exposure to the weather for 200 years or more before it begins to show signs of decay.[14]

During the late 1800s the use of riprap became extremely important for the construction of dams. In 1887, the Sweetwater Dam quarry was created.[15] While this quarry was being constructed almost all of its products were used to construct the Sweetwater Dam.[16] From 1933 to 1935 granite riprap was also used for construction of El Capitan Dam.[17]

Granite stone was also used for the beautification of many buildings. Numerous structures in San Diego, Los Angeles, and San Francisco were faced with polished stone. As early as 1873, E. Cook had a contract for granite related work to be completed on the new central market building in San Diego.[18] Granite was also used to construct houses, walls, wells, and fireplaces.

The growing number of uses for granite was expanded by the development of paving blocks in the early 1900s.[19] Mrs. Nettie May Johnson, in a recent interview, related that her late husband, Emil George Johnson, produced many paving blocks in the early 1900s. Mrs. Johnson related that these blocks were approximately 4 inches thick, 5 inches wide, and 10 inches long. The blocks were used in the construction of roads and gutters in San Diego, Los Angeles, and San Francisco.[20] In the early 1920s, the demand for paving blocks began to wane as the increase in motor vehicles tended to create a need for smoother pavements.[21] This necessity for smoother roadways created a market for decomposed granite (a gravel-like substance).

Probably the most evident and well-known use for granite has been for stone monuments, memorials, and grave markers. A quick trip to any of the cemeteries in San Diego County offers ample evidence of the beautiful stone work done from the late 1800s up to the present. According to William White Hoadley, of Pyramid Granite Company in Escondido, California, the beauty of the early monument work is further highlighted by the fact that in most cases it was created entirely by hand. Mr. Hoadley acknowledged that much of the monument work today is accomplished by machines and emphasized the importance of the introduction of sand-blasting techniques. Today, letters are carved into the stone with airblown sand and stencils.[22] In the past, each individual letter was carefully chipped out of the stone by a skilled craftsman.

As the many uses of granite began to gain wide publicity, several additional quarries cropped up in San Diego County. The area around Lakeside, in San Diego County, became important due to the Waterman family's construction of the San Diego and Cuyamaca Eastern Railroad. The railroad was completed in 1888, with its inland terminus at Foster, two-and-one-half miles north of Lakeside.[23] This railroad had a tremendous impact upon the local granite industry as it permitted stone to be transported long distances at economical prices. In 1890, the *San Diego Union* reported that numerous carloads of stone were being transported out every week.[24]

Robert W. Waterman, whose family undertook the railroad venture, was governor of California from 1887 to 1891. Waterman quarried granite at Foster, and from 1903 to 1904, his granite was used in the construction of four government buildings at Fort Rosecrans.[25] Prior to this time, in 1894, granite was also removed from his deposit for the construction of the breakwater in San Diego Bay.[26]

As the demand for riprap and paving stone began to decline, many quarrymen became interested in the Lakeside area for stone to be used for building and memorial purposes. The Waterman deposit in this area offered evidence that granite here was of particularly high quality. In 1888, James Simpson opened the Simpson-Pirnie Granite Company which operated out of Santee and Foster until 1932. Its 44-year-old history makes it the County's oldest continually operated quarry.[27]

Most granite produced in the area of Santee, Lakeside, and Foster was a light-gray granodioric rock. It was not until 1921 that the more currently important black granite began being quarried extensively. In 1922, Robert J. Magee produced black granite in Pala, which is located in northern San Diego County. John Stridsburg began quarrying black granite in the Escondido area in 1923.[28] Harmony Grove, Escondido, is particularly famous for its large deposits of black granite. Currently, Valley Granite Company and Continental Granite Company are operating out of this area.[29]

In 1942, Emil George Johnson established National Quarries in the Escondido area. He enjoyed much success at this quarry, due in part to the skills he brought with him from Norway. Like Emil Johnson many of the stonecutters in San Diego County were of European origin.[30] However, as the wheels of progress turned and technology spiraled upward, power-driven drills, black powder, wire saws, dynamite, and diamond saws soon began to lessen the demand for skilled chisel work. Carefully placed amounts of black powder could blast apart huge chunks of stone which would then be cut into slabs by the wire saw.

A wire saw generally consistes of a number of wheels which propel one or more wires through the granite. The wire is grooved and a watery abrasive mixture is applied to it as it whistles through the stone. In this manner the granite may be cut into slabs. Generally after the stone has been sawed it is smoothed or polished by a lapping machine or polishing wheel.[31]

After the surface of the stone has been finished, the sides are generally cut with a diamond saw. This machine greatly aided the growth and efficiency of the granite industry. Soon the old familiar clanging of a hammer and chisel gave way to the singing sound of a water cooled diamond blade. Tiny chips of diamonds are embedded in the teeth of these blades, which cost several hundred dollars each.[32]

In the 1950s an enormous revolution occurred in the stone industry. During this decade it was learned that “surface plates” could be made of granite instead of cast iron which had been used previously.[33] Although surface plates are used for a wide variety of purposes, their primary use is to test the flatness of other surfaces and to provide a truly plane surface for the calibration of delicate instruments. The surface of a granite plate can be worked to a tolerance of a few millionths of an inch.[34]

It is rather interesting to note that granite was used as a measuring device long before 1950; in fact, some 4,000 years prior to that date. The Egyptians established the first standard of measurement known as the cubit stick, which was made of black granite. The Egyptians chose to make the stick out of granite because of its hardness, stability, and endurance.[35] These are precisely some of the same reasons which people cited in 1950 for making surface plates out of granite.

The granite plates in 1950 were far superior to their cast iron counterparts. Stone plates will not rust and have a lower response to temperature changes. According to Philip Miner Hoadley of Pyramid Granite Company, most surface plates are tested for accuracy at a room temperature of 70 degrees fahrenheit. Minor changes in the temperature may change the composition of the stone by millionths of an inch.[36]

The introduction of granite as a measuring device has added a valuable new dimension to the stone industry. For example, from 1944 to 1948, 90 percent of the black granite in the county was used for monuments.[37] In 1968, 85 percent of the county’s high quality black granite was used for surface plates.[38]

Surface plates are often used to test the accuracy of various technical instruments. According to Emil Arthur Johnson, co-owner of National Quarries, a measurement off a few millionths of an inch here, will be off a lot more when it reaches the moon.[39]

Generally the highest quality surface plates are made of black granite, because black granite is much harder than other types of granite. This, plus the fact that San Diego has one of the rarest outcroppings of black granite in the world,[40] makes the granite industry of San Diego unique and important. Surface plates produced in the county are shipped to countries throughout the world.

More recently, stone is being used for machine bases. Intricate machines are often bolted to granite bases to insure smooth, accurate operation of the machines.[41] Granite weighs 187 pounds per cubic foot which often means that a surface plate may weigh several tons. Today, large steel cranes must be used to move large pieces of granite. In the past, this difficult task was accomplished by the use of awkward wooden cranes.[42] Robert Norman Johnson, of National Quarries, relates that an old wooden crane may still be seen at his quarry; however, it is not in operation. Mr. Johnson says that the wooden structure is no match to his new 205 foot tall steel crane, which has a lifting capacity of over 200 tons.[43]

Economically, the stone products industry in San Diego County has long played a prominent role . in the county’s mineral wealth. Only 15 times in the 57 years from 1907 to 1964, did the rock products industry fail to account for more than 50 percent of the county’s mineral wealth. Twelve years prior to 1964, the rock products industry accounted for more than 90 percent of the county’s mineral wealth.[44] Much of this increase is due to the spiraling trends created by the development of surface plates.

The history of the granite industry in San Diego County has progressed a long way since the arrival of E. Cook in 1873. Today, pieces of granite from San Diego may be found in dams, roadways, jetties, and industrial plants around the world.

NOTES

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8. *San Diego Union And Daily Bee*, Feb. 22, 1889, p. 1.

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10. Ibid., p. 1.

11. Ibid., p. 1.

12. Richard A. Hoppin and L. A. Norman Jr., *Commercial Black Granite of San Diego County, California*, Special Report No. 3 (San Francisco: California Division of Mines, 1950), p. 6.

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16. L. E. Aubury, *The Structural and Industrial Materials of California*, Bulletin 38 (Sacramento: California State Mining Bureau, 1906), p. 53.

17. Weber, P. 233.

18. *San Diego Union*, April 8, 1873, p. 3.

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20. Personal interview with Nettie May Johnson of 923 Park Hill Drive, Escondido, California, April 10, 1973.

21. Scott, p. 12.

22. Personal interview with William White Hoadley of the Pyramid Granite Co., Escondido, California, April 13, 1973.

23. Scott, p. 12.

24. *San Diego Union*, January 23, 1890, p. 1.

25. Scott, p. 13.

26. Aubury, p. 53.

27. Hoppin and Norman, p. 6.

28. Ibid., p. 6.

29. Personal interview with William Hoadley.

30. Personal interview with Robert Clayton Putnam of the Pyramid Granite Co., Escondido, California, April, 13, 1973.

31. Ibid.

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35. *Do All Black Granite-Diorite Gaging Products* (Des Plaines: Do-All Co.). No date given.

36. Personal interview with Philip Miner Hoadley of the Pyramid Granite Co., Escondido, California, April 23, 1973. 37. Hoppin and Norman, p. 6.

38. *San Diego Union*, April 14, 1968, p. B-10.

39. Personal interview with Emil Arthur Johnson of the National Quarries in San Marcos, Escondido, and Lakeside, April 16, 1973.

40. Collins Microflat Co. Inc., *Technical Manual*.

41. Personal Interview with Philip Hoadley.

42. Ibid.

43. Personal interview with Robert Norman Johnson of the National Quarries, September 7, 1973. 44. Scott, p. 25.

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