

**BONANZAS & BORRASCAS – A COMSTOCK MINING HISTORY**

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**The Biggest Bonanza:****Consolidated Virginia Launched, Relaunched, Peaked & Diminished, California in Bonanza**

The local newspaper, *Territorial Enterprise*, wrote on 13 May 1873 that reduction of ore from Consolidated Virginia began on 12 May 1873.<sup>1</sup> In his 1875 Report the Mineralogist gave no specific date but stated that most of the production from 1873 occurred between June and December.<sup>2</sup> The company accounts, on the other hand, did not commence until October 1873.<sup>3</sup> The first bar of ore (without indicating which metal) from the Mariposa Mill was recorded on 18 October 1873 at a value of \$3,228.58. Between 18 October and 3 November (ore mined in October but not processed until November) 40 bars were produced for a total value of \$124,962.17: 15 bars worth \$42,381.36 were reduced at Mariposa Mill, 19 bars worth \$61,317.64 at Bacon and 6 bars worth \$18,363.17 at Occidental.<sup>4</sup> By December 1873 a fourth mill, Trench, had been added. In November 1873 ore worth \$250,758.90 was processed, for an increase of 100 percent over October and in December 1873 ore worth \$272,783.78 was processed for an increase 9 percent over November and 118 percent over October. In two and one-half months the mine produced \$648,504.85 worth of ore. Almost 15,000 tons of ore were hauled to the mills, and from that amount 11,000 tons were crushed and amalgamated. In terms of crushed ore the mills ranked as follows: Bacon had 34 percent, Occidental 29 percent, Mariposa 28 percent and Trench 10 percent (percentages rounded up). Bacon, Trench and Mariposa had been Quartet properties since the rehabilitation of Hale & Norcross in the early 1870s. Trench and Occidental received ores that yielded about \$50 per ton, while at Mariposa they yielded \$56 and at Bacon's \$60 for an overall average of \$58.<sup>5</sup> Most of the ore in 1873 was extracted from the top of the bonanza at the 1,200-foot level and hoisted through the drift and shaft of Gould & Curry. By the autumn of 1873, Consolidated Virginia's main shaft had reached 1,200 feet and would soon become the main channel for entering and exiting the mine. In those first three months almost equal quantities of gold and silver were reduced from the ores: \$316,476.11 in gold and \$332,028.74 in silver. As the work proceeded, the ratio would change in favor of silver, although gold would continue to claim two-fifths or more of the reduced ores. It is worth underscoring here that such precise record keeping became standard for businesses under the control of The Firm. Bookkeeping procedures changed over time without, for the most part, compromising the quality of the entries. But like all historical documents, The Firm's accounts are not perfect. Bookkeepers and accountants did not always fill all the blanks in accord with the printed format of the ledger pages. As a result some information that

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<sup>1</sup> According to Grant Smith in *The Comstock Lode*, 152. I did not attempt to verify this citation.

<sup>2</sup> "Biennial Report of the State Mineralogist...1873 and 1874" *Appendix to Journals of Senate and Assembly*, 7<sup>th</sup> Legislative Session, 1875, 130.

<sup>3</sup> Bullion Records, October 1873, Consolidated Virginia Mining Company, NC99/1/3/1, Special Collections, Library, University of Nevada at Reno.

<sup>4</sup> Bullion Records, October & November, 1873, Consolidated Virginia Mining Company, NC99/1/3/1, Special Collections, Library, University of Nevada at Reno.

<sup>5</sup> These calculations on per-ton yields appear in the Bullion Records and in other files kept by the company. They have also been calculated by dividing the value of the bullion by the tonnage of the ore.

would be useful to have is unavailable. By and large whatever the defects and voids the overall record is of impressive quality.<sup>6</sup>

In 1874 the output of Consolidated Virginia Mine reached \$5 million with silver accounting for 60 percent of the total. Six mills were needed to process 90,000 tons of crushed ore. Their ranking in terms of ore processed was as follows: Trench with 22 percent, Bacon 21 percent, Occidental 18 percent, Mariposa 16 percent, Sacramento 14 percent and Kelsey 10 percent. Kelsey joined the milling group in March and Sacramento in April 1874. The yields per ton were uniformly similar between \$54 and \$59 per ton. But they had improved during the year, from lows around \$40 per ton to high in the mid-\$60s. Fair (acting as superintendent) described the progress in the mine on almost a daily basis in a series of letters and reports to David Bagley, Secretary of the Company in San Francisco. Without giving a specific date the Virginia Consolidated shaft had reached 1,550 feet during the year. A new crosscut was opened between Consolidated Virginia and California at 1,500 feet. A winze was being sunk from 1,550 feet into the ore body. The work on the winze had been slowed because of the hardness of the quartz and the seepage of water. The winze had reached a point 80 feet below 1,550 feet, and the last 10 feet had an incline (winzes were built on an incline) of 58 degrees, a fairly steep tunnel. A “donkey” engine had been installed to move the ore and rock up to the level where the shaft was. Ore quality at all levels was described in positive terms. In addition, ventilation tunnels were under construction between 1,550 and 1,500 where a drift connected with the Gould & Curry Shaft (to the south). Finally the company had undertaken the construction of a new shaft, known as the C & C Shaft (Consolidated and California) about 1,050 feet east of Consolidated Virginia’s main shaft to provide, it was hoped, better access to the ores of both mines at 1,500 feet and below. By the end of 1874 it had only reached 16 feet. A brief delay had been encountered because an order for 14-foot timbers to enclose the shaft had been countermanded (by telegram) and a new order for 20-foot timbers had been substituted but supplies including 20-foot timbers (14 by 14 inches). The new timbers were expected to be in place during the first week of January 1875.<sup>7</sup> Such was the detail of Fair’s correspondence during his long tenure as superintendent of both mining operations.

In 1875 work at Consolidated Virginia and its satellite California proceeded at a vigorous pace and achieved unprecedented results. The ore body, of course, was located

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<sup>6</sup> There is continuous run of Bullion Records from 1873 until 1881. They included monthly totals for each mill. The Bullion Records for Consolidated Virginia Mining Company can be found in NC99/1/3/1-5, Special Collections, Library, University of Nevada at Reno. For information on the mill properties see Copy of Letter James Fair to Joel Lightner, Secretary of the Board, Hale & Norcross, 12/03/70, NC99/2/1, Bx 6.

<sup>7</sup> Copies of letters from James Fair to David Bagley, Secretary of the Board, from 11/28/74 through 12/27/74 from Letterpress Books, Consolidated Virginia Mining Company, NC99/2/3, Bx 6, Special Collections, Library, University of Nevada at Reno. One letter was from Fair to Carson & Tahoe Lumber Company in Carson City, NV (12/25/74), same citation. As noted in an earlier chapter the distinction between depths measured from the Gould & Curry survey point (used by George Becker) and from the surface of the mine was not always clear in these correspondence and other documents. In some cases I could refer to Becker’s Surveys in trying to decide what the proper designation should be; in other cases I just had to guess. When I show depths hyphenated with feet I am referring to the survey point; when I use an unhyphenated form I am referring to depth from the surface of the mine.

in the northern part of Consolidated Virginia and in the southern part of the newly organized California. California did not begin to register ores officially until the spring of 1876. While separate legal entities, each with its own directors, officers, company accounts, bullion records, workers and supplies, the organizational structure and the managerial style reflected the fact that they had common founders and principals. The letterpress volumes, for example, while differing in details about their respective mining operations and strategies, were so similar in format, content and presentation as to be almost interchangeable with each other. The Quartet had created twins with different names and a few different features but unmistakably identical in their fundamental nature. The boundary that divided them was based on earlier mining claims that had no relationship whatsoever to the configuration of the ore bodies 1,200 to 1,500 feet below ground. In Consolidated Virginia the ore body began at 1,200 feet and dropped rather sharply to 1,500 feet where it joined the California ore body that was primarily located between 1,500 and 1,650. Becker's survey illustrated a massive ore body at the 1,636-foot level that extended downward to the 1,773-foot level and from south to north about 800 feet. He wrote that the bonanza was "composed of crushed quartz, including fragments of country rock, and carried a few hard, narrow, vein-like seams of very rich black ores...while nearby the whole mass of 'sugar quartz' was impregnated to a moderate extent with argentite [type of silver ore] and gold, the latter probably in a free state."<sup>8</sup> This was not the first ore body to be shared by separate claims. Belcher and Crown Point had shared an ore body, but two different companies owned the respective claims. As was customary on the Comstock competing but neighboring companies agreed to respect the boundaries and to share tunnels and shafts for ventilation, hoisting and drainage. In the case of consolidated Virginia and California the principal owners in both companies were Mackay, Fair *et al.* (who also owned some adjoining mines), and while the corporate structure was distinct, the operational structure was almost seamlessly managed with the common procedures and administrators. Although it is hard to measure precisely the efficiencies of any Comstock mine, the aggregation of the properties under which this massive ore body lay must have helped to reduce the cost of extracting and hoisting the ores and servicing and maintaining the underground infrastructure.

In January 1875 at 1,500 feet a northern drift from Consolidated Virginia was pushed into California through a porphyry "horse" that was several hundred feet high and thick. (See Figure 1, Section L, The Biggest Bonanza) The underground heat was severe at 1,550 feet, but after the winze between 1,500 and 1,550 feet was completed, the heat dissipated. A winze 80 feet below the 1,550-foot level continued to encounter water and steam pumps had to be installed. At this stage neither Fair nor Mackay knew that they had reached the bottom of the bonanza at 1,550 to 1,600 and that the quantity of water would increase as the quantity of ore decreased. With several years' worth of ore to be worked between 1,200 and 1,600 feet, the eventual exhaustion of the ore body was hardly then a matter of concern. At the same time work on the C & C Shaft was continuing. Between 3 January and 10 January the depth had doubled from 45 to 75 feet, and by the middle of February it had reached almost 200. On the surface the structure housing the C & C Shaft (60' x 68') had been finished and a hoisting engine had been installed. But

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<sup>8</sup> George Becker, *Geology of the Comstock Lode and the Washoe District* (Washington, DC: Department of the Interior, United State Geological Survey, 1882) 270. Also see Smith, *The Comstock Lode*, 167.

apparently this engine was temporary because within a few weeks specifications for new hoisting machinery in the shaft had been drawn up. And a few months later the foundations had been laid for new hoisting and pumping equipment. Nearby a new mill, Consolidation, had been opened and “after 12 hours” of processing ore (3 January 1875) it was performing well. Hectic though the pace may appear, it was in character for Mackay and Fair to keep operations moving ahead on several different fronts with special attention devoted to investment in plant and equipment needed to maintain the progress. This included the purchase of six Brazilian diamonds between three to four carats each for the drills, presumably Burleigh or similar drills, although no price was given.<sup>9</sup>

In 1875 the output of Consolidated Virginia grew by 70 percent over the previous year to almost \$9 million. Silver came in at 55 to 60 percent of the total. Almost 170,000 tons of crushed ore were processed for a yield per ton of \$100. That was five times the Comstock average between 1865 and 1885. Over the course of the year eleven different mills were enlisted to reduce Consolidated Virginia ores with eight being the monthly average. In addition to Bacon, Trench, Kelsey, Mariposa, Occidental and Sacramento, the mills now included Brunswick, Consolidated, Devil’s Gate, Hoosier and Morgan. In January the six mills from the previous year plus the recently opened Consolidated processed more than \$1 million worth of ore (nearly 12,000 tons of crushed ore). The newest and perhaps the most efficient of the Comstock mills, Consolidated reduced twice (3,500 tons versus 1,700) as much ore as Trench, the leading mill in the previous year. The volume of crushed ore rose to more than 16,000 tons in March, and an eighth mill – Hoosier - was added even as Consolidated was pushed up to more than 6,500 tons that month. Different figures have been given for Consolidated’s capacity, but in no month of 1875 did it process more than 6,900 tons. The demand for milling capacity continued: Devil’s Gate was added in May and Brunswick in October.<sup>10</sup>

So much bullion flowed from the mine and its mills that the facilities at the U. S. Mint in San Francisco were overwhelmed. In a letter to James Crawford, Superintendent of the Mint at Carson City, on 22 May 1875 Fair asked if Consolidated Virginia could send its bullion there for minting because the San Francisco Mint was then “flooded” with bullion owned by the company.<sup>11</sup> Smaller than San Francisco’s mint and having failed to win a larger appropriation from Congress to expand its facilities, Carson City’s mint was also working at full capacity. The approval of a bill, introduced by Nevada Senator J. P. Jones, to allow the minting of a new “20-cent” silver coin required the installation of new dies, a project that was completed by June 1875. (Coin discontinued a year later because public complained it was too much like quarter.) In 1875 Carson City

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<sup>9</sup> Copies of Letters, James Fair to David Bagley and C. H. Fish, Secretaries of the Board, 01/03/75, 01/10/75, 01/24/75 and 02/07/75, from Letterpress Books, Consolidated Virginia Mining Company, NC99/2/3, Bx 6, Special Collections, Library, University of Nevada at Reno. Copy of Letter to Mess. Nelson & Dobles [?] of San Francisco, 03/01/75, concerning drills from Letterpress Book, Consolidated Virginia Mining Company, NC99/2/3, Bx 6, Special Collections, Library, University of Nevada at Reno.

<sup>10</sup> Mill data from Bullion Records, 1875, Consolidated Virginia Mining Company, NC99/1/3/1 and NC99/1/3/5, Special Collections, Library, University of Nevada at Reno.

<sup>11</sup> Copy of Letter from James Fair to J. Crawford, Supt., U. S. Mint, Carson City, 05/22/75, from Letterpress Book, Consolidated Virginia Mining Company, NC99/2/3, Bx 6, Special Collections, Library, University of Nevada at Reno.

had one large press and a recently purchased small coining machine, and yet it managed to mint a million dollars more in coins in 1875 than in 1874 (\$4.9 versus \$3.9). Thus, Fair's letter arrived at a time when the work had been piling up at Carson City's mint for months.<sup>12</sup> During 1875 (until the October fire) Carson City periodically sent "sealed" bags of coins to Consolidated Virginia. In late summer nearly 50 bars of gold and silver were sent from Consolidated Virginia to Carson City with a request for \$150,000 in coins, preferably small coins. A few weeks later nine sacks of coins (amount unspecified) arrived at Consolidated Virginia's offices.<sup>13</sup> The urgency for Consolidated Virginia (and California) was that wages were paid monthly in gold and silver coins. At the peak of The Firm's success its mines and the mills employed between more than 1,000 workers and perhaps close to 2,000. That would mean a monthly payroll in excess of \$100,000. And Consolidated Virginia was not the only mining company in need of coin since all mining and milling operations were expected (and under union rules required) to pay workers in coins. The bonanzas at Consolidated Virginia and California alone stretched the facilities of the mints to their maximum at a time when the federal government showed little interest in increased funding for such operations.<sup>14</sup>

Between January and November 1875 Consolidated Virginia produced on average \$1.6 million worth of ore used as many as 10 mills. In November and December the number of mills was cut in half as bullion output fell to between \$500,000 and \$850,000. The cause of the reduction was a devastating fire that started around 6 AM on 26 October, and engulfed a square mile of Virginia City including the hoisting works of Ophir and Consolidated Virginia. Five days after the fire, on 31 October 1875, Fair wrote Charles Fish, then Secretary of the Consolidated Virginia Mining Company that the fire had destroyed surface structures of Consolidated Virginia, although all the engines, he believed, had been saved. Typical of his "can-do" attitude he predicted that Consolidated Virginia would be back in operation in 60 days.<sup>15</sup> Consolidated Mill was largely destroyed, and California Mill, still under construction, was damaged, although the extent not specified. In fact the surviving correspondence immediately after the fire provided precious few specific details about damages to or losses of The Firm's property. Within a year the new larger mills would be operating. The fire was helped along because so little rain had fallen during 1875, and the wood in the buildings and above the shafts was as dry as a kindling. The fire swept through the center of the city like a tornado. Grant Smith contended that if the fire had entered the shafts the wooden framing used underground would have allowed it to burn and smolder for months if not years and re-entry into the mines certainly would have been delayed greatly and perhaps denied permanently. Mackay and Fair apparently dropped the elevator a few feet in Consolidated Virginia's main shaft and then covered it with dirt and ore. The plan worked to the extent that the

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<sup>12</sup> Howard Hickson, *Mint Mark "CC", The Story of the United States Mint at Carson City, Nevada* (Carson City, NV: The Nevada State Museum, 1972), 43-45, 95.

<sup>13</sup> Copies of Letters from James Fair to James Crawford, Supt., U. S. Mint, Carson City, 09/02/75 & 09/03/75, from Letterpress Book, Consolidated Virginia Mining Company, NC99/2/5, Bx 6, Special Collections, Library, University of Nevada at Reno.

<sup>14</sup> Wages and payment of wages will be discussed in greater detail later in this chapter.

<sup>15</sup> Copy of Letter from James Fair to C. H. Fish, Secretary of the Board, 10/31/75, from Letterpress Book, Consolidated Virginia Mining Company, NC99/2/4, Bx 6, Special Collections, Library, University of Nevada at Reno.

interior hoisting equipment was saved. At Ophir, on the other hand, the fire burned down to the 400-foot level of the shaft.<sup>16</sup> Neither the new C&C shaft nor the nearby Gould & Curry shaft was harmed. Two weeks after the fire Fair wrote Fish that the rebuilding of the surface facilities had begun at Consolidated Virginia. Work was continuing at C&C with a nearly completed machine shop, new large engines that performed “splendidly” and the shaft having reached a depth of nearly 800 feet. Ore was being hoisted from Consolidated Virginia through Gould & Curry’s Shaft as the water, which had built up after the fire because of the loss of pumping operations, had been drained to only 4 inches.<sup>17</sup> From that point forward few references to the fire appear in the letterpress books. It was almost as if adding up the liabilities was less important than rebuilding the assets. By the spring of 1876 outgoing correspondence concerned the normal business affairs: purchases of equipment, rebate checks for shipping on Virginia & Truckee Railroad and requests for bids on supplies. The Consolidated Virginia and California complex was poised for its greatest triumph.

No doubt the fire entailed substantial losses and major disruptions for citizens and business, but since the interiors of the mines escaped damage for the most part, the impact on mining was short-term. Mining along the Comstock resumed fairly quickly and rebuilding around the city began almost immediately. The fact that The Firm held such a prominent position in mining affairs and was in the midst of an unparalleled boom probably helped to speed up the recovery. In the minds of Mackay and Fair there was no doubt what had to be done, and as testimony to that conviction Consolidated Virginia was hoisting ore again within weeks, and California would come on line a few months later. Consolidated Virginia’s 1876 output would nearly be double its 1875 output.<sup>18</sup> This was an extraordinary year for Consolidated Virginia and for the Comstock.

Production at Consolidated Virginia recovered to pre-fire levels quickly. In the last two months of 1875 after the fire crushed ore from Consolidated Virginia to be milled fell to 3,800 tons in November and then increased modestly to 6,500 tons in December. The average for the previous 10 months had been about 15,000 tons per month. In January 1876 the volume of crushed ore rose to more than 16,000 tons and in February and March it reached 23,000 and 25,000 tons respectively, the highest recorded during the entire history of Consolidated Virginia.<sup>19</sup> Ore from the mine may have been ready for milling after the fire but had to wait for hoisting and milling facilities to be repaired. Despite the record-breaking figure for the first quarter of 1876, tonnage for the whole year fell by 15 percent, from 169,000 crushed tons to 146,000. In the first four months the company averaged about 22,000 crushed tons per month and in the remaining months about 9,000 tons per month. After any backlog of extractable ores had been processed in the first quarter of 1876, the mine’s average monthly production had fallen

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<sup>16</sup> Smith, *The Comstock Lode*, 191-194. I could not account for these activities in any of the company correspondence that I have seen.

<sup>17</sup> Copy of Letter from James Fair to C. H. Fish, Secretary of the Board, 11/07/75, from Letterpress Book, Consolidated Virginia Mining Company, NC99/2/4, Bx 6, Special Collections, Library, University of Nevada at Reno.

<sup>18</sup> Bullion Records, 1875 & 1876, Consolidated Virginia Mining Company, NC99/1/3/5, Special Collections, Library, University of Nevada at Reno.

<sup>19</sup> County assessment records tend to confirm what was found in the company’s own bullion records.

by more than a third. The worst months were June through September and then again December when the output was noticeably below the average of 9,000 monthly tons and the median of 12,000. The mills needed to reduce the mine's ores dropped from nine in the first quarter to two in the last quarter. For three months during the year only one mill was needed. The nine mills that processed the mine's ore in the first quarter included eight of the mills from previous years - Bacon, Brunswick, Trench, Hoosier, Mariposa, Morgan, Occidental and Sacramento - and California, the company's newly opened mill, which had escaped serious damage in the fire. Brunswick, which had joined the group in October just before the fire, became the workhorse of the 1876 milling operations. In the last three months of 1875 the volume of crushed ore jumped from 1,100 tons to 3,800 and in 1876 for 11 months (its association with Consolidated Virginia ended in December 1876) it averaged about 4,500 tons per month. It had greater capacity than the other mills but not as great as California. In the first three months of 1876 Brunswick reduced 4,900, 4,619 and 5,200 tons of crushed ore respectively whereas California milled 1,100, 8,363 and 8,902 tons respectively. Beginning in April California (the mill) was switched from Consolidated Virginia to California (the mine), whose ores officially entered The Firm's ledgers and Story County's assessments.<sup>20</sup>

The ranking of the mills handling Consolidated Virginia ores during 1876 was as follows: Brunswick with 34 percent, Consolidated 14 percent, California 13 percent, Trench 9 percent, Bacon 8 percent, Morgan 7 percent, Mariposa and Sacramento at 4 percent, Kelsey and Occidental at 3 percent (all rounded up). In 1875 six mills received and processed Consolidated Virginia ore in 10 of the 12 months with Bacon reducing ore every month of the year. In 1876 the majority of the 10 mills were assigned to process Consolidated Virginia ore for six or fewer months. Brunswick had the longest tenure with 11 months, and in July and August it was the only mill refining Consolidated Virginia ore. In October Consolidated, which had been destroyed by the fire, resumed milling operation. In November only Brunswick and Consolidated milled ore, and in December only Consolidated milled ore. Yields per ton remained remarkably high for a mine that had been running at near full tilt for two years. Based on the dollar value of the crushed ore (not total ore, another way to measure per-ton yields) it ranged from \$90 per ton for ores reduced at Consolidated (mill) to \$141 per ton for ores reduced at California (mill), both which received ore from Consolidated Virginia for only one quarter during the year. At Brunswick, which processed more than a third of the crushed ore, the yield was \$103 per ton. The average for total tons in 1876 was \$120 per ton. No other Comstock mine was ever as productive as Consolidated Virginia. Indeed the "wet" assays made as the ore was leaving the mine were still running above \$150 per ton.<sup>21</sup>

From 1874 through 1876 as The Firm enjoyed spectacular success the company paid out tens of millions in dividends. The question on everyone's mind concerned future prospects - since bonanza after bonanza on the Comstock and in all mining camps had eventually faded, when would this one fade as well. Notwithstanding Mackay's sincere

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<sup>20</sup> Bullion Records, 1875 & 1876, Consolidated Virginia Mining Companies, NC99/1/3/5, Special Collections, Library, University of Nevada at Reno.

<sup>21</sup> Bullion Records, 1876, Consolidated Virginia Mining Companies, NC99/1/3/5, Special Collections, Library, University of Nevada at Reno.

conviction that mining, not “stock-jobbing” was his interest, what they said or reported was under constant public scrutiny for any sign that the boom was unraveling. As noted above the superintendents, mainly Fair but occasionally Mackay in lieu of Fair, and Taylor, the office administrator, in lieu of both Fair and Mackay, sent the corporate officers detailed weekly summaries (from time to time bi-weekly) written reports on progress in the mines. This information was gathered from their own observations plus the daily logs kept by the foremen and shift bosses. In the mine’s annual reports the progress on each level would be summarized with appropriate details about the extensions (in feet) of drifts, winzes, shafts, etc. Who actually wrote the annual reports is not state precisely, but given the rather consistent format and style Taylor’s hand can be assumed. There can be no doubt that the data contained in the weekly reports found their way into the annual reports, in a condensed form, of course. Exaggeration and exuberance were commonplace among mining entrepreneurs. Mackay and Fair were viewed generally as “straight-shooters”, and yet they like their peers may have engaged in less than accurate portrayals of the state of the operations and the prospects for the future. Grant Smith, for one, believed that Fair deliberately falsified information in the annual reports of 1875 and 1876 in order to boost the price of the stock against the bears, which were skeptical on how long the bonanza would last. They would be proven wrong at least in the short run. For 1875, according to Smith, the annual report said that on the 1550-foot level a drift had been driven 320 feet south of the north line and then a winze had been sunk through high-grade ore for 147 feet. Without citing any sources Smith claimed that drift had only reached 160 feet and the winze 75 feet, and further that water had had most of the work below 1,550 feet. These remarks about work at 1,550 feet did appear in the annual report, but connecting these remarks with one or more of the weekly reports from which the annual reports were drawn proved unsuccessful. There were numerous references to lateral (east-west) cuts from the north-south drift at 1,550 but few to extension of the north-south drift. Many of the weekly reports on work at 1,550 feet in 1875 referred to rich ores in the lateral cuts to the north-south drift and referred to some ores plus, heat, bad ventilation and water in work on the connection between 1,550 and 1,600 feet. Smith’s claim may be correct but could not be fully corroborated. In the second case, 1876, Smith accusations were less precise. He said that Fair spoke of rich ores below 1,550 feet and particularly of “great expectations of the 1,650-foot level”. According to the weekly reports in 1876 considerable work was done between 1,550 and 1,750 feet, and in some instances ores from the 1,650-foot level were described favorably. And toward the end of 1876 and in 1877 the volume of ore hoisted from 1,650 feet was higher than any other level. Smith was certainly correct to state that the principals knew that ores below 1,550 or 1,650 feet were petering out.<sup>22</sup> What remains unclear is the question: when did the principals realize that the ravine was narrowing and running out of ores?

Even the most experienced miners like John Mackay and James Fair could not always predict accurately what was ahead. There were times, of course, when they preferred to less than forthcoming, and there were times when they were simply wrong.

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<sup>22</sup> Smith, *The Comstock Lode*, 194-196. Hundreds of pages of copies of letters exist in various Letterpress Books, Consolidated Virginia Mining Company, 1875 and 1876, in NC99/2/3, NC99/2/4, NC99/2/5 and NC99/2/6, Bx 6, Special Collections, Library, University of Nevada at Reno.

By the middle 1870s miners had a fairly good understanding of how the Lode was structured. It was not, for example, one continuous vein from north to south that reached ever more deeply underground. Rather while it exhibited much vein matter the pockets of profit-yielding ores were scattered, more widely, it turned out, as the depths increased. What Mackay and Fair found between 1,200 and 1,600 feet was a block of gold and silver ore with a dent in the middle that was extraordinarily rich. How deep did it go? No one knew although everyone hoped forever. Like their peers Mackay and Fair must have hoped and perhaps expected that as the block of ore moved closer and closer to the hanging wall, which set a boundary on its eastward advance, it would continue to deepen. Its north and south boundaries were marked for the most part, although as the depths increased those boundaries could change. The signs were not strong that this pocket of ore would suddenly begin to expand north or south as new drifts were cut in those directions.

By the end of 1876 problems began to mount as work continued at Consolidated Virginia. In a dispatch to the Secretary of the Board Fair made note that the presidential election, held several days earlier, had “interfered very much with the working of the mine” and hoisting would finally resume on 12 November. All the weekly reports sent by Fair to Havens during November and December 1876 portrayed management as aggressive and optimistic, although setbacks and obstacles tended to dominate much of the reporting. There were numerous references to work done in connection with the C&C Shaft that had reached 1,650 feet. A new station (18’x40’x12’) was described as half completed in November and nearly completed with a functioning “bob and tank” pit by the end of the year. Also an ore house atop the shaft, a connection with the Virginia and Truckee Railroad and an ore dump were also finished during the final two months of 1876. In early November a drift from the shaft westward had reached 173 feet, and by the end of the year it had reached nearly 600 feet. Progress had been slower than anticipated because the drift’s path alternated between hard rock and soft, treacherous ground. No ore was found in route. Progress on the drift and the station were also slowed because of water. At least two inches lay on the floor even as the pumps were operating at between 6 and 6.5 strokes per minute. By the end of December after much effort the C&C Shaft had been sunk to 1,700 feet, but the presence of water had temporarily stopped the sinking of the shaft. Water was only part of the dilemma facing the managers. Poor ventilation not only created bad air but also resulted in intense heat. Because such large quantities of ore were being excavated, tunnels quickly become obstructed with rock and residue. In addition because the ground shifted as the excavations proceeded the timbers in the tunnels buckled and the walls collapsed, and the result was more obstruction. Drifts at 1,400, 1,500 and 1,550 feet were partially retimbered during the final months of 1876. The most important drift for ventilation and excavation was at 1,550 because it provided a passageway from the ore body and the main shaft (Consolidated Virginia) to Gould & Curry’s Shaft. At one point the obstructions were so great and the air so bad in the connecting drift that all hoists through Gould & Curry had to be halted for at least 10 days (and perhaps longer) to clean out the drift. Excavations of Consolidated Virginia ore now extended from 1,200 to 1,700 feet, and at the lowest level air quality was the worst. The floor at 1,700 feet had little natural ventilation, and to compensate for that a new blower was erected at 1,500 feet to circulate the air at 1,700 feet through a “double winze

“ and a “large air pipe”. In spite of these efforts intense heat reduced the amount of time workers could remain at the lowest levels. Indeed the heat became so bad that all work had to be suspended at 1,700 feet in mid-December. The construction of additional connecting drifts south to the Gould & Curry Shaft and east to the C&C Shaft became imperative if work at 1,700 feet and below was to progress. While the “ore breasts” on the floors above 1,700 feet continued to be “favorable”, they were less so at 1,700 feet and below. Not only was the work difficult and slow at these new levels, the ore body itself became irregular. The volume of crushed ore rose to 13,400 tons in November from 12,200 tons in October. Two months did not make a trend as volume in December receded to 4,600 tons. Consolidated Virginia had come to a turning point that could have been read as a more troubled future.<sup>23</sup>

In 1877 the decline in output from Consolidated Virginia was evident to all. Although total output of nearly \$14 million would have been a record for most Comstock mining companies, it represented a decline of 17 percent from levels of 1876 and 1875. In the first two month only one mill, Consolidated, received ore from Consolidated Virginia. This continued a pattern observed in the last two month of the previous year. By March Bacon began once again to crush and reduce ores from Consolidated Virginia. In the first quarter, then, slightly more than 18,000 tons were processed for a yield of about \$1.5 million. An upswing began in April as three mills were reducing mores from the mine. By the end of the year the number had risen to five mills. For the entire year the total of crushed tons of 153,000 exceeded the previous year by almost 5 percent, even though the more telling statistic was the value of the ore dropped by the aforementioned 17 percent. Unmistakably yields were dropping. Based on yearly averages of crushed ores yields had risen from \$99 per ton in 1875 to \$114 per ton in 1876 and then fallen to \$89 per ton in 1877. They would continue to drop thereafter as the ore body between 1,200 and 1,700 feet from which the bonanza had sprung was exhausted and no new bodies were found. The best month was June when crushed-ore yields reached \$116 per ton, but in July they fell to \$107 per ton. For the other 10 months in 1877 they were below \$100 per ton. The seven different mills that processed Consolidated Virginia ore were familiar names except for Nevada, which joined the group in November. They were Bacon with 11 percent, California 54 percent, Consolidated 12 percent, Trench 13 percent, Mariposa less than 1 percent, Morgan 7 percent and Nevada 2 percent. California had started up a year earlier and had processed Consolidated Virginia ore for several months until its facilities were assigned to the new California mine. Nearly a year later the California mill was processing ore from both mines. It appears that California got the best ores or could do the best job of milling the ores. The yield per crushed ton was \$105. Nevada had the lowest at \$46 per ton. The other mills were generally in the \$70 to \$80 per-ton range. The daily and weekly reports to the company officers tend, especially toward the end of the year, to reflect disappointment at not finding good ores below 1,700

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<sup>23</sup> Conditions described in various copies of letters from James Fair to A. W. Havens, Secretary of the Board, 11/05/76, 11/12/76, 11/19/76, 11/26/76, 12/03/76, 12/10/76, 12/17/76, 12/24/76 and 12/31/76, Consolidated Virginia Mining Company Letterpress Book, 1 November 1876-31 August 1878, NC99/2/8, Bx 6, Special Collections, Library, University of Nevada at Reno. Water was unpredictable, and after lamenting the presence of water at 1,700 feet in early November Fair then reported (11/17/76) that the floor was clear of water.

or in other parts of the levels already being exploited. Consolidated Virginia's time was running short.<sup>24</sup>

The weekly reports reflect the uneven and mixed results for 1877. In January management was still concerned with problems that had arisen during the last two months of 1876. Work at 1,700 and below had been halted and work on the C&C Shaft had been slowed because of the heavy flow of water. At the same time the western drift (from the C&C Shaft toward Mt Davidson) at 1,650 had had penetrated a seam with a thickness of about 15 feet and wet assays from \$36 to \$214 per ton. The seam pitched about 46 degree to the east where it joined the hanging wall, however, and that raised the inevitable question whether it would "pinch out" and cease to exist below that level, as had happened to the Lode at 1,000 feet. There was good news at 1,500 feet where the pocket of ore had been so extensive and rich. A spur of ore about 27 feet wide was discovered to the northeast of the main seam. The two were separated by 10 to 20 feet of very hard rock. There was also good news at 1,200 feet. The connecting drift with the Gould & Curry Shaft had been cleared and retimbered so that the improved ventilation allowed for more efficient operations at the upper levels. The enlargement and repair of the Gould & Curry drift at 1,550 feet had beneficial effects with respect to the flow of air and the dissipation of heat. The issues that the weekly reports discussed in the first few weeks of the new year will be the main themes for the rest of the year. Even though skepticism about sinking the C&C Shaft any deeper was expressed in January 1877 another 100 to 150 feet was added to the shaft by the end of the year. Workers continued to battle strong water flows, hard rock, poor air circulation and intense heat. More importantly, perhaps, the ore seam above had disappeared and did not reappear at the new depths. More crosscuts, drifts, winzes and upraises were under construction throughout the mine but in particular in the lowest levels as the search for ore was a high priority. At the upper levels the outlook remained positive. In a report filed on 19 May 1877 Fair summarized the progress along with the setbacks:

At 1,200 and 1,300 feet hundreds of feet of the drifts that connected to the Gould & Curry Shaft were being retimbered and enlarged in order to improve ventilation. Unstable ground, however, caused frequent cave-ins, which restricted airflow and raised temperatures that slowed the work of extracting the ore.

At 1,400 feet the airflow was satisfactory and the ores was of good quality.

At 1,500 feet the drift south to the ore body was being reopened in order to extract the ore and improve the ventilation.

At 1,550 feet where some of the best ores were located the southern drift was being extended into the ore body with some difficulty because the "very heavy" ground could obstruct the passage of air. A winze from 1,550 feet down to an upraise from 1,650 feet was unfinished because the heat slowed the work.

At 1,650 the ore breasts were quite favorable with drifts being cut to the east and the south through the ore body, although "large rock drills" were

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<sup>24</sup> Bullion Records, 1877, Consolidated Virginia Mining Companies, NC99/1/3/5, Special Collections, Library, University of Nevada at Reno.

required to penetrate the quartz. Because of hard rock and high heat, progress was slow. To improve ventilation a winze was under construction from 1,650 to 1,750 feet.

At 1,750 feet a new station was under construction 20 feet from the C&C Shaft where a new air compressor was to be installed.<sup>25</sup>

The explorations and probes at the lowest levels (1,700 to 2,000 feet) were not on the whole encouraging during 1877. Not only was the work stop-and-go because of difficult conditions, but it also had failed to uncover any extension of the ore body from above. Although the company was still extracting profitable ores, in some cases highly profitable ores, from the established upper galleys, it could not easily ignore the signs that the quality and quantity of ore were diminishing. In February 1877 Fair wrote Havens that the westward drift at 1,650 feet (from the C&C Shaft) had penetrated 108 feet of the ore body, 70 feet of good ore and 38 feet of porphyry and quartz. There was considerably more ore to be mined before the drift reached the western wall but not without some concern. As they worked westward the face of the wall looked less and less favorable with lower and lower assays. What had been good- or high-grade ore may turn into low-grade ore.<sup>26</sup> A month later Fair could report a winze was being built between 1,500 feet and 1,400 feet to exploit a local pocket of profitable ores.<sup>27</sup> In May 1877 despite earlier concerns the western drift at 1,650 feet, now 185 feet in length, was still passing through good ore. For the remainder of 1877 the reports by Fair alternated between opening a few new promising segments and passing through segments of porphyry and quartz of ore yields in the signal digits. Even the yields in the richest galleys had fallen into the \$70 to \$80 range, still extraordinary by Comstock standard but well off the yields of the year before.<sup>28</sup> Even though the reports contained encouraging language like “ore breast are fine” and “stopes look good” the magical words “new discovery” or “great bonanza” did not appear. In addition to references about quality and quantity of ore many of the summaries contained extensive references to repairs, maintenance and setbacks as work progressed in the upper and lower levels. The company crushed 5 percent more ore in 1877 than in 1876 but at per-ton yields that were 21 percent lower. The overall bullion return was \$14 million in 1877 compared to \$17 million the year before. What would be worth knowing is how much of the operational costs, as reported by the company, was dedicated to opening new areas as opposed to maintaining existing areas where ore was actually being removed. Unfortunately the surviving data do not allow such nuanced comparisons. Overall costs as a proportion of the value of the bullion rose from 30

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<sup>25</sup> Copy of Letter from James Fair to A. W. Havens, Secretary of the Board, 05/19/78, Consolidated Virginia Mining Company Letterpress Book, 1 November 1876-31 August 1878, NC99/2/8, Bx 6, Special Collections, Library, University of Nevada at Reno.

<sup>26</sup> Copy of Letter from James Fair to A. W. Havens, Secretary of the Board, 02/18/78, Consolidated Virginia Mining Company Letterpress Book, 1 November 1876-31 August 1878, NC99/2/8, Bx 6, Special Collections, Library, University of Nevada at Reno.

<sup>27</sup> Copy of Letter from James Fair to A. W. Havens, Secretary of the Board, 04/01/78, Consolidated Virginia Mining Company Letterpress Book, 1 November 1876-31 August 1878, NC99/2/8, Bx 6, Special Collections, Library, University of Nevada at Reno.

<sup>28</sup> Copies of Letter with the following dates – 06/24/77, 09/01/77, 10/06/77, 10/20/77, 12/29/77 – from James Fair to A. W. Havens, Secretary of the Board, contain such descriptions. See Consolidated Virginia Mining Company Letterpress Book, 1 November 1876-31 August 1878, NC99/2/8, Bx 6, Special Collections, Library, University of Nevada at Reno.

percent in 1876 to 33 percent in 1877.<sup>29</sup> By the end of 1877 the principals and the managers must have realized that the prospects were gradually dimming. Excavations and explorations would continue without the much anticipated new discoveries. The mounting success at California during 1877 may have helped to keep the hope for new discoveries at Consolidated Virginia alive. It may well have distracted Consolidated Virginia's management from taking notice of the signs that had accompanied the termination of earlier bonanzas. But perhaps most importantly, as I will discuss below, a powerful force in keeping the company on track was that Consolidated Virginia continued to make money for the principals and stockholders and to pay them dividends.

Consolidated Virginia remained in operation for another three and one-half years with generally declining output until a fire in 1881 closed the mine. The trend was not reversible. Its annual bullion declarations dropped appreciably from nearly \$8 million to \$1.5 million, and its total tonnage of crushed ore fell from 153,000 in 1877 to 123,000 in 1878, 60,000 in 1879, 55,000 in 1880 and 6,900 in the first three months of 1881 (or an estimated annual figure of 25,000 tons). Rapidly declining yields per crushed ton told the story of the decline in even more direct terms. For 1878 yields averaged \$65 per ton. During the course of the year, however, a significant diminution in tons of ores and yields per ton occurred. In the first quarter five to six mills were employed in crushing and processing about 21,000 tons per month with yields between \$75 per ton and \$85 per ton. By the last quarter one to three mills were needed to crush and process about 4,000 tons per month with bullion yields between \$32 and \$39 per ton. The California Mill handled the most ore - 47 percent – but after June it was not credited with any ore from Consolidated Virginia. The other mills were Morgan with 17 percent, Trench with 14 percent, Brunswick with 12 percent, Bacon with 5 percent, percent and Nevada with 4 percent. None of the mills had enough reduction business from Consolidated Virginia for the full 12 months. Nevada Mill had the shortest tenure of three months, and Morgan and Trench had the longest of eight months. Fair's reports at the beginning of the year were optimistic to a degree. Work continued at all levels from 1,200 to 1,850 feet with the best ores from 1,650. But the rock at the lower levels was so hard that management was searching for ways to try to bypass it in order to continue the probe for the ore seam. In addition water slowed progress at all levels. Above 1,500 feet it broke through the walls and flooded several drifts. At the lowest level a malfunctioning pump allowed water to rise quickly almost 80 feet, and underground work had to be halted until the pump was fixed and the water drain. Finally other problems such as intense heat, broken machinery and unprofitable ore added to the frustrations and disappointments experienced in 1878. It would be a mistake to presume that management was ready to abandon Consolidated Virginia even as evidence of crisis mounted. In an almost contrarian approach a report written in late August 1878 described how aggressively the company was committed to further probes and continuing repairs, which are summarized below:

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<sup>29</sup> During the eight quarters of 1876 and 1877 the per-ton cost, as reported by the company to the County Assessor, ranged from \$25 per ton of crushed ore to \$39 per ton except for the third quarter of 1876 when it reached \$72 per ton. This was a quarter with the lowest volume of crushed ore at 16,000 tons but a high per-ton yield of \$97. Total costs for extraction, transportation and reduction were typical of other quarters at \$1.2 million. The cause of skyrocketing per-ton costs lay with the drop in the volume of crushed ore, although no specific condition can be cited for why the volume fell. This may simply have been a quarter in which more underground work was devoted to building the infrastructure and less to extracting the ore.

Above 1,000 feet retimbering and enlarging of main shaft underway (although work causing temperatures to rise to 110 degrees).

At 1,200 feet the station was enlarged and retimbered; at least 115 tons of ore were being hoisted from there (intense heat debilitating).

At 1,300 feet the south drift was enlarged and retimbered for a distance of 362 feet.

At 1,400 feet the station was retimbered and the east drift was cleaned out and retimbered all the way to the ore stopes.

At 1,500 feet a southwest drift from a drift connected to C&C Shaft was advanced 70 feet.

At 1,550 feet main air gallery leading to Gould & Curry shaft repaired.

At 1,650 enlarging and retimbering connection from Consolidated Virginia Shaft to C&C Shaft.

At 1,750 feet winze #3 sunk 51 feet through good ore.

At 1,850 feet crosscut # 4 extended from main south drift (passing through hard blasting rock); upraise from 1,850 to connect with winze #3 from 1,750; winze from 1,850 down to crosscut #2 on 1,950.

At 1,950 feet crosscut #2 from main south drift has reached 151 feet (passing through porphyry streaked with clay).

At 2,050 feet station for C&C Shaft in place; sinking lower continues; west drift to be added; winze #3 from 1,950 being advanced.

There was a downside to all this activity because it created obstacles to proper ventilation, which was made worse by the fact the hot and humid surface weather had an impact on the underground airflow. As impressive as the work schedule was under less than favorable prospects, the most troubling prospect, expressed more than once by Fair in these weekly reports, was the failure to find any high-grade ores that were easily extracted beyond what had been discovered and exploited. The month-by-month decline in per-ton yields underscored the legitimacy of Fair's concern. Even such skilled and experienced managers as Mackay and Fair could do little to reverse the downward spiraling fortunes of Consolidated Virginia without a new discovery.<sup>30</sup>

Work continued underground in 1879 even as the yields dropped relentlessly. Much of the work was concentrated at the lowest levels, especially between 1,750 and 2,150 feet. The C&C Shaft served these lower depths in that the main shaft of Consolidated Virginia ended at about 1,650 feet. W. H. Patton, who succeeded Fair as Superintendent in 1879, wrote Havens in the summer that by extending the south drift at 1,500 feet they had entered a vein formation that had streaks of quartz, potentially a positive sign ore in the area. Considerable work was underway on 1,750 in part because that had been the site of the best ores in the past year or so. Work at the lower levels continued to be slow and uneven because of heavy water, which they were attempting to

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<sup>30</sup> For discussion of these problems see copies of weekly reports from James Fair to A. W. Havens for 02/09/78, 03/09/78, 03/16/78, 03/23/78, 08/03/78, 08/24/78, 10/26/78 and 11/16/78, copies of which appear in Consolidated Virginia Mining Company Letterpress Books, 1 November 1876-31 August 1878, NC99/2/8, Bx 6 and 3 August 1878-14 December 1878, NC99/2/11, Bx 7, Special Collections, Library, University of Nevada at Reno.

pump to the newly opened Sutro Tunnel at 1,650. The C&C Shaft had reached between 2,300 and 2,400 feet, but hard rock and frequent flooding, not ores, were what they found. The pumping system was generally able to keep the water levels low, and when they were able to explore and expand the drifts, they discovered mainly vein formations streaked with quartz and clay rather than ore bodies.<sup>31</sup> About 60,000 tons of crushed ore were reduced at the mills. In the first four months the ore was milled at Brunswick with 52 percent, Trench 39 percent and Morgan 46 percent. After that only the California Mill handled the ore from Consolidated Virginia. The accounts indicate that Bacon Mill had on hand more than 125,000 tons of ore, but they do not indicate how that ore was disposed of.<sup>32</sup> These three mills accounted for 43 percent of the annual total with an average yield of \$48 per ton of crushed ore. In the next eight months California Mill processed the remaining 57 percent with a yield of \$38 per ton. Overall the yield per ton was \$42, a decline of a third since 1878.

In the final 15 months (1880 through Spring 1881) the yields at Consolidated Virginia dropped further. For 1880 the volume of crushed tons fell to 55,000 and the per-ton yield to \$32. And in the first five months of 1881 only 6,800 tons were crushed with a yield of \$21 per ton. If the fire had not closed Consolidated Virginia the exhaustion of the profitable ore bodies would have. A report by Superintendent Patton on 14 June 1879 underscored a precarious future for Consolidated Virginia. The following is a summary of his observations:

- Less than 900 tons sent for milling in the past week;
  - At 850 feet a drift to link with California in soft ground with water;
  - At 1,500 feet southern drift in vein formation with quartz streaks;
  - At 1,750 feet pipe being laid south through Best & Belcher and Gould & Curry to Savage in order to connect with Sutro Tunnel, now operating, and north through Ophir and Mexican Union to transport water into Sutro Tunnel;
  - At 1850 feet a joint westward crosscut with California discontinued and new drift north and south encountered only vein formation;
  - At 2,150 feet southern drift passing through vein formation with streaks of clay and quartz;
- Water at the bottom of the C&C Shaft interfered with drilling, and water must be lifted to 1,650 feet in order to connect to Sutro Tunnel.<sup>33</sup>

In the remaining years of Consolidated Virginia's life phrases like vein formation or vein matter streaked with clay and quartz were commonplace in the weekly reports. It is worth noting, however, as the underground explorations continued without any new discoveries to report the mine was still producing ores that exceeded Comstock's per-ton average. Only in the final months did that average fall to the point where it equaled the Comstock

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<sup>31</sup> Copy of letter from W. H. Patton to A. W. Havens, Secretary of the Board, 06/07/79, Consolidated Virginia Mining Company Letterpress Books, 20 December 1878-August 1886, NC99/2/12, Bx 7, Special Collections, Library, University of Nevada at Reno.

<sup>32</sup> I have not included it in the yearly totals.

<sup>33</sup> Copy of Letter from W. H. Patton to A. W. Havens, Secretary of the Board, 06/14/79, Consolidated Virginia Mining Company Letterpress Books, 20 December 1878-August 1886, NC99/2/12, Bx 7, Special Collections, Library, University of Nevada at Reno. Some of this information showed up in the Annual Report to the stockholders for 1879. See Superintendent's Report, 31 December 1879, NC99/1/5/1, Special Collections, Library, University of Nevada at Reno.

average. It was hard to give up on Consolidated Virginia until the fire more or less sealed its fate.

The Annual Report to the stockholders of Consolidated Virginia for 1879 shows despite numerous setbacks and troubling signs the mine was making money.<sup>34</sup> In 1879 it had receipts of nearly \$3 million of which \$2.5 came from bullion income. What is most striking about these figures is that the company paid out dividends of \$1,350,00 or half of the total receipts. Under these circumstances halting the search for new, rich ore bodies in light of the many problems with the underground operations hardly seemed justified. The simple fact was that the company was making enough money to continue prospecting. From the accounts in the Annual Report it is possible to estimate the cost of running the mine. Recall from the above description that considerable time, money and effort were being devoted to expansion and maintenance while tonnage and yields were on the decline. That combination might be a formula for run-away costs. But in fact if reduction and transportation costs of the ore were excluded the cost of extraction came in at about \$10 per ton. If the cost for extracting and hoisting the ore were combined with the cost for extracting and hoisting the rock and residue (about 13,00 tons) the cost per tons would drop to about \$8 per ton. The cost of reduction another activities added another \$8 to \$10 per ton to the total. Since the yield of bullion per ton was about \$42, and the company realized a gross profit of nearly \$20 per ton, even in the final stage of the mine's life. The company was paying less in dividends than at the mine's peak but it was the only company paying any dividends at all. Not even California paid dividends in 1880.<sup>35</sup> To the end of its productive life Consolidated Virginia was a moneymaker.

**FIGURE 1**  
**REFINED ORES FROM CONSOLIDATED VIRGINIA AND CALIFORNIA**  
**MINES BY MILL, 1873-1881**

Mills	CVMC					CMC					Total Ore	%	Total Bullion \$	%
	Ore-Tons	%	Bullion \$	%	Yrs	Ore-Tons	%	Bullion \$	%	Yrs				
Bacon	73,916	9.04	\$5,870,140	9.02	6	3,916	0.69	\$348,684	0.76	1	77,832	5.64	\$6,218,824	5.6
Brunswick	83,188	10.2	\$7,690,532	11.8	6	60,032	10.6	\$5,440,721	11.8	3	143,219	10.4	\$13,131,253	11.8
California	260,049	31.8	\$18,547,411	28.5	6	227,512	40.3	\$15,708,155	34.1	6	487,561	35.3	\$34,255,566	30.8
Consolidated	97,293	11.9	\$9,047,676	13.9	4	105,324	18.7	\$9,667,150	21	2	202,617	14.7	\$18,714,828	16.9
Devil's Gate	5,842	0.71	\$508,164	0.78	1	0	0	\$0	0	0	5,842	0.42	\$508,164	0.46
Empire State	0	0	\$0	0	0	1,926	0.34	\$166,550	0.36	1	1,926	0.14	\$166,550	0.15
Hoosier	14,334	1.75	\$1,664,685	2.56	2	0	0	\$0	0	0	14,334	1.04	\$1,664,685	1.5

<sup>34</sup> The Annual Report contains different sets of accounts, one kept by W. H. Patton in the Virginia City Office and the other by A. W. Havens in the San Francisco Office. The fiscal year for the Virginia City Office ended 31 December 1878, while the fiscal year for San Francisco ended 7 January 1879. Moreover in the manner in which the figures were entered into the journals differed. The accounts are not, therefore, directly comparable.

<sup>35</sup> Annual Report, 1878, Consolidated Virginia Mining Company, 15-19, 23-24, NC99/1/5/1, Special Collections, Library, University of Nevada at Reno. Mining-cost estimates have been drawn from account known as "Actual Cost of Mining", p. 17. It is not clear how the cost of mining per ton (both extraction and reduction) was calculated, for arithmetic could not be duplicated. My estimates of the cost of mining per ton and of the reduction *et al.* per ton are close to the figures contained in the report.

Kelsey	16,440	2.01	\$1,122,733	1.73	2	0	0	\$0	0	0	16,440	1.19	\$1,122,733	1.01
Mariposa	36,149	4.42	\$3,064,548	4.71	5	10,471	1.86	\$863,042	1.88	2	46,620	3.38	\$3,927,590	3.54
Mexican	0	0	\$0	0	0	11,873	2.11	\$943,523	2.05	1	11,873	0.86	\$943,523	0.85
Morgan	58,844	7.2	\$4,268,121	6.65	5	49,491	8.78	\$4,453,803	9.6	3	108,335	7.84	\$8,721,924	7.85
Nevada	7,957	0.97	\$544,163	0.84	2	7,096	1.26	\$598,150	1.3	1	15,053	1.09	\$1,142,312	1.03
Occidental	39,146	4.79	\$2,900,821	4.46	4	24,635	4.37	\$2,070,439	4.5	3	63,781	4.62	\$4,971,259	4.48
Rhode Is	0	0	\$0	0	0	16,865	2.99	\$1,394,893	3.03	2	16,865	1.22	\$1,394,893	1.26
Sacramento	32,869	4.02	\$3,030,951	4.55	3	25,263	4.48	\$2,418,580	5.26	3	58,132	4.21	\$5,450	4.91
Trench	91,192	11.2	\$6,789,020	10.4	7	16,825	2.98	\$1,700,592	3.7	2	108,017	7.82	\$8,489,612	7.64
Winfield	0	0	\$0	0	0	2,770	0.49	\$237,935	0.52	1	2,770	0.2	\$237,935	0.21
<b>Totals</b>	<b>817,218</b>	<b>100</b>	<b>\$65,048,966</b>	<b>100</b>	<b>563,996</b>	<b>100</b>	<b>\$46,012,215</b>	<b>100</b>	<b>1,381,214</b>	<b>100</b>	<b>\$111,061,181</b>	<b>100</b>		

See footnote 5.

The California Mining Company, organized in 1873, had a history that shadowed Consolidated Virginia's history. On Consolidated Virginia's northern boundary California was an amalgamation of several older, smaller mines: Old California, Kinney, Central and Central #2. The Mineralogist reported in 1875 that little work had been done in these mines prior to their consolidation under Mackay, Fair *et al.* Ore had been removed from Old California in connection with prospecting on its boundary with Ophir to the north at depths of a few hundred feet, but it "was in bunches and not very rich", and the work was discontinued. When the discoveries were made in Consolidated Virginia, it was determined that the ore bodies extended north into adjoining claims that became the California Mine. In places the vein was 200 to 400 feet thick and was like a bulge between 1,200 and 1,600 feet. Initially the in-mine assays averaged about \$600 per ton and some as high as \$8,000 per ton. Based on these selective assays the mine would predicted to yield up to \$100 million dollars worth of ore, twice as much as it actually produced. One reason for the urgency to complete the new C&C Shaft was to provide access to the ores in California, which lacked its own deep shaft. Since milling capacity was at a premium around the Comstock Mackay and Fair advanced the capital to build a new mill (under the ownership of Pacific Mill and Mining, which owned all their mills) called California Pan Mill. Having escaped the October 1875 fire, it opened for operation in January 1876. In volume of crushed ore and dollar value of bullion California was second to Consolidated Virginia (564,000 tons versus 817,000 and \$46 million versus \$65 million), but in yield of ore per ton California had a very slight edge of \$81.53 versus \$79.60.<sup>36</sup>

The first official registrations from California appeared in April 1876. If ore were hoisted from California in the account of Consolidated Virginia prior to the "official" declaration, it was registered as such in Consolidated Virginia's ledgers. In the first month 7,600 tons of crushed ore from California were processed at California Pan Mill at a yield of \$188 per ton worth more than \$1.4 million. By summer six mills were processing California ores. By the end of the year, however, the number was down to four. The mill rankings for 1876 were as follows: California 60 percent, Morgan 14

<sup>36</sup> "Biennial Report of the State Mineralogist...1873 and 1874" in *Appendix to Journals of Senate and Assembly*, 7<sup>th</sup> Legislative Session, 1875, 140. Tonnage and bullion figures from Consolidated Virginia and California accounts: Bullion Records, NC99/1/3/1, NC99/1/3/5, and NC99/1/3/7, Special Collections, Library, University of Nevada at Reno.

percent, Sacramento and Trench each 8 percent, Occidental 6 percent and Bacon 3 percent. All of these mills received ores from Consolidated Virginia prior to 1876, and several of them would again be enlisted in behalf of Consolidated Virginia after 1876. Over the life of the mine California the mill California reduced about 40 percent of its ore with an average yield of \$69 per ton. In the initial month, however, yields from California ores at the various mills ranged from a high of \$113 per ton (Sacramento) to a low of \$90 to \$95 per ton (Bacon, Brunswick, Morgan and Occidental). The average of all the mills for nine months (April-December) in 1876 was \$105 per ton, and this was two dollars more per ton than the yield at Consolidated Virginia for the same period.<sup>37</sup>

In 1877 California's yields per crushed ton fell to \$88 per ton. Twelve mills were called into service to process about 214,000 tons. California Mill reduced less than a tenth of the total and none at all after March when it was switched from milling California ore to Consolidated Virginia ore. The Consolidated Mill, rebuilt after the fire by October 1876, became the principal recipient – more than one third - of California ores in 1877. Mill rankings for deliveries of ores from California in 1877 were as follows: Consolidated 34 percent, Brunswick with 18 percent, Morgan 10 percent, California 9 percent, Occidental 6 percent, Rhode Island and Sacramento 5 percent, Mariposa (mainly tailings) 4 percent, Trench and Nevada 3 percent, and Empire State and Winfield 1 percent. Trench reported the highest yields at \$104 while Occidental the lowest at \$78 per ton. Three mills that had not yet shown up on Consolidated Virginia's list were called into service to handle the volume from California. They were Rhode Island, Empire State and Winfield. They combined for only 7 percent of the total, and there is no evidence that even in later years ores from Consolidated Virginia were ever shipped to them.<sup>38</sup>

In 1878 the milling situation with respect to California ores began to change. Six mills processed ore during the first quarter, three to four in the second quarter and only one mill in the final two quarters. The tons prepared for processing fell from just under 20,000 in January to 1,200 in December. Total tons crushed fell 40 percent from previous year to 128,000. Consolidated and California shared the honors as the two most active mills: Consolidated reduced 25 percent of the ore during just the first four months and California reduced 29 percent but during the last six months. In a much sharper contrast, however, the yields at the Consolidated Mill were still extraordinarily high at \$114 per ton, but at the California Mill they had plummeted to only \$49 per ton. The other six mills, some of which were engaged in the milling of California ore for the first time ranged from \$73 per ton to \$93. The average yield was \$79, still high by Comstock standards but down 10 percent from the year before. The best month was March at \$112 per ton while the worst month was September at \$44 per ton. The yields rebounded by the end of the year. California registered \$73 per ton, but it only processed 1,200 tons.<sup>39</sup>

In the next two and one-half years the slide at California continued as it had at Consolidated Virginia. In the spring of 1881 a fire closed down Consolidated Virginia and the milling of its ore stopped in May. California ores continued to be milled through

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<sup>37</sup> Bullion Records, 1876, NC99/1/3/7, Special Collections, Library, University of Nevada at Reno.

<sup>38</sup> Bullion Records, 1877, NC99/1/3/7, Special Collections, Library, University of Nevada at Reno.

<sup>39</sup> Bullion Records, 1878, NC99/1/3/7, Special Collections, Library, University of Nevada at Reno.

October. Some believed (perhaps hoped is the word) that the Comstock had a future. In fact, the shuttering of the two giants, which had produced in excess of \$100 million worth of gold and silver and profits of \$70, signaled the end of the Comstock's mining triumph, not just temporarily but permanently.

It is worth following the developments and prospects as described by James Fair in the many weekly reports he wrote as superintendent of California (as well as Consolidated Virginia). The public assumed that California would be another bonanza, perhaps eclipsing the stunning performance of Consolidated Virginia itself. The initial enthusiasm led some outsiders to observe that California could produce \$100 million dollars worth of gold and silver inasmuch as yields of \$188 per ton were achieved in April 1876. They dropped fairly rapidly, however, to \$161 in May, \$128 in June and then settled into a range of \$80 to \$110 for the rest of the year. In a long report, dated 16 July 1876, to C. P. Gordon, Secretary of California Mining Company, Fair used such terms as "fine" and "excellent" to describe the ore between 1,300 and 1,600 feet. A month later he wrote that the ore stope at 1,600 feet was "very rich". And these descriptions continued to appear in his reports for the next several months even though the yields had already fallen. It was more than a year before Fair remarks became more tempered. In 27 October 1877, for example, he reported that the quality of ore at 1,550 feet had fallen to "medium grade", which had a per-ton yield in the \$75 range.<sup>40</sup> The extraction of ore in California was not by any means trouble-free. The C&C Shaft, under construction, was intended to be the main vehicle for hoisting California's ores. As we learned in reports from Consolidated Virginia, water, hard rock and ventilation had to be dealt with daily and could singly or collectively bring work to a standstill. As Fair was praising the quality of the ore in the summer of 1876, he was also acknowledging that water detracted from the hoped-for rapid progress in sinking the shaft.<sup>41</sup>

By fall the water had decreased but delays were still hampering the work. Finally the water had diminished enough by October that a station was opened at 1,650 feet to hoist "very rich ores". Even as the water decreased (for the moment) the rock through which the shaft passed (as noted in earlier weekly dispatches from Consolidated Virginia) became extremely hard, and shovels had been abandoned for Burleigh Drills. In November he reported that the C&C Shaft was running smoothly as far as it was open, but little work was being done below 1,650 because of water. Work resumed on C&C Shaft, but it had only reached 1,800 feet by the summer of 1877 again because of heavy water. The deeper the shaft was sunk, the more essential proper ventilation became. As the C&C Shaft closed in on 1,750 feet a new drift had to be started from a winze at 1,650 feet down to an upraise from 1,750 feet to the Ophir Shaft in order to dissipate the heavy air at these levels. In an ironic twist with a plentitude of water in the C&C Shaft and

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<sup>40</sup> For example see copies of letters from James Fair to C. P. Gordon, Secretary of the Board, 16 July 1876, 27 August 1876, 8 October 1876 and 11 March 1877, from Letterpress Book, California Mining Company, 8 July 1876-22 October 1877, NC99/2/7, Bx 7, Special Collections, Library, University of Nevada at Reno.

<sup>41</sup> The C&C Shaft figured into the earlier analysis of work at Consolidated Virginia. Other shafts could be used to hoist ores from both Consolidated Virginia and California, but the C&C Shaft was designed to make ore hoisting more efficient and less expensive. California was thought to be a principal beneficiary from the sinking of the new shaft. Fair's weekly reports on work at California contained numerous references to the construction of the shaft.

adjoining connections the company faced a scarcity of water in the Carson River where some of its mills were located. On a report from 6 July 1877 Fair declared that no ore cars would be hoisted from 1,550 feet, the core of California's ore riches, for the next six days because the low river levels had slowed milling and in the meantime the ore dumps and mill facilities were filled to capacity. (It should also be pointed out this suspension coincided with the 4<sup>th</sup> of July, which was often celebrated but did not necessarily mean a no-work holiday.) In the fall of 1877 water had stopped most of the work below 1,850 feet in the C&C Shaft, although the shaft operated as designed above that level except for occasional equipment failures. At the same time water in the Carson River had increased to the point that most of the mills were back in business. Of course it would turn out that very little profitable ore was found below 1,650 or 1,700 feet, even though the company continued to invest time and money in controlling water and ventilation. There were some ominous items to acknowledge in the fall reports. As the network of tunnels grew within the ore bodies and beyond increased efforts had to be devoted to retimbering, enlarging and repairing them. Ore quality during the extensive interior maintenance was only described as "fair" or "good" rather than "fine" or "excellent". In one of the longest of the 1877 reports – 20 October 1877 – Fair reviewed the work at all levels. The ore breast at 1,500 and 1,550 feet were described as looking good, but on the northern end the quality was only fair. The face of the drift that was being pushed east to connect with a northeast drift at 1,600 feet continued to exhibit good ore. At 1,650 feet at least five east-west crosscuts under construction or repair alternated between good ore and vein matter. Excavations below 1,650 (1,750 to 1,850 feet) were extensive – crosscuts, winzes, upraises and chambers – but no ore bodies to report. A week later (27 October 1877) the ore from 1,550 feet was now described as medium grade, and more disturbingly the "ground was pressing badly and this ore had to be taken out immediately." In a phrase that seldom appeared in Fair's reports he indicated without qualification that from now on work on this level would prove to be more expensive in the future. By the summer of 1880, a year and a half before the mine closed, the new superintendent, W. H. Patton informed C. P. Gordon that they were extracting only about 1,000 tons a week of fair-grade ore between 800 and 1,700 feet. Even though the C&C Shaft had reached 2,450 feet, it ended up in vein formation that included some quartz but no profitable ores. The saga of California like its companion Consolidated Virginia despite their enormous riches was not unlike that of all Comstock bonanzas. Bonanzas eventually became *borrascas*.<sup>42</sup>

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<sup>42</sup> Information in the above paragraph was drawn from copies of letters from James Fair to C. P. Gordon with the following dates: 07/09/76, 07/16/76, 08/27/76, 10/08/76, 11/26/76, 03/11/77, 05/05/77, 07/02/77 and 10/20/77 from Letterpress Book, California Mining Company, 8 July 1876-22 October 1877, NC99/2/7, Bx 6, and 10/27/77 and 06/17/80 from Letterpress Book, California Mining Company, 24 October 1877-26 April 1881, NC99/2/8, Bx 6, Special Collections, Library, University of Nevada at Reno.