INDIVIDUAL HISTORIES OF THE MINES OF THE COMSTOCK

A Joint Project
of
the

W. P. A. Nevada State Writer's Project

and

The Nevada State Bureau of Mines

I N D E X
of
the

INDIVIDUAL HISTORIES OF THE MINES OF THE COMSTOCK

-PREFACE-

In 1940 and 1941, the Nevada State Writers Project of the W. P. A. assigned to Mr. Dennis J. Mahoney, a former Virginia City editor, the task of reviewing all the old files of the Comstock Lode newspapers and extracting therefrom the mining news chronologically, covering approximately the years from the 1860's through the 1910's.

This chronological material was turned over to the Nevada State Bureau of Mines where it was studied by mining engineers - first Max Crowell and then Robert W. Prince - who re-arranged all the material under the headings of the individual mines of the Comstock, checking repetitions and obvious errors.

From this in turn, a spparate chronoligical history of each mine was written.

These histories are far from complete and far from accurate. Newspapers exaggerated in times of a mine's prosperity, and let the subsequent closing of the mine pass by without mention, and along with this was the newspaper reporter's unfamiliarity with his subject matter.

These errors were corrected to some extent by the engineers' use of more authentic data in the library and files of the Mackay School of Mines. Thus, for instance, the exaggerated statements as to yearly tonnage and value are followed by the insertion of the sworn-to gross tonnage production and value-recovered reports submitted to the State that have been compiled on these mines as a check by Mr. B. F. Couch, secretary of the State Bureau of Mines.

Thèse histories, while admittedly incomplete and containing probable errors, will serve admirably in the future to fill out details not included ~~those~~ in the library, maps and mining report files of the Mackay School of Mines.

In mining camps, however old, well explored, and deserted, hope of a revival never dies in the hearts of the old-timers; and the new rising generations of mining engineers stand ready to put their increased knowledge of geology, mining and metallurgy, or of changed economic conditions against the obstacles that closed the mines down.

The Comstock with its glorious history as one of the world's greatest mining camps and producers of the precious metals will always attract mining capital; and the Nevada Bureau of Mines and the Mackay School of Mines are striving to be a leader in source material on that great Nevada mining district.

Jay A. Carpenter, Director
Nevada State Bureau of Mines

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Bureau of Mines

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BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 1

THE HISTORY OF THE COMSTOCK MINES

ALPHA

The original Alpha claim as staked in 1859, included 278.5 feet along the Comstock Lode. The present Alpha claim consists of the original plus 21.5 feet acquired from the Treglone and Company claim, making a total of 300 feet on the lode. (John Church, page 1, "The Comstock Lode, Its Formation and History", states that the claim includes 306 feet along the lode.)

Work started on the claim in 1860 when the Alpha Company began sinking a two-compartment shaft to explore the vein at depth. By 1864, the Alpha shaft was 570 feet deep. South drifts on the 340 and 550 level encountered good ore. The silver content of the ore was higher than that found in the ore from the other Gold Hill mines. The mine ventilation was improved upon by extending the south drift on the 550 level to the Imperial shaft.

Commencing in the latter part of 1869, the exploration of the lower levels of the mine was conducted through the Imperial shaft. The north drifts from the shaft through the Alpha claim and the crosscuts from those drifts on the 1500, 1700, 2000 and 2400 levels failed to find ore.

In 1879, a joint winze was sunk from the 2400 level to the 2600 level for the joint benefit of the companies operating in the Alpha and Imperial claims. Joint crosscutting on the 2400 and 2600 levels and the north drift driven through the Alpha claim on the 2600 level also failed to find ore.

The Imperial joint winze was sunk to the 2800 level in 1880. Another north drift through the Alpha claim on that level yielded negative results.

The lower levels of the Alpha mine were flooded by the large flow of water encountered while diamond drilling on the 2800 level of the Exchequer mine during 1882.

5

From 1883 to 1886, the upper portion of the Alpha mine was explored with north drifts from the Imperial shaft on the 400, 500, 600 and 900 levels. The east and west crosscuts from those drifts exposed scattered bunches of ore in a large body of quartz. Although the ore from the "bunches" assayed as high as $60 per ton, the general average value was below the cost of mining and milling.

In 1885, the 175 and 375 levels were explored through the old Alpha shaft.

The companies operating the Alpha and Exchequer mines combined their efforts to sink a shaft (Exchequer) to the 500 level during 1887 and 1888. Within that time, north and south drifts were driven from the shaft on the 122, 222, 300 and 500 levels. A joint north drift from the Imperial shaft on the 382 level exposed streaks of ore in the Alpha claim. Crosscutting on the 122 and 382 levels encountered ocassional bunches of ore in a large body of low grade quartz. A winze, sunk from a point 100 feet north from the joint shaft, exposed low grade quartz. Ore assaying from $12 to $20 per ton was encountered on the 500 level after extending the south drift 95 feet.

Another portion of the large body of low grade quartz was explored during 1889 and 1890, upon increasing the depth of the joint shaft and driving a north drift and several east crosscuts on the 600 level. An east crosscut from a point 60 feet south from the shaft on the 500 level encountered ore assaying from $20 to $30 per ton. A west crosscut from a point 50 feet north from the shaft also encountered ore assaying from $25 to $30 per ton. A winze was started on the ore and sunk 50 feet below the level.

From 1891 to 1892, north and south drifts and east and west crosscuts were driven on the 550 level from the winze, exposing a large body of low grade quartz. Some ore was found in the south drift driven from the east crosscut from the Alpha shaft. The joint south drift from the Ward shaft on the 1800 level and the joint east crosscut along the north boundary of the claim failed to find ore.

Through 1893, 1894, 1895 and 1896, east and west crosscuts were driven jointly on the 900 level near the north boundary of the claim. A northwest drift and east and west crosscuts from that drift on the 450 level, completed an unsuccessful search for ore.

In the 1920's, an haulage tunnel driven through the claim enroute to the Hale & Norcross shaft by the United Comstock Merger Company.

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No. 2

THE HISTORY OF THE COMSTOCK MINES

ALTA

The present Alta claim is made up of the original Alta and Benton claims staked in 1859 having a total of 1760 feet along the Silver City Branch of the Comstock Lode. It is close to the Justice and New York claims.

During the first decade of the district it was thought that the Comstock Lode followed the hills to the west after passing through Gold Hill; consequently, very little work was done on the Alta and Benton claims during this period. However, when good ore was found close by, in the Woodville mine in 1874, the Alta and Benton claims combined to sink a three compartment shaft.

By 1878, the shaft had been sunk to a depth of 1550 feet below the surface and a drift driven south on the 1150 level encountered 7 feet of ore assaying from $35 to $45 per ton. A drift driven south on the 1050 level encountered "good mill ore" 40 feet from the Justice line. Drifts were driven north an the 1250, 1350, 1450 and 1550 levels encountering bunches of good ore on the 1250 level and low grade ore on both the 1350 and 1550 levels.

During 1879, the north drift on the 1550 level entered the Benton claim and a three compartment incline winze was sunk from this level on the south line of the claim. The winze was equipped with a 65 horsepower compressed air engine for hoisting. It is interesting to note the conception that was held at this period of the efficienty of compressed air compared with steam. The Territorial Enterprise printed the following February 7, 1879: "Although the engines are so far from where the air is compressed the loss by friction is a mere trifle. Thus when the gauge at the compressor on the surface shows a pressure of 71 pounds that at the engine, 1550 feet underground and a considerable distance to the northward indicates a pressure of 70 pounds. This is a

very slight loss and speaks volumes for the utility and economy of compressed air in mining operation." Annual production for 1879, 335 tons; gross value $2,939; average per ton, $8.81.

While the winze was being sunk to a depth of 1950 feet below the surface a crosscut was driven on the 1350 level in quartz assaying from $1 to $35 per ton. A winze was sunk from the 1450 level in ore for 81 feet and preparations were made to stope the ore from the 1450 to the 1350 level.

During 1880, the incline winze was sunk to a point 101 feet below the 1950 level. A drift was driven north into the Benton claim and another south into the Alta claim on the 1950 level, the average assays in the drifts being $9 per ton. A diamond drill hole was drilled east on the 1950 level for a distance of 302 feet from the end of a 130 foot crosscut, the last 200 feet being in quartz giving low assays. The diamond drill was removed and the crosscut was continued along the drill hole.

The production for 1880, 128 tons, gross value $1,870; average per ton $8.21.

Base ore was encountered on the 1950 level being 26 feet wide and assaying from $40 to $60 per ton. A crosscut was driven from the north drift of the 1950 level cutting stringers of "good ore" varying from 6 inches to 2 feet wide.

During 1881, the shaft was sunk to a depth of 2150 feet below the surface at which depth drifts were driven north and south, the north drift entering the Benton claim. Many crosscuts were driven east and west on the 2150 level encountering stringers and bunches of ore. Crosscuts driven on the 2150 level in the Benton ground encountered a large body of quartz assaying as high as $10 per ton and averaging from $2 to $3 per ton. A drift was driven on the 1050 level to connect with the Sutro Tunnel. During 1884, work on the lower levels of the mine was suspended because of the inability of the pumps to handle the large flow of water encountered.

During 1885, a crosscut was driven east on the 1350 level and a drift was driven north on the 950 level, the latter encountering bunches of ore. A crosscut was driven west on the 725 level and a raise was put up from the 950 to connect with the 725 level encountering bunches and streaks of fair ore.

During 1886, a drift was driven north on the 725 level into the Benton claim encountering streaks of low grade ore. A crosscut was driven west on the 725 level connecting with the Lady Washington mine and cutting the Keystone vein. A drift was driven south along the east side of the Keystone vein and many crosscuts driven across the vein encountered low grade ore. A winze was sunk from the south drift on the 725 to connect with the 825 level. A drift was driven north on the 725 level, in the Lady Washington claim, encountering good ore from 3 to 5 feet wide.

During 1887, a winze was sunk below the 725 level and a raise was put up above the level on the Keystone vein in the Benton claim. The raise above the level encountered fair ore and a drift was driven south on the level encountering bunches of good ore. Drifts were driven north on the 400 and 825 levels encountering bunches of good ore in the latter and a large body of low grade quartz in the former. A drift was driven 75 feet northwest from the shaft on the 1150 level where a stope was started on good ore. During the year, some ore assaying $30 per ton was produced from the 725 and 1150 levels of the mine. No annual production report filed from 1881 to 1888.

During 1888, prospecting work was prosecuted on both the 725 and 825 levels in both the Alta and Benton claims. A new shaft was sunk 250 feet east of the Keystone shaft to meet a raise being put up from the 825 level. A new station was cut on the 695 level and a crosscut was driven west to cut the vein at this depth. During the year, approximately 30 tons of ore were produced daily from the 825, 950 and 1150 levels of the mine.

Reported production for the year; 946 tons, gross value $23,330; average per ton $7.80.

During 1889, a drift was driven north on the 600 foot level and a raise was put up above the 725 level. A winze was sunk below the 950 level. A body of ore 18 feet in width and 250 feet long was mined from above the 950 level 300 feet northwest of the shaft. During the year, approximately 30 tons of ore were produced daily from the 825, 950 and 1150 levels of the mine.

Reported production for the year; 7301 tons, gross value $215,585; average per ton $29.52.

From 1890 to 1894 inclusive, a drift was driven north on the 540 level and a raise was put up from the drift encountering ore assaying from $12 to $40 per ton. A drift was driven north on the 725 level for an air connection with the Lady Washington shaft. A winze was sunk below the 725 level from a point 500 feet west of the shaft encountering streaks of ore. A winze was sunk below the 950 level and a drift was driven northwest on the 1000 level. During this period, approximately 3,500,000 gallons of water were pumped and bailed from the mine daily or 2500 gallons a minute. Approximately 45 tons of ore assaying $22 per ton were produced daily from the 825 and 950 levels of the mine during the first two years of this period.

Reported production for 1890 only; 15,632 tons, gross value $149,840; average value per ton $9.59. None reported after this date.

During 1895 and 1896, drifts were driven north and south of the 825 level on the Keystone vein, the north drift encountering quartz assaying from $8 to $44 per ton and the south drift encountering quartz assaying from $7 to $44 per ton. A raise was put up 85 feet above the south drift encountering hard quartz assaying from $6 to $8 per ton.

From 1897 to 1898, work was in progress on the 725, 825 and 940 levels. The east drift on the 725 level was advanced to a total distance of 811 feet. Ore was being produced from the 825 level. A raise was put up from the level into 8 feet of quartz assaying $6 in gold and 3 ounces in silver. A south drift was driven from the bottom of the winze from the 940 level, exposing 12 feet of quartz.

No work was reported for the period from 1899 to 1925 inclusive. In 1926, some work was done under the direction of the United Comstock Mining Company.

Reported total production 1879 - 1890: 24,242 tons, gross value $403,564; average value per ton $16.60.

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No. 3

THE HISTORY OF THE COMSTOCK MINES

ANDES

The Andes claim was staked in 1859. The claim is located to the west of and borders on the Consolidated Virginia ground.

Many shallow tunnels were driven west acress the ledge during the period from 1860 to 1863 in an unsuccessful search for a rich body of ore. In 1863, the Andes company began to sink a three compartment shaft to explore the lode at depth. By 1865, it had been sunk to a depth of 115 feet below the surface. North and south drifts were driven from the bottom of the shaft in a fruitless search for ore. Work on the claim was suspended in 1865 due to the general depression of the camp and the reluctance of the stockholders to pay the assessments levied.

Production reported for 1875: 876 tons, $16,425; average per ton $18.75.

Work on the claim was resumed in 1875 and 1876, when the shaft was sunk to a depth of 350 feet below the surface. Drifts were driven north and south in low grade vein material on the 200 level and a crosscut was driven 25 feet east on the 350 level encountering quartz assaying from $10 to $15 per ton. Reported production 1876: 936 tons, gross value $14,040; average per ton $15.

During 1878, drifts were driven north and south on the 350 level encountering good ore. Stoping operations were begun and while considerable good ore was being produced from above the 250 level a winze was sunk below the level on a streak of ore assaying as high as $97 per ton. Reported production 1878: 720 tons, Gross value $12,240; average per ton $17.01.

During 1879 the north drift on the 200 level was driven ahead encountering low grade ore; and a crosscut was driven east on the 350 level exposing low grade ore assaying from $10 to $13 per ton. A raise was put up from the 200 level to the surface to facilitate the ventilation of the mine.

In 1880, the shaft was sunk to a depth of 400 feet below the surface and an east crosscut driven from its bottom encountered a body of low grade quartz.

During 1881, the shaft was sunk to a depth of 500 feet below the surface at which depth drifts were driven north and south in a fruitless search for ore.

Production reported 1883: 123 tons, $1,722; average per ton $14.00.

In 1885 and 1886, prospecting work was prosecuted on the 175, 230 and 375 levels and some ore was again produced from the upper levels of the mine; however, very little ore was found and work on the claim was suspended in 1887.

The mine was reopened in 1891 and from 1891 to 1896 inclusive, drifts were driven north and south on the 420 level of the mine encountering nothing but low grade vein material. Many crosscuts were driven east and west on the 420 level and drifts were driven north and south from one of the west crosscuts. A raise was put up above a west crosscut on the level and a drift was driven north from the raise on the 490 level but no ore was found.

In 1897, repairing and retimbering in the west drift and further advance of the north drift on the 175 level was in progress. The equipment on the 420 level was being removed in January.

No detailed report from 1898 to 1906 inclusive, but in 1904, the Andes Mining Company reported the production of 375 tons of ore having a gross value of $2,527 or an average value of $6.74 per ton.

During the period from 1907 to 1910 inclusive, prospecting was in progress on the 175 and 350 levels with an accompanying production of low grade ore. A small quantity of low grade ore was obtained from the main south drift on the 175 level in 1907. In the following year, the north and south drift workings on the 175 level were in low grade ore. The winze from the same level had been sunk 70 feet on a quartz stringer; and a raise from the 350 level was also in low grade ore. In 1909, the production of low grade ore continued from the 350 level. By the end of 1910, an east crosscut had been through a considerable thickness of quartz on the 350 level. The last report on the level, indicated that stringers of ore had been exposed in the

working. No report covering annual production for years 1906 to 1910 inclusive. Newspaper reports indicate production in 1908 and 1909.

Although some prospecting was done on the intermediate level above the 350 level, the main work for 1911 was performed on the 175 level. Some ore was produced from the latter level.

In 1912, prospecting was carried out on the 70 and 350 levels. A west crosscut on the 350 level was driven 411 feet into the diorite.

No report for 1913 and 1914.

Some of the old stope fills were drawn in 1915. Newspaper reports 50 cars from old fill. No annual production records for 1911 to 1916.

In 1916 and 1917, several hundred tons of $7 to $10 ore were produced from the 350 level. In the latter year, raise No. 2 was started from that level.

Production for 1916 was 545 tons, gross value $3,968; average value $7.28 per ton: for 1917, 3345 tons, gross value $21,455; average per ton $6.41.

The production from the 350 level continued in 1918. At the same time, work was done in the shaft at the 390 level. Production not reported, although newspaper accounts indicate at least 72 "cars" at $9.00.

No report for 1919 to 1921 inclusive. In 1922, repairs were made on the 350 and 375 levels and also some work was done in the shaft between the 404 and 472 levels. The quartz and porphyry exposed at former point was examined.

The east crosscut started during the preceding year was advanced 111 feet from the station during 1923. In the latter part of the year, it was necessary to pump water from the workings.

Record of Production

1875	876 tons	$16,425.00	Average per ton	$18.75
1876	936 "	14,040.00	" " "	15.00
1878	720 "	12,240.00	" " "	17.01
1883	123 "	1,722.00	" " "	14.00
1904	375 "	2,527.00	" " "	6.74
1916	545 "	3,968.00	" " "	7.28
1917	3345 "	21,455.00	" " "	6.41
	6920 "	$72,377.00		$10.46

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No. 4

THE HISTORY OF THE COMSTOCK MINES

BAILY

The Baily claim was located on the Brunswick Lode. During 1872, the surface of the claim was explored with trenches. Ore valued from $50,000 to $60,000 was reported to have been produced from those trenches.

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No. 5

THE HISTORY OF THE COMSTOCK MINES

BALTIMORE

As the result of the 1861 consolidation of the Baltimore, Maryland and American Flat claims originally located in 1859, the present Baltimore claim now includes 2600 feet along the American Flat branch of the Comstock Lode.

The first work on the claim, a 1420 foot tunnel cutting the vein at a depth of 640 feet below the surface, was started in 1862 and continued through 1863. The three compartment shaft, started in 1864, had just been sunk to the tunnel level when the mine was shut down due to the depression.

Upon resuming work in 1873, a new three compartment shaft was sunk to a depth of 500 feet after being started from a point 700 feet south from the original shaft. A northwest crosscut from the shaft on the 225 level encountered bunches of ore assaying from $13 to $200 per ton. A similar crosscut on the 450 level exposed low grade ore.

By 1877, the shaft was 1600 feet deep, becoming an incline below the 850 level. Except for the small orebodies found in the raide from the 1050 level to the 850 level and those in the 200 foot winze from the 1050 level, no ore was found in the various drifts and crosscuts driven on the 340, 740, 1050, 1150, 1250 and 1450 levels.

The orebodies were small and soon mined. In 1888 the mine was again closed.

5

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THE HISTORY OF THE COMSTOCK MINES

BELCHER

The Belcher claim was staked in 1859 claiming 1040 feet along the Comstock Lode, between the Overman and the Crown Point.

The first work was done on the claim in 1860, when a 500-foot tunnel was driven to cut the lode at a depth of 175 feet below the surface where it encountered a large body of good ore.

In 1863, a three compartment shaft was started to explore the lode at greater depths and by 1865, the shaft had been sunk to a depth of 500 feet below the surface. Drifts were driven north and south on the 152, 260, 300 and 500 level where the orebody was very rich and up to 40 feet wide. In 1864, buckets for hoisting were discarded and the shaft was equipped with an iron cage. A drift was driven on the 175 foot level to connect with the old surface tunnel thus affording excellent ventilation for the mine.

The shaft was equipped with new machinery in 1866 and was sunk to a depth of 900 feet below the surface cutting the footwall of the lode at a depth of 800 feet. During the next three years, a drift was driven north in ore on the 420 level and a steady production of ore was maintained from the stopes on the upper levels of the mine.

During 1869, the shaft was sunk on an incline from the 800 foot level to a depth of 850 feet below the surface. A drift was driven south on the 420 level encountering a body of ore 15 feet wide yielding $50 per ton near the south end line of the claim. Development work on the upper levels also found good ore in this section of the mine.

During 1870, production was maintained from the 420 up to the 152 level while prospect drifts were being driven north and south on the 730 level. During 1871, the incline shaft was sunk to a depth of 1100 feet below the surface. Drifts were driven north on the 850, 900 and 1100 levels to develop the fich body of ore that had been

discovered in the Crown Point mine. The ore in the north drift of the 850 level proved to be low grade but the ore in the north drift of the 1100 level proved to be very rich and up to 75 feet wide. A drift was driven south on the 100 level to explore the southern section of the claim at this depth. A two compartment air shaft was sunk to connect with the 850 level thus securing excellent ventilation for the mine. During the year, the mine yielded 18,468 tons of ore yielding $64.26 per ton. The cost of milling the ore was $12 per ton.

During 1872, the incline shaft was sunk to a depth of 1250 feet below the surface. Ore was mined on the 1100 level for a distance of 320 feet and up to 260 feet wide on the Crown Point line. A winze was sunk from the 1100 to the 1200 level, and a drift was driven south from its bottom in very rich ore. During the year, the mine yielded 83,195 tons of ore yielding $57.63 per ton and costing $27.55 per ton to produce, the itemized cost being as follows:

Mining Labor	$ 7.94 per ton
Supplies	2.23 " "
Overhead	5.38 " "
Milling	12.00 " "

During 1873, the incline shaft was sunk to a depth of 1441 feet below the surface and a drift was driven north in good ore on the 1300 level to connect with the Crown Point mine. A winze was sunk from the 1300 level in good ore and a drift was driven south from the Yellow Jacket incline to explore the 1400 level.

During 1874, the incline shaft was sunk to a depth of 1559 feet below the surface. The 1400 level was connected with the shaft and a winze was sunk below the level in good ore. Drifts were driven north and south on the 1500 level, the north drift encountering good ore. A two compartment air shaft was started to secure better ventilation for the lower levels of the mine.

During 1875 and 1876, the incline shaft was sunk to a depth of 1600 feet below the surface and while a steady production of low grade ore was maintained from the stopes on the 1100, 1200, 1300 and 1400 levels prospect drifts were driven north and south on the 1500 and 1600 levels. A winze was sunk from the 1500 to the 1600 level and encountered some ore assaying from $45 to $50 per ton.

Recorded production 1875: 50,649 tons, $1,635,358; average per ton $32.29.

Recorded production 1876: 131,222 tons, $2,821,076; average per ton $21.50.

During 1877, the air shaft was sunk to a depth of 2200 feet below the surface and drifts were driven north and south on the 2060 and 2160 levels, the former connecting with the Crown Point mine. The incline shaft was sunk to a depth of 2060 feet below the surface and drifts were driven north and south on the 1860, 1900 and 2060 levels. While prospecting work was being carried out on the lower levels, the mine was yielding 16,147 tons of low grade ore from fills in the old stopes above the 1600 level.

Recorded production 1877: 16,147 tons, $414,142; average per ton $25.65.

During 1878, the south drift on the 1900 level encountered quartz assaying from $10 to $19 per ton and an east crosscut encountered quartz assaying from $5 to $10 per ton. The south drift on the 2160 level also encountered quartz assaying $12 per ton. During the year, the air or pump shaft, as it was now called, was sunk to a depth of 2560 feet below the surface and drifts were driven north and south on the 2260 and 2360 levels. A winze was sunk from the 1900 level to connect with the 2160 and 2360 levels to secure better ventilation for the mine. Many crosscuts were driven on the 2360 level encountering nothing but barren quartz. Crosscuts were driven on the 900 and 1500 levels in a fruitless search for new ore bodies.

During 1879, the pump shaft was sunk to a depth of 3030 feet below the surface and drifts were driven north and south on the 2560, 2760, 2860 and 3000 levels. The north drift on the 2560 and 2760 levels were driven outside the vein and connected with the Crown Point mine. A crosscut through the vein on the 2560 level encountered quartz assaying from $10 to $12 per ton and a crosscut on the 2360 level also encountered a body of quartz assaying from $4 to $10 per ton.

During 1880, a crosscut was driven from the south drift of the 2760 level encountering a streak of ore assaying as high as $234 per ton. A winze was sunk on the streak encountering bunches of good ore to a depth of 75 feet where a strong flow of hot water was encountered preventing the further sinking of the winze. A diamond drill hole was drilled east, from a point 42 feet down the winze, cutting quartz assaying from $3 to $5 per ton.

A drift was driven south on the 3000 level to get under the ore that had been found on the 2760 level and a large body of quartz assaying $6 per ton was encountered. The 3000 level was crosscut with diamond drill holes encountering bunches of rich ore. The temperature in the south drift on the 3000 level was 135 degrees and the drift had to be discontinued until the north drift on the same level was connected with the Crown Point mine thus affording better ventilation.

Recorded production 1880: 5,036 tons, $68,528; average per ton $13.61.

Production recorded by G. F. Becker, page 10, "Geology of the Comstock":

	Tons	Gross Value	Value per ton
1868 to 1880, June 30	702,236	$32,672,166.29	$45.52

During 1881, the lower levels of the mine were flooded and prospecting work was started on the upper levels of the mine. A joint Crown Point drift was driven north through the claim to connect with the Overman mine thus securing better ventilation for the mine. During the year, 12,159 tons of ore were produced yielding a net profit of $0.50 per ton. The low grade ore was produced from the old stopes above the 500 level.

Recorded production 1881: 11,634 tons, $196,705; average per ton $16.91.

From 1882 to 1886, a large amount of low grade ore was produced from the old stopes on the upper levels of the mine.

Recorded production 1882: 18,399 tons; $303,096; average per ton $16.47.

Recorded production 1883: 12,230 tons, $219,902; average per ton $17.98.

Recorded production 1884: 34,956 tons, $467,858; average per ton $13.38.

Recorded production 1885: 38,011 tons, $424,970; average per ton $11.18.

In 1886, the Belcher and Crown Point mines combined to mine the low grade ore in the upper levels of both mines. During the year, the mine yielded jointly from 350 to 400 tons of low grade ore per day. The ore was produced from the old stopes on the upper levels and from new stopes on the 1500, 1600 and 1700 levels of the mines.

Recorded production 1886: 37,312 tons, $378,655; average per ton $10.15.

During 1887 and 1888 a drift was driven north on the 200 foot level and drifts were driven south on the 400 and 500 levels. Crosscuts were driven east and west on both the 400 and 500 levels but no ore was found. A joint drift was driven south on the

1100 level with the Segregated Belcher Company and a joint drift was driven with the Crown Point Company on the 1300 level to connect with the Sutro Tunnel. A raise was put up above the 1300 level in low grade material. During the two years approximately 80 tons of low grade ore were produced daily from the 200, 300, 400, 1400, 1500 and 1600 levels of the mine.

Recorded production 1887: 12,515 tons, $104,598; average per ton $8.36.

During 1889, a raise was put up from the north drift on the 200 level to the 100 level and crosscuts were driven east and west on the 200 level in a fruitless search for ore. Drifts were driven north and south and crosscuts east and west on the 1000 and 1200 levels. A raise was put up from the 1200 to the 1100 level encountering low grade ore. A winze was sunk below the 1100 level in low grade ore and connected with the raise above the 1300 level. Crosscuts were driven east and west on the 1100 level and a raise was put up above the level.

During 1890, a drift was driven south on the 200 level and a crosscut driven east from the drift encountered quartz assaying from $5 to $10 per ton. A crosscut was driven west from the south drift on the 300 level and a drift was driven south on the 600 level. A crosscut driven east on the 1000 level encountered from 3 to 4 feet of quartz assaying from $5 to $20 per ton. A drift was driven south on the quartz which widened to 15 feet and assayed from $10 to $18 per ton. A crosscut was driven east on the 850 level in a fruitless search for extension of the ore found on the 1000 level. Raises were put up above the 1000 and 1100 levels both raises being in low grade material. A drift was driven north on the 1300 level and a crosscut driven east from the drift encountered ore 18 inches in width. A winze was sunk below the 1300 level and a drift was driven south from an east crosscut on the 1400 level to the south boundary line of the claim

Recorded production 1890: 6,651 tons, $108,742; average per ton $16.35.

During 1891 and 1892, a raise was put up from an east crosscut off the south drift on the 200 level and a crosscut was driven west from the raise in a fruitless search for ore. A drift was driven south from a crosscut on the 300 level and crosscuts were driven west from the old stopes above the 350 level encountering bunches of ore assaying from $10 to $20 per ton in the latter. Crosscuts were driven east from the old stopes

above the 1300 level encountering bunches of ore. A raise was put up above the 1400 level and a crosscut was driven east from the south drift on the 1500 level encountering quartz assaying from $15 to $75 per ton in the latter.

Recorded production 1891: 472 tons, $5,252; average per ton $11.13.

Recorded production 1892: 3049 tons, $63,032; average per ton $20.67.

During 1893, 1894, 1895 and 1896, the north drift on the 850 level was repaired and a winze was sunk below the drift. The north drift on the 1000 level was retimbered and crosscuts were driven east from the drift in a fruitless search for ore. A joint drift was driven south with the Segregated Belcher Company on the 300 level. During these four years, approximately 5 tons of ore assaying from $20 to $30 per ton were produced daily from the mine, the ore being gleaned from scattered sections of the mine.

Recorded production 1893: 2,232 tons, $53,574; average per ton $24.00.

Recorded production 1894: 684 tons, $10,169; average per ton $15.69.

Recorded production 1895: 1,608 tons, $21,766; average per ton $13.54.

Recorded production 1896: 2,527 tons, $28,969; average per ton $11.46.

Ore was produced from the mine in 1897. The location of the workings from which the ore came was not given.

Recorded production 1897: 906 tons, $10,107; average per ton $11.16.

In 1898, the 1200 level north drift from the east crosscut and an east crosscut from the north drift were driven. Some ore was produced as a result of that development. An 800 level west crosscut driven from the raise also yielded some ore.

Recorded production 1898:674 tons, $5,910; average per ton $8.77.

In 1899, on the 1000 level, the east crosscut from the main north drift was driven 260 feet. The Crown Point, Belcher and Yellow Jacket companies were making repairs on the 1100 level. No record of work for 1900 to 1902 was found. In 1903, and 1904, the Crown Point and Belcher Companies drove a joint east crosscut along the north line through low grade quartz and porphyry.

During 1905, 1906 and 1907, the east crosscut from the Belcher incline and the old north drift from the east crosscut on the 1400 level were cleaned out. The north drift was extended into the Crown Point claim, passing through bunches of ore. Some crosscutting was done.

In 1908 and 1909, work was conducted on the surface, the 120, 200, 300, 400, 1100, 1300 and 1400 levels. Some ore was produced from the surface workings. On the 120 level, the north and south drift 150 feet east from the shaft was in low grade. The east crosscut No. 1 north on the 200 level was cleaned out and a few tons of low grade ore produced. The portion of the level south of the station passed through low grade ore. A northwest crosscut was being driven on the 300 level. Prospecting on the 400 level south of the station revealed low grade ore. Some ore was produced from the 1100 level. Repairs were made to the 1300 level. The north drift on the 1400 level was extended 180 feet into the Crown Point claim and suspended.

Recorded production 1909: 30 tons, $262; average per ton $8.73.

Work was limited between the surface, 200 and 300 levels during 1910. Several hundred tons of ore were obtained from the surface. The 200 level west crosscut was cleaned out and some additional crosscutting completed. A large tonnage of low grade ore was produced from the stopes. Some low grade ore was produced from the raise and stopes above the level.

Recorded production 1910: 4,662 tons, $17,655; average per ton $3.78.

During 1911, ore was produced from the same levels as in the preceding year, and also from the raise on the 1400 level. On the 300 level, work was done on the raise and the northeast crosscut yielding some low grade ore. Repairs were made to the 850 level. The west crosscut along the north boundary of the claim was being driven. On the 1400 level, production was made from the raise and east crosscut No. 2. A west crosscut was being driven along the north line of the claim.

Recorded production 1911: 3,081 tons, $8,333; average per ton $2.70.

In 1912, practically all of the work was done on the 1400 level. The west crosscut along the north line was driven 56 feet. The north drift No. 2 from the east crosscut was driven 179 feet in porphyry with quartz streaks. East crosscut No. 1 was driven 161 feet through porphyry and quartz. The north drift No. 3 from the east crosscut entered old ground. A portion of the ore produced came from the raise and the north lateral.

Recorded production 1912: 2,236 tons, $7,864; average per ton $3,52.

During 1913, the production of ore was made from the surface, 1300 and 1400 levels

The crosscut to the incline on the 1100 level was being reopened. The north drift on the 1300 level had been reopened and extended into the old stope. West crosscut No. 6, 24 feet up the raise, was driven into porphyry and quartz. Raise No. 3 from the west crosscut was being advanced. Sinking pumps were being installed, apparently at the incline

Recorded production 1913: 3,990 tons, $11,271; average per ton $2.82.

In 1914, ore was obtained from the surface, 1300, 1400, 1500 and 1600 levels. Centrifugal pumps having a capacity of 1500 gallons per minute against a 315 foot head were in operation. The water was lowered sufficiently to permit working in the incline 95 feet below the 1600 level.

Recorded production 1914: 8,801 tons, $42,529; average per ton $4.83.

In 1915, the Belcher, Crown Point and Yellow Jacket mines were consolidated under the management of the Jacket-Crown Point-Belcher Mines Company. From that year and through to 1919, the operations on the claim were very closely related to those briefly outlined for the Yellow Jacket and therefore will not be repeated here.

Recorded production 1915: 35,956 tons, $41,872; average per ton $1.16.

Recorded production 1916: 27,292 tons, $42,421; average per ton $1.55.

Recorded production 1917: 5692 tons, $1,511; average per ton $0.26

Recorded production 1918: 7631 tons, $9,272; average per ton $1.21

Recorded production 1919: 356 tons, $3825; average per ton $10.74.

Recorded production 1920: 452 tons, $3,498; average per ton $7.74.

Total production between the years 1868 to 1916 inclusive:

Total Tons - 960,626

Gross Value - $35,232,974.29

Average Value Per Ton - $36.68

STATE OF NEVADA

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BOX C, UNIVERSITY STATION

No. 7

THE HISTORY OF THE COMSTOCK MINES

BEST & BELCHER

The original Best & Belcher claim was staked in 1859 having 224 feet along the Comstock Lode, being between the Gould & Curry and the Consolidated Virginia. However, the present Best & Belcher claim is made up of the original claim and the north 313 feet of the original Gould & Curry claim, making a total of 537 feet along the Comstock Lo

Work was first started on the claim in 1860 when several shallow tunnels were driven to cut the lode but no ore was found. A shaft was started in 1863, to explore the vein at a depth of 500 feet. The shaft was equipped with an 80 horsepower steam engine, having an 18-inch cylinder and a 3 foot stroke, to do the hoisting and the pumping. By 1865, the shaft had been sunk to the 500 level and drifts and crosscuts had been run on both the 390 and 480 levels but no ore was encountered. Due to the general depression and the reluctance of the stockholders to pay the assessments levied, the mine was closed down in 1863, and work was nor resumed until 1872 after the Crown Point-Belcher bonanza had revived interest in the camp. To save the expense of sinking a new shaft, the claim was worked through the Gould & Curry or Bonner shaft.

By 1875, drifts had been driven north from the Bonner shaft through the Best & Belcher claim, on the 625, 1167, 1300, 1500 and 1700 levels. Many crosscuts were run from each level in the fruitless search of an orebody. Much quartz was found on the 1500 level that assayed from $2 to $3 per ton.

The Consolidated Virginia Mining Co. had encountered a stringer of ore in the Best & Belcher ground while driving a drift north on the 1167 level from the Bonner shaft, but the stringer did not widen enough to become productive until after it had been followed into Consolidated Virginia ground.

A new joint Gould & Curry four compartment shaft was started in 1876 after the discovery of the Consolidated Virginia and California bonanza and the resultant interest in mining in the district. The new shaft (Osbiston shaft) was located 2285 feet east of the Bonner shaft.

By 1879, the Osbiston shaft had been sunk to a depth of 660 feet below the surface and two joint Gould & Curry crosscuts were being driven east to intersect it, one on the 1700 and the other on the 2150 level. While the Osbiston shaft was being sunk prospecting work was carried on through the Consolidated Virginia mine. Drifts were driven south through the claim on the 2000, 2100 and 2300 levels.

During 1880 and 1881, a joint Consolidated Virginia winze was sunk from the 2000 to the 2100 level and a joint Consolidated Virginia raise was put up, from the 2300 level, to connect with the bottom of the winze. Joint Consolidated Virginia crosscuts were driven east and west on the 2500 level in a fruitless search for ore.

By 1882, the Osbiston shaft had been sunk to a depth of 2500 feet below the surface, at which depth a drift was driven north encountering bunches of low grade ore. During 1883 and 1884, a joint Gould & Curry winze was sunk from the 2500 to the 2700 level where a drift was driven north in barren vein material. A joint Gould & Curry crosscut was driven west on the 2500 level but no ore was found. A drift was driven north on the 825 level, from the Bonner shaft, and many joint Gould & Curry crosscuts were driven west on this level in a fruitless search for ore.

During 1885 and 1886, the Osbiston shaft was abandoned and work was carried on through the Bonner shaft. Drifts were driven north on both the 600 and 1000 levels. Many crosscuts driven west on these two levels failed to disclose any ore.

During 1887, a crosscut was driven west, from the north drift on the 600 level, cutting low grade quartz 35 feet in width. Many drifts and crosscuts were driven on this large body of quartz, but no commercial ore was found. Crosscuts were driven east and west from the north drift on the 800 level, and drifts were driven north and south on the 1300 level. A raise was put up 67 feet above and a winze was sunk 200 feet below the 1300 level. A crosscut was driven east from the top of the raise and a drift was driven north from the bottom of the winze but many crosscuts driven east and west from the drift on the 1500 level failed to disclose any ore.

25

During 1887, a crosscut was driven west, from the north drift on the 600 level cutting low grade quartz 35 feet in width. Many drifts and crosscuts were driven on this large body of quartz but no commercial ore was found. Crosscuts were driven east and west from the north drift on the 800 level, and drifts were driven north and south on the 1300 level. A raise was put up 67 feet above and a winze was sunk 200 feet below the 1300 level. A crosscut was driven east from the top of the raise and a drift was driven north from the bottom of the winze but many crosscuts driven east and west from the drift on the 1500 level failed to disclose any ore.

During 1888 and 1889 a drift was driven north on the 425 level and crosscuts were driven east and west from this drift encountering a large body of low grade quartz. Numerous drifts and crosscuts were driven on the 350, 550 and 1000 levels in a fruitless search for ore.

During 1890 and 1891, many drifts and crosscuts were driven on the 800, 1000, 1100 and 1200 levels but no ore was found. A winze was sunk below the 1100 level and raises were put up from the north drifts on the 1100 and 1200 levels in a fruitless search for ore. During 1892, 1893, 1894, 1895 and 1896, many drifts and crosscuts were driven on the 200, 800 and 900 levels encountering northing but low grade vein material.

During 1895, the Brunswick Exploration Company was formed by the Consolidated Virginia and California, Best and Belcher, Gould & Curry, Savage, Hale & Norcross, Chollar and Potosi mining companies to explore the Brunswick Lode located to the east of the Comstock Lode. The work of exploring the Brunswick Lode was started July 2, 1895 and was carried on by sinking an incline shaft on the Hale & Norcross claim near the north boundary line of the Chollar claim, by driving a tunnel north on the Savage claim, from a point 75 feet north of the Sutro Tunnel Shaft No. 3, and by sinking an incline shaft on the boundary line between the Consolidated Virginia and Best & Belcher claims.

Drifting and crosscutting on the 800 level through the Bonner shaft and the continuance of the joint exploration of the Brunswick Lode constitute the principle development for the year 1896. The north drift on the 800 level from the Bonner shaft was discontinued. Jointly with the Gould & Curry mine, an east crosscut was driven

along the south boundary of the Best & Belcher claim on the 800 level. On the Brunswick Lode, Shaft No. 2 was sunk to a depth of 485 feet. East crosscut No. 3 was discontinued on the 150 level. Another east crosscut on the same level was driven 154 feet, being in porphyry and quartz. The south drift and east crosscut No. 1 on the 300 level were driven 176 feet and 95 feet respectively. The "tunnel" probably the north tunnel from the Savage claim was driven into Best & Belcher ground. At a point 132 feet in the tunnel, east crosscut No. 4 was started.

During 1897 and 1898, the joint east crosscut on the 800 level through the Bonner shaft was continued for more than 700 feet. The Brunswick shaft No. 2 had been sunk below the 600 level and the south drift on that level had been driven more than 800 feet by June of the last year.

In 1899, 1900, 1901 and 1902, joint work was resumed on the main lode on the "365 and 375 levels" (probably the 385 level) and the 625 level. During 1902, some $14 to $25 ore was obtained from the "365 and 375 levels". At the same time, a north drift was started in low grade ore from east crosscut No. 2 on the 150 level off Brunswick Shaft No. 2.

Work was performed on the 200, 365 and 900 levels in 1903. Some low grade ore was encountered on the 200 level. A west crosscut was driven from the north drift off the main raise on the 900 level. Some work was done on the east crosscut driven along the north boundary line on the 2050 level during 1904.

From 1904 to 1911, very little work of any nature was done on the claim. During 1911, and 1912, some joint development was in progress on the Sutro Tunnel level.

Recorded production 1909: 68 tons, $408; average per ton $6.00.

The claims were inactive between 1915 and 1923.

The Best & Belcher, Savage, and Gould & Curry mines commenced joint work on the Garfield Lode on the Sutro Tunnel level in 1923, continuing through 1924 and 1925. That work consisted of drifting south, raising, sinking a winze and crosscutting from the winze.

Total recorded production to 1940: Tons - 68; Gross value - $408; Value per ton - $6.

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No. 8

THE HISTORY OF THE COMSTOCK MINES

BULLION

The Bullion claim was staked in 1859 having 967 feet along the Comstock Lode. It lies between the Exhcequer and the Potosi.

The first work done on the claim was in 1862 when the Bullion Mining Company started to sink a three compartment shaft to explore the lode at depth. By 1866, the shaft had been sunk to a depth of 800 feet below the surface and numerous drifts and crosscuts driven on the 455, 575, 680 and 800 levels failed to disclose anything but a large amount of quartz giving "low" assays.

The shaft was changed from vertical to an incline, following the footwall of the lode at the 800 level. By 1869, the shaft had been sunk to a depth of 1440 feet below the surface and drifts and crosscuts driven on the 1271 and 1440 levels failed to develop any ore. From 1870 to 1873 prospecting work was confined to the upper levels of the mine and in 1873, a diamond drill was employed in a fruitless search for ore

With the revived interest in the district, after the discovery of the "Big Bonanza in 1874, prospecting of the claim was prosecuted on the lower reaches of the claim by driving drifts north from the Imperial Incline on the 1700, 2000 and 2400 levels. Many crosscuts driven on each of the levels failed to disclose an orebody.

During 1879, the Bullion Company confined their prospecting work to the 1700, 1840, 2040 and 2400 levels and the main incline was sunk to a depth of 2130 feet below the surface. A crosscut driven east on the 2400 level, located 100 feet from the south end line of the claim, encountered 14 feet of vein material which yeilded "low" assay.

During 1880, the main incline was sunk to a depth of 2450 feet below the surface where a diamond drill hole toward the Ward Shaft encountered material assaying from $22 to $27 per ton. A drift was driven north on the 2450 level toward the Julia shaft

and, after being driven 80 feet, material was encountered that assayed from $5 to $10 per ton. A crosscut was driven from the Ward shaft of the 2200 level to connect with the 2450 level of the Bullion incline. After the connection was completed work through the Bullion shaft was suspended and work in the mine was carried on through the Ward shaft. A diamond drill was employed to crosscut the vein on the 2340 level but no ore was found.

By 1885, all work on the lower levels of the mine had been suspended and prospecting work was started on the 660 level through the Bullion shaft. A crosscut was driven west on the 660 level through 75 feet of vein material but no ore was found.

From 1885 to 1892, drifts were driven north and south on the 300, 750, 800 and 1300 foot levels and many crosscuts were driven east and west from these drifts in a fruitless search for ore.

During 1892, 1893, 1894 and 1895, drifts were driven north and south on the 1300, 1400 and 1500 levels and crosscuts were driven from these drifts in barren material One crosscut, located near the north boundary line of the claim on the 1500 level, was driven jointly with the Potosi Company. Drifts were driven northwest and southwest from the Ward shaft, on the 1800 level, the former driven jointly with the Potosi Company and the latter with the Exchequer Company. A winze was sunk below the northwest drift on the 1800 level in low grade material. A crosscut was driven 1400 feet west, from the Bullion shaft, on the 820 level, but no ore was found.

No record for 1896. In 1897, the north lateral, 2170 feet from the Ward-Bullion shaft in the west crosscut was being advanced. No record for the period 1898 to 1907. In 1908, 1650 gallons per minute were being pumped against a 1550 foot head. The pump was equipped with an 800 horsepower motor. By December 1910, the Ward shaft had been repaired 15 feet below the 2475 level. Some drifting was done on the 2000, 2100 and 2400 levels. By 1912, drifting was in progress on the 2000 and 2100 levels. Pumping through the Ward Shaft lowered the water in the Yellow Jacket mine. The Ward shaft was shut down in November. No record for 1913 to 1924. In 1924, the 465 level was being driven south into the Bullion claim, and the 600 level station was cut.

No recorded production from this property.

29

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BOX C, UNIVERSITY STATION

No. 9

THE HISTORY OF THE COMSTOCK MINES

CALEDONIA

The present Caledonia claim resulted from the consolidation on seven claims acquired in 1861 by the Caledonia Tunnel Company. By that it means, the company controlled 2188 feet along the lode to the southeast of the Overman.

A tunnel driven 2000 feet to the west, cut the hanging wall of the vein 1400 feet from the portal. While the hanging wall of the vein south of the tunnel was being explored by a 500 foot drift, a north drift was driven along a streak of ore. When the north drift had been extended 55 feet, the ore became 9 feet wide and yielded samples assaying up to $50 per ton. However, the mine was closed down in 1866 due to the general depression in the camp and the stockholders' reluctanct to pay assessments.

When exploration work was resumed in 1869, a three compartment vertical shaft was sunk to a depth of 100 feet, discovering a 50 foot body of ore yielding assays between $12 and $15 per ton. By taking advantage of the Virginia and Truckee Railroad Company's transportation facilities, it was possible to mine and ship the low grade ore to the mills along the Carson River. By 1872, ore had been found in the north drifts on the 200, 300 and 400 levels. The explorations on the 700 level were unsuccessful.

From 1873 to 1875 inclusive, the three compartment shaft was sunk to a depth of 1380 feet, changing to an incline shaft below the 1000 level. Drifts were driven north on the 600, 800, 900, 1000 and 1076 levels in a fruitless search for ore. Ventilation in the lower levels of the mine was improved by sinking a winze from the 900 level to the 1000 level.

Production reported by G. F. Becker, page 10, "Geology of the Comstock":

1871 to 1873 inc. 26, 957 tons - $337,028.10, gross value - Average value $12.50

A new three compartment shaft was started at a point 1600 feet east from the old shaft in 1875. By 1877, this new shaft was sunk to a depth of 1600 feet. East crosscuts on the 1400 and 1600 levels, and annorth drift to the Overman working on the 1142 level failed to find ore.

During 1879 and 1880, a winze was sunk from the 1600 level to the 1900 level, passing through 30 feet of low grade ore. North and south drifts were driven on the vein on the levels. Further exploration of the vein on the 1900 level was done by diamond drilling.

The 1750 level was unsuccessfully explored by a northwest drift in 1884. Exploration during 1897, 1898 and 1899 was confined to the 1100 level. Southwest and southeast drifts were driven, the latter being opened for 1000 feet. A raise above the level exposed some ore assaying $5.08 per ton.

The 800, 900, 1000 and 1100 levels were being explored during 1900. A southwest drift, driven from the raise above the southeast drift on the 800 level, exposed quartz seams in prophyry. Further work on the level discovered a quartz-vein two feet wide. A raise was driven 105 feet above the southeast drift of the 900 level, and east crosscut No. 2 advanced on the level. A north drift and a crosscut were driven on the 1000 level, while raising above the level resulted in the production of a few tons of ore assaying between $13.49 and $28.89 per ton. In addition to some crosscutting on the 1100 level, a few tons of $19.21 ore was produced.

Some low grade ore was exposed in the southeast drifts on the 1000 and 1100 level during 1901. Work was limited to the 900 and 1100 levels in 1902. The southwest drift on the 900 level was advanced 375 feet, encountering good ore after passing the 107 foot mark. In that vicinity, 119 tons of $91.10 ore were stoped. A raise was driven 27 feet above the level in low grade ore. The vein was explored below the 900 level by sinking a winze and driving drifts from the winze. The southwest drift on the 1100 level was driven more than 545 feet encountering quartz and porphyry, yielding assays between $6 and $8 per ton at a point approximately 462 feet out in the drift. Less than fifty feet beyond that point, the vein was three feet wide. Samples taken from the vein indicated values between $8 and $15 per ton, mostly gold.

A winze was sunk 25 feet below the 1100 level to explore the "gold ore". Some ore was produced from the southwest drift and the winze during the latter part of the year. The management of the Caledonia and Overman mines cooperated in additional prospecting from the southeast drift on the 1100 level.

During 1904, exploration continued on the 1100 level and was again started on the 1200 level. The southwest drift on the 1100 level was extended to a total length of 1224 feet, passing through clay and quartz. The southwest drift on the 1200 level was driven 1132 feet passing through "bunches of good ore", exposing some $7 to $9 ore in the last 100 feet. A northwest and southeast drift, a west crosscut, two raises, a winze and drifts from the winze were driven on and from the 1200 level in search of ore. West crosscut No. 2 on the 1200 level and the two compartment raise from the same level were extended during 1905. Some ore was found in the raise. In 1906 and 1907, drifting and crosscutting on the 1200 level encountered low grade ore at several points.

Work was confined to the 1200 level from 1908 to 1912 inclusive. The main south drift from west crosscut No. 2 was extended 645 feet, cutting a dyke and entering the footwall. An east crosscut was driven from the end of the main south drift. A west crosscut from the south drift passed through 140 feet of low grade vein material assaying between $1.50 and $2 per ton. In 1910, exploration work was concentrated in the vicinity of the dyke on the 1200 level. A east crosscut started in that year and completed in 1911, entered the hanging wall. Fifty-one feet of vein material was exposed at some point within the first 226 feet of the crosscut. Drifting south along the hanging wall and crosscutting east and west from the south drift failed to find ore.

In 1913, a hoist was installed at the New York shaft. After repairs were made to the shaft, the 1100 level southwest drift and the 1200 northwest drift were reopened. Some mill grade ore was obtained from the southwest drift on the 1100 level.

Work continued through the New York shaft on the 1100 and 1200 levels during 1914. A raise from the south drift on the 1100 level encountered ore assaying from $1.25 to $17.15 per ton. A west crosscut was driven from the raise in ore assaying

from $2.35 to $28.01 per ton. The two compartment raise from the 1200 level was in ore. The ore coming from the exploration from the southwest drift on the 1200 level was low grade.

Recorded production 1914: 482 tons, $2,675, average per ton $55.49

In 1915, work was performed on the 1000, 1100 and 1200 levels. In addition to some raising from the 1000 level, the north drift from the west crosscut had exposed some ore assaying from $2 to $8.40 per ton. Some of the development work on the 1200 level, started during the previous year was continued during 1916. In 1917, exploration work was confined entirely to a surface tunnel.

Total production between the years 1871 to 1914 inclusive:

Total Tons - 27,439

Gross Value - 339,703

Average per ton - $12.38

Includes production recorded by G. F. Becker, page 10, "Geology of the Comstock".

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BOX C, UNIVERSITY STATION

No. 10

THE HISTORY OF THE COMSTOCK MINES

THE CALIFORNIA

The present California claim having 600 feet along the Comstock Lode is made up of the Central #1 claim having 150 feet, California claim having 300 feet, Central #2 claim having 100 feet, and Kinney claim having 50 feet.

The Central Company purchased the northern 150 feet of the Corry claim, being bounded on the north by the Ophir. During 1859, an incline shaft was sunk to the 30 foot level and 41,400 pounds of high grade ore were mined and shipped to San Francisco being packed over the Sierra Nevadas by mules. The lower grade ore was worked on the property in arrastras.

In 1860, the Mexican, Ophir, Central and California companies let a contract to drive a drainage tunnel under their workings. Work was begun on the tunnel, known as the Union Tunnel, June 8, 1860 and cut the vein at a depth of 155 feet below the surface on the Central #1 claim. The tunnel was 1100 feet long and was four feet by 5½ feet in the clear costing $9 per foot.

By 1861, the Central shaft had been sunk to the 400 foot level and the mine had a production of 90 tons per day, all of the ore being mined from between the 300 foot level and the surface.

By 1862, the Central shaft had been sunk to the 600 foot level, but no ore was found below the 300 level. The flow of hot water at the bottom of the shaft was so great that the company became disheartened and attempted no further work.

The Latrobe Tunnel was started on the White and Murphy claim, later acquired by the Consolidated Virginia Mining Company, in 1863. By 1864, the tunnel had cut the lode at a point in the California claim a few feet north of the south end line and at a depth of 500 feet below the surface. In cutting the Comstock Lode, the tunnel cut four veins, the last one being the best, consisting of porphyry, clay and broken quartz. By 1866, the tunnel was 3800 feet long and at a point 700 feet west of the Comstock Lode it had cut a vein from 3 to 4 feet wide that "assayed well".

In 1868, the claims between the Best & Belcher and the Ophir claims, (California, Central #1 and #2, White & Murphy, Sides & Kinney), combined to sink a shaft under the name of Virginia Consolidated Mining Company. A contract was let to sink a three compartment shaft 500 feet at a point 1100 feet east of the outcrop of the lode. The shaft was 18 feet 10 inches by 7 feet 10 inches in the clear and it was sunk to the 500 level by 1870 at which time a contract was let to drive a crosscut west to the vein. The west crosscut intersected the hanging wall of the vein 720 feet west of the shaft where drifts were driven north and south on the vein but no ore was found.

The stockholders became discouraged and early in 1872 the stock of the companies was bought by Mackay, Fair, Flood and O'Brien. The new owners continued to prospect on the 500 foot level while driving a drift north on the 1167 level from the Gould & Curry shaft and sinking the Consolidated Virginia shaft below the 500 foot level. By July, the main north drift from the Gould & Curry shaft had passed 100 feet into Consolidated Virginia ground and a crosscut was started west to intersect the vein. By December, new hoisting works had been built over the Consolidated Virginia shaft and it was being sunk steadily.

While driving the main north drift on the 1167 foot level from the Gould & Curry shaft, a stringer of ore was encountered and the drift was turned slightly to follow the stringer. By March 1, 1873, the stringer had widened until the entire face of the drift was in high grade ore. Due to a heavy flow of hot water and extreme temperatures, the 1167 foot level was abandoned until the shaft was sunk to that depth in the latter part of July. By the end of the year, the shaft had been sunk to the 1300 foot level.

On January 2, 1874, the California Mining Company was formed having 108,000 shares with a par value of $100 per share. The purpose of the company was to work the north 600 feet of the Consolidated Virginia ground thus speeding the exploration of the ground.

During 1874, drifts were driven north, by the California Company, on the 1300, 1400 and 1500 levels of the Consolidated Virginia shaft to connect with the Ophir shaft. A drift from the Ophir mine, driven 80 feet into the California claim on the 1500 foot level encountered rich ore.

During 1875, many crosscuts were driven east on the 1400, 1500 and 1550 foot levels finding large bodies of high grade ore. While the ore body was being blocked out, a new 60 stamp mill with a capacity of 300 tons per day was being built and a new shaft was being sunk. The new shaft was located 950 feet to the east of the Consolidated Virginia shaft on the California claim and was being sunk jointly with the Consolidated Virginia Mining Company. The new shaft known as the C & C, was equipped with a direct acting steam engine having two 26-inch by 72-inch cylinders connected to the same shaft with cranks at right angles and with the hoisting reels on the engine shaft. During this year, a winze was sunk 116 feet below the 1550 foot level all the way through high grade ore. In October, the new mill was destroyed by a fire that swept Virginia City and the erection of a duplicate mill was immediately started. The production for the year was 5,123 tons of ore yielding $88.43 per ton.

During 1876, the north drift on the 1400 foot level was connected with the Ophir mine; however, no ore of any value was found in the northern 250 feet of the drift. Much work was done on the 1500 foot level, the northern 200 feet and the southern 250 feet of the main drift being in high grade ore. On the 1550 foot level, a drift was driven in the middle of the vein, from the south to the north boundary lines of the claim, in excellent ore the entire distance. A winze was sunk from this level for 128 feet through excellent ore. A large flow of hot water was encountered in the bottom of the winze. A drift on the 1600 level connected with the Ophir mine during the year.

A large flow of hot water halted the sinking of the C & C shaft for a month in 1876, and by the end of the year, the shaft had been sunk only to the 1650 foot level. A double decked cage was used for hoisting through the shaft.

During the year, the mine produced 128,800 tons of ore which yielded $105.07 per ton or 73-3/8% of the assay value. The slimes of the California mill were flumed to the old Gould & Curry mill at the junction of Six and Seven Mile canyon where they were imponded.

Recorded production 1876; 126,936;tons; $13,400,841; average per ton $105.57.

During 1877, considerable work was done repairing the 1400 foot level, much ore was extracted from the 1500 foot level, a winze was sunk from the 1500 to the 1600 foot level and a drift was driven from the C & C shaft to cut the ore stopes on the 1500 foot level. Vast quantities of high grade ore was extracted from the 1550 foot level, the sill floor being extracted for the entire length of the mine with the exception of a few feet on the northern end. The widest point of the ore body on this level was 162 feet.

Because of the heavy character of the ground it was found to be cheaper and safer to run drifts either in the hanging wall or footwall of the vein and extend crosscuts from these drifts to the ore body than it was to run drifts and crosscuts in the vein. By this method, the ore was thoroughly blocked out before the walls would begin crushing the square sets thus eliminating the necessity of keeping open expensive drifts in the mined areas. Consequently, all levels of the California mine below the 1550 were developed in this manner.

During this year 1877, the C and C shaft was sunk to the 1850 level. Each hoisting compartment was equipped with three decker cages and a fourth one was ready to be added whenever necessary. A winze was sunk from the 1600 foot level connecting with the 1650, 1700, 1750 and 1840 foot levels. The winze had two compartments and was equipped with an air "winding machine." A main north drift driven from the C and C shaft connected with the ore body on the 1650 level. A crosscut was also driven from this level to connect with the Consolidated Virginia shaft. The 1700 foot level was partially developed by both east and west crosscuts from the winze. The east crosscut passed through 81 feet of good ore while the crosscut to the west showed only vein matter with low grade ore. The 1750 level was partially opened by running a joint Consolidated Virginia crosscut 540 feet to the west. This west crosscut was located 180 feet from the south line of the California claim and the orebody was found to be very wide the greater part being low grade, there being but 28 feet of good ore on the hanging wall.

Recorded production 1877: 213,683 tons, $18,913,843: average per ton $88.51.

During 1878, all of the developed ore on the 1500 and 1550 foot levels was exhausted. The 1600 foot level produced much ore, the productive ore giving out 20 feet from the Ophir ground. The 1650 foot level produced much good ore, the vein becoming low grade about 300 feet from the Ophir line. A north drift was driven on the 1700 foot level to within 80 feet of the Ophir line passing through 110 feet of low grade ore. A winze was sunk from this level

to the 1750 foot level and was in low grade ore, with occasional stringers of high grade, the entire distance. Low grade ore was encountered on the 1840 level and at the end of a 420 foot joint Ophir east crosscut a winze was sunk to the 1900 foot level cutting a stringer of good ore. On the 1950 level, a drift located 350 feet west of the C and C shaft was driven north to the Ophir line. The drift was 60 feet east of the main ore vein and while driving it an ore "seam" 5 feet wide giving "good" assays was cut.

During the year, the C and C shaft had been sunk to the 2150 level and a drift was started south from the joint Ophir winze, which had been sunk from the 1900 foot level on the north end line of the California claim, to connect with the C and C shaft.

Recorded production 1878: 137,003 tons, $10,949,762; average per ton $79.92.

During 1879, the C and C shaft was sunk to a depth of 2350 feet below the surface. As no ore was being found on the lower levels and the known ore bodies on the upper levels were becoming exhausted, it was decided to prospect the undeveloped ground between the 500 and 1300 levels. Consequently, a joint Consolidated Virginia west crosscut was started on the 850 foot level of the Consolidated Virginia shaft. The crosscut was discontinued after being driven 580 feet and a drift was started north 53 feet from the face of the crosscut. No ore was found in these upper workings, and work on the 850 foot level was suspended the following year.

Recorded production 1879: 65,301 tons, $2,575,477: average per ton $39.44.

During 1880, while a steady production of low grade ore was being maintained from above the 1600 foot level, the C and C shaft was sunk to a depth of 2450 feet below the surface. Drifts were driven north and south on the 2300 foot level and a joint Ophir winze was sunk from the 2300 to the 2500 level.

Oh

A drift was driven south from the bottom of the winze encountering some ore. A joint Ophir crosscut was driven east on the 2000 foot level but no ore was encountered.

Production between 1876 and June 30, 1880 as reported by G. F. Becker, "Geology of the Comstock":

Tons	Gross Value	Value per ton
559,422.5	$46,278,999.72	$82.72

A joint Consolidated Virginia winze was sunk below the 2500 level and the joint Ophir winze was sunk to the 2700 level. Joint Ophir crosscuts were driven east on the 2500 and 2700 levels and a joint Consolidated Virginia crosscut was driven east on the 2300 foot level. In May of this year, a fire broke out in the old stopes on the upper levels making it necessary that they be closed down for the rest of the year.

Recorded production 1881; 5,609 tons, $110,660: average per ton $19.73.

During 1882, the joint Consolidated Virginia winze was sunk to the 2700 foot level where a joint crosscut was driven east. A drift was driven south on the 2900 foot level from the Ophir mine and a drift was driven south on the 2700 foot level from the joint Ophir winze.

In 1883, no production was recorded, and only $48 recovered from slag was reported in 1884!

During 1883, and 1884, the joint Consolidated Virginia winze was sunk from the 2700 to the 2900 foot level. A joint Consolidated Virginia crosscut was driven east on the 2900 level encountering a large flow of hot water and the pipe and track on all the levels below the 1700 foot level were removed. A drift was driven north on the 1700 level from the Consolidated Virginia shaft to enter the old stopes.

J. P. Jones leased the upper levels of the Consolidated Virginia and California mines in May 1884, and drove a drift north from the Best & Belcher mine on the 1200 foot level. The Jones lease yielded 28,856 tons of ore yielding $17.14 per ton, or nearly a half million dollars, before the lease culminated January 1, 1886. All of the ore was produced from the 1200 and 1300 foot levels of the two mines.

On November 4, 1884, the two stranded mining companies, the Consolidated Virginia Mining Co. and the California Mining Co., were consolidated as the Consolidated California and Virginia Mining Company, and thereafter, the work carried on in the two mines was reported as one, and this work in the succeeding years is to be found in the similar write-up of the "Consolidated Virginia Mine".

Total production between the years 1876 to 1882 inclusive:

Total tons - 587,503

Gross Value - $46,850,260

Average value per ton - $79.74

STATE OF NEVADA

JAY A. CARPENTER, DIRECTOR
B. F. COUCH, SECRETARY

Bureau of Mines

MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 11

BOX C, UNIVERSITY STATION

THE HISTORY OF THE COMSTOCK MINES

CHALLENGE-CONFIDENCE

The present Challenge-Confidence claim resulted from a consolidation of the Burke & Hamilton claim, Confidence claim, Challenge claim and 17.5 feet acquired from the Imperial South claim, making a total of 237.5 feet along the lode between the Yellow Jacket and the Imperial. These claims cover the original claim located by Finney, Bishop, Henderson and Yount in 1859. The original locators worked their claim for placer until the decomposed vein material was exhausted. They were then quite willing to dispose of their holdings to people just arriving in the district.

The Challenge Company had acquired 50 feet of the original location on the lode, and by 1866, their shaft had reached a depth of 750 feet. At a depth of 330 feet, this shaft cut the vein, exposing rich ore. A west crosscut driven on the 450 level also exposed rich ore in the vein.

The Burke & Hamilton Company likewise came into possession of a 40 foot section of the lode. By 1865, a shaft had been sunk to a depth of 365 feet on that section (claim). Development work on the 265 and 365 levels exposed a body of ore 45 feet wide having an average value of $25 per ton.

By 1865, the Confidence Company's holdings consisted of 130 feet on the lode and their shaft had been sunk to a depth of 560 feet. Crosscuts were driven to the vein encountering good ore on the 390 and 560 levels.

On developing the vein in the three claims, a new vein with a different inclination was found on the 250 level. The dip of the new vein was to the east; although the dip of the original vein was to the west.

During 1867, the small hoisting works on the Burke & Hamilton and on the Confidence claims were dismantled. Subsequent operations on the two claims were conducted through the Challenge shaft.

The three claims constituting the present Challenge-Confidence claim were consolidated in 1874 under the Challenge-Confidence Mining Company to facilitate exploration and lower operating expenses. Exploration of the lower levels was then started through the Imperial Empire shaft.

From 1872 to 1876, drifts were driven south from the Imperial Empire shaft on the 1500, 1650 and 1900 levels. Many crosscuts on those levels failed to develop ore. A winze was sunk from the 1650 to the 1900 level to improve the ventilation of the mine.

Between 1876 and 1880, drifts were driven south to the Yellow Jacket claim on the 2150, 2400, 2600 and 2800 levels in an unsuccessful search for ore. As a result of the unproductive exploration and depletion of the ore reserves, all work in the claim was suspended.

Recorded production 1881: 356 tons, $4,527; average per ton $12.72. (x)

Recorded production 1882: 573 tons, $8,212; average per ton $14.33 (x)

Recorded production 1883: 219 tons, $3,039; average per ton $13.88 (x)

Recorded production 1881: 446 tons, $5,656; average per ton $12.68 (y)

Recorded production 1882: 414 tons, $5,704; average per ton $13.78 (y)

Recorded production 1883: 1008 tons, $14,026; average per ton $13.91 (y)

Recorded production 1884: 932 tons, $15,260; average per ton $16.37. (y)

Production reported by G. F. Becker, page 10, "Geology of the Comstock":

Challenge 1867 - 1873	1,943 tons	Gross $43,839.05	Average $22.56	
Confidence 1867 - 1868	1,831 "	" 504,561.49	" 42.65	

The mine was reopened in 1887. Drifts were driven north from the Yellow Jacket shaft into the Challenge-Confidence claim on the 1000, 1100, 1200 and 1300 levels. East and west crosscuts were driven on the 1000 level. A raise was driven above that level encountering some good ore. The raise from the 1100 level encountered no ore although ore was found in the raise from the 1200 level. A north drift and

an east crosscut driven from the top of the raise from the 1300 level also failed to find ore. The approximate daily yield from the mine during the year was reported to be 75 tons assaying $32 per ton.

During 1888, north drifts were driven from the Yellow Jacket shaft into the Challenge-Confidence claim on the 300, 500 and 800 levels. East and west crosscut on the 300 level failed to find ore. By raising 45 feet above that level, good ore was encountered. A winze was sunk from the 300 level and an east crosscut driven from the 300 level and an east crosscut driven from the winze to the Imperial shaft, thus improving the mine ventilation. East and west crosscuts on the 500 and 1300 levels proved those portions of the vein to be nonproductive. Drifts and crosscuts driven from the raise above the 1200 level encountered some ore. The reported production for the first six months was 70 tons assaying $30 per ton.

Recorded production 1888: 34,409 tons, $725,871; average per ton $21.10. (x)

Recorded production 1889: 9501 tons, $163,538; average per ton $17.21. (x)

Recorded production 1888: 3123 tons, $55,267; average per ton $17.70. (y)

Recorded production 1889: 2858 tons, $48,952; average per ton $17.13. (y)

In 1890 and 1891, north drifts were driven from the Yellow Jacket shaft in to the Challenge-Confidence claim on the 200, 400, 600 and 700 levels. A two foot width of fair ore was found in a north drift driven from the west crosscut on the 300 level. East and west crosscuts on the 600 and 700 levels and also a raise from the 700 level were in barren vein filling. Crosscutting east and west on the 1000 and 1100 levels and drifting north from the crosscut for the south boundary on the 1000 level, failed to find ore.

Recorded production 1890: 398 tons, $5,604; average per ton $14.08. (x)

Recorded production 1891: 1444 tons, $22,309; average per ton $15.44 (x)

Recorded production 1890: 1607 tons, $23,089; average per ton $14.36 (y)

Recorded production 1891: 1414 tons, $23,390; average per ton $16.54. (y)

44

Some fair ore was found on the 200 and 300 levels during 1892. A surface tunnel was started to explore the upper portion of the claim upon suspension of work through the Yellow Jacket in 1894.

Recorded production 1892: 1118 tons, $13,891; average per ton $12.42. (x)

Recorded production 1893: 371 tons, $4,818; average per ton $12.97. (x)

Recorded production 1895: 114 tons, $1753; average per ton $15.38. (x)

Recorded production 1892: 1126 tons, $14,071; average per ton $12.50. (y)

Recorded production 1893: 423 tons, $4,813; average per ton $11.38. (y)

In 1896, a few tons of ore having an assay value between $19.59 and $21.45 per ton were produced from the Challenge-Confidence claim. The joint surface tunnel "west crosscut No. 1", started in 1893, was extended during the year.

Recorded production 1896: 190 tons, $2421; average per ton $12.74. (X)

A compressor and air drills were added to the mine equipment in 1897. During the following years, 1898, 1899, 1900, 1901 and 1902, the west crosscut No. 1 was extended to a total length of 3076 feet.

Recorded production 1897: 71 tons, $573; average per ton $8.07 (X)

By the latter part of 1903, the joint north drift driven from the Yellow Jacket shaft on the 1000 level had entered the Challenge-Confidence claims. During 1904, some raises and east and west crosscuts were driven in search of ore.

The joint north drift started from the Yellow Jacket shaft in 1905 was extended into the Challenge-Confidence claims in 1906. Work was continued on the drift during 1907, and in the latter part of the year, machinery was installed at the Confidence shaft

Production between the years 1881 to 1897 inclusive: (reported by Confidence Mining Co. (x): Total tons - 48,763; Gross value - $956,551; Average Value - $19.62. Listed as Confidence Mining Co.

Total production between the years 1881 to 1893 inclusive: (reported by Challenge Mining Co. (y)): Total tons - 13,351; Gross - $210,228; Average value - $15.75.

Total production between years 1867 - 1897 inclusive reported by the Confidence and Challenge: Tons - 75,888; Gross $1,715,179; Value per ton - $22.60. Includes production reported by G. F. Becker, page 10, "Geology of the Comstock".

45

STATE OF NEVADA

Bureau of Mines

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BOX C, UNIVERSITY STATION

No. 12

THE HISTORY OF THE COMSTOCK MINES

CHOLLAR & POTOSI

The Chollar claim, between the Bullion and the Hale & Norcross, was staked as a surface or placer claim in 1859 having 1434 feet along the Comstock Lode.

Work was first started on the claim in 1859 when the surface dirt was put through long toms. The Santa Fe Company drove a tunnel 1360 feetlong to cut the lode at a depth of 400 feet below the surface on the Hale & Norcross claim and a drift driven south from the tunnel into the Chollar chaim encountered ore.

During 1862, a three compartment shaft was started through which to mine the ore that had been found in the Santa Fe Tunnel and to prospect the lode at greater depths. By 1863, the shaft had been sunk to a depth of 220 feet below the surface encountering a large body of ore. The shaft was then equipped with a 100 horsepower steam engine the cyliner being 18 inches in diameter having a three foot stroke. The fly wheel on the engine weighed 13,500 pounds and was mounted on a cast iron shaft 9 inches in diameter.

While mining operations were being carried out on the 200 level, the shaft was sunk to a depth of 465 feet below the surface where drifts were driven north and south developing a large body of ore.

The Potosi claim was located in 1860 as a lode claim covering 400 feet of the Chollar claim and immediately sank two shafts one on the north end and one on thessouth end of their claim. Large bodies of ore were found in both shafts and in December 1861 the Chollar Company brought suit claiming trespass. After many costly court fights, in which no decision could be reached, a compromise was made April 22, 1865 and the two companies were incorporated as the Chollar-Potosi Mining Company.

On June 7, 1865 the ground was broken for a new four compartment shaft located 500 feet east of the old workings of the two companies. By the latter part of 1866, the shaft had been sunk to a depth of 510 feet below the surface where a drift was

driven northwest through 400 feet of ore.

Extensive mining operations were carried on above the 510 level during the next three years. The shaft was sunk to a depth of 1240 feet below the surface being changed from vertical to an incline at a depth of 800 feet. Drifts and crosscuts were driven on the 920 level but no ore was found at this depth. During the fiscal year ending June 1, 1869, the mine yielded 44,900 tons of ore yielding $23.70 per ton from above the 600 level. The cost of milling the ore was $13.15 per ton and the cost of mining was $4.30 per ton.

The next two years were spent in prospecting the upper levels of the mine and during the fiscal year ending June 1, 1870, the mine yielded 59,354 tons of ore yielding $24.86 per ton, the cost of milling being $12.41 per ton. During the fiscal year ending June 1, 1871 the mine yielded 84,681 tons of ore of the same grade the ore being produced from the Belvidere section of the mine on the present Potosi claim. This body of ore was found by drifting on a small stringer of ore found in a crosscut on the 450 level the stringer opening into a body of ore 60 feet wide.

During 1872 the 1500 and 1600 levels of the mine were prospected by running drifts south from the Hale & Norcross mine. No ore was found. The mine continued to produce ore from the upper levels during the fiscal year ending June 1, 1872; it produced 35,930 tons of ore yielding $26.17 per ton .

During 1873 and 1874, drifts were driven north and south on the 750 and 800 levels. Crosscuts were driven on the 1500 and 1600 levels but no new orebodies were found. Production continued from the upper levels.

The orebodies in the upper levels were gradually being exhausted; and in a fruitless search of new orebodies on the lower levels, the incline was sunk to the 1350 level and drifts and crosscuts were driven on the 1150, 1250 and 1350 levels.

In 1875, the Chollar-Potosi, Hale & Norcross and Savage companies combined to sink a new four compartment shaft to facilitate the exploration of the lode at greater depth. The new shaft, Combination, was located 2,327 feet east of the Chollar-Potosi shaft and was to cut the lode at a depth of 2800 feet below the surface.

Recorded production 1875: 10,900 tons, $172,865; average per ton $15.86. (b)

The shaft was sunk at the rate of 2½ feet per day passing through 100 feet of heavy ground near the 1593 level. The 1593 level was driven to connect with the Sutro Tunnel. By March 13, 1880 the shaft had been sunk to a depth of 2400 feet below the surface.

During 1876, prospecting work was carried out on the Chollar 1250 and 1350 levels while the upper levels were producing 17,728 tons of ore yielding $18.03 per ton. The cost for mining was $4.20 per ton and the cost for milling was $11.83 per ton.

Recorded production 1876: 19,637 tons, $485,360; average per ton $24.72. (b)

During the fiscal year ending June 1, 1877, the mine yielded 38,020 tons of ore yielding $18.69 per ton or an extraction of 80% of the assay value. The ore was produced from the old Santa Fe stopes and cost $14.99 per ton for mining and milling, $3.16 per ton for prospecting and $4.72 per ton for the Combination shaft.

By 1877, the incline had been sunk to a depth of 1785 feet below the surface and a crosscut was driven east from its bottom to connect with the Combination shaft. During the year, a drift was driven on the 1593 level to connect with the Sutro Tunnel.

Recorded production 1877: 30,607 tons, $511,639; average per ton $16.72. (b)

Recorded production 1878: 2,824 tons, $48,767; average per ton $17.27 (b)

Production reported by G. F. Becker, page 10, "Geology of the Comstock":

1866 - 1878 Tons 556,351.5 Gross Value $13,471,917.97 Val./ton $24.21

On March 30, 1879 the shares of the company were increased to 224,000 to make to mines having 112,000 shares each, the south 717 feet of the claim to be the Potosi and the north 717 feet to be the Chollar.

Recorded production 1879: 1022 tons, $14,585; average per ton $14.27.

During 1880, a drift was driven west from the 2400 level of the Combination Shaft which cut streaks of "good" ore after being driven 600 feet. A drift was driven north on the vein to connect with the Hale & Norcross mine and another driven south to the Potosi claim. After the south drift had been driven 500 feet it encountered a body of quartz 50 feet wide assaying from a "few" to $50 per ton.

During 1881 it became necessary to install larger pumping units at the Combination Shaft to handle the large amount of water that was encountered in the lower levels of the mines. Consequently, a hydraulic pump was installed on the 2400 level, the pump being 80 feet long, 30 feet wide and 15 feet high. The pump was operated by water pressure conveyed from a reservoir on Mount Davidson in a 12-inch iron pipe, having a vertical head of 2840 feet.

During 1882 and 1883, the Combination shaft was sunk to a depth of 2650 feet below the surface. A second hydraulic pump was installed on the 2600 level to handle the large flow of water encountered. Drifts were driven north and south on the 2600 level. A crosscut was driven near the Hale & Norcross boundary line on the 2600 level cutting 15 inches of fine ore. A crosscut was driven east on the 2400 level and a winze was sunk from the 2400 to the 2600 level but no ore was found.

Recorded production 1882: 1440 tons, $24,166; average per ton $16.78

During 1884, the Combination shaft was sunk to a depth of 3000 feet below the surface. A crosscut was driven west on the 2800 level to connect with the southeast drift from the Hale & Norcross deep winze on this level. A crosscut was driven on the 2600 level encountering a large flow of water and the level was bulkheaded to prevent the flooding of the mine.

Recorded production 1884: 1994 tons, $15,736; average per ton $7.89.

During 1885 the Combination shaft was sunk to a depth of 3116 feet below the surface. Drifts were driven north on the 2900 and 3000 levels and a crosscut driven on the 2900 level cut 10 feet of good ore. Drifts were driven north and south on the 3100 level, the north drift connecting with the Hale & Norcross mine and the south drift encountering a large body of quartz yielding low assays.

During 1886, the Combination shaft was sunk to a depth of 3322 feet below the surface. Drifts were driven north and south on the 3200 level, the north drift connecting with the Hale & Norcross mine. A crosscut driven west on the 3200 level encountered a large body of quartz yielding low assays.

The amount of water being pumped from the Combination shaft amounted to five million gallons per day or 3480 gallons a minute, and the expense of working through

the shaft, with no expense for labor, amounted to $23,000 per month. The theoretical horsepower to lift this water 1600 feet is 1400 HP. This at 75% efficiency and 1¢ a kilowatt hour would give a $14,000 power bill a month now. The Savage Company refused to pay their shafe of the expense of keeping the shaft open and it was abandoned in October of 1886.

The old Chollar shaft was repaired and work was carried on through the old Sharron shaft on the 350 level. A raise put up from the 350 level encountered some high grade ore.

During 1887, a crosscut was driven west from the Sharon shaft on the 50 level and a drift was driven north from the shaft on the 350 level. A winze was sunk below the 350 level and a drift was driven south from a point 50 feet down the winze. Drifts were driven north from the Sharon shaft, on the 400 and 450 levels encountering good ore and the shaft was sunk 100 feet to a depth of 550 feet below the surface. Crosscuts were driven west from the Chollar-Potosi shaft on the 550 and 650 levels and a crosscut was driven east from the Sharon shaft on the 550 level from which a drift was driven north. A drift was driven southwest on the 650 level and a raise was put up above the 500 level encountering stringers of ore. A drift was driven south by the Hale & Norcross Company from their mine, to connect with the Chollar incline on the 1300 level. Crosscuts were driven east from this drift but no ore was found.

Recorded production 1887: 1700 tons, $27,145; average per ton $15.97.

During 1888, the main incline was sunk 620 feet and a station was opened on the 1600 level. The north drift on the 450 level was driven to the north boundary line of the claim exposing a large body of low grade quartz 350 feet in length. The north drift on the 550 level was driven ahead and many crosscuts driven east and west from this drift, disclosed a large body of low grade quartz. Crosscuts were driven west on both the 750 and 850 levels to the west wall of the lode where drifts were driven north. A surface tunnel was driven 280 feet west but no ore was found. During the year, 8,160 tons of ore yielding $17.04 per ton were produced from the mine, the cost of milling being $7 per ton.

Recorded production 1888: 9000 tons, $134,434; average per ton $14.93.

During the year, electrical generators were installed underground to supply power for the mine. Water was conducted down the shaft in two columns of pipe one 10 inches and the other 12 inches in diameter. The water drove six pelton wheels which in turn drove six generators. The Pelton wheels were each 40 inches in diameter and each developed 107 horsepower. The spent water flowed out the Sutro Tunnel.

During 1889, a winze was sunk below the 250 level and a crosscut was driven west on the 650 level. The north drifts on the 550, 750 and 850 levels were driven ahead the latter connecting with the Hale & Norcross mine. During the year, approximately 50 tons of ore assaying $17 per ton were produced daily from the mine.

Recorded production 1889: 10,871 tons, $168,157; average per ton $15.47.

During 1890, drifts were driven north and south on the 50 foot level and crosscuts driven east and west from these drifts developed several bunches of milling grade ore. A raise was put up from the 100 level to the surface to facilitate the ventilation of the mine. Drifts and crosscuts were driven through the old stopes on the 250 level. A raise was put up from the 300 to the 250 level and a crosscut was driven from a point 56 feet up the raise cutting ore 15 feet in width assaying from $18 to $25 per ton. Drifts and crosscuts were driven on the 650 level and a raise was put up from the 650 to the 550 level. A crosscut was driven east from a point 80 feet south of the north boundary line of the claim on the 750 level cutting ore 15 feet in width assaying from $18 to $25 per ton. A raise was put up on the ore for 60 feet and a winze was sunk on the ore for 90 feet. Crosscuts were driven east and west on the 850 level and a drift was driven north on the 950 level. New stations were cut on the 1100 and 1400 levels. During the year, approximately 50 tons of ore assaying $22 per ton were produced daily from the mine.

Recorded production 1890: 22,981 tons, $309,344; average per ton $13.46.

During 1891 and 1892, some ore assaying $20 per ton was produced from the 450, 750 and 950 levels. A drift was driven south on the 1400 level and a winze was sunk below the level from an east crosscut near the north boundary line of the claim. A drift was driven south from the winze on the 1500 level and crosscuts were driven east from this drift in a fruitless search for ore. A joint crosscut was driven west, with

the Hale & Norcross Company, near the north boundary line of the claim on the 1630 level and a raise was put up from the 550 level but no ore was found.

Recorded production 1891: 20,082 tons, $292,215; average per ton $14.55.

Recorded production 1892: 804 tons, $9,616; average per ton $11.96.

During 1893 and 1894, a drift was driven north on the 100 level encountering good ore and during the two years approximately 25 tons of ore assaying $30 per ton were produced daily from this level. The 450 and 550 levels were reworked and a crosscut driven west from the north drift on the 450 level encountered ore 6 feet in width adsaying from $26 to $30 per ton. A winze was sunk on the ore and good ore was produced from the new orebody and the old stopes on this level.

Recorded production 1893: 759 tons, $12,053; average per ton $15.88.

Recorded production 1894: 1047 tons, $16,410; average per ton $15.67.

During 1895 and 1896, drifts were driven north and south from the winze below the 450 level encountering bunches of good ore. A winze was sunk below the 550 level in low grade material and drifts and crosscuts were driven from the old stopes above the level. A winze was sunk below the 650 level and a crosscut driven east from a point 65 feet down the winze, encountered bunches of ore. A raise was put up from the 650 to the 550 level. During 1895, approximately 25 tons of ore assaying $30 per ton were produced daily from between the 450 and 650 levels of the mine. By 1896, the production had fallen to approximately 75 tons per week most of the ore being produced from streaks of ore on the 450 level.

Recorded production 1895: 6082 tons, $100,373; average per ton $16.50.

Recorded production 1896: 4502 tons, $86,986; average per ton $19.32.

During 1895, the Brunswick Exploration Company was formed by the Consolidated Virginia and California, Best & Belcher, Gould & Curry, Savage, Hale & Norcross, Challar & Potosi mining companies to explore the Brunswick Lode located to the east of the Comstock Lode. This work is described in other reports.

In 1897, considerable tonnage of good ore was obtained from drifting, raising and stoping above the 200 level. A winze was started from the 200 level on ore. Similar operations were in progress on the 300 level and in addition, a raise was

being driven from that level to the 200 level. On the 800 level, the main south drift was extended; No. 3 east crosscut driven 110 feet and stopped in "hard rock"; No. 3 west crosscut was driven more than 142 feet into quartz and porphyry; and the raise from No. 1 crosscut from the south drift was being driven up on five feet of ore varying between $16 and $30 per ton. Chutes were being cut on the 500 level. No work was reported from the main lode workings.

Recorded production 1897: 5195 tons, $144,420; average per ton $27.80.

In 1898, the production of ore had ceased. The south drift on the 800 level was in porphyry.

Recorded production 1898: 157 tons, $2,724; average per ton $17.35.

In 1899 and 1900, the Zadig Drift on the Sutro Tunnel level was driven a total distance of 1013 feet. At that point the face was in low grade clay and porphyry. During 1901, a tunnel was driven from the surface to further prospect the Chollar and Potosi claims. Three drill holes were started and two completed during 1902. Drill Hole No. 1 was put out more than 590 feet. At that point the porphyry was reported to have assayed $1.50 per ton. Drill Hole No. 2 was put out more than 629 feet, cutting low grade porphyry and quartz. By the end of the year, Drill Hole No. 3 was out 253 feet in soft porphyry and clay.

By February 1904, Drill Hole No. 3 had been put out to a final distance of 760 feet, passing through porphyry with stringers of quartz.

In 1904, prospecting was resumed on the 200, 600 and 800 levels off the Brunswick Shaft No. 1. On the 200 level, a west crosscut was driven to a final distance of 365 feet, and the south drift from No. 2 west crosscut to a distance of 324 feet. West crosscut No. 1 from the south lateral on the 600 level was driven 143 feet stopping in porphyry and clay. An east crosscut was driven 38 feet into gypsum and quartz on the 800 level. Upon the completion of that work, the Chollar-Brunswick was closed.

Recorded production 1904: 4896 tons, $52,484; average per ton $10.72.

There was no report for 1905, 1906 and 1907. During 1908, 1909 and 1910, a joint south drift, west crosscut and raise were driven on and from the Sutro Tunnel. The south drift started from a point on the Chollar north line, 165 feet west of the tunnel.

The west crosscut was driven to the footwall. In 1909, leasors worked on the croppings and paid $1030.69 in royalties. In the latter part of 1910, work was resumed on the Brunswick Lode from the Sutro Tunnel level.

In 1911, 1912 and 1913, work was continued on the main lode from the Sutro Tunnel level, and on the Brunswick Lode from the Sutro Tunnel level and on the 200, 400 and 800 levels from Brunswick Shaft No. 1. A south drift from the west crosscut and an east crosscut were driven on the Main Lode. The Combination Shaft was repaired at the top and between the 1640 and 1767 levels. Work on the Brunswick Lode through Shaft No. 1 commenced on the 800 level. East and west crosscuts and south drifts were driven, but no ore was found. An east crosscut, driven from the north drift on the 400 level failed to expose ore. The 200 level north and south drifts were reopened and a few tons of $22.50 to $24 ore produced from the north drift.

No report for 1914 and 1915. Some drifting to the south was done on the Sutro Tunnel level in 1916. The machinery at the Combination shaft was assembled and repairs were made to the shaft in 1917.

In the latter part of 1919, a diamond drill was installed. Two holes were drilled by July 1920. Drill hole No. 1 was put down 630 feet below the Sutro tunnel, the last 25 feet being in quartz. Drill Hole No. 2 was put down more than 482 feet. At that point, it was reported to be in hard porphyry.

From August 1920 until August 1923, this claim was one of the group known as the Middle Mines under development by the Comstock Merger Mines Inc. The work performed during that period has been covered in the discussion on the Savage and the Hale & Norcross.

In 1923 and 1924, under the control of the United Comstock Mining Company, the 173, 237, 365, 465 and 277 levels were reopened. The south drift on the 732 level was extended 518 feet.

Total Production between the years 1866 to 1904 inclusive: Total Tons - 648,883.5 Gross Value - $13,882,765.97; Average value per ton - $21.39; Production reported by G. F. Becker, page 10, "Geology of the Comstock" is included.

STATE OF NEVADA

Bureau of Mines

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MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 13

THE HISTORY OF THE COMSTOCK MINES

THE CONSOLIDATED VIRGINIA

The present Consolidated Virginia claim, having 710 feet along the Comstock Lode, is made up of the White and Murphy claim having 210 feet and the Sides claim having 500 feet.

Work was started on the Sides claim in 1863 when a contract was let to sink a three compartment shaft 500 feet deep. By November the shaft had been sunk to a depth of 200 feet below the surface. The shaft was equipped with a 35 horse power steam engine for pumping and hoisting. No ore was found in the shaft.

The Latrobe Tunnel was started on the White and Murphy claim in 1863 but passed into the California ground before it cut the Comstock Lode at a depth of 500 feet.

In 1868, the claims between the Best & Belcher and the Ophir claims, (California, Central #1 and #2, White and Murphy, Sides and Kinney), combined to sink a shaft under the name of the Consolidated Virginia Mining Company. A contract was let to sink a three compartment shaft 500 feet deep at a point 1100 feet east of the outcrop of the Comstock Lode. The Latrobe Tunnel passed 80 feet to the south of the shaft and 183 feet below the collar, the mouth of the tunnel being 1500 feet east of the shaft. A winze connected with the Latrobe Tunnel and the waste from the shaft was disposed of through the tunnel until it reached that level. The shaft was 18 feet 10 inches by 7 feet 10 inches in the clear and it was sunk to the 500 level in 1870 at which time a contract was let to run a crosscut west to the vein. The west crosscut intersected the hanging wall of the vein 720 feet west of the shaft and drifts were run north and south on the vein but no ore was found.

The stockholders became discouraged and by January 11, 1872, the stock of the companies had been bought by Mackay, Fair, Flood and O'Brien for approximately $50,000. The new owners continued to prospect on the 500 level while driving a drift north on the 1167 level from the Gould & Curry mine and sinking the shaft below the 500 level. By July, the main north drift from the Gould & Curry had passed 100 feet into Consolidated Virginia ground and a crosscut was started west to intersect the vein. By December, new hoisting works had been built over the shaft and it was being sunk steadily.

While driving the main north drift on the 1167 level from the Gould & Curry mine, a stringer of ore was encountered in the Best & Belcher ground and the drift was turned slightly to follow the stringer. By March 1, 1873, the stringer had widened until the entire face of the drift was in high grade ore. Because of the large flow of hot water, and the extreme temperatures encountered, the drift was again diverted to meet the shaft being sunk from the 500 level and progressed directly toward the shaft at the rate of 3½ feet per day. However, the drift was abandoned July 1 until the shaft reached that level the latter part of the month. By the latter part of September, the shaft had been connected with the main north drift from the Gould & Curry and considerable high grade ore yielding from $175 to $200 per ton was being extracted through the Gould & Curry shaft. By the last of the year, the shaft had been sunk to the 1300 level.

On January 2, 1874, the California Mining Company was formed to work the northern 600 feet of the Consolidated Virginia Mining Company's ground. The purpose of the division was to speed the exploration work of the ground.

During 1874, the work of blocking out the orebody was carried on by running drifts, crosscuts and winzes on the 1200, 1300, 1400 and 1500 levels. High grade ore was encountered in all of the workings. Burleigh machine drills were first used in the mine during this year and an "air hoisting engine" was used to sink a winze from the 1400 to the 1500 level. While the work of blocking out the ore was being pushed a new 300 ton mill was being built. During the year the mine produced 91, 168 tons of ore yielding $50.25 per ton.

During 1875, ore was mined from the 1300 to the 1550 levels while drifts, crosscuts and winzes were being driven to develop the ore on the lower levels. A new shaft was started 950 feet to the east of the Consolidated Virginia shaft on the California claim. The shaft, called the C and C, was being sunk jointly with the California Mining Company and was equipped with a direct acting steam engine having two 26 inch by 72 inch cylinders connected to the same shaft with cranks at right angles and with hoisting reels on the engine shaft.

The hoisting works of the Consolidated Virginia shaft and the company's mill were destroyed by the fire that swept Virginia City in October 1875. Within 50 days after the fire, the hoisting works had been replaced and 600 tons of ore were being hoisted through the shaft each day.

Recorded Production 1875: 78141 tons, $8,474,307.00: average per ton $108.44.

During 1876 and 1877, ore was being mined from the 1200, 1300, 1400, 1500, 1550 and 1650 foot levels. The C and C shaft reached the 1850 foot level and development work was carried out on the 1750 and 1850 levels.

On May 1, 1877, it became necessary to close the Consolidated Virginia shaft for repairs which were not completed until October. The 300 feet of the shaft below the 1300 level was opposite the old stopes and required constant attention. When the shaft was repaired, and work could be resumed, it was found that the 1400 level had been completely closed by the crushing of the timbers.

Recorded production 1876: 146,383 tons, $16,657,165:average per ton, $113.79.

Recorded production 1877: 153,167 tons, $13,725,751: average per ton $89.61.

On March 6, 1878, a large rush of water from the east clay wall of the vein flooded the mine to between the 1400 and 1500 levels. Dams were built and the water was turned into the Gould & Curry mine filling it to the 1900 level.

During 1878, the 1200 level was worked through a drift run north in 1877 from the Gould & Curry mine, the ore being stoped 114 feet above the level yielding a large amount of moderate grade ore. Crosscuts were driven east at the south end of the old stopes on the 1300 level and some low grade ore was encountered. The 1400 and 1500 levels yielded a large amountoof good ore. Later in the year, the 1650 level produced a large amount of high grade ore during the year, and many drifts and drill holes were driven south, west and east from the old stopes but no new ore was found. Development work was prosecuted on the 1750 level showing that the ore left under the sill floor of the 1650 foot level extended down for a distance of but 40 feet and terminated laterally at a point 100 feet south from the north end line of the mine. Although the body retained its width, the quality dropped materially; however, some high grade streaks were mined on this level and a small body of good ore was found on the east wall. A vertical winze was sunk on the new body of ore for 40 feet where it cut the west wall and the winze followed the west wall to the 2150 level. A 200 foot vertical winze was sunk jointly with the Best & Belcher Company and a crosscut was driven at its bottom but no ore was encountered. A body of good ore was cut on the 1850 level being 20 feet wide and 30 feet long. Crosscuts were run on the 1950 and 2150 levels but no ore was found.

As no new ore bodies were being found on the lower levels and the known ore bodies were becoming exhausted, it was decided to prospect the undeveloped ground between the 500 and 1300 levels. Consequently, a joint California west crosscut was started on the 850 level of the Consolidated Virginia shaft. The crosscut intersected the west wall of the vein after being driven 680 feet and a south drift was started 153 feet east of the west wall of the vein. No ore was found on this level and it was abandoned the following year.

Recorded production: 1878: 124,346 tons, $7,993,621: average per ton $64.29.

During 1879, the 1400, 1500, 1550, 1650 and 1750 levels were mined out with the exception of some low grade ore. Some fair ore was produced from the 1850 and 1950 levels. Development work on the 1950 level showed that the ore found on the 1850 level did not extend down to the lower level.

During 1879, a large wrought iron pipe was laid on the 1750 level through the Consolidated Virginia ground south through the intervening mines to the Savage connection with the Sutro Tunnel and north through the California and Ophir mines to the Ophir incline for the purpose of conveying water from the C and C and Ophir shafts to the Sutro Tunnel.

Recorded production 1879: 60,228 tons, $2,501,886: average per ton $31.54.

During 1880, the C and C shaft was sunk to a depth of 2494 feet. A joint Best & Belcher crosscut was driven east on the 2000 level near the south end line of the claim and joint California crosscuts were driven east on the 2200 and 2300 levels near the north end line of the claim.

Recorded production 1880: 55,315 tons, $1,755,604: average per ton $31.74.

Production for period 1873 to 1880 reported by G. F. Becker, page 10, "Geology of the Comstock":

Tons	Gross Value	Value per ton
784,216	64,508,470	$82.26

During 1881, the 2500 foot level of the mine was prospected by driving a drift south through the claim from the Ophir mine. A drift was driven south on the 2300 level from the C and C shaft and a joint Best & Belcher winze was sunk from the 2000 to the 2300 foot level. A raise was put up from the 2500 level to connect with the bottom of the joint Best & Belcher winze. A joint California crosscut was driven west on the 2500 level near the north end line of the claim and a joint California winze was sunk from the 2500 to the 2700 level. In May of this year a fire broke out in the old stopes on the upper levels of the mine making it necessary to close them for the remainder of the year.

Recorded production 1881: 6816 tons, $144,064: average per ton $21.14.

During 1882 and 1883, the joint California winze was sunk to a depth of 2900 feet below the surface. Drifts were driven south on the 2700 and 2800 levels and joint California crosscuts were driven east from both levels encountering some fair ore in the crosscut on the lower level.

The company's annual report for 1882 records bullion receipts of only $1,901.00. No company report for 1883 is available, and no production was reported to the State for the net proceeds tax. This was a low year indeed, with a large number of the stockholders failing to pay the assessments levied to keep the mine workings open. This led to the leasing of the upper levels in the early part of 1884, and the consolidation of the company with the equally financially stranded California Mining Co., as the new Consolidated California and Virginia Mining Co. taking effect November 1, 1884. The Consolidated Virginia reported for the year 1884 up to November 1, a total production, outside of the leased ground, of $5,000 recovered from flue sweepings and slag.

After the Consolidation, the work carried on in the two mines was reported as one, and is here reported under this "Consolidated Virginia" history.

During 1884, a diamond drill hole drilled on the 2900 level encountered a large flow of hot water and the track and pipe on all the levels below the 1700 level were removed.

Recorded production 1884: 1814 tons, $32,150: average per ton $17.72.

J. P. Jones leased the upper levels of the Consolidated Virginia and California mines starting in May 1884, and drove a drift north from the Best & Belcher mine on the 1200 level. The Jones lease yielded 28,856 tons of ore yielding $17.14 per ton, or nearly a half million dollars, before the lease expired January 1, 1886. All of the ore was produced from the 1200 and 1300 levels of the two mines.

During 1885, the combined Consolidated Virginia and California mines reworked the old workings of the two mines. The main west crosscuts, from the C and C shaft, on the 1650 and 1750 levels were reopened and drifts were driven northwest to the old California stopes on both levels. A drift was driven south on the 1750 level

60

to the old Consolidated Virginia stopes and during the year 20,442 tons of ore yielding $16.78 per ton were produced from the old stopes on the 1750 level.

Recorded production 1885: 57,499 tons, $870,465: average per ton $15.14.

During 1886, prospecting work was prosecuted on the 1200, 1300, 1400 and 1500 levels encountering much low grade ore to the south of the Consolidated Virginia shaft. Drifts were driven south on the 1400 and 1650 levels, from the C and C shaft, the former connecting with the Consolidated Virginia shaft. The old drifts on the 1950 level were repaired so that the level might be prospected.

Recorded production 1886: 119,708 tons, $1,768,290: average per ton $14.77.

During 1887, a drift was driven south, from the Ophir mine, on the 1200 level and a drift was driven north, from the Consolidated Virginia shaft on the same level, connecting with a raise from the 1400 level. A crosscut was driven west, from the north drift, from which a second drift was driven north along the west wall of the lode. A crosscut was driven east, from the main north drift, from which a drift was driven south along the east wall of the lode encountering fair ore. A drift was driven south, from the C and C shaft, on the 1400 level encountering some good ore and a crosscut was driven west, from the drift, to connect with the Consolidated Virginia shaft. A raise was put up, from the south drift, to the 1300 level and a winze was sunk in ore to the 1500 level. At a depth of 56 feet below the 1400 level a drift was driven north, from the winze, in ore. A drift was driven south from the Consolidated Virginia shaft, on the 1400 level, to the Best & Belcher mine and a winze was sunk, from this drift, to the 1500 level cutting some very rich ore at a depth of 70 feet. A crosscut driven west, from this south drift, also cut fine ore. A drift was driven southwest on the 1435 level, ~~xxxxxx~~ cutting the extension of the ore found to the east of the old stopes on the 1400 level. A winze was sunk on the ore to the 1500 level where a drift was driven southwest in fine ore. Drifts were driven north and southeast on the 1435 level and a raise was put up to the 1400 level cutting 4 feet of fine ore. Crosscuts were

driven west on the 1435 level cutting the same ore as that found in the raise. Drifts were driven north and south, from the Consolidated Virginia shaft, on the 1500 level. Crosscuts were driven east and west, from the south drift on the 1500 level, and a raise was put up in ore to the 1400 level. The north drift passed through 10 feet of high grade ore and connected with a raise from the 1650 level, A winze was sunk 30 feet below the north drift, on the 1500 level, in high grade ore and was bulkheaded because of the old fire in the old stopes again breaking out. A drift was driven south on the 1600 level, from the 1465 level of the Ophir mine, connecting with a raise from the 1650 level. Fine ore was developed to the west of the old stopes and a raise was put up to the 1435 level in 16 feet of excellent ore. Drifts were driven north and south and a crosscut was driven west on the 1650 level, from the C and C shaft, the north drift developing a large body of ore. In stoping this ore air was admitted to the old stopes and the old fire again broke out making it necessary to bulkhead all connections with the level. The fire was extinguished by forcing carbonic acid gas through the workings. Ore was extracted from the old stopes on the 1750 and 1850 levels and a raise was put up from the 1750 to the 1650 level, to the east of the old stopes in the California claim, encountering fine ore having a width of 4 feet. During the year, a new body of ore, from 5 to 50 feet wide and 400 feet long extending from the 1300 to the 1500 level and assaying $25 per ton, had been developed to the east of the old stopes.

Recorded production 1887: 133,163 tons, $2,834,091: average per ton $21.28.

During 1888, a drift was driven north on the 1300 foot level and many crosscuts were driven east and west, from this drift, encountering streaks and bunches of good ore. Crosscuts were driven from the winze below the south drift, on the 1300 level, encountering high grade ore. A winze was sunk below the 1400 level, from the main crosscut driven west from the C and C shaft, encountering ore.

A crosscut was driven east on the 1500 level, from the main south drift, for a distance of 158 feet encountering good ore. Ore was mined from stopes on the 1600 and 1650 levels at the rate of approximately 2360 tons per week.

Recorded production 1888: $143,419 tons, #3,322,265: average per ton $23.16.

During 1889 some ore was produced from a streak cut in the south drift on the 1300 level. Ore was mined from the new ore body and the old stopes on the 1400 foot level. A winze was sunk 56 feet, below the south drift on the 1435 level, at which depth a drift was driven south and a crosscut was driven west encountering good ore on which stoping operations were carried out. Ore was extracted from the old stope fills and walls on the 1500, 1600 and 1650 levels. A drift was driven northwest, on the 1650 level, from which a three compartment raise was put up. A winze was sunk 80 feet below the 1650 level, at the south end of the old stopes, and a drift was driven north from its bottom from which a raise was put up, in ore, to the 1650 level on the west wall of the lode. A raise was put up and a winze was sunk on a streak of ore 3 feet wide and 40 feet long found to the north of the main stopes on the 1950 level.

Recorded production 1889; 138, 128 tons, $2,723,916: average per ton $19.72.

During 1890, crosscuts were driven east and west, from the south drift on the 1300 level, encountering some ore. The south drift on the 1300 level was driven to connect with the Best & Belcher mine and a raise was put up from this drift, in ore, to the 1200 level. A drift was driven southwest, from a point 70 feet up the raise, encountering ore five feet in width assaying $20 per ton. While ore was being mined from the old stope fills and walls on the 1300 level, a second raise was put up, from the south drift on this level, for 30 feet where a drift was driven north in ore 6 feet in width. A crosscut was driven to the west wall of the lode, from the south drift on the 1435 level, but no ore was found.

A raise was put up, from the northwest drift on the 1500 level, cutting fair ore two feet wide at a point 43 feet up the raise. A large amount of ore was extracted from the 1600 and 1650 levels. Within the old stopes on these levels there had been left an apparently barren piece of ground 25 feet wide and 160 feet long, but upon sampling it was found to average from $16 to $18 per ton and the block was subsequently mined out.

Recorded production 1890: 105,440 tons, $1,585,664: average per ton $15.04.

During 1891, was produced at the rate of approximately 1000 tons per week from the 1200, 1300, 1500, 1600 and 1650 levels. A drift was driven south on the 1100 level encountering some ore. Crosscuts were driven east and west from the drifts on the 1500 level. The 1750 and 1800 levels were reopened and some ore was produced from the former.

Recorded production 1891; 78,444 tons, $1,439,779: average per ton $18.35.

During 1892, drifts were driven north and south on the 1100 level. Many crosscuts were driven east and west, from these drifts, encountering a large body of quartz assaying from $2 to $4 per ton. A raise was put up 73 feet above the 1100 level from a point 102 feet west of the main south drift and 310 feet south of the shaft. A drift was driven south and crosscuts were driven east and west, from the top of the raise, in low grade quartz. A crosscut was driven west for 110 feet, from the north drift on the 1500 level, cutting a narrow streak of ore. A drift was driven north 75 feet and south 46 feet at which points the ore pinched out after which a raise was put up 80 feet on the streak. A raise was put up 58 feet, from a west crosscut in the south drift on the 1500 level, from the top of which a drift was driven south and crosscuts were driven east and west but no ore was found. The 1750 level was connected with the Sutro tunnel and many crosscuts were driven and raises put up, from the south drift on this level, encountering much ore

Many crosscuts were driven and winzes sunk on the 1800 level encountering low grade material. A crosscut was driven east from a winze below the 1800 level and a drift was driven south 68 feet, from a point 26 feet in the crosscut, in ore 8 feet wide and assaying from $16 to $20 per ton. Stoping operations were carried out on this small orebody. During the year, 55,421 tons of ore yielding $18.24 per ton were produced from the two mines most of the ore being produced from the old stopes on the 1600 and1650 levels.

Recorded production 1892; 51,345 tons, $802,075: average per ton $15.62.

During 1893, the 1500 levels of the mines were closed down because of the old fire in the stopes again starting. A small amount of ore was produced during the year from the old stopes on the 1600 and 1650 levels,

Recorded production 1893; 14,765 tons, $280,878: average per ton $19.02.

James G. Ruel secured a lease on the ground south of the Consolidated Virginia shaft and from the 1000 level to the surface. A drift was started southwest on the 1000 level, from the Consolidated Virginia shaft, to prospect the Ruel lease.

The West Consolidated Virginia Mining Company retimbered the Consolidated Virginia shaft to the 1100 level in preparation to exploring their claim, located to the west of the Consolidated Virginia and California claims, at this depth.

During 1894, the Ruel drift was driven 644 feet southwest, from the Consolidated Virginia shaft, where a raise was put up 40 feet connecting with a northwest drift driven from the Best & Belcher mine. Many crosscuts were driven east and west on the 1000 level and many raises were put up above the level, from which drifts and crosscuts were driven in all directions, encountering nothing but a few bunches of ore. The West Consolidated Virginia Mining Company and California Mining Company drove a joint crosscut west, on the 1100 level, encountering much water.

A raise was put up for 60 feet above the northwest drift on the 1650 level from the top of which a crosscut was driven east 90 feet cutting streaks of ore. A drift was driven north, from the foot of the raise, for 200 feet cutting ore 1½ feet in width, assaying $50 per ton and a raise was put up on the ore. A drift was driven north from a point 20 feet down the winze, sunk below the 1650 level in 1893, for 100 feet encountering bunches of ore. A second drift was driven 120 feet south, from a point 50 feet down the winze, encountering high grade ore 6 feet in width. Upon developing the ore, it was found to widen to from 12 to 24 feet and proved to be 120 feet long extending from the 1700 to 12 feet above the 1650 level. Drifts were driven north and south on the 1700 level, from the winze, and at a point 161 feet south of the winze, a crosscut was driven west 26 feet where a second drift was driven south for 66 feet, the last 40 feet being in ore assaying $62.50 per ton and averaging 12 feet in width. The north drift driven on the 1700 level encountered stringers of ore. During the year 7,100 tons of ore yielding $51.09 per ton was produced from the two mines.

Recorded Production 1894; 10,031 tons, $414,781 - average per ton $41.35.

During 1895, a drift was driven north, from the main east crosscut on the 1650 level, passing through quartz assaying from $6 to $10 per ton. An incline winze was sunk 56 feet below the 1700 level in ore averaging $70 per ton and connecting with the 1750 level. A drift was driven southeast on the 1750 level, from a point 15 feet north of the incline winze, from which a raise was put up in ore 4 feet wide assaying from $30 to $60 per ton. From the end of the southeast drift, a second drift was driven south 120 feet in ore assaying from $12 to $15 per ton. A crosscut was driven 40 feet west, from the southeast drift on the 1750 level, from the end of which a raise was put up 34 feet in ore assaying $5 per ton. During the year 10,225 tons of ore yielding $47.95 per ton were produced from the two mines.

Recorded production 1895; 9,540 tons, $238,606 - average per ton $25.01.

During the year, the Brunswick Exploration Company was formed by the Consolidated Virginia and California, Best & Belcher, Gould & Curry, Savage, Hale & Norcross, Chollar and Potosi mining companies to explore the Brunswick Lode located to the east of the Comstock Lode. The work of exploring the Brunswick Lode was started July 2, 1895 and was carried on by sinking an incline shaft on the Hale & Norcross claim near the north boundary line of the Chollar claim, by driving a tunnel north on the Savage claim, from a point 75 feet north of the Sutro Tunnel shaft number 3, and by sinking an incline shaft on the boundary line between the Consolidated Virginia and California, and Best & Belcher claims.

During 1896, a drift was driven north on the 1000 level from the Consolidated Virginia shaft, to connect with the Ophir mine. Many crosscuts were driven west from this drift but no ore was found. A raise was put up 23 feet, from a point 230 feet south of the north end line of the California claim, on the 1600 level from the top of which a crosscut was driven east into the old stopes and the old fill was mined. A raise was put up 50 feet above the 1600 level, in the northwest drift from the west crosscut from the C and C shaft, at which point a crosscut was driven 78 feet west through porphyry and quartz assaying from $2 to $6 per ton. During the year, 7,059 tons of ore yielding $29.93 per ton were produced from the two mines.

Recorded production 1896; 6,079 tons, $153,531, average per ton $25.26.

During 1897, work was performed on the 100, 1550 (26th floor above the 1750), 1650 levels, and the 10th and 11th floors above the 1750 level. A 15 to 18 inch streak of ore assaying from $72.00 to $381.00 per ton had been found in a south drift driven from the 26th floor above the 1750 level in an unexplored block of ground. No mining was done on the ore pending the completion of a raise from the 1750 level establishing a direct connection with the C and C shaft. Further exploration of the "new ground" was continued from a west crosscut from the 26th floor of the 1750 level, from which north and south drifts were also driven.

Another raise was started from the 10th floor above the 1750 level (probably 1650 level) to connect with the north drift of the 1550 level. The old stopes between the 18th and 26th floors were being filled. The incline shaft located on the boundary line between the Consolidated Virginia & California and Best & Belcher claims on the Brunswick Lode had been sunk to a vertical depth of 600 feet. The 600 station was established and an east crosscut driven from the shaft.

Recorded production 1897; 7841 tons, $38,388: average per ton $4.90.

Exploration on the 1550, 1650 and 1750 levels continued during 1898 resulting in the production of some ore. A bulkhead was placed in the most easterly winze to prevent the escape of gasses from the decaying timber.

Recorded production 1898: 749 tons, $12,097, average per ton $16.15.

In 1899, work was in progress on the 1400, 1500, 1650, 1750, 1800 and 1950 levels. Fire broke out in the 1650 level stopes and was extinguished by flooding the workings. In June, "rich ore" was found on the 1750 level. By November, the water had been lowered to a point 110 feet below the 1950 level. Some ore was produced from the various levels.

Recorded production 1899; 1880 tons, $214, average per ton $.11.

Operations were extended from the 1750, 1800 and 1950 levels to the 2050 and 2150 levels in 1900. The water had been lowered to a point 202 feet below the 1950 level by July. Later in the year, it rose four feet. High grade ore was reported in the stope off the winze from the 2050 level and again on the 2150 level.

Recorded production 1900: 8,689 tons, $235,369; average per ton $27.09.

In 1901, a northeast drift was driven on the 1950 level. A winze was sunk 38 feet below the level on high grade ore. A two compartment winze was sunk from the end of the 1950 level northeast drift to the 2150 level. The 2050 level was opened from the old winze between the 1950 and 2150 levels. A"northwest"drift" was driven 86 feet from the winze for the purpose of starting a three compartment raise that would connect with the winze from the 1950 level. A northeast drift

was driven 380 feet on the 2050 level, 135 feet of the drift being in high grade ore. The 2150 level was connected with the new winze; and a northeast drift driven from the old winze. One hundred feet out in the northeast drift, a west crosscut exposed 515 feet of ore assaying between $6.00 and $10.00 per ton. A three compartment raise from the 2150 level to the 2050 level was completed. Four and one half feet of $20 ore was exposed in crosscut driven opposite the new winze. A northeast drift was driven for further exploration of that ore.

Recorded production 1901: 23,891 tons, $498,224; average per ton $20.85.

No new (lower) levels were opened during 1902 and 1903, the production of ore coming from the same levels mentioned for 1901.

Recorded production 1902; 24,513 tons, $246,017; average per ton $10.03.

Recorded production 1903; 20,544 tons, $99,658; average per ton $4.85.

By July 1904, the water was below the 2350 level. Ore was obtained from the 1950, 2050, 2150 and 2250 levels. New development for the year consisted of crosscutting on the 2150 level, north and south drifting on the 2250 level, and drosscutting and drifting on the 2350 level. Good ore was found in the southwest drift on the 2250 level and a raise was started on it. The material found in the vein on the 2350 level was too low grade to be mined for ore.

Recorded production 1904; 9,260 tons, $29,689; average per ton $3.21.

During 1905, work was performed on the 2150, 2250, 2350 and 2450 levels. In February, the water was 125 feet below the 2150 level. Ore was produced from the 2150 and 2350 levels. An east crosscut was driven from a point 290 feet in the main north drift on the 2150 level exposing porphyry. The northeast drift on the 2250 level was driven 477 feet in porphyry. A raise was put up from the same drift and level to the 7th floor exposing quartz and porphyry. On the 2300 level, raising and drifting was in progress. The northeast drift from the station was driven 201 feet in low grade quartz and porphyry. The 2450 level was reopened and repaired.

Recorded production 1905; 1,946 tons, $8,513; average per ton $4.37.

In 1906, operations were limited to the 2150 and 2350 levels. The water was standing 107 feet below the 2350 level. An east crosscut from the main north drift on the 2150 level was driven through 482 feet of porphyry. The old south drift on the same level was reopened for a distance of 191 feet from the shaft. A "southwest drift on the north boundary", probably a crosscut, was driven through 303 feet of porphyry on the 2350 level.

During 1907, some drifting and crosscutting was done on the 2250 level in search of ore. Repairs were made to the 1650 and the 2450 levels. An east crosscut was driven from a point 329 feet north of the Ophir sideline for the purpose of conducting some further joint exploration.

Recorded production 1907; 54 tons, $2,149; average per ton $39.80.

In 1908, ore was reported to have been obtained from the 2150 level workings. The southwest drift started from a point 150 feet north of the shaft on the 2250 level was advanced a total distance of 949 feet in porphyry. East and west crosscuts were driven from the southwest drift in search of ore. The connection of the 2350 level and the 2200 level of the Ophir mine was completed. Some repairs were made to the 2450 level.

Recorded production 1908; 2,825 tons, $26,341; average per ton $9.32.

A fire broke out in the Sutro tunnel in 1909. With the cooperation of the management of the Ophir mine, the 1650 level was repaired. Some ore was obtained from the 1850 and 2150 levels while exploration work was being carried on 1650, 1950, 2250 and 2350 levels. Five hundred seventy-two feet of the old northeast drift on the 2450 level was cleaned up and repaired. The footwall of the vein on the 1950 level was explored with drifts and crosscuts. A raise was driven from the 2250 level to explore low-grade quartz streaks found in the porphyry. Some stoping was done above the 2350 level at a point 214 feet in the northeast drift.

During 1910, work was performed on the 1080, 1700, 1750, 1800, 1850, 2250, 2350 and 2450 levels. Ore was produced from the 1080, 1750, 1800 and 1850 levels,

the greater portion of the ore coming from the 1800 level. A considerable portion of the ore was sent to the Sutro Tunnel Mill. The grade of the ore varied between $5 and $12.68 per ton. The main south drift on the 1750 level had been extended for a total distance of 659 feet. A west crosscut was driven 259 feet from the south drift. A raise was driven from a point 387 feet in the "east" (probably the northeast) drift of the 1750 level. The east crosscut from the north east drift on the 1800 level was in porphyry. Further exploration by extension of the south drift and the raise from the south drift exposed low grade ore. The east crosscut driven from the main north drift passed through 130 feet of porphyry. The joint east crosscut driven from the 2200 level of the Ophir was out 600 feet in porphyry. A west crosscut was driven from the main north drift on the 2450 level.

During 1911, the low grade ore produced from the mining and development operations was treated at the Sutro Tunnel mill. Sinking, drifting, crosscutting, raising and crosscutting from a raise constituted the work performed above the 1650 level. Some crosscutting and drifting was done from the raise from the 1750 level mentioned above. That work was credited with leading to the development of $8.17 to $9.32 ore from the 1750 level. The bulk of the ore produced for the year came from the 1800 level and had a value varying between $6.13 and $10.48 per ton. In addition to other drifts and crosscuts on the 2450 level, a south drift was driven 194 feet from the north boundary through low grade quartz and porphyry. The crosscut along the south line was reported to have exposed the vein formation.

Names of the levels formerly used in the Consolidated Virginia claim were changed to confirm with those in use in the Ophir, thus: 1650 to 1500, 1750 to 1600, 1950 to 1800, 2150 to 2000, 2350 to 2200, 2450 to 2300, 2550 to 2400, and 2650 to 2500.

During 1912, new drifts, crosscuts and raises were driven from the 2300, 2400 and 2500 levels. Several hundred ton of $22.92 ore was reported to have come from the thr ee compartment raise driven from the 2400 level to the 2200 level. Some ore was also reported to have been obtained from the southwest drift on the 2400 level. The ore produced was treated at the Mexican Mill.

During 1913, exploration work was performed on the 1000 (formerly 1200) 2300 and 2500 levels. On the 1000 level, the northwest and southwest drifts were driven 636 and 461 feet respectively. Number 2 east crosscut was started from the northwest drift at a point 200 feet from the shaft. It was reported to have cut quartz stringers in porphyry and yielded some "second grade" ore. A southwest drift was driven on the vein from the north boundary line of the claim on the 2500 level.

In 1914, exploration and development work was performed on the 1000, 1465, 2400 and 2500 levels. Further extension of the east crosscut on the 1000 level exposed clay containing "bunches of quartz" assaying from $0.50 to $0.80 per ton. Repairs were made to the 1465 level. The south drift on the 2400 level was discontinued after passing through 22 feet of material assaying from $0.50 to $2.00 per ton. The northeast drift commencing at a point 138 feet from the shaft on the 2500 level, was driven 452 feet through quartz, porphyry and clay assaying between $0.70 and $1.40 per ton. Raises were driven from the northeast drift exposing good ore above the 2500 level. By the end of the year, a few hundred ton of ore assaying from $9.91 to $12.22 per ton had been obtained from those workings.

Repairs were made to the 1465, 1800 and 2000 levels in addition to the mining and development work performed on the 2500 and 2700 level during 1915. Some $8.66 to $9.53 ore was stoped above the south drift of the 2500 level. The northeast drift on the same level was advanced an additional 105 feet. At that point, some $7.38 ore was stoped. After repairs had been made to the station on the 2700 level, the west crosscut was extended 114 feet.

During 1916, development work was performed on the 2100, 2200 and 2700 levels and some ore obtained from the 1800 level. The joint west crosscut driven on the 2700 level developed a large flow of water, making it necessary to suspend further work at the face of the crosscut. A south drift was driven from the joint west crosscut a distance of 258 feet and discontinued.

During 1917, ore was obtained from the workings on the 1700 and 2700 levels and repairs made to the east winze on the 2500 level. Within the first part of the year, several hundred tons of ore were reported to have been produced that had a value between $10 to $18.37 per ton. In the latter part of the year, work was suspended on the southwest drift from the joint Consolidated Virginia and Ophir winze (2700 level) due to the difficulty in transporting the water through the old 2700 level drift to the pumps. Work was continued on the level from the east winze.

In 1918, work was performed on the 1800, 1900, 2000, 2100, 2200, 2300 and 2700 levels. Ore was produced from all levels with the exception of the 1800 and the 2700. On the 1800 level, the track was replaced and needed repairs made. The old connection with the Ophir incline shaft was reopened on the 2000 level. Several hundred tons of ore having an assay value between $10.45 and $56.72 per ton were obtained from the workings on that level. North and south drifts and west crosscuts were driven on the 2100 level in search of ore. A few hundred tons of ore having a value between $7.75 and $26.88 per ton were obtained from the workings on the north drift of the 2200 level. A small tonnage of ore was reported to be "strong", some north and south drifting was done from the west crosscut off the 2500 level winze. Fair assays were reported to have been obtained from the porphyry, clay and quartz exposed in the north drift.

During 1919, the pumps were removed from the 2700 level and the C & C shaft "stripped" to the 2200 level. Several hundred tons of ore were produced from the 1465 (old Con. Vir. designation), 1800, 1900, 2000 and 2100 levels. Repairs were made on the 1500 and 1600 levels. The stope fills were sampled on the 1600

level and an attempt was made to enter the burned stope area on the same horizon. Drifting, crosscutting and raising was also performed on the same levels from which the production was made.

The annual report issued in January 1921, indicates that the total tonnage of ore produced during 1920 was as follows: 17,706 tons, gross value $353,960.50; recovery $312,459.38; also the completion of 3275 feet of development work. From other sources, development work was performed on the 1400, 1500, 1600, 1800, 1900 and 2000 levels.

During 1921, the gross value of the ore produced was reported at $399,000, and the average value at $9.80 per ton. The bulk of the ore produced came from the 1500, 1900, 2000 and 2100 levels. It was reported that 5000 feet of development work, in the form of crosscutting, drifting and raising, were completed on the above levels.

During 1922, considerable ore was produced from the 1400, 1500, 1600, 1800, 1900 and 2100 levels. Good ore was found in the north drift on the 1400 level, 280 feet east from the Consolidated Virginia shaft. After exploration by raising and crosscutting, four stopes were opened on the ore. North and south drifts were driven on the 1500 level. The south drift was driven into unexplored territory south of the "bonanza stope" exposing a good grade of ore. A few tons of high grade ore obtained on the 1500 level were shipped to the smelter. A raise was driven from the 1600 level to the 1500 level. A "good grade" to "excellent grade" of ore was obtained from the stopes on the 1800, 1900 and 2100 levels. The old Best & Belcher drift on the 2000 level was reopened.

Recorded production 1922; 30,262 tons, $195,983; average per ton $6.53.

During 1923, mining, exploration and development work was limited to the 1400, 1500 and 1600 levels. Considerable raising, crosscutting and drifting was done on each of the above levels and resulted in the development and production of ore.

Recorded production 1923; 19,048 tons, $104,588; average per ton $5.49.

A few thousand tons were produced during 1924.

Recorded production 1924; { 4991 tons, $36,800; + 4981 tons, $36,876; } average per ton $7.40

In 1925, ore was being obtained from the 1500 level. Some of the better ore was shipped to the smelter.

Recorded production 1925: 3652 tons, $36,514; average per ton $9.90.

During 1926, it was reported that as many as 60 men were employed at one time. Crosscuts were driven to the footwall on the 1400 and 1600 levels. A "new strike" was reported on the 1400 level and another raise was driven from the 1500 level to the 1400 level.

Total Production

Period	Tons	Gross Value	Value per ton.
1873 - 1934	1,818,942	$82,663,559	$45,445,956

Incorrect $45.45/ton

Includes production reported by G. F. Becker, page 10, "Geology of the Comstock".

STATE OF NEVADA

JAY A. CARPENTER, DIRECTOR
B. F. COUCH, SECRETARY

Bureau of Mines

BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 14

THE HISTORY OF THE COMSTOCK MINES

CROWN POINT

The Crown Point claim was staked in 1859 having 540 feet along the Comstock Lode. It lies between the Belcher and the Kentuck.

The Crown Point Company started a four compartment shaft in 1861, and encountere a large flow of water at a depth of 80 feet below the surface making it impossible to sink deeper until better pumps were installed. In 1865, the shaft was equipped with a 35 horsepower steam engine having a 12-inch cylinder with a 24-inch stroke to do the pumping and the hoisting. During the year, the shaft was sunk to a depth of 300 feet below the surface and crosscuts were driven west to the footwall of the lode on the 160, 230, and 300 foot levels. Drifts were driven north and south on all three levels, the north drifts encountering a body of ore 30 feet wide.

During 1866, two winzes were sunk in rich ore from the 300 level, one in the north and the other in the south drift. While ore was being mined from the upper levels, a tunnel was driven to cut the lode at a depth of 375 feet below the surface and the shaft was sunk to connect with the tunnel.

During 1867, the shaft was equipped with two new 50 horsepower steam engines one for each hoisting reel and a 120 horsepower steam engine for pumping. The shaft was sunk to a depth of 700 feet below the surface and drifts were driven north and south on the 400, 500, 600 and 700 levels. The drifts on the 400 level encountered 10 feet of very fine ore while the work on the 500 level failed to disclose any ore. Rich ore yielding $70 per ton was found on both the 600 and 700 levels near the north end line of the claim.

During the next two years, the shaft was sunk to a depth of 1100 feet below the surface and drifts were driven north and south along the footwall of the lode on the 800, 900, 1000 and 1100 levels. The drifts on the 800 and 900 levels encountered very little ore and the drifts on the 1000 and 1100 levels found nothing but barren material. Mining operations were continued on the upper levels and during the fiscal year ending May 30, 1869, the mine yielded 26,734 tons of ore. On April 7, 1869, a fire broke out on the 800 level of the Yellow Jacket mine causing the Crown Point mine to be closed down for several months during the year.

From 1870 to 1872, the shaft was sunk to a depth of 1200 feet below the surface changing from vertical to an incline, following the footwall of the lode at a depth of 1000 feet. Mining of the low grade ore left behind in the upper levels was made possible by the completion of the Virginia and Truckee railroad, thus affording cheap transportation to the mills on the Carson River. A winze was sunk from the 1000 to the 1100 level to secure better ventilation for the mine. Drifts were driven north and south on the hanging wall of the lode on the 1100 level. The north drift was driven in barren material; however, the south drift encountered 12 feet of ore yielding from $6 to $12 per ton after being driven a distance of 225 feet. Drifts were immediately driven south on the hanging wall of the lode on the 1000 and 1200 levels, the drift on the 1000 level encountering ore after being driven 300 feet and the drift on the 1200 level encountering rich ore after being driven 125 feet, the ore body being 118 feet wide on the latter level.

During the fiscal year ending May 30, 1872, the mine yielded 80,567 tons of ore yielding $43.48 per ton, the cost of mining being $7.09 per ton, the cost of milling being $11.43 per ton, and all other costs being $1.53 per ton making a total cost of production of $20.05 per ton. The shaft was sunk to a depth of 1300 feet below the surface and a winze was sunk from the 1200 to the 1200 level in fine ore.

During 1873, the shaft was sunk to a depth of 1582 feet below the surface and drifts were driven north and south on the 1400 and 1500 levels, the south drift on the 1400 level being in ore. A winze was sunk from the 1200 to the 1300 level

and to the 1400 level from a point 8 feet north of the Belcher line, and was in fine ore all the way. During the fiscal year ending May 30, 1873, the mine yielded 136,893 tons of ore yielding $46.32 per ton, the cost of mining being $8.63 per ton and the cost of milling being $11.74 per ton.

During 1874, the shaft was sunk to a depth of 1600 feet below the surface. The south drift on the 1400 level was connected with the Belcher mine and the south drift driven on the 1500 level encountered ore. The winze near the Belcher line was sunk to the 1500 level.

Recorded production 1875: 62,274 tons, $1,162,445; average per ton $18.67.

During 1876, the shaft was sunk to a depth of 2000 feet below the surface. The south drift on the 1600 level was driven to connect with the Belcher mine and encountered ore assaying from $10 to $20 per ton. A drift was driven south on the 1700 level encountering low grade ore assaying from $8 to $10 per ton. By November, of this year, the upper levels of the mine had been abandoned as the ore remaining was too low grade to make a profit.

Recorded production 1876: 56,921 tons, $905,452; average per ton $15.91.

During 1877 and 1878, the 160 and 230 levels were again put into production while exploration work was being carried out on the lower levels of the mine. Drifts were driven north and south on the 2000 foot level encountering low grade material assaying from $2 to $10 per ton. A two compartment winze was started on the 2000 level and by 1880, it had been sunk to a depth of 3000 feet below the surface. Drifts were driven north and south from the winzes, on the 2300, 2500, 2700 and 3000 levels. The south drift on the 3000 level connected with the Belcher mine and a long crosscut was driven east on the 2700 level in a fruitless search for ore.

Recorded production 1877: 4,185 tons, $76,120; average per ton $18.19.

Recorded production 1878: 3,644 tons, $57,381; average per ton $15.75.

Production reported by G. F. Becker, page 10, "Geology of the Comstock", for the following period:

	Tons	Gross Value	Value Per Ton
1864 - 1878 inclusive	- 815,605.5	$30,049,673.50	$36.84

During 1881, while from 35 to 45 tons of low grade ore was being produced each day from the stopes between the 1300 and 1200 levels, a drift was driven south on the 2560 level to connect with the Overman mine thus facilitating the ventilation of the lower levels of the mine.

Recorded production 1880: 415 tons, $5,149; average per ton $12.40

Recorded production 1881: 27,672 tons, $401,271; average per ton $14.50.

In 1882, work below the Sutro Tunnel level was suspended and until 1886 the old stopes on the upper levels of the mine yielded a large amount of low grade ore.

During 1886, the Belcher and Crown Point mines combined to mine the low grade ore in the upper levels of both mines. During the year, the mines yielded jointly from 350 to 400 tons of low grade ore per day. The ore was produced from the old stopes on the upper levels and from new stopes on the 1500, 1600 and 1700 levels of the mines.

Recorded production 1882; 40,196 tons, $542,967; average per ton $13.51.

Recorded production 1883: 40,474 tons, $483,622; average per ton $11.95.

Recorded production 1884; 39,219 tons, $392,337; average per ton $10.00.

Recorded production 1885; 57,117 tons, $691,209; average per ton $12.10.

Recorded production 1886; 37,979 tons, $417,871; average per ton $11.00.

During 1887, a winze was sunk 60 feet below the 300 foot level encountering ore 15 feet in width and assaying as high as $100 per ton. A drift was driven southwest and crosscuts were driven east and west on the 400 level, the southwest drift encountering streaks of good ore and the crosscuts encountering ore 60 feet in width. A winze was sunk below the 400 level and a drift was driven north from the winze. Stations were cut on the 500 and 600 levels and a drift was driven southwest on the 500 level. A joint drift was driven with the Belcher Company on the 1400 level to connect with the Sutro Tunnel. During the year, approximately 140 tons of ore were produced daily from the mine.

Recorded production 1887: 16,545 tons, $178,552; average per ton $10,79.

During 1888, a raise was put up above the 500 level in fair ore. A drift was driven south on the 600 level and a crosscut was driven from the drift encountering

ore six feet in width. A raise was put up above the 600 level encountering streaks of good ore. A drift was driven southeast on the 700 level and a crosscut was driven east from this drift. A drift was driven south on the 800 level and a crosscut was driven east from the drift encountering ore.

During 1889, a raise was put up above the 350 level in good ore and a drift was driven south on the 300 level encountering some ore. Prospecting work was prosecuted on the 400 level disclosing ore 4½ feet in width and a crosscut was driven west from a stope above the 400 level encountering fair ore. The southwest drift on the 500 level was repaired and a raise was put up above the drift. Crosscuts were driven east and west on the 600, 700 and 800 levels and a winze was sunk below the 800 level encountering bunches of ore. During the year, approximately 125 tons of ore assaying $25 per ton were produced daily from the 160, 350, 400, 450 and 700 foot levels of the mine.

Recorded production 1889: 19,815 tons, $271,108; average per ton $13.68.

During 1890, a raise was put up above the 400 foot level in low grade material. A drift was driven southwest on the 1100 level and a drift was driven north on the 1000 level, the latter connecting with the Kentuck mine. During the year, approximately 100 tons of ore assaying from $13 to $15 per ton were produced daily from the 160, 300, 400 and 700 levels of the mine. By the end of the year, all known commercial ore in the mine had been exhausted and production ceased.

Recorded production 1890; 29,056 tons, $343,959; average per ton $11.84.

During 1891, a drift was driven northwest on the 500 level and a crosscut was driven west from this drift. A drift was driven south from the main west crosscut, from the shaft, on the 500 level. Crosscuts were driven east and west on the 600 and 1000 levels in a fruitless search for ore. The 1300 level of the mine was reopened, and some ore assaying $20 per ton was produced from this level.

Recorded production 1891; 1,321 tons, $17,243; average per ton $13.05.

During 1892 and 1893, prospecting work was resumed on the 160 and 400 levels and a small drift was driven from the shaft on a streak of ore two feet in width found below the 230 level. A raise was put up above the 300 level from a point 30 feet south of the shaft and drifts were driven north and south in low grade material from a point 30 feet up the raise. A raise was put up above the 500 level and a drift was driven south from a west crosscut on the 600 level. A drift was driven south on the 700 level and a raise was put up from the drift to donnect with the 600 level encountering quartz assaying from $5 to $8 per ton.

During 1894, the raise above the 500 level disclosed quartz four feet wide and assaying from $17 to $20 per ton. A crosscut was driven west from the face of the south drift on the 500 level and a drift was driven southwest from an east crosscut on the 600 level in a fruitless search for ore. A drift was driven north on the 650 level and some ore assaying $9 per ton was produced from between the 600 and 700 levels of the mine.

Recorded production 1894: 9,978 tons, $78,631; average per ton $7.88.

During 1895 and 1896, a drift was driven southwest on the 600 level encountering quartz assaying from $6 to $8 per ton. A drift was driven north on the 700 level and a crosscut was driven east from the drift encountering quartz assaying from $5 to $6 per ton. A raise was put up from the south drift on the 800 level encountering quartz assaying from $6 to $8 per ton and a drift was driven southeast on the same level. A raise was put up above the 1100 level and a drift driven south from the raise encountered material assaying from $2 to $5 per ton. During 1895, approximately 100 tons of ore assaying $10 per ton were produced daily from stopes above the 600 level.

Recorded production 1895; 25,841 tons, $195,205; average per ton $7.55.

Recorded production 1896: 1,827 tons, $10,883; average per ton $5.96.

During 1897 and 1898, work was being carried on from the 700, 800 and 850 levels, through raises and a crosscut from the 700 level raise. Some ore was produced.

No record for 1899. Some joint drifting was in progress on the 1100 level during 1900. No record for 1901, 1902 and 1903. During the first four months of 1904, the east crosscut on the 1100 level was being advanced. No record for 1905.

81

In 1906 and 1907, joint work was in progress on the 1400 level off the Belcher incline, in the latter ground.

In 1908, production was made from the surface tunnel and the 1400 level north drift. Several hundred tons of low grade ore were produced from the surface tunnel. The 1400 level north drift was extended 180 feet into Crown Point ground. Ore from that point on the sill floor had a value of $9.50 per ton. A raise was started on the ore.

During 1909, production of ore was credited to the surface tunnel, 160, 300 1100 and 1200 levels. Work was performed on the west drift from the Yellow Jacket shaft and the east crosscut of the 160 level. The 300, 1100 and 1200 level south drifts were advanced.

Recorded production 1909; 11,529 tons, $30,143; average per ton; $2.61.

By the end of 1910, the production from this property had been derived from the surface tunnel, 160, 300, 1100, 1200 and 1400 levels; in addition, a part of the pumping costs at the Ward shaft were charged against the production. Beside a production of several hundred tons of low grade ore from the 160 level, the east crosscut was continued and a raise driven above the level. A south drift from a west crosscut was driven on the 300 level and a large tonnage of low grade ore produced. The south drift on the 1100 level was advanced and the east crosscut driven 150 feet. Stopes No. 1 and No. 2 on the 1200 level produced a large tonnage of low grade ore. The 1400 level from the Yellow Jacket shaft was opened and a few hundred tons of low grade ore produced.

Recorded production 1910; 10,392 tons, $25,351; average per ton $2.44.

Work was confined to the surface operation, and on the 1200 and 1400 levels, during 1911. The annual report issued in January 1912 supplies the following data: 14,082 cars of ore from the 1400 level, 1,947 cars of ore from the 1200 level, for a total of 16,029 cars. Average assay value per ton was $5.89; extraction 84%; and a total recovery of $67,737.83. Within the same period, two assessments amounting to ten cents each were levied on the stock. Several hundred tons of material were moved from the surface workings. The grade of ore from the 1200 level varied between $3.27

and $3.68 per ton. The 1400 level south drift was extended.

Recorded production 1911; 13,607 tons, $68,435; average per ton $5.03.

During 1912, the bulk of the ore was produced from the 1400 level and had an average value between $3.75 and $11.69 per ton. East crosscut No. 1 was advanced to 354 feet and a new East crosscut No. 3, 81 feet. Winze No. 1 was sunk 64 feet below the level.

Recorded production 1912: 22,600 tons, $106,635; average per ton $4.72.

During 1913, work was in progress on the 1300, 1400 and 1450 levels. On the 1300 level the north and south drifts were reopened and a northwest drift driven 47 feet. On the 1400 level, the winze was sunk 138 feet;

Recorded production 1913: 18,257 tons, $56,255; average per ton $3.08.

In 1914, the production was divided between the surface workings, the 1300 and 1400 levels. Several hundred tons of low grade ore was obtained from the surface workings. The major part of the year's production can be credited to the 1300 level. The ore varied in value between low grade and $9.25 per ton. A few tons of ore were produced on the 1400 level after which the stopes were filled.

Recorded production 1914: 22,632 tons, $45,372; average per ton $2.00.

The Yellow Jacket, Crown Point and Belcher mines were consolidated in 1915 under the name of the Jacket-Crown Point-Belcher Mines Company. From 1915 to 1919 inclusive, the work performed in the three mines was closely related, and is described under the Yellow Jacket mine, and will not be repeated here.

Recorded production 1924: 19 tons, $1,894; average per ton $99.68.

Recorded production 1925: 57 tons, $2,434; average per ton $42.70.

In 1926, the United Comstock Mining Company was working the claim.

Sutro Tunnel Coalition Co. production under James Leonard:

Recorded production 1933: - tons, $96.00; average per ton -

Recorded production 1934: 2272 tons $16,261; average per ton $7.16.

Recorded production 1936: 40,085 tons, $228,711; average per ton $5.71.

Recorded production 1937: 18,427 tons, $230,419; average per ton $12.50.

Recorded production 1938: 37,409 tons, $249,752; average per ton $6.68.

Recorded production 1939: 43,694 tons, $219,716; average per ton $5.03.

Production under merger as Jacket, Crown Point Belcher - not in total for mine:

Recorded production 1915: 35,956 tons, $41,872; average per ton $1.16.

Recorded production 1917: 5,692 tons, $1,511; average per ton $0.26.

Recorded production 1918: 7,631 tons, $9,272; average per ton $1.22.

Recorded production 1919: 556 tons, $3,825; average per ton $10.74.

Recorded production 1920: 452 tons, $3,448; average per ton $7.74.

Total production between the years 1864 to 1939 inclusive:

Total Tons - 1,404,040.50

Gross Value - $35,361,058.50

Average Per Ton Value - $25.19.

Included is Beckers estimate, page 10, "Geology of the Comstock".

STATE OF NEVADA

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MACKAY SCHOOL OF MINES
RENO, NEVADA

BOX C, UNIVERSITY STATION

No. 15

THE HISTORY OF THE COMSTOCK MINES

DALEY COMPANY

The Daley Company claim was located in 1859, on Cedar Hill on the North end of the Comstock Lode.

Much prospecting was done on the surface of the claim but no ore was found. In 1863, a shallow tunnel was driven on the north end of the claim encountering bunches of rich ore from which was produced 93 tons of ore assaying $103 per ton. Further work on this section of the claim failed to disclose a commercial body of ore and work on the claim was discontinued in 1865 when a general depression gripped the camp.

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THE HISTORY OF THE COMSTOCK MINES

DANEY

The Daney claim was located in 1859 on the south end of the Silver City branch of the Comstock Lode, near the old Dayton-Carson City road. The early production from the claim was made from orebodies found near the surface.

In 1869, a tunnel was driven under the old surface workings, cutting the vein at a depth of 160 feet and exposing a 15 foot width of ore. While the ore was being extracted above the tunnel level, a shaft was being sunk to explore the vein at depth. By 1872, the shaft was sunk to depth of 650 feet, cutting the vein. Exploration on that level as well as the 300, 400 and 500 levels failed to expose commercial ore.

In 1873, a new three compartment shaft was started at a point 700 feet east from the old surface works and approximately 300 foot lower elevation than the old shaft. By 1875, the new shaft was sunk to the 400 level from which a north drift was driven into "fair mill ore". A large flow of water encountered in the north drift flooded the mine.

When work was resumed in 1876, the mine was unwatered and the shaft sunk to a depth of 500 feet. By 1880, the shaft was sunk to a depth of 900 feet. A barren vein, 30 feet wide, was exposed in the west crosscuts driven from the 500 and 900 levels.

Many thousands of dollars were spent in an unsuccessful attempt to locate the north and south extensions of the vein beyond the faults. In 1888, Mr. Trudgen secured a lease on the claim. With the aid of a divining rod, he began a search for the faulted segments of the vein. As a result of that investigation, a new shaft was located 100 feet north from the old Daney shaft, and sunk to a depth of 95 feet. A west crosscut was driven from that level encountering a 22 foot width of ore assaying between $12 and $20 per ton. The ore was extracted and mining suspended in 1890.

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No. 17

THE HISTORY OF THE COMSTOCK MINES

DAYTON

The Dayton claim was located on the Silver City branch of the Comstock Lode in 1859, close to the present south end of Silver City. Until 1872, very little work was done on the claim. In that year, work was begun on the two compartment shaft.

Within 1873, the shaft had been sunk to a depth of 400 feet. North and south drifts were driven on the good ore exposed by the west crosscut from the shaft on the 300 level. The north drift was driven diagonally across the vein to the west wall (footwall). Extension of the drift 60 feet beyond that point lead to the discovery of from 10 to 12 feet of "exceedingly rich ore". A west crosscut on the 400 level cut the vein 145 feet from the shaft. North and south drifts driven on the vein from the crossdut were in "good mill ore". A winze was sunk from the north drift of the 300 level to the 400 level, passing through ore assaying from $300 to $500 per ton.

A steady production of good ore was maintained from the upper levels of the mine during the time the shaft wad being extended to a depth of 1025 feet. Below the 850 level, the shaft was sunk as an incline.

In 1875 and 1876, the drffts and crosscuts driven on the 500 level encountered some low grade ore. The north drift on the 700 level exposed some streaks of good ore.

Operations above the 500 level continued until 1880, while those below that level had been suspended at an earlier date.

Recorded production 1935: 61,836 tons, $586,507; average per ton $9.48.

Recorded production 1936: 43,180 tons, $381,965; average per ton $8.85.

Recorded production 1937: 2,918 tons, $16,676; average per ton $5.71.

Recorded production 1937: 20,663 tons, $168,696; average per ton $8.15.

Recorded production 1938: 24,313 tons, $263,765; average per ton $10.84.

Recorded production 1939: 2,810 tons, $69,243; average per ton $24.64.

87

Recorded production 1940: 1590 tons, $14,014; average per ton $8.81.

Recorded production 1935 to 1940 inclusive: Tons - 157,310; Gross Value $1,500,664; Ave. Value per ton - $9.54.

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No. 18

THE HISTORY OF THE COMSTOCK MINES

EXCHEQUER

The Exchequer claim located in 1859, includes 400 feet along the Comstock Lode, between the Alpha and Bullion.

In 1860, the Minerva Mining Company explored the surface of the claim by trenching across the lode at several places. Discouraged by the failure to find ore on the surface, the stockholders sold their interest in the claim to the Exchequer Mining Company. From that time and until 1870 very little work was done on the claim. In the latter year, some low grade ore was obtained from the croppings.

No underground exploration work had been done on the claim prior to 1876. In that year, north drifts were driven from the Imperial shaft on the 1864 and 2000 levels. Those drifts and the subsequent crosscuts driven from the drifts failed to expose ore.

In 1879 and 1880, north drifts were driven from the Imperial north winze through the Exchequer claim on the 2400, 2600 and 2800 levels. The vein was crosscut with diamond drill holes on the 2600 level (holes to the east). It is reported that one hole entered a large body of quartz and all holes encountered considerable water. It was necessary to plug the holes to prevent flooding the mine.

An attempt was made in 1882 to explore the vein on the 2800 by crosscutting it with a diamond drill hole. The hole encountered both a large body of quartz and a large flow of water under pressure. The pressure of the water issuing from the hole was so great that it was impossible to save the drill core samples or to plug the hole. Under those circumstances, the lower levels of the mine were flooded. Some of the quartz fragments washed out of the drill hole had an assay value of $2.50 per ton.

During 1884, north drifts were driven from the Imperial shaft through the Exchequer claim on the 400 and 900 levels. East crosscuts driven on those levels encountered a large body of quartz which was assumed to be upward extension of that

drilled on the 2600 and 2800 levels. Samples taken from the quartz exposed in the upper levels assayed from a trace to $10 per ton.

Between 1887 and 1888, a joint shaft was sunk to a depth of 500 feet, and north drifts were driven into the Exchequer claim on the 122, 222 and 300 levels. A joint north drift was driven from the Imperial shaft into the claim on the 382 level. Many crosscuts were driven east and west on the above noted levels in the large body of low grade quartz.

From 1888 to 1894, a north drift was driven from the Imperial shaft into the Exchequer claim on the 600 level. Another drift (north) was driven from the joint 500 foot shaft, mentioned above, into the claim on the 500 level. Many east and west crosscuts were driven on those levels to expose the further extension of the large mass of low grade vein filling. A southwest drift was driven from the Ward shaft on the 1800 level as a joint exploration with the Bullion Company. That exploration also failed to expose any ore.

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BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
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THE HISTORY OF THE COMSTOCK MINES

GLOBE

The Globe claim, located in 1859, included 1600 feet along the ledge. The claim is approximately 1000 feet south from the Rock Island claim, and near the south west margin of American Flat.

The first work on the claim was performed by the Globe Company in 1860, and consisted of sinking an incline/near shaft the middle of the claim. This resulted in the discovery of some low grade ore. During 1861 and 1862, the ledge was explored by two tunnels, one on the north and the other on the south end of the claim. The latter tunnel encountered some ore that was mined, and was reported to have yielded $22 per ton (mostly gold).

The new shaft, 4 feet by 11 feet in the clear, proposed to cut the ledge at a depth of 300 feet, was started in 1864. The first hoisting works consisted of a horse-whim, By 1865, north and south drifts were driven from the shaft on the 300 level, encountering bunches of good ore. During 1866, the mine was flooded to within 25 feet of the 300 level by the large flow of water encountered upon drifting the west crosscut 1012 feet from the shaft on the 500 level. Work on the claim was suspended, due to the mine being flooded and to the depression.

When work was resumed in 1871, the adjoining claims (Utah, Arizona and Jure, located in 1859) had been acquired and the Globe Consolidated Company organized. Under the new organization, a tunnel starting in American Flat was driven 2000 feet to cut the ledge at a depth of 900 feet below the surface. North and south drifts driven on the tunnel level failed to expose commercial ore.

Upon resuming work in 1875, drifts were driven north, south and southwest on the 350 level from the old shaft. The southwest drift encountered 16 feet of ore

assaying from $7 to $15 per ton. The ore found in the south drift assayed $20.50 per ton; while only bunches of ore were found in the north drift.

Although the quantity and quality of the ore produced from the mine was small and erratic, a new tunnel was started in 1879 to explore the ledge at still greater depth.

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BOX C, UNIVERSITY STATION

No. 20

THE HISTORY OF THE COMSTOCK MINES

GOLD HILL TUNNEL

The Gold Hill Tunnel claim, located in 1861, lies to the east of the Crown Point, Kentuck, Yellow Jacket, Confidence, Imperial, Alpha, Exchequer and Bullion claims. The claim was 4000 feet long and embraced three different ledges.

The Gold Hill Tunneling-Gold and Silver Mining Company was organized in March 1864 to explore the claim. Immediately after the company was organized, a tunnel was driven toward the croppings. At a point 825 feet in the tunnel and about 120 feet below the surface, an 8 foot ledge was cut which yielded assays between $12 and $33 per ton. Further exploration by drifting to the north failed to reveal commercial ore. A west branch from the main tunnel, to connect with the Yellow Jacket mine workings, encountered a 28 foot ledge 300 feet west from the first tunnel discovery. An air shaft was sunk to connect with the main tunnel, 1000 feet from the portal. By 1865, the main tunnel had been driven 1500 feet to connect with the Eclipse shaft on the 350 level. Due to the general depression in the camp, work was suspended in 1866.

Upon resuming work in 1872, a winze was sunk from the main tunnel at a point 1000 feet from the portal. The exploration work conducted through the winze failed to disclose commercial ore, and further work on the claim suspended in 1873.

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RENO, NEVADA

BOX C, UNIVERSITY STATION

No. 21

THE HISTORY OF THE COMSTOCK MINES

The Gould and Curry

The Gould and Curry claim, located in 1859, included 921 feet along the Comstock Lode, to the north of the Savage. Through an agreement, the Best and Belcher company acquired the northern portion of the claim which included 313 feet along the lode and reduced the Gould and Curry claim to 608 feet.

The Gould and Curry Silver Mining Company was incorporated June 27, 1860 for 4800 shares having a par value of $500.00 per share.

The first work performed on the claim in 1860 consisted of a tunnel starting from a point above B Street (Virginia City). The tunnel was driven 150 feet, cutting the Comstock Lode at a depth of 65 feet and exposing 15 feet of good ore. The ore was extracted from the tunnel level to the surface for a distance of 200 feet along the strike of the lode.

Upon the discovery of the rich ore, many law suits were filed against the company and in turn by the company in an effort to gain an interest in the claim and to eject trespassers. The cases were carried through the courts to the profit of the legal fraternity. By 1864, the "single ledge theory" was established and such controversial claims as the North Potosi and Seneca were absorbed by the Gould and Curry.

In 1862, a new 600 foot tunnel was driven to cut the ore at a depth of 200 feet. An elaborate 40-stamp mill was erected at the junction of Six and Seven Mile Canyons in 1863. During that year, the new company mill treated 4812 tons of ore yielding $316.00 per ton. At the same time, 43,907 tons of ore yielding $54.66 per ton were treated in the twenty local custom mills. In addition, 22.5 tons of ore,

having an estimated value of $2800.00 per ton, were shipped to England for smelting. All of that ore was produced from the workings above the 200 level. Within 1863, a third tunnel, 1800 feet long, was driven to cut the lode at a depth of 425 feet.

A total of 64,433 tons of ore yielding $73.48 per ton, were obtained from the workings above the 200 and 425 levels during 1864. Since no new tunnel sites were available, arrangements were made to sink a four compartment shaft. The Bonner shaft was started during the latter part of the year at a point near D Street, 600 feet east from the Comstock Lode croppings. In 1865, the Gould and Curry mill was remodled to include eight 10-stamp batteries and have a daily operating capacity of 100 tons.

Ore, having a width of from 5 feet to 12 feet and a value between $50.00 and $100.00 per ton, was mined from the surface to a depth of 100 feet through the B Street tunnel during 1866. By August, the Bonner shaft had been sunk to the 725 foot level. Crosscutting from the shaft on the 425 level exposed 300 feet of vein material. After drifting 400 feet south from the crosscut, a winze was started for the purpose of connecting with the 625 level and improving the ventilation of the mine on the levels. At a depth of 25 feet below the 425 foot level, a 12 inch streak of ore, assaying from $200.00 to $300.00 per ton, was exposed in the winze. The vein was found to become 4 feet wide north of the winze, but apparently not extending below the 500 level.

The Bonner shaft was sunk to the 1085 level by the end of 1868. A 300 foot northwest drift driven from the main crosscut on the 625 level encountered heavy ground. Two sets of 14" by 14" timber, one inside the other, were required to maintain the workings. The daily ore production from the mine for the year was obtained by sorting the fills of the old stopes, and varied between 50 and 60 tons.

In 1869, the Bonner shaft had been sunk to the 1187 level, encountering more heavy ground requiring the use of 14" by 14" timber. The north and south drifts driven on the 1167 level did not expose ore. The ore produced during the year was obtained from the "old upper workings" and amounted to 15,879 tons having an average value of $26.30 per ton.

Exploration of the 1187 level continued during 1870, exposing clay and quartz assaying approximately $2.50 per ton. A small production of ore was made from the "old upper workings."

In 1871, the Bonner shaft was sunk to the 1700 level, becoming an incline shaft below the 1500 level. A new body of ore, having an east-west strike and a dip of 45 degrees to the south, was found in the D Street tunnel near the Savage line. The new orebody was found to be 25 feet wide and 60 feet long.

Numerous drifts, crosscuts and winzes were driven and sunk on, from the 1300, 1500, 1600, 1700 and 1800 levels. In 1874, a Burleigh drill was used in the sinking of a winze from the 1500 level to the 1800 level. After extending the mainsouth drift on the 1600 level to connect with the Savage workings, a large body of low grade ore was developed between the 1500 and 1600 levels.

Production reported by F. F. Becker, page 10, "Geology of the Comstock" for the period 1860 to 1873 inclusive:

Tons	Gross Value	Value per ton
306,205	15,525,110.13	$50.70

Following the discovery of the "Big Bonanza" in the California and Consolidated Virginia claims and revival of interest in the district, the Bonner shaft was enlarged to facilitate exploration of the lower levels.

The Obiston shaft, jointly owned by the Best & Belcher and the Gould & Curry mining companies, was started in 1876 to explore the lower levels. The shaft was located 2285 feet east from the Bonner shaft. While the new shaft was being sunk, exploration work was in progress on the 1700 and 1900 levels of the Bonner. An attempt was made to explore the 1700 level with a diamond drill in 1877. After drilling a few feet, soft ground was encountered and that method of prospecting abandoned. The suction fan installed on the 1700 level, reduced the temperature from 122 degrees to 90 degrees.

The Obiston shaft was 660 feet deep by January 1, 1879. At the Bonner joint crosscuts were driven toward the shaft on the 1700 and 2150 levels. Joint east and west crosscuts were driven on the 2300 level in an unsuccessful search for ore.

The Obiston shaft was sunk to the 2500 level by 1882. A south drift from the shaft and a crosscut from the south drift, starting at a point 700 feet from the shaft, were driven in a vain search for ore.

A winze was sunk jointly from the 2500 level from the Obiston shaft to the 2700 level. The joint crosscut from the bottom of the winze also failed to find ore.

During 1885, work through the Obiston shaft was abandoned. A rich body of ore had been found in the upper levels of the Savage mine, and for that reason, interest was again revived in the upper levels of the Gould & Curry mine. Throughout the remaining portion of 1885 and all of 1886, north and south drifts and east and west crosscuts were driven in an unsuccessful search for ore in the upper levels of the mine.

In 1887, work was performed on the 250, 300, 425 and 625 levels. Some good ore was obtained from the old stopes and from small streaks to the west of the old stopes. North and south drifts were driven on the 300 level. A southwest drift from the main south drift, a 340 foot crosscut and a two compartment vertical raise were driven on and from the 425 level. Some streaks of ore were encountered in a winze sunk from the end of an east crosscut driven from the main south drift on the 625 level. On June 20, 1887, fire broke out on the 1500 level resulting in the death of eight men and the bulkheading of the level. After the fire was under control, the 500, 600, 700, 800, 900 and 1300 levels were reopened for exploration. A raise from the 700 level and a 118 foot south drift from the top of the raise found no ore. A raise from a south drift on the 900 level was being driven in low grade ore. A 304-foot east crosscut was driven on the 1300 level.

Some good ore was produced from the old stopes on the 250 and 300 levels during 1888. A raise, 100 feet above the 300 level, followed by east and west crosscuts from the top of the raise exposed low grade ore.

Within 1889 and 1890, some good ore was produced from the old stopes on the 200, 300, 400 and 450 levels. Many east and west crosscuts were driven on the 300, 400 and 450 levels. In addition, northwest and southwest drifts on the 200 level and a north east drift from a west crosscut on the 300 level were driven in the period. All of the work was unsuccessful as far as discovering new ore.

Prospecting was in progress on the 200, 300, 400, 800 and Sutro tunnel levels during 1891 and 1892. Upon raising above and sinking below the 300 level, some $11.50 ore was exposed. Some ore was also obtained from the old 800 level stopes.

Through 1893, 1894, 1895 and 1896 a crosscut was driven west, 1772 feet from the northwest drift on the 200 foot level. A drift was driven north from a point 1115 in the crosscut and many crosscuts from this drift, in a fruitless search for ore. Many drifts and crosscuts driven on the 250 foot level failed to encounter any ore.

In 1895, the Brunswick Exploration Company was orgainzed by the Consolidated Virginia and California, Best & Belcher, Gould & Curry, Savage, Hale & Norcross, Chollar and Potosi mining companies for the purpose of exploring the Brunswick Lode which is located approximately 8500 feet east from Gould & Curry croppings and roughly parallel to the Comstock Lode. This work is described elsewhere.

Within the period from 1899, 1900 and 1901, considerable exploration work was performed on and from the 325, 425 levels and from the Curtis tunnel and the Sutro tunnel level in addition to repairs to the Obestion shaft and a small production of ore from the vicinity of the old 325 and 425 level workings.

No record of work or new exploration for the period was reported from 1901 to 1907 inclusive, but in 1908 some exploration work was done on the Sutro Tunnel level.

Likewise, there is no record of new work or maintainance for the period from 1909 to 1911.

In 1911, the Best & Belcher and Gould & Curry mining companies made repairs to the Sutro Tunnel in preparation to sink a winze. By September 1912, the winze had been sunk 200 feet. The mine was inactive from 1913 to 1920.

In the period between 1920 and 1925, the Middle Mines made repairs to the 1600 level as a preparatory step to drifting to the Mint Shaft. After the connection with the Mint shaft,was completed, a diamond drill hole was extended 356 feet from the Mint shaft. At 661 feet seams of quartz were encountered in the drill hole, and at 835 feet, 15 feet of low grade porphyry was indicated. The Garfield Lode workings were reppened, and some values were found in the south drift and in a raise.

In 1926, the Garfield Lode was prospected jointly by the Gould & Curry and Savage mining companies. A diamond drill hole cut the vein at a depth of 80 feet, indicating good values. Further exploration followed by sinking a winze and driving a cross cut from the winze.

TOTAL PRODUCTION BETWEEN THE YEARS 1860 TO 1889 INCLUSIVE:

Total Tons -307,851

Gross Value-15,546,697.13

Average Value per ton - $50.50

Final. includes production reported by G. F. Becker but not that of the Arizona Comstock operation.

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BOX C, UNIVERSITY STATION

THE HISTORY OF THE COMSTOCK MINES

HALE & NORCROSS

The Hale & Norcross, lying between the Chollar and the Savage, was staked in 1859 having 400 feet along the Comstock Lode. However, no work was done on the claim until 1860 when the Santa Fe company drove a tunnel, 1360 feet, to cut the lode at a dept of 400 feet. The Santa Fe Tunnel cut the hanging wall of the lode at a point 880 feet west of its portal and drifts were driven north and south in quest of an orebody. Some low grade ore was found, but the stockholders became discouraged and sold their holdings to the Hale & Norcross Mining Company in 1861.

The North Potosi Company claimed the part of the lode just west of the Hale & Norcross claim and had explored the vein at a depth of 400 feet through their main tunnel on the Savage claim. After the Savage Co. had won their suit against the North Potosi Co. that part of the North Potosi claim just west of the Hale & Norcross claim was turned over to the Hale & Norcross Company.

The Hale & Norcross Co. started a three compartment shaft in 1861 to explore the lode at greater depths and by 1864, the shaft had been sunk to a depth of 550 feet below the surface where it was changed from vertical to an incline. Drifts were driven south on the 100, 200 and 500 levels the only ore found being on the 200 level where the drift encountered a body of ore, low grade, 125 feet long. A drift driven north on the 400 level encountered barren vein material.

While sinking the incline, low grade ore was encountered at a depth of 670 feet. By the end of 1865, the incline had been sunk to a depth of 750 feet below the surface and was in high grade from the 700 level down.

During 1866, drifts were driven south on the 670 and 750 levels and immediately run out of the ore while drifts driven north on the 550, 670 and 750 levels encountered good ore, the orebody being 30 feet wide and 200 feet long. Stopes were started on these levels and during the fiscal year ending March 1, 1867, the mine produced 28,635 tons of ore yielding $47.32 per ton, the assay value being $73.95 per ton.

On January 1, 1867, a new three compartment shaft was started between F and G streets to explore the lode at still greater depths. The two hoisting compartments were each 5 feet by 4½ feet. This new shaft known as the Fair Shaft, was located 1320 feet east of the old shaft. Stoping operations were carried out above the 750 level in the old shaft and during the fiscal year ending March 1, 1868, the mine produced 25,322 tons of ore yielding $34.14 per ton, the assay value being $52.42 per ton.

By January 1868, the Fair Shaft had been sunk to a depth of 930 feet below the surface, and in drifting northwest at this depth, a large body of ore was encountered being 11 feet wide, 100 feet long and assaying $60 per ton. Stopes were immediately started and during the fiscal year ending March 1, 1869, the mine produced 16,535 tons of ore yielding $23.89 per ton, the assay value being $37.60 per ton.

By January 1869, the Fair Shaft had been sunk to a depth of 1030 feet below the surface where a crosscut driven to the east wall of the vein cut a body of ore from 5 to 6 feet wide assaying $50 per ton. A winze was sunk on the ore to the 1100 level. When the shaft reached the depth of 1100 feet below the surface drifts were driven north and south on the vein and the orebody was shown to be 40 feet wide at this depth. Exploration work was being prosecuted on the upper levels and good ore was found on the 175 level of the olf shaft. During the fiscal year ending March 1, 1870, the mine produced 45,441 tons of ore yielding $27.13 per ton, the assay value being $40.50 per ton.

During 1870, the shaft was sunk to a depth of 1185 feet and a drift driven north at this level encountered a body of ore 100 feet long and 47 feet wide the ore pinching to two feet of low grade at a point 15 feet from the Savage line. A winze was sunk on the ore, at a point 150 feet north of the shaft, and passed through ore to a depth of 95 feet. A raise was driven 40 feet south of the shaft, on the same level, through 70 feet of good or

During 1871, the shaft was sunk to 1300 feet and while exploration work was being carried on the lower levels, the old upper levels produced 9,625 tons of ore yielding $40 per ton during the fiscal year ending March 1, 1872.

During 1872, the shaft was sunk to a depth of 1700 feet below the surface changing from vertical to an incline between the 1200 and 1300 levels. Drifts were driven north and south on the 1400 level and a rich orebody 65 feet wide was found in the north drift. A crosscut was driven east on the 1500 level and, upon penetrating the west wall of the vein, encountered low grade ore. Winzes were sunk from the 1400 to the 1500 level and from the 1500 to the 1700 level using an "air hoisting engine" on the latter.

A novel arrangement of blacksmith shops on each level was installed in the mine in 1872, thus eliminating the necessity of hoisting the dull steel to the surface.

During 1873, the mine had a small production from the 1300, 1400 and 1500 levels. A drift was driven north on the 1700 level to the Savage line but no ore was found. By the latter part of the year, the incline had been sunk to a depth of 1900 feet below the surface where drifts were driven north and south but no ore was encountered.

During 1874, a winze was sunk from the north drift of the 1700 to the 1900 level. A crosscut in the south drift of the 1900 level passed through alternate streaks of quartz and high grade ore the ledge being 180 feet wide. Some ore was produced during the year from this source. The incline was sunk to a depth of 2100 feet below the surface during the latter part of the year and a drift was driven north on the 2000 level to connect with the Savage mine. A winze was sunk from the north drift of the 1900 level to connect with the 2000 level thus giving better ventilation on the lower levels.

During 1875, the incline was sunk to a depth of 2200 feet below the surface and a winze was sunk from the 2100 level to connect with a drift being driven north on this level. The mine had a small production for the year from the upper levels.

In 1875, the Chollar-Potosi, Hale & Norcross and Savage companies combined to sink a new four compartment shaft to facilitate the exploration of the lode at greater depths. The new shaft called the Combination shaft, was located 2,327 feet east of the Chollar-Potosi shaft and was to cut the lode at a depth of 2800 feet below the surface.

The three hoisting compartments of the shaft were each 5 feet by 6 feet and the pump compartment was 6 feet by 7 feet in the clear. The shaft was timbered with 12-inch square red spruce.

The hoisting engine, of 350 horsepower, turned two reels on each of which was wound 2900 feet of flat cable 6 inches wide and 5/8 of an inch thick. The sheaves on the head frame were 18 feet in diameter and the faces were 8½ inches wide filled with oak wood. The three skips which would be used for hoisting were capable of raising 2000 tons per day from the mine.

The pumping engine was a vertical, compound condensing, steam engine of 700 horsepower, the initial cylinder being 32 inches in diameter having a 10 foot stroke and the expansion cylinder 64 inches in diameter having an 8 foot stroke. The engine was capable of running a double line of 12-inch pumps to a depth of 4000 feet. The timbers for the pump rod were 15-inch square Oregon pine 100 feet long and cost $300 each delivered on the Comstock.

The shaft was sunk at the rate of 2½ feet per day. A station was cut on the 1593 level to connect with the Sutro Tunnel and by March 13, 1880 the shaft had been sunk to a depth of 2400 feet below the surface.

Recorded production 1875: 2951 tons, $51,554; average per ton $17.47.

Production reported by G. F. Becker, page 10, "Geology of the Comstock", as follows:

	Tons	Gross Value	Average Value per ton
1866 - 1875	320,592	$7,986,675.49	$24.91

During 1876, the Hale & Norcross mine was flooded to the 1700 level by the influx of water from the Savage mine. The following year the water was held below the 1900 level and a drift was driven north on this level to connect with the Savage mine.

During 1878, a joint east crosscut was driven, with the Savage Company, on the 2000 level to connect with the Combination Shaft. The crosscut was driven at the rate of 10 feet per day and was christened the "Lightning Drift".

On June 1, 1879, the 1620 level was connected with the Julia Branch of the Sutro Tunnel. During the year, crosscuts were driven west on both the 2100 and 2200 level The crosscut on the 2100 level, located 130 feet south of the north end line of the claim, cut 12 feet of low grade ore with streaks assaying as high as $39 per ton.

During 1880, the incline shaft was sunk to a depth of 2400 feet below the surface at which depth a drift was driven south to connect with the Combination shaft. While ore yeilding $46,39 per ton was being produced from stopes on the 2100 foot level, a winze was sunk 162 feet below the 2200 level encountering quartz assaying as high as $18 per ton.

During 1881 and 1882, a winze was sunk from the 2100 to the 2200 level encountering some rich ore. A three compartment winze was sunk from the 2400 to the 2600 level. A drift was driven northwest on the 2500 level and a drift was driven south on the 2600 level, the latter connecting with the Combination shaft.

Recorded production 1881: 725 tons, $33,016; average per ton $45.54.

During 1883, a joint Chollar drift was driven north on the 2600 level, from the Combination shaft, encountering a streak of good ore. A winze was sunk on the streak encountering ore assaying from $20 to $30 per ton. The three compartment winze from the 2400 level was sunk to a depth of 2800 feet below the surface. Drifts were driven north and south on the 2700 level the north drift encountering 15 inches of ore assaying from $20 to $600 per ton.

During 1884, the three compartment winze was sunk to a depth of 3000 feet below the surface. A drift was driven southwest on the 2800 level to connect with the Combination shaft. A crosscut was driven west on the 2800 level encountering 45 feet of vein material containing bunches and streaks of ore then 3 feet of rich ore assaying from $50 to $650 per ton, and then ore and porphyry 8 feet wide averaging $12.25 per ton. During the year some ore was produced from the old stopes on the 200 level.

Recorded production 1884: 13,049 tons, $178,995; average per ton $13.72.

During 1885, a pump accident caused the 2800 level to be bulkheaded to prevent the flooding of the mine. A drift was driven north from the Combination shaft to connect

with the bottom of the three compartment winze. A crosscut was driven on the 2900 level cutting ore yielding from $25 to $30 per ton and a drift was driven on the ore for a distance of 115 feet. A drift was driven north to the Savage boundary line on the 3000 level encountering bunches of ore. A crosscut, driven on the 3000 level, cut 15 feet of ore averaging $60 per ton. A winze was sunk on the ore from the 3000 to the 3100 level an a drift was driven southeast from its bottom to connect with the Co bination shaft. Stope were started on the 2900 and 3000 levels and a small production of ore was made from this section of the mine.

Recorded production 1885: 323 tons, $7,541; average per ton $23.35.

During 1886, the three compartment winze was sunk to a depth of 3200 feet below the surface where drifts were driven north and south encountering streaks of good ore. During the year a small production of ore was made from stopes on the 3100 level. The Combination shaft was closed down during the latter part of the year and the lower levels of the mine were flooded. Work on the upper levels was resumed through the old shaft from which a drift was driven southeast on the 1300 level. The drift encountered a large body of quartz yielding low assays.

During 1887, a crosscut was driven west 700 feet, from the shaft, on the 400 level and a drift was driven north from the end of this crosscut. A crosscut was driven west on the 700 level and drifts were driven north and south from the crosscut the north drift connecting with the Savage mine. Crosscuts were driven east and west from this north drift. A raise was put up from a point 300 feet west of the shaft, above the 700 level encountering 8 inches of rich ore at a point 45 feet up the raise. Subsequent development work on the new orebody, located to the east of the old stopes, proved it to be 42 feet wide and averaging $45 per ton. Drifts were driven north on both the 1000 and 1030 levels and a crosscut was driven east from the latter encountering streaks of ore. Many crosscuts were driven east and west on the 1030 level encountering low grade material. A crosscut was driven east from the north drift, on the 1200 level and a drift was driven south on the same level, both encountering good ore. The 1300 level was repaired and the south drift was driven to connect with the Chollar incline. Many cross-

cuts were driven east and west on this level, one crosscut, located 100 feet north of the Chollar line, cutting rich ore. A winze was sunk 50 feet below the 1300 level where a crosscut was driven east and drifts were driven north and south encountering some ore.

Recorded production 1887: 1839 tons, $48,724; average per ton $26.49.

During 1888, a drift was driven south on the 400 level and a crosscut driven east from this drift encountered fair ore 12 feet in width. The raise above the 700 level was put up to the 500 level and drifts were driven south and northwest, from the raise, on the 600 level the latter connecting with the Savage mine. A new station was cut on the 500 level and a crosscut was driven west on this level from which drifts were driven north and south. A crosscut was driven west, from the shaft, on the 800 level and drifts were driven north and south from this crosscut.

During the year, approximately 200 tons of ore assaying $37 per ton were produced from the stopes above the 600 and 700 levels of the mine.

Recorded production 1888: 37,218 tons, $951,746; average per ton $25.57.

During 1889, many crosscuts were driven west on the 300 and 400 levels those on the latter encountering good ore which was immediately stoped. A drift was driven north from the west crosscut nearest the shaft in the north drift, on the 400 level, to the north boundary line of the claim and a drift was started north on the 500 level. A winze was sunk in good ore from a west crosscut in the south drift on the 400 level and a raise was put up above the north drift, on the same level, in good ore. In driving the north drift on the 500 level, to connect with the Savage mine, good ore was encountered which was immediately stoped. A winze was sunk below the north drift on the 500 level in good ore and a raise was put up above the drift in the same good ore. Crosscuts were driven east and west on the 500 level those driven to the east encountering ore on which raises were put up. A drift was driven south, from the main west crosscut, on the 700 level encountering good ore and a drift was driven south on the 1200 level also encountering ore. A drift was driven north from the shaft on the 1300 level and a raise put up from a point 100 feet south of the shaft, on the same level in low grade quartz.

During the year, much ore was produced daily from the stopes above the 400, 500 and 600 levels.

Recorded production 1889: 31,316 tons, $597,528; average per ton $19.08.

During 1890, a crosscut was driven east on the 300 level and a raise was put up above the level, near the north boundary line of the claim, in fair ore. A drift was driven north on the 800 level in low grade material and a raise was put up and crosscuts were driven from this drift. A crosscut was driven west on the 900 level and drifts were driven north and south from the crosscut. A crosscut was driven west on the 1100 level and drifts were driven north and northeast from the crosscut. A drift was driven north from the raise above the 1300 level, connecting with the south drift on the 1200 level. A winze was sunk 50 feet from the southeast drift on the 1300 level, being in good ore the entire distance.

During the year, much ore was produced daily from the 400, 500, 600, 700, 1200 and 1300 levels.

Recorded production 1890: 25,147 tons, $306,474; average per ton $19.08.

During 1891, a raise was put up above the 300 level in low grade material. The north drift on the 800 level connected with the Savage mine and crosscuts were driven east from this drift. Crosscuts were driven east and west on the 900 level, the east crosscuts encountering ore which was immediately stoped. A drift was driven south on the 950 level and drifts were driven north and south on the 1100 foot level. A crosscut was driven east from the north drift on the 1100 level, near the north boundary line of the claim, encountering fair ore. The winze below the 1300 levelwas sunk to a depth of 120 feet below the level. Drifts were driven north and south on the 1400 level and crosscuts were driven east and west from both drifts, encountering some bunches of ore in the east crosscuts. A winze was sunk 50 feet below the 1400 level and drifts were driven north and south from the winze, on the 1450 level. A streak of ore was encountered on the 1450 level which was immediately stoped and a joint crosscut was driven west with the Savage Company near the north boundary line of the claim on this level. Drifts were driven north and south on the 1500 level and crosscuts were driven east on this level from which winzes were sunk. A drift was driven north on the 1630 level and a drift was driven south on the Sutro tunnel level. Some good ore was produced during the year from the stopes above the 800 and 900 levels.

During 1892, 1893, 1894, 1895 and 1896, raises were put up above the north and south drifts on the 900 level encountering some ore above the south drift. A drift was driven southwest on the 900 level and crosscuts were driven east and west from this drift A drift was driven south on the 975 level encountering streaks of ore assaying from $20 to $75 per ton which were subsequently stoped. A drift was driven north from the main west crosscut on the 1100 level and crosscuts driven east and west from this drift encountered some ore which was immediately stoped. Some ore was found in the north drift on the 1630 level and some ore was gleaned from both the winze below the 1300 level and the 1450 level. The 1800 level was reopened and a crosscut was driven west on the level in a fruitless search for ore.

Recorded production 1892: 9,666 tons, $88,620; average per ton $9.17.

Recorded production 1894: 749 tons, $8,000; average per ton $10.68.

During 1895, the Brunswick Exploration was formed by the Consolidated Virginia and California, Best & Belcher, Gould & Curry, Savage, Hale & Norcross, Chollar and Potos mining companies to explore the Brunswick Lode located to the east of the Comstock Lode. The work of exploring the Brunswick Lode was started July 2, 1895 and was carried on by sinking an incline shaft on the Hale & Norcross claim near the north boundary line of the Chollar claim, by driving a drift north on the Savage claim, from a point 75 feet north of the Sutro Tunnel shaft No. 3, and by sinking an incline shaft on the boundary line between the Consolidated Virginia and California and Best & Belcher claims.

Recorded production 1895: 519 tons, $20,551; average per ton $39.58.

By 1896, the incline shaft on the Brunswick Lode, located on the Hale & Norcross claim near the north boundary line of the Chollar claim, had been sunk to a depth of 470 feet below the surface, passing through quartz and porphyry. At a depth of 445 feet, some values were found. The north drift from the shaft was advanced to 309 feet on the 200 level. The 300 level station was cut and an east crosscut on the 400 level was driven 45 feet in porphyry and quartz. Ore was produced from the main lode workings on the 900, 975 and 1100 levels. On the 975 level, the ore came from raises No. 3 and No. 4. A winze was sunk in the old fill below the 1100 level.

Recorded production 1896: 137 tons, $5,508; average per ton $40.20.

During 1897, mining and development work was carried on from the 900 and 975 levels and in addition, repairs were made to the shaft in the vicinity of the 975 and 1100 stations. A south drift was driven in good ore on the 6th floor of raise No. 1 from the 900 level. A raise was started at the end of the south drift on the 6th floor on ore 15 inches wide assaying $2 in gold and 10 ounces in silver. Raise No. 2 was continued and a north drift on the ninth floor run in ore.

On the Brunswick Lode, Shaft No. 1 had been sunk to a depth of 1092 feet. The portion of the claim north of the shaft was prospected by drifting and crosscutting. Early in the year, the Hale & Norcross Co. withdrew from the Brunswick Exploration Co. and also experienced considerable difficulty in completing a change of management.

During the period from 1899 to 1904 inclisive, the Hale & Norcross tunnel had been advanced a distance of 4970 feet. At a point 3236 feet in, the tunnel is reported to have entered diorite.

During 1905 and 1906, attention was divided between the extension of the Hale & Norcross tunnel and prospecting and mining on the Sutro Tunnel level. By April of the latter year, the Hale & Norcross tunnel had been driven a total distance of 5916 feet. At points 5470 and 5574 feet in, the tunnel is reported to have cut through porphyry with quartz seams. North and south drifting in the Sutro Tunnel level followed by crosscutting and raising contributed to the production of some $8.27 to $24.12 ore.

Recorded production 1906: 1161 tons, $8,651; average per ton $7.45.

In 1907, 1908 and 1909, work continued on the Sutro Tunnel level. The north drift was driven 233 feet and suspended. A connection with the Chollar-Potosi was established. The west crosscut from the south drift was driven 290 feet. Some ore was mined from the north drift and from the south drift on the Chollar claim.

Recorded production 1907: 390 tons, $5,015; average per ton $12.86.

Recorded procution 1908: 518 tons, $3,990; average per ton $7.70.

During 1910, work was resumed in the north drift on the Sutro Tunnel level in the form of drifting, crosscutting and raising. A considerable tonnage of ore was produced.

Recorded production 1910: 584 tons, $12,694; average per ton $21.74.

In 1912 and 1913, some work was performed through a "surface tunnel". One carload of ore was shipped to the smelter and several to the local mill.

Recorded production 1912: 261 tons, $4,698; average per ton $18.00.

Recorded production 1913: 1134 tons, $4,870; average per ton $4.29.

No report found for 1914 and 1915. During 1917, prospecting was resumed on the Sutro Tunnel level and in addition, repairs were made to the tunnel. In the period from 1918 to 1920, no reports were found.

In the period from 1920 to 1923, some work was performed on the 850, 162, 237 and 387 levels. Some "very good ore" was reported to have been found in 1923.

In 1924, the claims held by the Comstock Merger Mines Inc. were taken over by the United Comstock Mining Co. The haulage tunnel from the Imperial claim on the 882 level was completed to the Hale & Norcross in 1925.

Recorded production 1925: 4681 tons, $21,243; average per ton $4.54.

Recorded production 1926: 3589 tons, $12,996; average per ton $3.62.

Total production between the years 1875 to 1926 inclusive:

Total Tons - 453,598

Gross Value - $10,146,435.49

Average Value per ton - $22.37

This includes production reported by G. F. Becker, but nor that made by the Comstock Merger Mine Inc. or the Arizona Comstock Company.

STATE OF NEVADA

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BOX C, UNIVERSITY STATION

No. 23

THE HISTORY OF THE COMSTOCK MINES

IMPERIAL

The present Imperial claim is made up of the Treglone & Co. claim having 21½ feet, Imperial North claim having 116 feet, Bacon claim having 45 feet, Empire North claim having 55 feet, Eclipse claim having 30 feet, Trench & Co. claim having 20 feet, Bowers claim having 20 feet, Piute claim having 20 feet, Consolidated claim having 51 feet, Rice & Co. claim having 18½ feet, Empire South claim having 20 feet and Imperial South claim having 47 feet, making a total of 451 feet along the Comstock Lode. These claims were made up of the original claims staked in 1859 by Finney, Bishop, Henderson, Yount, Comstock, Rogers, Plato, Bowers and Knight. The claims were first worked for placer and after the decomposed vein material was exhausted the original owners were glad to sell to new people entering the district. The Imperial lies between the Challenge-Confidence and the Alpha.

The Empire Mine and Milling Company acquired 75 feet along the lode, sank an incline shaft, and immediately built two mills in which to treat the ore they found. By 1865, the shaft had been sunk to a depth of 615 feet and crosscuts driven east on the first and second levels encountered 40 feet of "good ore".

The Alta Mining Company had acquired 181½ feet along the lode and had sank an incline shaft to a depth of 118 feet below the surface when the Imperial Mining Company bought them out in 1862. A shaft was immediately started by the Imperial Mining Co. and by 1865, it had been sunk to a depth of 600 feet below the surface. A crosscut was driven east on the 300 level cutting the hanging wall of the lode at a point 50 feet from the shaft, finding good ore. Another crosscut was driven east on the 587 level cutting the vein at a point 200 feet from the shaft and finding the body of ore to be 130 feet wide. The company built a mill having 44 stamps and 74

amalgamation pans capable of treating 30 tons of ore per day. During the fiscal year ending June 30, 1865, the mine yielded 28,236 tons of ore yielding $30.26 per ton.

The Bowers Mine and Mill Company purchased the Rogers claim and thus controlled 20 feet along the Comstock Lode. The company built a mill having 20 stamps driven by a 65 horsepower steam engine that was capable of treating 22 tons of ore per day.

All the mining was done by the open stope method until 1865 when a great cave filled the upper levels of the Imperial, Empire and Eclipse mines after which the stopes were filled with "barren" quartz.

During 1866, a new four compartment shaft was started by the Imperial and Empire companies at a point 600 feet east of the old Imperial shaft. The three hoisting compartments were each 4½ feet by 5 feet and the pumping compartment was 5 feet by 7 feet in the clear. The shaft was timbered with 12-inch square timbers and was sunk at the rate of 4½ feet per day. The pump rod was made of 12-inch square timbers and was powered by a 500 horsepower steam engine.

During the early period of the district each small mine had sunk its own incline but during 1867, many of the small hoisting works were torn down and all of the small mines worked through either the Imperial-Empire, or the Eclipse shaft, thus affording more economical working conditions. The Imperial, Empire and Eclipse inclines had been sunk on the vein to a depth of 250 feet below the surface where an orebody of a different character was encountered dipping to the east the old orebody turning and following it.

By 1868, the Imperial-Empire shaft had been sunk to a depth of 1080 feet below the surface encountering a flow of 316,800 gallons of water per day or 226 gallons a minute. A crosscut was driven west on the 900 level, using dynamite as the explosive, and after cutting the lode, drifts were driven north and south encountering small streaks of ore. A drift was driven south on the 700 level and a winze from this drift encountered an orebody 7 feet wide and 70 feet deep assaying $23 per ton. During the year, the Imperial mine had a small production from above the 400 level.

During 1869 and 1870, the shaft was sunk to a depth of 1300 feet below the surface. Drifts were driven north and south on the 1000, 1100 and 1200 levels, the only

ore being encountered on the 1200 level near the Alpha line. A winze was sunk from the 1100 level encountering a small body of $25 ore.

In 1871, the Bowers and Trench companies were producing ore from the 400 level the vein being 15 feet wide at this point.

During 1871, a drift was driven south on the 1300 level of the Imperial Empire shaft encountering "fine" ore and during the fiscal year ending June 30, 1871, the Imperial mine yielded 12,176 tons of ore yielding $15.43 per ton from the upper levels.

By the end of 1872, the Imperial-Empire shaft had been sunk to a depth of 1745 feet below the surface changing from vertical to an incline of 42 degrees at a depth of 1330 feet. Drifts were driven north and south on the 1500, 1650 and 1700 levels the only ore being found in the south drift of the 1500 level.

During 1873 and 1874 the shaft was sunk to a depth of 2000 feet below the surface and drifts were driven north and south on the 1850 level, the south drift encountering an orebody 7 feet wide assaying $32 per ton. Winzes were sunk from the 1700 and 1850 levels, the latter being in "fine ore". The south drifts on the 1300 and 1850 levels were connected with the Yellow Jacket mine thus affording excellent ventilation.

During 1875, drifts were driven north and south on the 2000 level, the north drift encountering ore. Drifts were driven north and south from the winze below the 1850 level. Stopes were started on the 1950 level and this section of the mine had a small production.

Recorded production 1875 (b): 3127 tons, $82,020; average per ton $26.23.

Recorded production 1875 (c): 5260 tons, $67,820; average per ton $12.89.

Recorded production 1875: (d) 300 tons, $3,400; averager per ton $11.33.

During 1876, all of the small mines described above were consolidated into the Imperial Consolidated Mining Company thus cutting the overhead of the mines. A joint Alpha winze was sunk from the 2000 level near the north line of the claim. The winze encountered "excellent" ore and upon being sunk to a depth of 2150 feet below the surface, drifts were driven north and south and stoping operations were started. A crosscut was driven east on the 1700 level encountering some low grade ore.

Recorded production 1876 (b): 4320 tons, $159,387; average per ton $36.90.

Recorded production 1876 (c): 2525 tons, $32,850; average per ton $13.01.

Total production 1864 - 1876 Incl.: 223,047.85 tons, Gross Value $5,224,672.75 - $23.42, average per ton. Geology Comstock Lode, G. F. Becker, Page 10.

During 1877 and 1878, a winze was sunk from the south drift on the 2000 level to a depth of 2600 feet below the surface, the last 200 feet being in low grade ore. A drift was driven wouth on the 2400 level to connect with the Yellow Jacket mine.

Recorded production 1877 (a): 2997 tons, $41,958; average per ton $14.00.

Recorded production 1878 (a): 13,884 tons, $173,683; average per ton $12.51.

Recorded production 1877 (c): 3968 tons, $55,274; average per ton $13.93.

Recorded production 1879 (a): 11,331 tons, $146,711; average per ton $12.95.

By 1880, the south winze had been sunk to a depth of 2800 feet below the surface Drifts were driven north and wouth on the 2600 and 2800 levels the south drift on each level connecting with the Yellow Jacket mine and the north drift on each level connecting with the joint Alpha winze.

Recorded production 1880: 12,804 tons, $151,579; average per ton $11.82.

Recorded production 1881: (a) 8366 tons, $110,318; average per ton $13.19.

Recorded production 1882 (a): 2698 tons, $37,329; average per ton $13.84.

During 1882, the lower levels of the mine were flooded by a large flow of water cut on the 2800 level of the Exchequer mine.

From 1883 to 1885, the upper levels of the Imperial mine were reopened and prospected. Prospecting work on the 600 level disclosed a large body of low grade ore on the northern end of the claim. A steady production of low grade ore was made from this source.

Recorded production 1883 (a): 555 tons, $7,795; average per ton $14.05.

During 1887 and 1888 the Imperial shaft was repaired and a drift was driven north from it on the 382 level jointly with the Alpha and Exchequer companies. A drift was driven north from the Yellow Jacket shaft, into the Imperial claim, on the 1100 level jointly with the Challenge-Confidence Company.

During 1889, a drift was driven north from the Yellow Jacket shaft, on the 300 level encountering some ore. A raise was put up above the 300 level and a winze was sunk below the level. A crosscut was driven east from the winze to the Imperial shaft, thus affording better ventilation for the mine. A drift was driven south on the 500 level, from the Yellow Jacket shaft, jointly with the Challenge-Confidence Company and crosscuts were driven east and west from the drift.

During 1890, a crosscut was driven west on the 300 level encountering low grade ore with occasional bunches of good ore. Drifts were driven north from the Yellow Jacket shaft, on the 450, 750 and 800 levels jointly with the Challenge-Confidence Company. A raise was put up above the 450 level and a crosscut was driven west on the 750 level. A raise was put up from the end of the crosscut on the 750 level and a crosscut was driven east from the raise in barren material. Crosscuts were driven east and west on the 1000 and 1100 levels in a fruitless search for ore.

Recorded production 1890 (a): 2208 tons, $30,851; average per ton $13.97.

Recorded production 1890 (b): 212 tons, $3,218; average per ton $15.18.

During 1891, 1892, 1893 and 1894, a raise was put up above the 400 level and some ore was produced from small streaks on the 400 and 500 levels. Some ore was produced from the old stope fills on the upper levels of the mine. By 1895, all underground mining was abandoned and prospecting work was confined to the surface.

Recorded production 1891: 3935 tons, $61,349; average per ton $15.59.

Recorded production 1892 (a): 2044 tons, $24,830; average per ton $12,14.

Recorded production 1893: 152 tons, $1,634; average per ton $10.75.

During the period between 1896 and 1902, all work on the claim was confined to driving a surface tunnel. In 1901 and 1902, further extension of the tunnel inma west crosscut, became a joint operation shared by the Challenge-Confidence and Imperial Mining Companies. By the end of the latter year, the tunnel had been driven a total distance of 3076 feet.

In 1904, some crosscutting was done on the 1000 level as a joint operation by the Challenge-Confidence and Imperial Mining Companies. A north drift was started from the Yellow Jacket shaft on the same level into Challenge-Confidence ground.

A north drift was driven from the Yellow Jacket shaft of the 900 level in 1905 jointly by the companies mentioned above. Work on the drift continued through 1905 and 1906 and apparently did not extend beyond the Challenge-Confidence claims.

In 1924, the claim was taken over by the United Comstock Mining Company and the tunnel on the 882 level driven to the Hale & Norcross.

	Tons	Gross Value	Value Per Ton
Group (1) Production 1864 to 1876 inc.	223,047.85	$5,224,672.75	$23.42
(1) Geology of the Comstock, page 10, G. F. Becker			
" (a) Production 1877 to 1891 inc.	50,702.00	510,180.00	
Total production 1864 to 1891 for Imperial	273,749.85	$5,734,852.75	$20.95

Group (b) is not included in the final calculation of the estimated production as it is partially included in G. F. Beckers estimate and that of Group (a) above. It is also possible that the production came from a portion of the Imperial Claim excluded from the property consolidation completed in 1876. The Group (b) records are as follows:

	Tons	Gross Value	Value per ton
1875 to 1891	7659.00	$244,825.00	$31.94

Group (c) Applies to the production made by the Empire Gold Mining Co. between 1875 and 1876. It is assumed that production was made from a portion of the Empire Claim not immediately included in the property consolidation of 1876. The estimated production reported separately by G. F. Becker covers the period 1864 to 1877 inc. and it as follows will be used, added in the final estimate.

	Tons	Gross Value	Value per ton
1864 to 1876 inc.	162,164.00	$3,414,594.12	$21.05

Group (d) Applies to the Bowers Mine in 1875. The production reported by G. F. Becker for the period 1864 to 1875 inc. apparently includes all the recorded production for the mine. It will be used in the final estimate and is as follows:

	Tons	Gross Value	Average Value per ton
1864 to 1875	4,795.00	$83,245.95	$17.36

Summary of the production from the consolidated group of claims now known as the Imperial Consolidated Mining Claims.

	Tons	Gross Value	Value per ton
1864 to 1891	440,708.85	$9,232,692.82	$20.95

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BOX C, UNIVERSITY STATION

No. 24

THE HISTORY OF THE COMSTOCK MINES

IRVING

The Irving claim was located in 1860 on the north side of Cedar Hill Canyon, near the point at which the Geiger Grade Road crosses the Canyon.

An upper and a lower tunnel were driven 200 feet and 350 feet respectively, to cut the vein. The lower tunnel exposed a 20 foot width of "good pay ore".

In 1867, the Irving Company sank a shaft 100 feet, encountering "good ore". A quartz vein, 2 feet wide assaying up to $136 per ton, was exposed in the shaft 35 feet below the collar.

Subsequent development work from the shaft soon exhausted the ore and also proved it to be in small bunches. Work on the claim was suspended.

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No. 25

THE HISTORY OF THE COMSTOCK MINES

JOE SCATES

The Joe Scates claim was located in 1860, east of the main Comstock lode. The claim as originally located, included 4500 feet along the lode. Through later division into smaller claims, the claim bearing that name included only 540 feet along the ledge.

Until 1877, only sufficient work was done on the claim to hold it by location. That work consisted mainly of shallow shafts. The ledge was 82 feet wide, and occassionally samples assaying between $18 and $40 per ton were obtained from it. In 1877, a two compartment shaft, located about one hundred feet south from the ledge, was sunk to a depth of 300 feet. The shaft was equipped with a 20 horsepower hoisting engine.

After the ledge had been explored unsuccassfully by crosscutting on the 200 and 300 level, work was suspended in 1878.

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No. 26

BOX C, UNIVERSITY STATION

THE HISTORY OF THE COMSTOCK MINES

JULIA

The Julia Company held three claims, known as the Julia Lode, Julia Lateral Lode and the Julia Sarah Ann. Those claims were located in 1860 adjacent to the east boundary of the Potosi and Bullion claims. Work was suspended on the claims after many tunnels driven across the vein near the surface had failed to expose rich ore.

In 1871, the Julia Company began to sink a three compartment shaft. At a depth of 115 feet, the shaft cut streaks of quartz assaying from $17 to $60 per ton. The shaft was 1000 feet deep by 1873. A drift on the 525 level exposed a vein 3.5 feet wide which yielded samples assaying up to $80 per ton. From 1873 to 1874, east drosscuts were driven from the shaft on the 800 and 1000 levels; west crosscuts were also driven on the 900 and 1000 level. North and south drifts were driven from the west crosscuts on the 900 and 1000 levels. A "good milling ore" was reported to have been found only in the south drift on the 1000 level. Some low grade ore was reported to have been found in the east crosscut on the 800 level.

Operations in the shaft and the mine were temporarily suspended June 4, 1874, upon encountering a flow of water that exceeded the capacity of the existing pumping equipment. After the new 200 horsepower hoisting engine and the new 180 horsepower pumping plant were installed, the mine was unwatered and the underground exploration resumed.

By 1876, the shaft had been sunk to the 1600 level; and south drifts were driven on the 1100, 1400 and 1500 levels. That work exposed a few bundhed of ore only on the 1400 level.

The shaft was sunk to the 2000 level between 1876 and 1877. Below the 1800 level, the shaft was changed to an incline. North and south drifts were driven on the 1600,

1700 and 1800 levels. The south drifts on the 1600 and 1700 levels passed through low grade vein filling which occassionally contained bunches of ore assaying from $1o to $20 per ton. Some $8 to $12 ore was found in the 1600 level south drift to the Ward shaft.

The north and south drifts driven on the 2000 level during 1878 and 1879, are reported to have encountered "2 inch to 15 inch stringers of good ore" in a low grade quartz.

By April 10, 1880, all the surface equipment at the Julia shaft had been removed. Future exploration of the claim was to be carried out through the Ward shaft.

Between 1888 and 1889, a joint west crosscut was driven from the Ward shaft on the 1800 level. The vein in the Julia claims was explored by a northwest drift driven from the 1800 level crosscut. Like most of the preceeding exploration work, that also failed to expose ore. The mine was shut down in 1891.

Exploration work was performed on the 1800 and 2000 levels during 1911 and 1912. A west crosscut was driven from the Ward shaft connecting with the workings on the 2000 level. A raise and a winze were driven and sunk from the 2000 level. The old winze from the 1800 to the 2000 level was reopened. An intermediate north drift from the winze exposed some $4.62 ore. Upon further extension, the north drift broke into an old stope. A diamond drill was also used to explore the lower levels of the mine.

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MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 27

THE HISTORY OF THE COMSTOCK MINES

JUSTICE

The Justice claim was staked in 1859 having 1600 feet along the Silver City branch of the Comstock Lode; being between the Silver Hill and the Keystone.

The Justice Company was incorporated in 1863 and started sinking a three compartment shaft each compartment being 4 feet by 5 feet in the clear. By 1864, the shaft had been sunk to a depth of 130 feet below the surface and a drift was driven south on the 100 foot level encountering good ore. By 1865, the mine had produced $100,000 from above the 100 level, but the mine was closed down in 1865 due to the general depression of the camp and the reluctance of the stockholders to pay the assessments levied.

Work was resumed on the claim in 1869, when a tunnel was driven to cut the vein at a depth of 260 feet below the surface where 40 feet of vein material and 11 feet of ore yielding up to $100 per ton was encountered. A steady production of ore was maintained from above the 260 level and from the Waller Defeat section of the claim while the shaft was being sunk to a depth of 400 feet below the surface. Drifts were driven north and south on the 300 and 400 levels encountering good ore and stoping operations were begun on these two levels.

By 1875, the shaft had been sunk to a depth of 800 feet below the surface changing from vertical to an incline at a depth of 400 feet. Drifts were driven north and south on the 600 and 800 foot levels encountering 50 feet of ore in the south drift on the 600 level.

Recorded production 1875; 7,297 tons, $16,876; average per ton $2.31.

During 1876, ore was encountered on the 800 level and a steady production of ore was maintained from stopes on the 300, 400, 600 and 800 levels. The shaft was sunk to a depth of 1200 feet below the surface and a winze was sunk in "excellent" ore from the 800 to the 1000 foot level.

Recorded production 1876: 30,730 tons, $856,591; average per ton $27.87.

During the fiscal year ending April 30, 1877, the mine yielded 90,563 tons of ore yielding $22.50 per ton, the cost of milling being $12 per ton. A drift was driven south on the 1000 foot level encountering ore. A winze was sunk from the 1000 to the 1150 level in ore and a drift was driven south at this depth encountering ore assaying from $30 to $35 per ton. By the latter,part of the year, the stopes on the upper levels were discontinued because the ore had become too low grade to mine and mill profitably.

Recorded production 1877; 127,379 tons, $2,339,057; average per ton $18.36.

During 1878, a winze was sunk from the 1150 to the 1300 foot level and drifts were driven north on both the 1000 and 1150 levels encountering low grade material. A winze was sunk below the 800 level from a point 220 feet north of the south line of the claim. After sinking the winze 60 feet a 2 foot streak of exceedingly rich ore was encountered. Drifts were driven south on both the 1150, to connect with the Silver Hill mine, and the 1300 levels encountering bunches of "fine" ore in both drifts.

Recorded production 1878; 12,252 tons, $237,443; average per ton $19.37.

During 1879, the Waller Defeat section of the claim was again prospected and good ore was found near the surface. The winze from the 1150 level was continued to the 1550 level at which depth a drift was driven south encountering streaks of good ore.

Recorded production 1879; 2,677 tons, $27,649; average per ton $10.33.

Recorded production 1873 to 1879 inclusive:

Average tons - 183,174

Gross Value - $3,554,461.69

Average per ton - $19.40

(Geology of Comstock Lode, G. F. Becker, page 10)

During 1880, the winze from the 1150 foot level was continued to the 1650 level where drifts were driven west and southwest encountering bundhes of ore.

During 1882, a drift was driven south on the 2100 level from the Alta mine in a fruitless search for ore. The lower levels of the mine were flooded in 1884 and work in the upper levels of the mine was begun.

During 1885 and 1886, a small and erratic production of low grade ore was made from the old stopes on the upper levels of the mine.

From 1887 to 1890 inclusive, drifts were driven north and south on the 490 and 570 levels and a raise was put up above the 490 level encountering two feet of good ore. The drift driven south on the 490 foot level encountered ore assaying from $25 to $30 per ton. Drifts were driven north and southeast on the 600 foot level encountering ore in both drifts. Drifts were driven north on both the 622 and 685 levels. The north drift on the 622 level encountered fair ore and a winze was sunk 200 feet below the level in good ore. A drift was driven north and a crosscut west, from the shaft, on the 822 level. During this period, approximately 30 tons of ore assaying from $22 to $30 per ton were produced daily from the 250, 300, 490 and 600 levels of the mine.

Recorded production 1889; 5,259 tons, $88,996; average per ton $16.92.

Recorded production 1890; 9,350 tons, $196,564; average per ton $21.02.

During 1891 and 1892, a winze was sunk below the south drift on the 490 foot level encountering fair ore and a crosscut was driven west from the drift. The winze from the main north drift on the 622 level was sunk to a depth of 1300 feet below the surface and a crosscut was driven east, from the bottom of the winze, encountering stringers of quartz. A drift was driven south from an east crosscut

and another north from a west crosscut on the 622 level and raises were put up from both drifts but no ore was found. Drifts were driven north and south on the 822 level encountering quartz assaying from $15 to $25 per ton 632 feet north of the shaft. A raise was put up from the north drift on the 822 foot level encountering spots of good ore and a drift was driven north from the raise in ore assaying from $10 to $15 per ton. The south drift on the 822 foot level encountered ore five feet in width and assaying from $20 to $25 per ton. During these two years approximately 25 tons of ore assaying $22 per ton were produced weekly from the 822 level of the mine.

Recorded production 1891; 2,474 tons, $39,519; average per ton $15.97.

During 1893, two men by the names of Bock and Blowey located the Peerless claim and sank a shaft for 45 feet being in ore all the way. A drift was driven south 12 feet and another north 20 feet, from the bottom of the shaft, on the vein showing it to be from 1½ to 2 feet wide and assaying $30 per ton. The Justice Company brough suit claiming trespass and won their case. Immediately after the suit was won, the Justice Company started the Blaine tunnel, 350 feet east of the Peerless shaft, to drive under the shaft. The tunnel cut 3 feet of $20 ore at a dpeth of 45 feet below the surface after beingdriven 60 feet and the tunnel followed the vein, which struck east and west, for 56 feet. The tunnel then left the vein and cut it again 85 feet further on and the tunnel again followed the vein for 50 feet, the vein averaging $5 per ton.

The Justice Company drove a drift north for 900 feet in the Woodville claim on the 490 foot level encountering ore and a crosscut was driven east on the north boundary line of the Woodville claim.

During 1894 and 1895, a stope was started in the Blaine tunnel 145 feet from the portal and about 30 tons of ore assaying $35 per ton were produced weekly from this source. A raise was put up and a winze was sunk from the tunnel encountering from three to four feet of fair ore 62 feet below the tunnel level.

No report for 1896 and 1897 inclusive.

During 1898, some ore assaying $40.10 per ton was obtained from the 55 level. Annual report.

No report for the years 1899 to 1901 inclusive.

During 1902, a few tons of ore were produced weekly having a value of $12.33 to $24.00 per ton. The ore was obtained from the 370 and 600 levels working off the south drifts.

Production continued from the 370 level in 1903, 1904 and 1905.

Recorded production 1905; 2,110 tons, $5,684; average per ton $2.69.

Between 1906 and 1908, the lack of reports indicates a period of inactivity.

During 1908, some work was done in the Blaine tunnel.

No reports for the period from 1909 to 1926 inclusive.

Total production, "Geology of the Comstock Lode", G. F. Becker,

1873 - 1879:	Tons	Gross Value	Average
	183,174	$3,554,461.69	$19.40
County Records Company & Leasers- 1889 - 1905.	19,193	330,763.00	17.23
Leasers - 1922-1924.	3,810	45,811.00	12.02
Gross....	206,177	$3,931,036.00	$19.07

Note: Production by Dayton Cons. Mines Co. followed in the 30's.

Justice Leasers - By years

Recorded production 1922; 250 tons, $3,732; average per ton $14.93.

Recorded production 1923: 3,457 tons, $39,066; average per ton $11.30.

Recorded production 1924: 103 tons, $3013; average per ton $29.25.

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BOX C, UNIVERSITY STATION

No. 28

THE HISTORY OF THE COMSTOCK MINES

KENTUCK

The Kentuck claim was staked in 1859 having 95 feet along the Comstock Lode, between the Crown Point and the Yellow Jacket claims.

The Kentuck Company started a two compartment shaft in 1863 and by 1866 the shaft had been sunk to a depth of 400 feet below the surface. Development work on the 275, 368 and 400 levels developed a body of ore 66 feet wide running the entire length of the claim. The rich bunches of ore found in the vein were sacked; the lower grade ore being mined separately. After the ore was mined out the timbers were removed and the stopes filled with waste.

During 1867 and 1868, the shaft was sunk to a depth of 700 feet below the surface and drifts and crosscuts driven on both the 600 and 700 levels encountered bodies of ore. A drift driven north from the Crown point mine on the 800 level proved that the ore on the 700 level extended down.

Mining operations were being carried out on the 700 and 800 levels when on April 7, 1869 a fire broke out on the 800 level of the Yellow Jacket mine forcing the closing of the lower levels of the mine until the following October.

During 1870 a steady but small production of ore was maintained from the 800 level up to within 80 feet from the surface while drifts were being driven north from the Crown Point mine on the 900 and 1100 levels. Very little ore was found on the 900 level while nothing but barren quartz was found on the 1100 level.

From 1871 to 1872, a small production of low grade ore was maintained from the upper levels of the mine. In 1872, a drift was run north from the Crown Point mine on the 1300 level, but no ore was found at this depth.

Production reported by G. F. Becker, page 10, "Geology of the Comstock" for 1865 to 1872:

Tons	Gross Value	Value per ton
142,289.5	$4,905,271.01	$34.47

From 1873 to 1880 inclusive, the mine had a small and spasmodic production of ore from the upper levels while drifts were driven south from the Yellow Jacket mine on the 1600, 2000, 2500 and 2828 levels in a fruitless search for ore.

The old upper levels of the mine were reopened in 1881 and during the year 500 tons of ore, yielding an average of $10.53 per ton, were produced by sorting the fill in the old stopes. The venture proved to be unprofitable and the following year the upper levels of the mine, from the 700 level to the surface, were leased to C. C Stevenson in 18[illegible] A crosscut was driven east on the 240 level encountering a body of ore 25 feet wide at the widest point, 90 feet long and extending for 35 feet above the level and 45 feet below the level. The ore yielded an average of $35.22 per ton. Crosscuts were driven east on the 160 and 400 levels but no extension of the orebody was found.

Recorded production 1881: 500 tons, $4613; average per ton $9.23.

Recorded production 1882: 5939 tons, $156,053; average per ton $[illegible]6.28.

Recorded production 1883: 11,096 tons, $257,328; average per ton $23.19.

Recorded production 1884: 17,259 tons, $298,999; average per ton $17.32.

The Stevenson lease produced much low grade ore from the old stope fills and the walls of the old stopes until 1885.

In 1885, the Kentuck Company again undertook the exploration of the upper levels of the mine. While a steady production of low grade ore was being maintained from the old stopes on the upper levels of the mine, a drift was driven north through the claim on the 1350 level from the Crown Point mine.

Recorded production 1885: 13,470 tons, $190,991; Average per ton $14.18.

During 1886, the mine yielded from 30 to 75 tons of low grade ore per day from the old stopes from the 1300 to the 100 levels. A drfft was driven south through the claim from the Yellow Jacket mine, on the 1700 level encountering some low grade ore.

Recorded production 1886: 12,468 tons, $170,502; average per ton $[illegible]13.68.

From 1887 to 1889 inclusive, a small production of ore was made from the old stopes of the mine. Good ore was encountered on the 160 level of the mine and a winze was sunk 127

below the 900 level encountering ore. Drifts were driven north and south, from the winze, on the 950 level. A drift was driven north from the Crown Point mine on the 1000 level connecting with the winze below the 900 level.

Recorded production 1887: 3065 tons, $44,488; average per ton $14.51.

Recorded production 1888: 6523 tons, $114,070; average per ton $17.49.

During 1891 a drift was driven north from the Crown Point mine on the 500 level and crosscuts driven west from this drift encountered streaks of quartz assaying from $3 to $5 per ton. A raise was put up above the 950 level in low grade material. The north drift on the 1000 level encountered bunches of ore and a raise was put up from the 1000 to the 950 level. A crosscut was driven west from a point 30 feet up the raise encountering ore assaying from $5 to $17 per ton and drifts were driven north and south on the ore. Crosscuts were driven east and west on the 1000 level encountering ore in an east crosscut on which stoping operations were carried out. A winze was sunk 100 feet below the 1000 level, from a west crosscut, and a crosscut was driven east from its bottom on the 1100 level.

During 1892 and 1893, a drift was driven north on the 160 level encountering some ore which was subsequently stoped. A drift was driven south, from the winze below the 100(level, on the 1100 level. A crosscut was driven east from this drift encountering fair ore 5 feet in width and a drift was driven south and a raise put up on the ore.

Recorded production 1892: 338 tons, $4,102; average per ton $12.14.

Recorded production 1893: 2,871 tons; $20,149; average per ton $7.02.

During 1894 and 1895, the south drift on the 1100 level was extended to the south boundary line of the claim and crosscuts were driven east and west from the drift. A crosscut was driven east and a drift south on the 1035 level encountering some ore. A winze was sunk below the 1100 level encountering bunches of ore assayingfrom $4 to $22 per ton. A drift was driven south into the claim from the Yellow Jacket incline on the 1200 level encountering ore assaying from $14 to $22 per ton.

By 1896, all known commercial ore in the mine had been extracted and work on the claim was suspended.

Total production between the years 1865 to 1893 inclusive:

Total tons - 215,818

Gross Value - $6,166,566

Average value per ton $28.57.

Includes production reported in "Geology of the Comstock", G. F. Becker, page 10.

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BOX C, UNIVERSITY STATION

No. 29

THE HISTORY OF THE COMSTOCK MINES

KEYES

The Keyes claim was located on the east side of Seven Mile Canyon adjoining the Monte Cristo claim.

A shaft was sunk to a depth of 250 feet, encountering small streaks of ore. After driving north and south drifts on the 250 level, a winze was sunk to the 300 level. Crosscutting east and west from the north and south drifts driven on the 300 levels is reported to have exposed a quartz vein 60 feet wide. A two foot section along the footwall was also reported to be "rich ore". Some ore was produced from that section of the vein in 1888.

Recorded production 1933: 550 tons, $3,934; average per ton $7.15.

1933 production was by the Uncle Sam Mining Company.

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No. 30

THE HISTORY OF THE COMSTOCK MINES

KNICKERBOCKER

The Knickerbocker claim was located in 1859, and had 1200 feet along the Comstock Lode, to the Southwest of the Overman, and West of the Caledonia.

The first work on the claim performed in 1860, consisted of two shallow tunnels 200 feet long driven across the vein to encounter low grade ore. Another tunnel 600 feet long was driven in 1863 to cut the lode at a depth of 250 feet below the surface. A large body of low grade ore yielding from $10 to $20 per ton was developed on this tunnel level.

In 1864, two shafts were sunk to explore the vein below the tunnel level the deepest being sunk to a depth of 300 feet below the tunnel level and intersecting the tunnel at a point 175 feet from its portal. A large flow of water was encountered at this depth preventing further sinking of the shaft until new pumps could be installed. The mine was closed down in 1866 due to the general depression of the camp and the reluctance of the stockholders to pay the assessments levied.

Upon resuming work in 1871, a new 3 compartment shaft was being sunk, and at the same time, a small tonnage of low grade ore was being obtained from the old workings.

By 1874, the shaft had been sunk to a depth of 700 feet. West crosscuts were driven on the 400, 600 and 700 levels. A drift driven northwest on the 400 level encountered streaks of quartz yielding good assays.

During 1877, the shaft was sunk to the 800 feet where a large flow of water was encountered flooding the mine. The water and the litigation, that the company had become involved in, caused the mine to be closed down a second time.

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BOX C, UNIVERSITY STATION

No. 31

THE HISTORY OF THE COMSTOCK MINES

KOSSUTH

The Kossuth claim, embracing 2700 feet along the Silver City branch, to the southeast of the Dayton, of the Comstock Lode, was located in 1859. Very little work was done on the claim until 1873 when a three compartment shaft was started for the purpose of cutting the vein at a depth of 600 feet.

The hoist was equipped with two 35 horsepower steam engines; and by June 1874, the shaft had been sunk to a depth of 216 feet. Drifts driven north and south on the 200 level encountered low grade ore. Upon sinking the shaft below the 216 level, the large flow of water encountered flooded the mine. Before work could be resumed, pumping equipment had to be installed.

An 8-inch pump, having a 9 to 7 foot variable stroke and a capacity of 12,000 gallons of water per hour, together with a 75 horsepower steam engine were installed to unwater the mine. After unwatering the mine, the shaft was sunk to a depth of 600 feet by 1877. North and south drifts and other developments on the 350 level indicated the vein to be 80 to 100 feet wide and assaying from $15 to $25 per ton. The vein was further explored through north and south drifts driven from the bottom of a winze which had been sunk 100 feet below the 200 level. An air shaft, started from a point 600 feet south from the main shaft, was sunk to improve ventilation in the mine.

While the ore above the 300 and 350 levels was being mined, north and south exploration drifts were driven on the 500, 550 and 600 levels. Although some rich streaks of ore were found on the 500 and 550 levels, the operating company failed to discover ore that could be mined at a profit below the 350 level.

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BOX C, UNIVERSITY STATION

No. 32

THE HISTORY OF THE COMSTOCK MINES

LADY BRYAN

The Lady Bryan claim was located in the Flowery mining district near Six Mile Canyon in 1860.

A shaft started in 1865 to explore the ledge, was sunk to a depth of 600 feet. North and south drifts were driven on the 280, 340 and 400 levels. The vein was found to be 8 feet wide, but only from 8 to 24 inches of that width was found to be ore that assayed from $30 to $40 per ton. Work was suspended on the claim in 1866 due to the failure to find any quantity of commercial ore and the general effect of the depression.

A new three compartment shaft was started by the Lady Bryan Company when work was resumed in 1874. The dimensions of each hoisting compartment was 4.5 feet by 5 feet and that of the pumping compartment 5 feet by 6 feet, all in the clear.

While sinking the new shart, crosscuts were driven in the outcropping of the ledge, discovering from 1 to 3 feet of rich ore. Crosscuts and drifts driven from the old shaft on the 80 and 170 levels exposed considerable ore. The crosscut on the 170 level was extended to the new shaft.

Recorded production 1876: 225 tons, $3,940; average per ton $17.51.

Production rpported by G. F. Becker, page 10, "Geology of the Comstock" as follows:

	Tons	Gross Value	Value per ton
1868 - 1876 incl.	3425	$64,507.96	$18.83

In 1877, the new shaft was sunk to a depth of 600 feet, and drifts were driven north and south on the 250, 380, 500 and 600 levels. Ore was found only on the 250 and 380 levels.

In the period from 1877 to 1880, the shaft was sunk to a depth of 900 feet, becoming an incline shaft below the 750 level. The north and south drifts driven on the 750 level were in low grade ore assaying from $6 to $7 per ton.

When it became evident that no further ore could be found in the upper levels of the mine, a test hole (pointing toward the east) was drilled from the bottom of the incline portion of the shaft. While the miners were drilling the hole, the mine superintendent watched the operation and saved the drill cuttings. The assay obtained on the drill cuttin indicated a value of $400 per ton, When the hole was blasted, no ore was found.

Before fraudulent practices were suspected, the speculative value of the company stock increased rapidly. Upon investigation, it was found that the hole had been previousl drilled and loaded with good ore by one of the miners possessing a stock interest in the company.

The company operations were suspended in 1881. In the succeeding years, leasors worked intermittnetly on the surface of the claim.

Recorded production 1883: 300 tons, $1,800; average per ton $6.00.

Recorded production 1884: 1372 tons, $8,135; average per ton $5.93.

Recorded production 1885: 534 tons, $3,656; average per ton $6.84

Recorded production 1932: 419 tons, $9,539; average per ton $22.77.

Total production between the years 1868 to 1932 inclusive:

Total tons - 6050

Gross Value-$87,637.96

Average value per ton $14.49.

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RENO, NEVADA

BOX C, UNIVERSITY STATION

No. 33

THE HISTORY OF THE COMSTOCK MINES

MEXICAN

The original Mexican claim was staked in 1859, having 100 feet along the lode. However, the original claim was consolidated with the Ophir and the present Mexican claim, having 600 feet along the lode, was acquired in 1868 from the North Ophir company. The Mexican Company was incorporated September 28, 1868 with 5000 shares having a par value of $100 each, with ground lying between the Ophir and the Union.

Production recorded by G. F. Becker, page 10, "Geology of the Comstock".

	Tons	Gross Value	Value per ton
1867	811	$28,645.79	$35.32

Very little work was done on the claim until 1874 when exploration work was carried on through the Ophir shaft. A drift was driven to the north end line of the claim on the 1300 level and a winze was sunk near the north end line developing some low grade ore.

During 1875 and 1876, exploration work was carried on from the 1465 level of the Ophir shaft. A drift was driven north on the vein and ore assaying as high as $50 per ton was encountered. A drift driven 30 feet north from the discovery encountered six feet of low grade ore, the vein having become 200 feet wide at this point. Prospecting was carried on 100 feet farther north, by east and west crosscuts across the vein and small bunches of ore were encountered. The bunches of ore extended for 95 feet above the level and for 45 feet below the level.

Failing to develop an outstanding ore body on the 1465 level, prospecting was carried on in 1877 from the 1600 and 1700 levels of the Ophir shaft. Drifts and crosscuts were driven on these two levels and a joint winze was sunk with the Ophir from the 1700 level. Much low grade ore was developed on these two levels.

During 1878, exploration work was confined to the 1600 level. The main north drift from the Ophir inline to the Mexican south end line was enlarged. A joint Ophir east crosscut was driven 284 feet from the main north drift. Near the north end line of the claim, a joint crosscut was driven 478 feet to the east with the Union Co. The two companies then sank a joint winze to the 2000 level. A large amount of low grade ore was developed by the workings on the 1600 level.

During 1879, development work was carried on from the 2000 level of the Ophir incline. A joint Union west crosscut was driven 461 feet encountering very low grade material. A joint Ophir crosscut was driven west from the north drift on the 2300 level of the Ophir incline for 396 feet encountering low grade ore.

During 1880 a drift was driven north on the 2500 level from the Ophir incline through the Mexican claim to connect with the Union shaft. The joint Union winze was sunk to connect with the north drift on the 2300 level and a raise was put up from the 2500 level to connect with the winze. Joint crosscuts and diamond drill holes were driven east on the 2300, 2400 and 2500 levels, with the Union Company near the north end line and with the Ophir Company near the south end line of the claim.

During 1881 and 1882, the joint Ophir winze was sunk to a depth of 2900 feet below the surface. Drifts were driven north from the joint winze on the 2700 and 2900 levels and joint east crosscuts were driven on both levels with the Ophir and Mexican companies. Stringers of ore were encountered in the north drift on the 2700 level and some ore was mined from a three foot streak of ore found on this level.

During 1883 and 1884, the joint Ophir winze was sunk to a depth of 3100 feet below the surface where a drift was driven north through the Mexican claim. A joint Ophir crosscut was driven east near the south boundary line of the claim. Work below the 2700 level was suspended in 1884 when the Sierra Nevada and Union companies encountered a large flow of water on the 3300 level.

During 1885 and 1886, drifts were driven north from the old Mexican shaft on the Ophir Claim into the Mexican Claim, no ore being found.

During 1887, 1888, 1890 and 1891, two joint drifts were driven with the Union Company, north through the Mexican claim from the Ophir shaft, one drift on the 1300 level and the other on the 1465 level. Many crosscuts were driven east and west on both levels in a fruitless search for ore. A drift was driven south in low grade material from a crosscut driven east at a point 1016 feet south of the Ophir shaft.

During 1892 and 1893, a winze was sunk below the 1465 level and at a point 50 feet down the winze, an east crosscut was driven encountering material assaying $5 to $6 per ton.

During 1894 and 1895, za west crosscut was driven 40 feet from a point 100 feet north of the south boundary line of the claim on the 1465 level. A raise was driven 45 feet above the level and a crosscut from the raise failed to find ore.

In 1896, operations were confined to the 900 and 1000 levels. On the 900 level, an east crosscut was driven from the north lateral, cutting porphyry, clay and quartz. A raise was put up 186 feet at a point 1439 feet out on the north lateral. A west crosscut was started on the 1000 level.

During 1897, 1898 and 1899, all of the work was concentrated on the 1000 level, consisting of east and west crosscuts, and on the extension of the north lateral drift. The two important crosscuts, west crosscut No. 1 driven more than 700 feet from the north lateral drift and east crosscut criven more than 1100 feet, failed to expose any ore. Thus by October 1899, the work on the level was discontinued and the equipment removed.

In the following years, 1900, 1901, 1902, 1903 and 1904, the chief work consisted of drifting, crosscutting and raising on and from the 1600 level, jointly with the Sierra Nevada and Mexican mines. A connection with the south drift from the Union was completed and stations were cut for raises. The 1550 level was opened from the raises. The porphyry, clay and quartz found on that level was further prospected by an east crosscut driven 61 feet. By November 1901, the joint west drift had been driven 500 feet to a point approximately 275 feet north of the Mexican south line, finding ore between $5 and $40 per ton. A "west drift" possibly a west crosscut from the C & C shaft was driven 348 feet, at which point it entered hard diorite. Some joint east and

west crosscutting was done with the Ophir Mine. At the end of 1904, and during part of 1905, the Mexican, Union and Sierra Nevada mines were retimbering the shaft.

Recorded production 1901: 14 tons, $163; average per ton $11.64.

Preparations were made in 1906 for driving the 2000 level, east drift jointly with the Mexican and Sierra Nevada mines. By October 1907, the east drift had been driven 1393 feet. From the outline of the operations for the Sierra Nevada and Union mines, it will be recalled that the east drift was the important preliminary development work leading to the discovery and development of the ore found between the 2000 and 2700 levels, commencing in the northeast portion of the Mexican claim and extending into the Union and Sierra Nevada claims.

The annual report of the Mexican mine for the years 1911 and 1912 is given for a statement of the conditions relating to production.

For 1911: "2300, put in sill floor, ready for stoping. Put up one raise to 2200 level in mill ore. 75 feet in, development work took out 1749 tons assaying $27.17 per ton.

2400 level, put in sill floor; put up raise to 2400 level. In development work, took out 1422 tons of $27 ore.

2500 level, put in sill floor; put up raise to 2400 level; took out some first class ore, 2678 tons assaying $87.01 and 2672 tons of second class ore assaying $30.36. From the 2200 & 2300 levels, 468.1 tons of $21.29 ore and 182 tons of $11.80 ore were sent to the Butters mill. 100 ton cyanide plant (for the Mexican) under construction".

For 1912: "2300 level, 3042 tons $22.08 - 2400 level, 4807 tons $20.04 - 2500 level 6022 tons $34.68. Worked the 2300 and 2400 levels by shrinkage stoping and the 2500 level by square setting. Sinking winze from the 2500 level. Milled 19,396 tons of ore assaying $23.85 per ton. Recovered $21.96 per ton, extraction 92%.

Total ore mined 19,999 tons, mining $6.16, milling $2.81.

Took over the Keyes and Monte Cristie mines. Sunk the Keyes to 290 feet. Found a ledge of low grade quartz and a parallel ledge containing stringers of quartz and bunches of rich ore.

The Monte Cristie was worked 30 or 40 years ago to the 150 level. Leasers opened the 250 level, encountering low grade ore. Driving north and south."

During 1908 to 1918 inclusive, mining operations were concentrated on the above orebody. Since the work was very closely related to that performed on the Union and Sierra Nevada claims, an outline for the period would be only review and is therefore omitted.

Recorded production 1910: 1689 tons, $29,706; average per ton $17.59.

Recorded production 1911: 3619 tons, $286,862; average per ton $79.27.

Recorded production 1912: 29,650 tons, $459,696; average per ton $15.50.

Recorded production 1913: 14,069 tons, $413,250; average per ton $29.37.

Recorded production 1914: 1190 tons, $6,277; average per ton $5.27.

Recorded production 1915: 1252 tons, $13,727; average per ton $10.96.

Recorded production 1918: 1753 tons, $48,140; average per ton $27.46.

In January 1919, the 2700 level had been dismanteled. During the preceeding year, a winze had been sunk on the 2300 level and developed some ore. On the strength of that, additional work was planned for that level, and apparently abandoned early in 1919.

From February 1919, to the end of the year, operations were limited to the 2000 level and consisted of crosscutting, drifting and raising. A west crosscut was driven 393 feet exposing some $9 to $13 ore. The south drift was extended in quartz and porphyry, which assayed low. A raise was completed from the 2000 level to the 1900 level, encountering occasional good values. A west crosscut was started at the top of the raise on the 1900 level, exposing quartz stringers in porphyry.

During 1920, work was carried on both the 1900 and 2000 levels. The west crosscut from the top of the raise on the 1900 level was extended to a total length of 278 feet, cutting quartz and porphyry. A south drift was driven from the raise on the 1900 level and another from the west crosscut. Since this prospecting failed to reveal any ore, work on the level was discontinued in August. On the 2000 level, a "southwest drift from the south drift" was driven 63 feet in quartz and porphyry. A west crosscut was driven from the "southwest drift" in porphyry. The north drift on the level was driven in prophyry and quartz yielding low assays. In December, a raise was started on the Sutro Tunnel level. By March 1924, the raise had been advanced 50 feet and anorth drift driven from it in ore.

Total production between the years 1867 to 1918 inclusive:

Total tons - 54,047

Gross Value - $1,286,466.79

Average Value per ton - $23.80

G. F. Becker, page 10, "Geology of the Comstock" reports 811 tons gross value 28,645.79. That has been included here, although it may have been a part of the Ophir production.

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MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 34

BOX C, UNIVERSITY STATION

THE HISTORY OF THE COMSTOCK MINES

MINT

The Mint claim, located in 1864, lies a few hundred feet east from the Savage claim, and to the north of the Combination shaft.

In 1867, the Mint vein was encountered underground, by tunneling in 35 feet from a deep ravine at a point near the portal of the Gould & Curry tunnel. Upon crosscutting, the vein was found to be 10 feet wide and to yield assay samples ranging from $10 to $100 per ton. After drifting 180 feet along the hangingwall, the vein was explored by additional crosscuts. In the crosscut driven from the end of the drift, the vein was seven feet wide.

During 1869, a two compartment shaft was sunk to a depth of 90 feet, encountering occassional "boulders" assaying from $2,000 to $3,000 per ton. A north crosscut and a southeast drift were driven on the 90 level. The vein was found to be 6 feet wide on that horizon.

After the installation of new hoisting machinery and during the period between 1874 and 1877, the shaft was sunk to the 1400 level. Some bunches of good ore were found in the shaft down to the 1385 level. The drifts and crosscuts on all levels, between the 200 and 1400 levels inclusive, failed to expose commercial ore.

In 1922, the 1600 level of the Savage mine was extended to connect with the Mint shaft in the preparation for a diamond drilling campaign. A diamond drill hole was collared at an d extended 850 feet from the Mint Shaft. Some quartz stringers were cut at a point 661 feet out in the hole. The hole was reported to end in "low grade prophyry".

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RENO, NEVADA

Box C, University Station

No. 35

THE HISTORY OF THE COMSTOCK MINES

MONTE CRISTO

The Monte Cristo claim, located on the Brunswick Lode near the intersection of 6 Mile and 7 Mile Canyons, was extensively worked during the period from 1872 to 1882. Several bodies of ore, varying from 3 to 12 feet in width, were mined to a depth of 100 feet. The ore yielded from $10 to $20 per ton, 50% of the value being gold. The estimated gross value of the ore produced was set at $500,000. Mining operations were suspended when a large flow of water was encountered.

Recorded production 1881: 1920 tons, $18,980; average per ton $9.88.

Recorded production 1883: 931 tons, $11,379; average per ton $12.22.

Recorded production 1884: 2481 tons, $21,187; average per ton $8.53.

Recorded production 1885: 1455 tons, $12,182; average per ton $8.37.

Recorded production 1890: 496 tons, $4570; average per ton $9.21.

Recorded production 1879: 478 tons, $5,258; average per ton $11.00.

Recorded production 1880: 1965 tons, $21,945; average per ton $11.16.

In the period from 1912 to 1914, a large tonnage of $6.60 to $12.40 ore was produced as a result of the many drifts, crosscuts and raises driven on and from the 140, 250, 300 and 350 levels. This was mined under lease and transported over an aerial tramway to the Mexican Mill.

Recorded production 1913: 43,329 tons, $155,992; average per ton $3.601

Recorded production 1914: 9612 tons, $35,259; average per ton $3.67.

Total production between the years 1879 to 1914 inclusive: Total tons - 62,667; Gross Value - $286,752; Average value per ton - $4.58.

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MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 36

THE HISTORY OF THE COMSTOCK MINES

NORTH BONANZA

The North Bonanza claim was located in the Flowery mining district during 1861. The vein was explored by a tunnel started from a ravine. Work was suspended due to the failure to find ore in sufficient quantity while the tunnel was being driven.

Upon resumption of work in 1878, an east crosscut was driven from the old tunnel encountering a 35 foot width of ore yielding assays between a few dollars to several hundred dollars per ton. The entire width of the vein was reported to be good milling ore.

While the incline shaft was being sunk to a slope depth of 600 feet for further exploration of the vein, a steady production of ore was maintained from the workings above the tunnel level.

In 1879 and 1880, north and south drifts were driven from the incline shaft on the 200, 300, 400 and 500 levels. The first three levels encountered a body of base ore about 100 feet long and from 40 to 50 feet wide. The ore was an argentiferous galena which assayed between $30 and $50 per ton in the crude state and from $80 to $90 per ton after being concentrated. Although some of the base ore was found in the north drift on the 600 level, it became apparent that the main body had pinched out before reaching that depth.

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RENO, NEVADA

BOX C, UNIVERSITY STATION

No. 37

THE HISTORY OF THE COMSTOCK MINES

OCCIDENTAL

The Occidental claim was located in 1860 approximately 1½ miles to the east of the Comstock Lode on the Brunswick Lode. The claim was first staked for the purpose of producing lime. A kiln was erected on the property and a small production of lime was made. The present Occidental claims are to the south of the claims on the Brunswick Lode in the Sutro Tunnel grant that were developed jointly in 1895 by the Consolidated Virginia, Hale & Norcross and other companies.

In 1863, a tunnel was driven north from a ravine on a ledge that outcropped on the claim. The tunnel encountered good ore assaying as high as $100 per ton. Stopes were immediately started on the ore and by 1867, the mine had produced $250,000 worth of bullion.

By 1869 the main tunnel had been driven in 900 feet on the vein, the north end of the tunnel being 700 feet below the surface. The vein in the northern section of the tunnel was from 6 to 15 feet wide and yielded from $6 to $8 per ton as broken without sorting. While a steady production of low grade ore was being maintained from above the tunnel level two winzes were sunk in ore for 100 feet below the tunnel level. A new tunnel was driven to cut the orebody 400 feet below the tunnel level.

During 1870, the lower tunnel encountered 20 feet of excellent ore. The winzes from the upper tunnel level were connected with the lower tunnel level proving the ore to be 400 feet deep and from 10 to 20 feet wide.

The mine maintained a steady production of low grade ore until 1872 when the known orebodies were exhausted. The lower tunnel was driven ahead encountering some good ore.

Production reported 1868 to 1873, G. F. Becker, page 10, "Geology of the Comstock"
Tons - 7,849; Gross Value - $151,152.87; Value per ton - $19.25.

By 1875, the lower tunnel had been driven to the north end of the claim and many crosscuts driven east and west failed to disclose a commercial body of ore. Work on the claim was suspended during the year.

During 1879, work was resumed on the claim. A winze was sunk below the lower tunnel from which drifts were driven north and south in a fruitless search for a commercial body of ore and development work on the claim was again suspended.

Recorded production 1889: 6220 tons, $92,870; average per ton $14.93.

Recorded production 1890: 4257 tons, $78,273; average per ton $18.39.

Recorded production 1891: 3302 tons, $50,295; average per ton $15.23.

Recorded production 1892: 3728 tons, $60,578; average per ton $16.25.

Recorded production 1893: 121 tons, $2,127; average per ton $17.58.

Recorded production 1894: 321 tons, $5416; average per ton $16.87.

Work on the claim was resumed in 1895 and during 1895 and 1896, crosscuts were driven west on the 550 level of the mine encountering ore 4 feet in width and assaying as high as $40 per ton. A winze was sunk 40 feet below the 550 level in the same good ore the entire distance.

In 1897, work was in progress on the 550, 750 and 850 levels. The main east crosscut on the 550 level was driven more than 766 feet. A winze was sunk from the east crosscut at a point 117 feet from the 550 level tunnel. At a depth of 71 feet, water was coming into the winze. A southeast drift was driven from the west crosscut passing through bunches of ore. An east crosscut was in turn driven from the southeast drift from the west crosscut to the hanging wall. The south drift on the 850 level was driven ahead passing through bunches of ore and quartz and porphyry.

In 1899 and 1900, some work was done in the claim through a long tunnel driven from the Sutro Tunnel by the Zadig interests.

Total production between the years 1868 to 1894 inclusive:

Total Tons - 25,798 Gross Value - $440,711.87 Average value per ton - $17.08

Includes production reported by G. F. Becker, page 10, "Geology of the Comstock", but not production for 1939 for lack of tonnage.

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BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 38

THE HISTORY OF THE COMSTOCK MINES

OPHIR

The present Ophir claim, having approximately 680 feet along the Comstock Lode, is made up of the South Ophir, Mexican, North Ophir and Burning Moscow claims which were the claims staked at the time of the original discovery by McLaughlin, O'Riley, Comstock and Penrod. The Ophir lies between the Consolidated Virginia and the Mexican.

By November 1859, the Ophir Company had sunk two incline shafts to the 30 foot level showing the vein to be 20 feet wide with 4 inches of high grade silver ore. Thirty-eight tons of the rich silver ore, packed to San Francisco by mules, brought $112,000 after paying $410 per ton for reduction and $140 per ton for freight. The less rich ore was worked in arrastras on the property.

The Ophir Company on sinking their shaft to the 50 foot level encountered a large flow of water and to handle the water a 15 horsepower steam engine was brought from San Francisco, the first steam engine to arrive on the Comstock Lode. The engine hoisted a tank fitted with a spindle valve at its bottom thus bailing water out of the workings. The Mexican, Ophir, Central and California companies let a contract to drive a drainage tunnel, known as the Union Tunnel, under their workings. Work was begun June 8, 1860 and cut the vein at a depth of 135 feet below the surface. The tunnel was 1,100 feet long and was 4 feet by 5½ feet in the clear and cost $9 per foot. The tunnel was connected with the Ophir incline at a depth of 175 feet below the surface.

On the 50-foot level the soft sulphide vein had been from 3 to 4 feet wide but on the 175 foot level it was found to be up to 65 feet wide. The mining methods of the day were not suitable for mining such a wide body of soft ore. A young engineer, Philip Deidesheimer, was called in to make changes in the mining method and he developed the square set method of mining.

The Ophir claim had been worked by an association of owners in 1859, but with the need of more capital and better supervision, it was necessary to have a stronger organization. Consequently, the Ophir Mining Company was organized April 28, 1860 having 1600 shares with a par value of $300 each.

A vein of ore 23 feet wide was found on the Burning Moscow claim which was located just to the west of the Ophir claim. The Ophir Company brought suit March 16, 1863 claiming that the vein was part of the Comstock Lode and was covered by the Ophir claim. A long period of litigation and underground fights followed until the Ophir Company purchased all the stock of the Burning Moscow Company in October 1865 for $70,000.

The Ophir Company was the first on the Comstock to raise ore from the mine with steam power. This was accomplished in 1860 by wrapping a rope around the shaft of the pumping engine. However, in sinking their new shaft in 1864 they resorted to a horse powered whim.

In July 1863, the Mexican mine caved to a depth of 225 feet cuasing many workings in the Ophir to cave also. In August of this year, the Ophir Co. shipped 60 tons of ore to San Francisco valued at $2500 per ton. This high grade ore was being sacked in the winze. An ore body had been found 20 feet to the west of the incline assaying $405 per ton and the ore was being mined at the rate of about 15 tons per day.

In 1864, a contract was let to sink a new 9 foot by 12 foot shaft 300 feet deep. The Ophir Co. leased the Central shaft, which was sunk on the line between the California and Ophir claims, to work through while the new shaft was being sunk. The Ophir Co. sank the Central shaft an additional 200 feet to the 600 foot level. About 1600 tons of ore yielding $120 per ton was raised monthly through the shaft, the ore coming from the fourth, fifth and sixth levels. The new shaft being sunk by the Ophir Company, called the Mexican or Spanish shaft, was equipped with a 120 horsepower steam engine having an 18-inch cylinder and a 42-inch stroke. The engine ran two 15-inch pumps, and two double engines of 65 horsepower ~~xxxxxx~~ each were used for hoisting buckets.

During 1864, the Mexican Company, besides sinking two new shafts, was extracting from $4000 to $6000 worth of ore daily. During the same year, the Ophir Company produced $1,007,390. Out of $1,323,909 produced in 18 months the stockholders did not realize a dollar but paid $82,800 in assessments.

During 1865 the Spanish shaft was sunk to a depth of 550 feet below the surface and a crosscut was driven 95 feet to the east from the bottom. A drift was driven south from the shaft to tap the water in the Central shaft. The water from the shaft was raised to discharge into the Union Tunnel, 155 feet below the surface. Forty tons of $60 to $100 ore was being mined daily from a 15 foot vein found on the 360 level of the old workings.

In 1866, a body of ore was found that was 56 feet long, 12 feet wide and 93 feet in depth, pinching out 35 feet above the eighth level and yielding $50 per ton.

During 1867, a four compartment vertical shaft was started 1200 feet east of the outcrop to explore the vein at greater depths. While the new shaft was being sunk, the old shaft was sunk to the 700 foot level where many drifts and crosscuts were driven. No ore was encountered and by the end of 1868, the shaft had been flooded to the 400 foot level.

During 1870, the old upper workings were again prospected and rich streaks of ore were found which yielded from 8 to 30 tons per day. However, the old upper workings had been worked and reworked and to find any new orebodies that would produce any great amount of ore was deemed hopeless; consequently, the following year work was confined to the sinking of the new shaft.

By 1872, the shaft had been sunk to the 1300 level and crosscuts were driven west on both the 1100 and 1300 levels to cut the vein. Drifts were driven north and south on both levels and with the exception of some very rich streaks on the 1300 level, no ore was found.

During 1873, the shaft cut the footwall of the vein on the 1700 level and prospecting work was carried on vigorously by driving drifts north and south on the 1465, 1600 and 1700 levels, since the Consolidated Virginia to the south had encountered bonanza ore.

During 1874, a connection with the Consolidated Virginia shaft was made on the 1300 level. Ore was encountered in this south drift at a point 180 feet from the south end line of the claim. A winze was started on the ore to connect with the 1465 level and by September, the winze had opened up 23 feet of ore assaying from $150 to $200 per ton and was producing 200 tons per day. A winze was started from the 1465 level down the footwall of the vein to connect with the south drift of the 1700 level. The following year, prospecting and development work was confined to the 1300, 1465, 1600 and 1700 levels. A daily production of from 150 to 300 tons of ore yielding about $100 per ton was maintained throughout the year.

The winze following the ore from the 1465 to the 1700 level encountered a new vein about 30 feet above the 1600 level where the ore pitching to the northwest was cut off by the new orebody which came in from the west and pitched to the northeast.

During 1875, diamond drills were employed to prospect the walls of the vein as well as the vein itself. In October of this year, a fire swept Virginia City destroying the Ophir surface plant. Immediately following the fire replacement of the buildings and equipment was started and the mine was producing again by December 15 of the same year.

Recorded production 1875: 24,066 tons, $1,068,696; average per ton $44.40.

During 1876 ore was found between the 1100 and the 1300 levels and a daily production of 180 tons of ore assaying $90 per ton was made from both this new source and the stopes (which were 30 feet wide) on the 1600 level. During June of this year, production was increased to 300 tons per day. Drifts were driven on the 1600 and 1700 levels south to the California line and north to the Mexican line.

Recorded production 1876: 71,095 tons, $2,386,891; average per ton $33.57.

By 1877, the daily production had dropped to 25 tons and the shaft was being sunk on an incline from the 1700 level in a search for new bodies of ore. By July, the incline had been sunk to the 1900 level and drifts were driven north and south to prospect the lode at this depth. A body of ore assaying from $14 to $54 per ton was encountered on this level at a point about 300 feet north of the California line. The gold values and the silver values in this new orebody were about equal and the quartz was tinged green with chlorides. A vertical winze was sunk on the ore and at a depth of 18 feet, it had

passed out of the vein into another having the same character of ore as that found in the vein on the upper levels. The new hanging wall was called the Hardy Vein after the superintendent of the mine.

Recorded production 1877: 6,165 tons, $158,418; average per ton $25.70.

During 1878, the incline shaft was sunk to a depth of 2200 feet below the surface and drifts were driven north and south on both the 2100 and 2200 levels. Stoping operations were carried out on the 1900 and 2000 levels producing 80 tons of ore per day assaying from $250 to $300 per ton, all of the ore being produced from the Hardy vein. During October of this year, a body of water was tapped on the 1600 level of the Union mine which flooded the Ophir mine to the 2100 level.

Recorded production 1878: 1,286 tons, $118,565; average per ton $92.19.

During 1879, the incline shaft was sunk to a depth of 2500 feet below the surface. Drifts were driven north and south on the 2300 level and a crosscut was driven west on the 2400 level encountering northing but streaks of low grade ore. All of the ore was mined from the Hardy vein and above the 1200 level. The average recovery was 78% of the assay value. Drifts were driven and winzes were sunk on the 1600 and 1700 levels to supply better ventilation for the mine. The main north drift on the 2000 level was continued through the Mexican and Union mines to connect with the Union shaft.

Recorded production 1879: 19,676 tons, $1,261,404; average per ton $64.11.

During 1880, the main incline shaft was sunk to a depth of 2500 feet below the surface and the north drift on the 1600 level was driven to connect with the north lateral drift of the Sutro Tunnel. A joint crosscut was driven east with the California Company, near the south boundary line of the Ophir claim, encountering a streak of ore 10 feet wide assaying from $21 to $138 per ton, and the small body of ore subsequently developed produced 244 tons of ore. A drift was driven north on the 2100 level and a crosscut at its end cut a streak of high grade ore 3 feet wide but development work on the streak failed to develop a commercial body of ore. Drifts were driven north and south to the boundary lines of the claim on the 2200, 2300, 2400 and 2500 levels. Joint Mexican crosscuts were driven east and west on the 2500 level and a joint three compartment winze was sunk with the Mexican Co. from the 2300 to the 2500 level.

Recorded production 1880: 5194 tons, $166,041; average per ton $31.97.

Production reported by G. F. Becker, "Geology of the Comstock", page 10, as follows:

	Tons	Gross Value	Value per ton
1874 - June 1880	165,038 inc.	$13,659,622.33	$37.73

During 1881, a joint California crosscut was driven east on the 2300 level and a joint California winze was started from the end of the crosscut and sunk to the 2700 level where a second joint California east crosscut was driven. The joint Mexican winze was sunk to a depth of 2900 feet below the surface and joint Mexican crosscuts were driven east on both the 2700 and 2900 levels. As no new bodies of ore were encountered on the lower levels of the mine, prospecting work was carried out on the outcrops of the lode. Ore was found in the outcrops of the lode and 1697 tons of ore yielding $24.36 per ton or 70% of the assay value were produced from this source.

Recorded production 1881: 2686 tons, $65,070; average per ton $24.23.

During 1882 and 1883, the joint Mexican winze was sunk to a depth of 3100 feet below the surface at which depth material assaying $2 and $3 per ton was encountered. Ore was mined from the outcrops of the lode and work was carried on through the Central Tunnel on the 150 level.

Recorded production 1882: 3666 tons, $74,231; average per ton $20.25.

Recorded production 1883: 8410 tons, $93,904; average per ton $11.17.

During 1884, 1885 and 1886 drifts were driven north and south from the Ophir shaft on the 400, 500, 1300, 1465 and 1500 levels. A winze was sunk from the 150 to the 250 level where drifts driven north and south encountered ore. During 1884, the 150 and 250 levels yielded 5524 tons of ore yielding $14.12 per ton and during 1885, the production dropped to 866 tons of ore yielding $13.32 per ton or 70% of the assay value.

During 1887 and 1888, a drift was driven southwest from the end of the main east crosscut on the 1465 level and many crosscuts were driven east and west on both the 1300 and 1465 levels. A winze was sunk from the 1300 level to the 1465 level in fair grade ore and stoping operations were carried on from a sub-level driven 122 feet below the 1300 level The 122 and 222 levels of the old Mexican shaft were reppened and prospected but no ore found

During 1889, 1890, 1891, 1892 and 1893, a raise was put up from a point 340 feet in a west crosscut located 300 feet south of the shaft on the 1465 foot level and some ore assaying from $14.65 to $26.20 per ton was produced ffom the 1465 level. A raise was put up from the 1300 level encountering streaks of ore assaying as high as $25 per ton. A crosscut was driven east from the shaft on the 1300 level and a crosscut was driven west from the winze at a point 122 feet below the 1300 level in a fruitless search for ore.

Recorded production 1891: 300 tons, $5,925; average per ton $19.75.

Recorded production 1892: 407 tons, $4,836 ; average per ton $11.88.

During 1894, the Central tunnel was driven west to the old Mexican shaft. A crosscut was driven west from the old northwest drift driven from the Mexican shaft 56 feet above the Central tunnel level. The crosscut encountered old fills assaying fro $5 to $12 per ton and a second crosscut was driven east from the same northwest drift. A drift was driven north from a point 70 feet east of the shaft on the 1465 level and a crosscut was driven east from a point 124 feet north of the main east crosscut. A raise was put up from this second east crosscut in a fruitless search for ore.

During 1895 and 1896, prospecting work was prosecuted on the 1465, 100 and Central tunnel levels. The south drift on the 1000 level was driven to connect with the Consolidated Virginia shaft and crosscuts were driven east and west from a point 350 feet south of the shaft in a fruitless search for ore. Some ore assaying as high as $84 per ton was mined from small streaks encountered in the Central Tunnel.

Recorded production 1895: 472 tons, $7,327; average per ton $15.52.

Through 1897 and 1898, exploration work continued on the 1000 level. West crosscut No. 2, located approximately 180 feet north from the south boundary of the mine, was reopened and extended. West Crosscut No. 3 was driven more than 1100 feet. That work failed to reveal any commercial ore.

Recorded production 1897: 270 tons, $4,208; average per ton $15.59.

In 1899 a lateral to connect with the Sutro Tunnel was started and completed in 1899. That lateral was driven 595 feet. A north drift was driven from the lateral at

the 103 foot point. At 164 feet in, the lateral passed into hanging wall rock. Near the connection with the Sutro Tunnel, the lateral cut into quartz, clay and porphyry. A southwest drift was started on the Sutro Tunnel level on the quartz, clay and porphyry.

During 1900, repairs were made to the 1465 level and work was resumed on the Sutro Tunnel level. The southwest drift on the Sutro Tunnel level was driven 308 feet. At a point out 255 feet on the drift, bunches 8 to 24 inches assaying as much as $2.25 per ton were found on the hangingwall. The north drift on the same level was extended 276 feet beyond its starting point. A joint crosscut was driven 233 feet by the Ophir and Mexican mines on the Sutro Tunnel level. On the 1600 level, a north drift was driven 228 feet. At 164 feet from the starting point of the north drift, the vein was found to have a westerly dip.

Recorded production 1900: 186 tons, $11,342; avefage per ton $60.93.

In the year 1901, prospecting and development work was localized on the 1700 or Sutro Tunnel level. The northwest crosscut was extended to 553 feet. A north drift was driven from the northwest crosscut on quartz. The joint Ophir-Mexican west crosscut was extended out to more than 473 feet. The joint north drift on the Sutro Tunnel level was advanced to 415 feet in porphyry, clay and quartz. The southwest drift on the Sutro Tunnel level was being advanced in porphyry.

Recorded production 1901: 1849 tons, $47,517; average per ton $25.70.

During 1902, work was carried out on the 1600, 1650, 1700, 1900, 2000 and 2090 levels. On the 1600 level, the west crosscut at the end of the south drift was driven in low grade vein material. Repairs were made to the 1650 level. Some work was done on the air drift (1700 level). A drift to the northeast was driven on the 1900 level. From that, a raise was put up on "Second Grade Ore". Near the south line of the claim on the same level, a winze was sunk to a depth of 52 feet on ore. A raise was driven above the winze on good ore. Within the year, several hundred tons of ore varying in value between $22.79 and $58.06 per ton were extracted from the winze and raise. A north drift was driven on the 2000 level. From a point 55 feet back ffom the face of the drift, a crosscut was started. A raise was driven 41 feet above the level. From the top of the

raise some drifting was done on quartz and porphyry, yielding a little low grade ore. The 2150 level from the California claim had been extended to the Ophir line probably affecting the connection which slowly aided in cooling the 2000 level. On the 2090 level a vein was explored and found to be three feet wide and contain low grade ore.

Recorded production 1902: 1633 tons, $39,582; average per ton $24.24.

In 1903, some work was being done through the Central Tunnel. The southeast drift was bein driven on the 1800 level, yielding some low grade ore. The north drift on the 1800 level from the 14th floor was driven out on 2 feet of ore assaying between $10 and $15 per ton. The 1800 level was actually the 1890 level in the Ophir and the 2050 level from the C & C shaft.

Recorded production 1903: 1861 tons, $71,524; average per ton $38.43.

During 1904 the levels worked during the year were the 1500, 1600, 1800 (1890), 1900 and 2000. The face of the northeast drift on the 1500 level was advanced to 463 feet in low grade quartz and porphyry. The joint Mexican-Ophir east drift on the 1600 level was extended. The 1800 northeast drift was extended more than 355 feet. The stopes above the 1800 level were steady sources of a fairly large monthly tonnage of ore throughout the year. The value of the ore varied between $11.74 and $97.38 per ton.

A winze was sunk on the ore on the 1800 level. In the latter part of the year, at a point 310 feet from the south boundary, an east crosscut was started in quartz and porphyry. On the 1900 level, a west crosscut was driven from the northeast drift. An east crosscut was driven more than 160 feet from the drift. The northeast drift of the 1900 level was extended 512 feet beyond east crosscut No. 2. A few tons of $19.74 to $43.19 ore was obtained from the drift. The 2000 northeast drift was advanced to the 1010 foot point, encountering quartz which assayed low. Stopes were opened above the level, and yielded ore of a value between $14.95 and $26.40 per ton. A winze was started and sank 21 feet below the level on ore.

Recorded production 1904: 12,552 tons, $629,306; average per ton $50.14.

Mining and development work for the year 1905, was confined to the 1600, 1800, 1900, 2000, 2100 and 2200 levels. During January, a little advance was made in the joint East Drift on the 1600 level. The face was in porphyry. On the 1800 level, the stopes on

the northeast drift continued to yield some ore. A raise was started from that drift at the "south boundary". The operations on the 1900 level consisted of driving an east crosscut 69 feet, the face being in porphyry at that point; and retimbering the northeast drift. On the 2000 level, a main west crosscut was started; a south drift from the northeast drift was driven 120 feet on the vein; the face of the southwest drift was advanced to 277 feet; and the winze commenced during the year sank to the 2100 level. It is reported that more than one hundred tons of $155.61 was obtained from the bottom of the winze (2100) by the first week in February. Upon the establishment of the 2100 level, north and south drifts were driven. Stopes were opened on the south drift from which ore of a value between $31.15 and $89.13 per ton was extracted. In July, a three compartment winze was started from the 2100 level and by September, it had been sank to the 2200 level. The winze was in ore. Upon the completion of the station on the 2200 level, a south drift a north drift, and a west crosscut were driven. A southwest drift was driven from the west crosscut a distance of 40 feet. The face of the drift was in or On the Brunswick lode, the Ophir Tunnel was driven ahead. At the close of the year, the face had been advanced to 505 feet in porphyry, clay and quartz, low grade.

Recorded production 1905: 15,947 tons, $403,182; average per ton $25.28.

During the year 1906, operations were confined to the 2100 and 2200 levels. The stopes on the 2100 level continued to yield ore of a grade between $31.14 to $114.65 per ton. A drift to the "southeast ffom the northwest drift" was started. On the 2200 level, the north drift from the bottom of the winze was extended out to a distance of 250 feet; and an east crosscut started from a point 233 feet out in the north drift, was driven 75 feet through porphyry. The southwest drift from the west crosscut No. 1 was advanced to 445 feet in porphyry; an east crosscut was started from the bottom of the three compartment winze and driven 180 feet, the first 24 feet passing through streaks of quartz; and a west crosscut was driven from the southwest drift 22 feet exposing $25.50 ore. The south drift from the winze was stopped. A three compartment raise was driven from this level to the 2100 level in ore. As some ore is reported to have come from the 2300 level, it would appear the winze had been sunk to that level. The grade of the ore varied between $14 to $27 for the level. On the Brunswick Lode, the Ophir Tunnel

or west drift, cut the ledge assaying from $4 to $6 per ton.

Recorded production 1906: 12,632 tons, $371,086; average per ton $29.38.

Operations for the year 1907 were on the 1600, 1650, 1750, 2100 and 2200 levels. During the first part of the year, repairs were made to the 1600 and 1650 levels. Later, the joint Ophir-Consolidated Virginia east crosscut was started opposite the main west crosscut at a point 329 feet north of the Ophir side line and extended 240 feet. Some repairs were made to the airways on the 1750 level. Ore continued to be produced from the 2100 level stopes. The face of the "southeast drift from the northwest drift" was out 123 feet in porphyry. A south drift starting from a point 25 feet in the east crosscut from the northeast drift located 110 feet north from the winze station, was driven 90 feet in low grade quartz. On the 2200 level, the face of the west crosscut from the southwest drift was advanced to 226 feet. The northeast stope No. 2 was extended 88 feet in ore. The grade of the ore obtained from the 2200 level stopes was approximately the same as reported for the previous year. It is noted that 2 carloads of ore were shipped to Selby to be smelted. During the year, ore was shipped to the Kinkad Mill.

Recorded production 1907: 12,469 tons, $258,524; average per ton $20.73.

During the year 1908, operations were carried on from the 2100, 2200 and 2300 levels The north stope on the 2100 level, opened through the northeast drift continued to yield a considerable tonnage of ore of a value between $22.50 and $33.86 per ton. The northeast drift was advanced to a point 251 feet north of the winze (north boundary line). At a point 212 feet out in the northeast drift, low assays were reported. That point probably represents the northeast limit of the stope on the 2100 level. On the 2200 level, the south drift (now noted as east crosscut) starting from a point 25 feet in the east crosscut from the northeast drift located 110 feet north from the winze station was advanced 64 feet. The northeast drift, the sill floor for No. 2 northeast stope was advanced to 237 feet. Up to that point, a considerable quantity of ore of a value between $24.93 and $83.50 per ton was extracted during the process of drifting. In addition to that, a large tonnage of ore of approximately equal value was produced from the stope.

A connection with the 2200 level of the Ophir mine and the 2350 level of the Consolidated Virginia mine was completed. A south drift driven from a point 40 feet in the East crosscut from the three compartment winze on the 2350 level was in low grade quartz when out 87 feet. After further development, a few tons of low grade ore were produced.

Recorded production 1908: 36,863 tons, $488,380; average per ton $13.251

For the year 1909, the 1650, 2000, 2100, 2200 and 2300 levels were in operation. The west drift of the 1650 level was cleaned up jointly with the Consolidated Virginia. At a point 214 feet north of the south boundary on the 2000 level, a west crosscut was driven 340 feet. Some $21.99 to $54.91 ore was produced from a northeast drift driven the west crosscut on that level. A few hundred tons of ore valued between $12.92 and $26.81 per ton were produced from the 2100 level. Several hundred tons of ore of varying values between $9.84 and $32.62 per ton were produced from stoping operations on the 2200 level.. The northeast drift on the 2200 level was driven ahead in low grade ore. On the 2300 level, the south drift from a point 40 feet in the east crosscut from the winze was driven ahead 243 feet, the face being in porphyry and quartz that assayed low. The northwest drift was further advanced, yeilding low assay samples and a few tons of low grade ore. The northwest drift was driven to the north boundary line of the Ophir mine. From that point, east and west crosscuts were driven jointly with the Mexican Mine The joint west crosscut was driven 160 feet in porphyry and then discontinued. The joint east crosscut was driven 160 feet.

At a point 97 feet in the joint east crosscut, a face of ore averaging $63.81 per ton was exposed after completing three rounds of work. During the year several hundred tones of ore varying between the limits of $14,70 and $58.85 per ton were produced from the stopes above the 2300 level. Within the last three months of the year, the 2350 level main north drift (east crosscut) from the Consolidated Virginia shaft was jointly extended 186 feet.

Recorded production 1909: 37,957 tons, $286,264; average per ton $7.54.

During 1910, the 2000, 2100, 2200, 2300 and 2400 levels were active. The stopes from the 2000 level yielded a few hundred tons of ore valued between $30.35 and $101.42, per ton. On the same level, a west crosscut was driven 70 feet in porphyry containing seams of quartz; the southeast drift was extended 176 feet in low grade ore; and in the latter part of the year, a west crosscut was driven 123 feet from the main northeast drift to the downward extension of the ore found in the stopes above the 2000 level. A few hundred tons of ore were extracted from the new 2100 level stope. The main north drift (east crosscut) from the Consolidated Virginia shaft was extended an additional 414 feet as a joint working. From the 2200 level, a few hundred tons of ore were produced from the stopes; and the face of the south drift from the winze was extended out to a total distance of 314 feet. The face of the south drift from the east crosscut on the 2300 level was advanced 540 feet or a total of 785 feet from the starting point. Three west crosscuts were driven from the south drift. The face of the east drift was advanced a total distance of 393 feet passing through seams of quartz. The stopes on thi level yielded several hundred tons of ore of a value between $10.35 and $40.14 per ton. The three compartment winze was sunk 215 feet below the 2300 level. Upon completing the 2400 station, the main south drift was driven 690 feet in porphyry; an east crosscut was driven from a point near the station; at points 78 feet and 145 feet respectively in the northeast drift, an east crosscut was driven 210 feet and a west crosscut was started: the southwest drift from the east crosscut from the winze was driven 412 feet and a small tonnage of ore came from the stopes above the drift.

Recorded production 1910: 17,474 tons, $212,803; average per ton $12.18.

The 2100 level through the west crosscut from the main northeast drift yielded a large tonnage of ore. The reported values for the major portion of the ore varied between $23.76 and $80.53 per ton. A north drift was driven from the west crosscut on the ore for a distance of 95 feet. On the 2200 level, the west crosscut was extended to connect with the northeast drift from the Ophir incline, the south drift from the northwest crosscut was driven out 105 feet in porphyry and discontinued; and several hundred tons of ore were produced with a value between $27.14 and $51.19 per ton. A little stoping and the

production of a small tonnage of ore constituted the activities on the 2300 level. On the 2400 level, the southwest drift from the east crosscut was advanced 288 feet for a total distance of 700 feet; a southwest drift started from a point 318 feet in the west crosscut was driven 150 feet in low grade porphyry and quartz. At 136 feet in the southwest drift, a south drift was started and driven 133 feet and a west crosscut was driven from the southwest drift a distance of 284 feet in low grade prophyry and quartz. The production for the level consisted of a few tons of low grade ore. The three compartment winze was sunk to a depth of 94 feet below the 2500 level. The bottom of the winze was in porphyry. Within the year, the 2500 level station was completed; the south drift from the winze was driven to a point 324 feet from the north boundary line in low grade quartz and porphyry; and an east crosscut was driven 177 feet from the station in porphyry.

Recorded production 1911: 20,842 tons, $501,956; average per ton $24.08.

Work was being performed on the 1600, 2100, 2200, 2300, 2400 and 2500 levels during the year of 1912. A raise was started on the 1600 level from the Rose winze. Several hundred tons of ore of a value between $15.68 and $46.40 per ton were extracted from the stopes opened from the west crosscut from the northeast drift on the 2100 level. On the same level, west crosscut No. 1 was driven out a total distance of 287 feet and stopped; and west crosscut No. 2 was driven 79 feet. The first 86 feet of west crosscut #1 passed through quartz and porphyry from which a few tons of $20 ore were saved. The face of the south drift was advanced in low grade quartz and porphyry. On the 2200 level, a small tonnage of $20.45 ore was obtained and the east crosscut from the north drift was driven 68 feet in porphyry and stopped. The northeast drift on the 2300 level was stripped. The west crosscut from the northwest drift on the 2400 level was advanced 66 feet in porphyry. On the 2500 level, the east crosscut from the winze was driven out 651 feet to the south boundary. At that point, the vein formation was found but the work was discontinued. Out 318 feet and again at 404 feet in the east crosscut, quartz and porphyry with quartz seams were cut. The assay values from both places were low. The southwest drift was driven 576 feet into the vein. From a point 193 feet in the southwest drift, an east crosscut was driven 201 feet to hard porphyry. Seams of quartz were cut by the crosscut at a point 58 feet in from the drift. West crosscut No. 2 starting 570 feet

in the southwest drift was driven in porphyry. A north drift was driven from the winze on porphyry with seams of quartz.

Recorded production 1912: 7,136 tons, $176,218; average per ton $24.69.

In 1913, on the 1600 level, ore was stoped from the Hardy Vein. Ore was produced from the underhand stopes on the 2400 level. On the 2500 level, many crosscuts were driven in search for ore. A total of 21,509 tons of Ophir tailings were treated with cyanide and yielded $99,493. The extraction was 92% at a cost of $2.06 per ton. From the newspaper reports reviewed, the following is a more detailed account of the work for the same year: A north drift starting from a point 600 feet north from the G & C shaft was driven 504 feet encountering bunches of ore assaying $2 to $3 per ton. It is indicated that several hundred tons of ore were obtained from the southwest drift on the 2400 level by sinking in the vicinity of a point 313 feet out in the drift. A two compartment raise was started from the 2400 level and is credited with producing some $7.25 ore. On the 2500 level, the north drift was advanced 39 feet and discontinued. A two compartment raise was started from the level and yielded several hundred tons ranging in value between $12.12 and $25.53 per ton.

Recorded production 1913: 33,153 tons, $211,699; average per ton $6.39.

During 1914, ore was extracted from the Central tunnel, the 2200, 2350 and 2400 levels and development work was carried on from the Central tunnel, 2400 and 2500 levels. A raise was started at a point 193 feet in the Central tunnel. A small tonnage of ore valued at $11 per ton was reported to have been produced from the workings in the Central tunnel. A small tonnage of dump ore was recovered and milled. On the 2200 level, the east crosscut from the winze station was extended, cutting seams of quartz. Some ore of a grade of $22.42 per ton was extracted from the level. Most of the activity on the 2350 level was confined to the production of ore varying in value between $9.75 and $54.17 per ton. A small tonnage of ore was produced from the 2400 level. On the same level, the south drift was stripped; the two compartment raise located 260 feet from the winze was extended, and a southwest drift was started from the raise at a point 65 feet above the level. A west crosscut was driven from that drift for a distance of 98 feet in low grade quartz. From a point 32 feet up in the raise mentioned above, a west crosscut was

driven cutting streaks of quartz assaying from $1 to $4.40 per ton. On the 2500 level, repairs were made to the joint Mexican winze and an east crosscut started from the southwest drift.

Recorded production 1914: 4887 tons, $30,383; average per ton $6.22.

In 1915, the bulk of the ore produced was obtained from the old stope fill and some ore broken in the stopes. The fill varied between $4.50 and $6 per ton and accasiona streaks of ore varying between $7 and $15 per ton were found in the stopes. Jointly with the Consolidated Virginia mine, repairs were made to the 1465, 1800 and 2500 levels. On the 2500 level, the joint east crosscut was cleaned out and advanced along the south boundary. A little ore was found on the floor of the southwest drift 110 feet in from the north drift. A winze was started on the ore but soon stopped when the grade dropped below $11 per ton. On the 2700 level, the joint west crosscut was driven in porphyry.

Recorded production 1915: 10,811 tons, $37,234; average per ton $3.44

During 1916, operations were carried on from the Central tunnel, 2000, 2200, 2300, 2400, 2500 and 2700 levels. A few hundred tons of ore were produced from the stopes above the Central tunnel. Some $34.58 ore was produced from the 2000 level. The stopes on the 2200 level are credited with the production of some $39.93 ore. A few hundred tons of ore varying between $30.07 and $14.95 per ton come from the 2300 level. The joint Mexican east crosscut on that level was stripped. At a point 10 feet below the 2300 level in the three compartment winze, a west crosscut was driven jointly with the Consolidated Virginia mine, a distance of 250 feet in porphyry. A narrow vein found in the northwest drift on the 2400 level was prospected. The north lateral of the 2500 level was claaned and repaired for a distance of 1030 feet;and a few tons of $24.65 ore obtained from the south stope. On the 2700 level, the joint west crosscut started from the bottom of the two compartment winze during the previous year was driven 461 feet through porphyry with streaks of quartz into vein porphyry. Work on the crosscut was discontinued due to the large flow of water encountered. At 118 feet in the joint west crosscut, a south drift was started on 12 feet of low grade quartz dipping to the east. A north drift was driven 391 feet from the joint west crosscut. From its starting point to a distance of 254 feet,

the drift passed through low grade porphyry and quartz; at a distance of 315 feet it was reported in dacite and quartz; beyond that point, in porphyry and quartz.

Recorded production 1916: 2548 tons, $9,234; average per ton $3.62.

During 1917, the 2000, 2100, 2300 and 2700 levels were worked. On the 2000 level, "the main lateral drift from north boundary" was enlarged for a mine locomotive. Some $6 to $11.23 ore was mined. Number 1 and 2 crosscut raises on the 2100 level yielded some $6.38 to $30.12 ore. Six feet of quartz assaying $15.21 per ton was found in the southwest drift on the same level. The "old south lateral" on the 2300 level was repaired for a distance of 456 feet from the north boundary. The main north drift on the 2700 level was opened 642 feet, and a crosscut was started from the end of the north drift. On the same level, a south drift and an east drift were driven from the northwest crosscut 70 feet and 136 feet respectively.

Recorded production 1917: 640 tons, $6636; average per ton $10.37.

In 1918, $10 to $11 ore was obtained from the 1800 level; repairs were made to the ventilation system. On the 1900 level on the 2000 level, 680 feet of the north lateral was cleaned and a west crosscut driven from a point 666 feet from the boundary line. Some ore was obtained from the south drift and crosscut No. 2 off the south drift on the 2100 level, and a few tons of ore came from the 2700 level as a result of prospecting.

Recorded production 1918: 977 tons, $10,119; average per ton $10.36.

During 1919, the mine was worked on the 1465, 1600, 1800, 1900 and 2000 levels. On the 1465 level, the old east crosscut was reopened, the joint south-line crosscut was driven in porphyry; the northwest drift advanced; a west crosscut driven 54 feet; and some ore mined from the recently discovered orebody. Northeast, northwest and south drifts were driven to explore the 1600 level. In addition to drifting, crosscutting and raising on the 1800 level, a considerable tonnage of the newly found ore was mined. At a point 344 feet in the main north drift from the south line on the 1900 level, several hundred tons of ore were extracted. On the 2000 level, several hundred tons of ore were mined from the raise to the 1900 level and the southeast drift. A new riase was put up 54 feet in quartz and porphyry. The annual report issued January 21, 1920 for the year ending 1919, states

that 7310 feet of development work was completed mainly on the 1800, 1900 and 2000 levels; and new ore was discovered on each of the levels as well as the 1465 level. Silver sold at $1.15 an ounce.

Recorded production 1919: 8673 tons, $181,464; average per ton $20.92.

In 1920, work was performed on the 500, 1465, 1600, 1800, 1900 and 2000 levels. The 500 west crosscut and "south drift" were reopened for a distance of 920 feet and 110 feet respectively, and 110 feet of low grade quartz were found. A few hundred tons of ore were produced from the north-east crosscut on the 1465 level. A raise was driven from the raise in porphyry. The north drift on the 1600 level was driven in quartz and porphyry. The main north drift on the 1800 level opened the Ryan stope, from which some ore was extracted. On the 1900 level, an east crosscut was driven 152 feet. A raise was started in the north drift to prospect the Hardy vein. Joint prospecting with the Consolidated Virginia mine was done on the 2000 level. Some ore was produced from the level.

Recorded production 1920: 2470 tons, $56,018; average per ton $22.68.

During 1921, work was done in the surface tunnels, the 1900 and 2000 levels. Some fair assays were obtained in the surface workings. On the 1900 level, a crosscut was driven from the winze and some ore extracted from the Hardy vein. Ore was extracted from the Hardy vein on the 2000 level.

Recorded production 1921: 1740 tons, $17,342; average per ton $9.97.

In 1922, work was performed on the 1500, 1650, 1800, 2000 and 2100 levels as well as exploration through the surface tunnels. The south drift from surface tunnel continued to yield good assays. The 1500 north drift was reopened. Four tons of high grade ore were shipped to the smelter and more than 700 tons to the mill, all coming from the new portion of the Hardy vein found on the 1800 level. Excellent high grade ore from the winze and good ore from stope 205 on the 2000 level was reported. The north drift was reopened on the 2100 level and the No. 206 north winze started.

Recorded production 1922: 2712 tons, $39,889; average per ton $14.71.

During 1923, some mining was in progress on the 1565 and Sutro Tunnel levels. Good ore was found on the 1565 level. A ventilation drift, a raise and a crosscut from the raise were driven on the ore; and in addition, north and south stopes were established on the level. Likewise, north and south stopes were established on the same ore on the Sutro Tunnel level.

Recorded production 1923: 8544 tons, $44,281; average per ton $5.31.

A small production was made annually during 1924 and 1925 although no report was made regarding the location in the mine from which the production was made.

Recorded production 1924: 788 tons, $6,778; average per ton $8.60.

Recorded production 1925: 744 tons, $11,556; average per ton $15.53.

Total production between the years 1874 to 1925 inclusive:

Total tons - 439,137

Gross value - $18,075,440.33

Average value per ton $41.16

This final includes production recorded by G. F. Becker "Geolggy of the Comstock", page 10.

STATE OF NEVADA

JAY A. CARPENTER, DIRECTOR
B. F. COUCH, SECRETARY

Bureau of Mines

MACKAY SCHOOL OF MINES
RENO, NEVADA

BOX C, UNIVERSITY STATION

No. 39

THE HISTORY OF THE COMSTOCK MINES

OVERMAN

The Overman claim was located in 1859 to include 1200 feet along the Comstock Lode south of and adjoining the Segregated Belcher claim. The first work on the claim was performed in 1860. Several tunnels were driven across the vein near the surface in an unsuccessful search for ore.

A three compartment shaft started by the Overman Company in 1862, was sunk to a depth of 711 feet by 1866. The north and south drifts driven from the shaft on the 700 level failed to expose ore, although similar drifts on the 300 and 400 levels exposed 4 feet of $45 ore. Prior to stoping, north and south drifts were driven through the ore on the 361 (intermediate) level. The samples taken for assaying indicated the value of the ore to be $30.31 per ton.

In 1869, a contract was let for a proposed tunnel (probably Lambert tunnel) that would cut the vein at a depth of 226 feet within a distance of 960 feet. The tunnel was completed in 1870 and resulted in the development of a shoot of ore. The north and south exploration drifts on the 500 level encountered some ore.

The report for the fiscal year ending June 30, 1870, indicates that 40,021 tons of ore were obtained from the mine: 30,885 tons milled, yielded $15.62 per ton; 300 tons sold for $4.34 per ton; and 8836 tons extracted from the 226 level were sold for $1 per ton to settle the tunnel contract.

While ore was being produced from the 226 level, a new three compartment shaft was being sunk at a point 1500 feet east from the old hoisting works. The large flow of water encountered in the new shaft at a depth of 1130 feet during 1872, made it necessary to discontinue shaft sinking until new pumps could be installed.

Within the next six year, north and south drifts were driven from the new shaft on the 700, 900, 1000, 1100, 1200, 1300 and 1400 levels in search for ore. A winze was sunk from the 900 level to the 1100 level and some low grade ore was produced from that vicinity. A winze was also sunk from the south drift on the 1100 to the 1200 level. The streak of ore found in the winze was explored by a north drift on the 1200 level. Another winze was sunk in "fair ore" from the 1200 level to the 1300 level. South drifts on the 1200 and 1300 levels developed a large body of quartz.

Recorded production 1876: 1918 tons, $56,168; average per ton $29.28.

Recorded production 1877: 283 tons, $7,453; average per ton $26.34.

Production recorded by G. F. Becker, "Geology of the Comstock", page 10:

1866 - 1877 (incl.) 77,623 tons $1,411,489, Gross $18.18 per ton

During 1878 and 1879, a winze was sunk from the 1300 level to the 1400 level. North and south drifting on the latter level failed to find ore. North and south drifts were driven on the 1600 and 1900 levels from the double winze previously sunk from the south drift on the 1400 level.

The north drift on the 1600 level exposed low grade vein filling.

In 1878, the new four compartment shaft (Forman) was started at a point 4200 feet east from the Overman shaft. By 1880, the station on the 1500 level had been cut; a raise from the 700 level completed; and a double winze sunk to the 2275 level.

The Forman shaft was extended to the 2320 level between 1881 and 1882. Within the same time, north and south drifts were driven on the 2275 level from the Forman shaft, the north drift connecting with the 2560 level of the Belcher mine.

The Petaluma Street tunnel (Gold Hill) was started in 1883 following the flooding of the lower levels of the mine in the latter part of 1882. The tunnel cut the vein at a depth of 200 feet encountering considerable low grade ore. Upon the completion of a 26-foot winze from the Petaluma Street tunnel to the old Lambert tunnel, it became possible to maintain a steady production of low grade ore until 1887.

Recorded production 1884: 3310 tons, $37,189; average per ton $11.24.

Recorded production 1885: 2515 tons, $25,925; average per ton $10.31.

Recorded production 1886: 1740 tons, $17,955: average per ton $10.32

While maintaining an approximate daily production of 40 tons from the 226 level workings during 1887, 1888 and 1889, exploration and development work was carried out on the 300, 400, 600, 700 and 800 levels. The west crosscuts driven on the 300 level developed some "fair ore". The east and west crosscuts from the old 400 level stopes, the south drifts from the east crosscuts on the 600 and 700 levels and the east and west crosscuts on the 800 level failed to expose ore.

Recorded production 1887: 1945 tons, $16,681; average per ton $8.58.

Recorded production 1889: 7005 tons, $50,927; average per ton $7.27.

In 1890, a raise from the south drift and another from the north drift on the 1100 level encountered 2 feet and 4.5 feet of ore respectively. The 1200 level was explored by northwest and southeast drifts. Ore assaying from $22 to $46 per ton was exposed in the raise from the northwest drift on the 1200 level. During the year, the daily production was estimated at 40 tons having a value of $17 per ton.

Recorded production 1890: 16,919;tons, $256,307; average per ton $15.15.

South and southeast drifts on the 850, 900 and 1000 levels, and north and northwest drifts on the 1000, 1200 and 1300 levels were driven during 1891. The south drift on the 900 level was extended to connect with the two raises from the 1100 level. Some raising was done from the 1200 level northwest drift. The main portion of the ore came from the 1100 and 1200 levels, at the reported rate of 60 tons per day. The estimated value being $16 per ton.

Recorded production 1891: 25,828 tons, $290,132; average per ton $11.23.

A small tonnage of $20 to $50 ore was obtained from the 900, 1000, 1100 and 1200 levels during the period from 1892 to 1896 inclusive.

Recorded production 1892: 8735 tons, $99,358; average per ton $11.37.

Recorded production 1893: 814 tons, $9,061; average per ton $11.13.

Recorded prodution 1897: 130 tons, $3,937; average per ton $30.28.

A small production of ore, ranging from $16 to $39 per ton was obtained from the 900 level workings through the period from 1897 to 1903. The ore was developed by crosscuts, drifts and winzing on and from the 900 level. A north drift was driven from the winze below the 900 level.

In the period from 1904 to 1906, the companies operating the Caledonia and Overman mines jointly explored the 1200 level. The joint west crosscut was driven more than 800 feet. A west drift, starting from a point in the west crosscut yielding fair assays, was driven 935 feet. This so-called west drift was reported to have cut a vein 112 feet wide and to have entered the west wall. The 900 level was reopened under the same joint management. The north drift on the 1200 level from the Overman shaft (1400 level Segregated Belcher) was extended 700 feet to enter the Segregated Belcher claim. Some $6 to $9 ore was found in the first 58 feet of that drift. The east and west crosscuts from that drift and the north and south drifts from the crosscuts failed to find ore.

From 1907 to 1915, jointly supervised drifts and crosscuts were driven on the 1200 level (Overman). The United Comstock Mining Company performed some exploration work on the claim in 1926.

Recorded production 1933: 4294 tons, $23,092; average per ton $5.38. (a)

Recorded production 1936: 123,577 tons, $162,072; average per ton $1.31. (a)

Recorded production 1937: 65,254 tons, $133,675; average per ton $2.05. (a)

Total production between the years 1866 to 1937 inclusive: (Final)

Total tons - 338,970; Gross Value - $2,544,803.06; Average Value per ton - $7.50. This includes production given by G. F. Becker, page 10, "Geology of the Comstock".

Total production between the years 1933 to 1937 inclusive:

Total tons - 193,123; Gross Value - $318,389; Average value per ton - $1.65. (a) group, probably dumps - Con. Chollar - Savage Mining Co.

Total production between the yeare 1876 to 1897 inclusive:

Total tons - 70, 142; Gross value - $871,093; Average value per ton $12.42.

in a fruitless search for ore. A diamond drill hole drilled east on the 3100 level encountered 200 feet of solid quartz yielding low assays.

Recorded production 1883: 22,058 tons, $292,708; average per ton $13.27.

Recorded production 1884: 12,068 tons, $145,452; average per ton $12.05.

The Combination shaft was abandoned in October of 1886 and prospecting on the 250 level was carried on through an old tunnel that cut the Comstock Lode at that depth. A drift was driven southwest from the tunnel encountering a body of high grade ore 24 feet wide and 95 feet long.

During 1887 and 1888, while a large amount of good ore was being produced from the orebody on the 250 level, the Sharon shaft was sunk 100 feet to a depth of 550 feet below the surface. Prospecting work was carried out on the 300, 400 and 950 levels and a crosscut was driven west, from the Sharon shaft, on the 50 level. Drifts were driven south and southwest, from the Sharon shaft, on the 450 level. Drifts were driven south on both the 550 and 650 levels encountering ore in the latter. Crosscuts were driven east and west from the south drift on the 650 level.

Recorded production 1888: 3050 tons, $56,461; average per ton $18.51.

During 1889, a crosscut was driven west on the 500 level and crosscuts were driven east and west on the 650 level. Drifts were driven south on both the 750 and 850 levels encountering a large amount of low grade ore in the latter. A raise was put up from a point 400 feet south of the Chollar-Potosi shaft on the 930 level and a crosscut was driven west, on the same level, from a point 480 feet south of the shaft. During the year, approximately 100 tons of ore assaying $21 per ton were produced daily from the mine. No production recorded with the State.

During 1890, crosscuts were driven east on the 650, 850 and 930 levels and a raise was put up above the 930 level, from a point 400 feet south of the shaft, encountering ore assaying from $25 to $60 per ton after the raise had been put up 35 feet. A winze was sunk below the 930 level to a depth of 1230 feet below the surface. Drifts were driven north and south from the winze, on the 1030, 1130 and 1230 levels. A crosscut was driven east from a point 100 feet north of the winze encountering ore which was

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No. 40

THE HISTORY OF THE COMSTOCK MINES

POTOSI
(as separate from the Chollar-Potosi)

The Potosi claim between the Bullion and the Chollar was located in 1860 as a lode claim having 400 feet along the Comstock Lode. The claim overlapped the Chollar claim which had been staked in 1859 as a surface or placer claim.

The first underground work was done on the claim in 1860 when the Santa Fe Company drove a drift into the claim south from their main tunnel on the Hale & Norcross claim. The south drift from the tunnel was 400 feet below the surface and ore was found after it had entered the Potosi claim.

During 1860,and 1861, the Potosi Company sank two shafts one on the north end and the other on the south end of their claim. Large bodies of ore were found in both shafts and in December 1861, suit was brought against them by the Chollar Company claiming trespass. After many costly court fights in which no decision would be reached, a compromise was made April 22, 1865 and the two companies were incorporated as the Chollar-Potosi Mining Company. On June 7, 1865, ground was broken for a new joint four compartment shaft located 500 feet east of the old workings of the two companies.

On March 30, 1879, the shares of the Chollar company were increased to 224,000 to make two separate companies having 112,000 shafes each, the south 717 feet of the claim to be the Potosi and the north 717 feet to be the Chollar, and thereafter the two companies made separate reports.

Recorded production 1879: 8 tons, $124; average per ton $15.50.

From 1880 to 1887, prospecting of the Potosi claim at depth was accomplished by driving drifts south on the 2400, 2600, 2800 and 3100 levels from the Combination shaft. Crosscuts and diamond drill holes were driven east and west on all of the levels

immediately stoped. Crosscuts were driven east from the north drift on the 1130 level encountering bunches of ore and the south drift on the 1230 level disclosed quartz assaying from $10 to $30 per ton.

During 1891, the winze below the 930 level was sunk to a depth of 1500 feet below the surface and drifts were driven north and south from the winze, on the 1300, 1400 and 1500 levels. Crosscuts were driven east and west on the 930, 1130, 1230 and 1300 levels and a raise was put up from the 1230 level. Drifts were driven south from the Chollar incline on the 1100 and 1300 levels to connect with the winze below the 930 level.

During 1892 and 1893, crosscuts were driven east on the 750 and 1100 levels and a drift was driven south on the 1100 level, from a point 200 feet east of the winze below the 930 level, encountering low grade material. The raise above the 1230 level was put up to a height of 70 feet the last 59 feet being in ore and a drift was driven south, from the raise on the 1200 foot level in the ore. A raise was put up above the north drift on the 1130 level from a point 60 feet south of the north boundary line of the claim and crosscuts were driven east on the 1400 level. A joint crosscut was driven west with the Bullion Company near the south boundary line of the claim on the 1500 level and the winze from the 930 level was sunk 157 feet below the 1500 level. A joint drift was driven northwest on the 1800 level, with the Bullion Company, from the Ward shaft and a winze was sunk below the level in low grade material.

Recorded production 1892: 15,609 tons, $251,411; average per ton $16.30.

Recorded production 1893: 18,813 tons, $278,028; average per ton $14.78.

During 1894, 1895 and 1896, crosscuts were driven east on the 300 level and a drift was driven south on the 450 level encountering 6 inches of quartz assaying from $5 to $16 per ton in the latter. Crosscuts were driven east and west on the 450 level and a raise was put up above the level. A drift was driven south from the raise, on the 400 level and crosscuts were driven east and west from this drift. A drift was driven south on the 550 level encountering streaks of quartz assaying from $5 to $20 per ton after being driven 170 feet. Crosscuts were driven east on the 550 level and a raise

was put up above the level encountering streaks and bunches of ore assaying $35 per ton in the latter. Some ore assaying from $20 to $35 per ton was produced from old stope fills on the 450 level and bunches of ore on the 450 level and 550 level.

Recorded production 1895: 3574 tons, $53,380; average per ton $14.94.

Recorded production 1896: 1567 tons, $22,255; average per ton $14.20.

In 1897, some of the old workings on the main lode were reopened and some ore recovered. Since this mining claim apparently became a part of the property held by the Chollar-Potosi Mining Company and the underground workings in the Chollar and Potosi claims are so closely related, from this time on, the reader is referred to the Chollar claim.

Recorded production 1897: 228 tons, $5,597; average per ton $24.55.

Total Production between the years 1879 to 1897 inclusive:

Total Tons - 76,975

Gross Value - $1,105,416

Average value per ton - $14.36

Production by Comstock Merger Mines Inc. and Arizona Comstock Mine operation not included.

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No. 41

THE HISTORY OF THE COMSTOCK MINES

SACRAMENTO

The Sacramento claim, lying mainly north of Cedar Ravine on Cedar Hill and reported to have been 3000 feet long, was located in 1859.

In the early days of the district, many tunnels were driven across the ledge. No production was made until 1867 when a shallow tunnel, driven on the north end of the claim, encountered ore assaying from $50 to $75 per ton. The ore, occuring in bunches, was quickly exhausted. Work on the claim was suspended in 1868.

The claim was unsuccessfully explored for ore in 1886 by the Sierra Nevada Company.

The old shaft was sunk to the 600 foot level and stoping on the 515 and 600 levels was carried on. During the fiscal year ending July 1, 1866, the mine produced 416 tons of ore yielding $524.08 per ton, 26, 081 tons of ore yielding $40.24 per ton and 3038 tons of ore yielding $20.43 per ton. The cost of milling the ore was $15.65 per ton.

During 1866, the E Street Shaft was equipped with two hoisting engines of 50 horsepower each and by the following year the shaft had been sunk to a depth of 850 feet below the surface where drifts were driven north and south encountering ore in both drifts. Drifts were also driven north and south on the 315, 650 and 750 levels all encountering ore, the north drift of the 315 level connecting with the old shaft. For the fiscal year ending July 1, 1867, the mine had an average daily production of 300 tons of ore yielding appfoximately $50 per ton.

During 1868, a large body of low grade ore was developed in the south drift of the 950 foot level and a daily production of 50 tons of ore yielding $39.47 per ton was maintained throughout the year.

In 1869, the E Street shaft was sunk to the depth of 1050 feet below the surface and a drift was driven south at this depth encountering from 4 to 5 feet of ore yielding from $60 to $70 per ton and during the year, the mine had a production of from 50 to 80 tons of ore per day yielding from $35 to $70 per ton.

During 1870, the E Street shaft was sunk to the depth of 1260 feet below the surface and drifts were driven north and south on both the 1150 and 1250 levels both drifts encountering ore. Winzes sank from the 1050 to the 1150 and from the 1150 to the 1250 foot levels were in ore all the way. During the fiscal year ending Julyl, 1870, the mine yielded 9,495 tons of ore yielding $30 per ton.

During the fiscal year ending Julyl, 1871, the mine yielded 39,715 tons of ore yielding $21.43 per ton from the 1150 and 1250 levels. The cost of producing the ore was $11.06 per ton and the milling cost was $9.75 per ton. The E. Street shaft was changed from vertical to an incline at a depth of 1260 feet below the surface.

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BOX C, UNIVERSITY STATION

No. 42

THE HISTORY OF THE COMSTOCK MINES

SAVAGE

The Savage claim between the Hale & Norcross and the Gould & Curry was staked in 1859 having 800 feet along the lode; however, work was not started on the claim until the following year when shallow tunnels were driven in an effort to find the continu ation of the Gould & Curry "bonanza".

The North Potosi and Birdsall companies claimed the part of the lode just west of the Savage claim. The North Potosi Company drove a tunnel 1680 feet long, to cut the lode at a depth of 400 feet below the surface on the southern end of the claim. Extensive drifts were driven north and south on the vein and many crosscuts were driven across the lode in a fruitless search for a commercial body of ore. The Birdsall Company drove a tunnel 190 feet to cut the lode at a depth of 65 feet, on the northern end of the claim, encountering some ore. Suits were brought by the Savage Company claiming that the two claims really covered part of the Comstock Lode and rightfully belonged to them. After many costly court fights the two claims were annexed by the Savage Company.

Very little ore was found near the surface of the Savage claim, but the Gould and Curry Company in following their ore to the south found that it entered the ground held by the Savage Company. A three compartment shaft was started by the Savage Company, on the northern part of their claim, to find the continuation of the Gould & Curry ore body. By March 1865, the shaft had been sunk to a depth of 510 feet below the surface and drifts were driven north on the 180, 220, 270, 360 and 410 foot levels all encountering ore. A new four compartment shaft was then started near E street, each compartment being 5 feet by 6 feet in the clear, to explore at greater depths.

In 1872, a large body of ore was found in the south drift of the 1400 level the ore being 40 feet wide and 200 feet long. A winze was sunk on the ore to the 1500 level and a drift was driven south from its bottom to connect with the Hale and Norcross mine. During the year the incline was sunk to a depth of 1677 feet below the surface and drifts were driven north and south on the 1600 foot level. The production for the year ranged from 50 to 220 tons of ore per day yielding from $27 to $58 per ton and was produced mostly from the stopes on the 1400 level.

During 1873, the incline was sunk to the depth of 1900 feet below the surface. Drifts and crosscuts were driven on the 1700 level in a fruitless search for ore. A drift was driven north on the 1600 level to connect with the Gould & Curry mine and a winze was sunk from the 1500 to the 1600 level. As the lower levels at the mine were nearly exhausted of ore, mining of the low grade ore left on the old upper levels was begun and the mine had a production of from 90 to 150 tons of ore per day yielding $28 per ton from this source throughout the year.

During 1874, the incline was sunk to a depth of 2100 feet below the surface and a drift was driven south on both the 1900 and 2000 foot levels, the drift on the 2000 connecting with the Hale & Norcross mine. A small production from the old upper workings was maintained throughout the year while prospecting was carried out on the lower levels of the mine.

During 1875, the incline was sunk to a depth of 2200 feet below the surface where drifts were driven north and south, the south drift connecting with the Hale & Norcross mine. A winze was sunk from the 2000 to the 2200 foo level to secure better ventilation of the mine. The incline, upon being sunk to a depth of 150 feet below the 2200 foot level encountered a large flow of water, and on February 5, 1876, the drift being driven north on the 2200 level struck another body of water which flooded the mine to the 1750 level, the mean temperature of the water being 139 degrees.

Combination shaft. The crosscut encountered a large flow of water and was bulkheaded to prevent flooding of the mine. A crosscut was driven east on the 1300 foot level, cutting low grade ore and a drift was driven northwest on the ore.

Recorded production 1880: 224 tons, $6,656; average per ton $29.71.

Recorded production 1881: 5,239 tons, $26,572; average per ton $8.20.

Production period 1865 to June 30, 1880, reported by G. F. Becker "Geology of the Comstock", as follows:

Tons	Gross Value	Value per ton
482,286	$16,552,254.33	$34.32

While the Savage Company was waiting for a large enough pump (to be installed in the Combination shaft) to handle the water, prospecting work was carried out on the 1300, 2000 and 2100 foot levels. Some ore was produced from the 1640 level.

During 1882 and 1883, while the upper levels of the mine were yielding low grade ore, drifts were driven north on the 2200 and 2400 levels. A joint Hale and Norcross drift was driven north on the 2600 level from the Combination shaft encountering stringers of ore.

Recorded production 1883: 118 tons; $1,356; average per ton $11.49.

During 1884, a joint Hale & Norcross drift was driven north on the 2800 foot level from the Combination shaft and joint Hale & Norcross crosscuts driven east and west from the drift encountered streaks of rich ore. A strong flow of water was cut on the 2600 level and the level was bulkheaded to prevent the flooding of the mine.

Recorded production 1884: 194 tons, $3,380; average per ton $17.42.

In 1885, a tunnel was started near E street to cut the Comstock Lode at a depth of 200 feet below the surface where it encountered old stopes. A joint crosscut was driven, with the Gould & Curry Company, near the north end line of the claim on the 825 level, but no ore was found.

By 1877, the water in the mine had been lowered to 72 feet below the 1900 foot level and was held there by pumping and bailing 264,000 gallons of water per day. Drifts were driven north on the 1700 and 1900 levels until they connected with the Gould and Curry mine but no ore was found.

In 1875, the Chollar-Potosi, Hale & Norcross and Savage companies combined to sink a new four compartment shaft to facilitate the exploration of the lode at greater depths. The new shaft, the Combination, was located 2,527 feet east of the Chollar-Potosi shaft and was to cut the lode at a depth of 2800 feet below the surface.

The shaft was sunk at the rate of 2½ feet per day. A station was cut on the 1593 level to connect with the Sutro Tunnel and by March 13, 1880, the shaft had been sunk to a depth of 2400 feet.

During 1878 prospecting in the Savage was carried on by driving crosscuts on the 1600, 2000 and 2100 foot levels. An east crosscut on the 1600 level cut 92 feet of low grade ore assaying from $5 to $45 per ton, the ore body being located 160 feet east of the incline. The Sutro Tunnel connected with the mine July 10, 1878, at a point 27 feet from the incline, on the 1854 level. After the connection, the temperature of the level fell from 101 to 95 degrees.

An east crosscut on the 2100 level cut 40 feet of quartz assaying from $5 to $6 per ton. During the year, 1878, a joint east crosscut was driven with the Hale & Norcross Company on the 2000 foot level, to connect with the Combination Shaft. The crosscut was driven at the rate of 10 feet per day, and was christened the "Lightning Drift".

The 2200 level was prospected thoroughly by many drifts, crosscuts, and drill holes in 1879, but no ore was found.

During 1880, the incline shaft was sunk to a depth of 2440 feet below the surface. A crosscut was driven east on the 2400 level to connect with the

During 1886, a drift was driven south on the 600 foot level from the Gould & Curry shaft to the Savage shaft. The drift encountered a large body of rich ore and drifts were immediately driven south from the Gould & Curry shaft on the 500 and 800 levels to intersect the rich body of ore. The drift on the 500 level encountered rich ore and a winze was sunk below the 600 level for 37 feet in fine ore.

Recorded production 1886: 2,162 tons, $45,787; average per ton $21.18.

During 1887, the drift on the 800 level connected with the Savage shaft encountering spots of good ore and many crosscuts were driven east and west from this drift. Crosscuts were driven east on the 500 level encountering good ore 12 feet in width and a drift was driven north on the ore from the face of the crosscut nearest the Savage shaft. A raise was put up from the 600 to the 500 level in excellent ore, and a winze was sunk 100 feet below the 600 level in ore. A crosscut was driven east from the bottom of the winze on the 700 level. Crosscuts were driven west, from the Savage shaft, on the 400 and 750 levels, the crosscut on the 750 level cutting high grade ore 4 feet in width. A drift was driven northwest, from the Savage shaft, on the 850 level for 65 feet in ore assaying from $45 to $50 per ton and a raise was put up above the level on the ore. A drift was driven south, from the Savage shaft, on the 950 level and a raise was put up from the 900 to the 850 level. A drift was driven north, from the Savage shaft, on the 1200 level being in ore for 140 feet and many crosscuts were driven east and west from this drift. A drift was driven south on the 1600 foot level and drifts were driven north and south on the 1640 level. While the lower levels of the mine were being prospected, a steady production of good ore was maintained from the stopes above the 500, 600 and 800 foot levels.

Recorded production 1887: 8,025 tons, $161,233; average per ton $20.09.

During 1888, drifts were driven north and south on the 400 level encountering fair ore. The north drift on this level connected with a drift driven south from the Gould & Curry mine. While ore was being mined from the north and south drifts on the 400 foot level, new prospect drifts were driven northeast and southeast on the level. A drift was driven south on the 500 foot level connecting with a drift driven north from the Hale and Norcross mine and encountering ore assaying $30 per ton. A crosscut was driven east on the 500 level, near the south boundary line of the claim, encountering ore assaying $45 per ton and stoping operations on the ore were immediately started. Many drifts and crosscuts were driven from the stopes above the 500 level and a raise was put up from the 500 to the 400 level. A drift was driven south on the 600 level and crosscuts driven from this drift encountered good ore on which stoping operations were carried out. A drift was driven south on the 950 level and crosscuts driven from this drift encountered old filled stopes.

During the year, approximately 140 tons of ore averaging $33 per ton were produced daily from the levels between the 400 and 900 levels, some of the ore being produced from the old stope fills on the 750 and 950 levels.

Recorded production 1888: 5,292 tons, $66,423; average per ton $12.55.

During 1889, a prospect drift was driven northwest on the 300 level. Many crosscuts were driven west on the 400 level, one on the south boundary line of the claim, cutting good ore two feet in width on which a drift was driven north. A drift was driven northwest on the 500 foot level cutting stringers of good ore at a point 235 feet northwest of the shaft. A raise was put up 50 feet above the 500 level from the top of which a crosscut was driven west and drifts were driven north and south, the north drift encountering some good ore which was immediately stoped.

During the year, approximately 100 tons of ore assaying $20 per ton were produced daily from the 400, 500 and 600 levels some of the ore being produced from the old stope fills on the 400 and 500 foot levels.

Recorded production 1889: 16,446 tons, $233,871; average per ton $14.22.

During 1890, the northwest drift on the 300 level connected with a raise from the 400 level and, at a point 475 feet from the shaft, a raise was put up above the 300 level. A crosscut was driven west, from the north drift, on the 500 level encountering old filled stopes and a raise was put up from the 500 to the 400 level. A drift was driven north on the 600 level encountering fair ore. Drifts were driven north and southeast on the 1300 level, the former encountering good ore and the latter connecting with a drift driven north from the Hale & Norcross mine.

During the year, approximately 100 tons of ore assaying $20 per ton wwere produced daily from the 400, 500, 600, 750 and 1300 levels.

Recorded production 1890: 27,515 tons, $389,019; average per ton $14.14.

During 1891, the raise above the 300 level was put up 147 feet in low grade quartz and a drift was driven south on the 950 level. A drift was driven north, from the Hale & Norcross mine, on the 1100 level connecting with the Savage shaft and encountering fair ore 8 feet in width. Many crosscuts were driven east and west on the 1100 and 1300 levels and a winze was sunk 100 feet below the 1300 level in ore. A drift was driven southwest 75 feet, from the Savage shaft, on the 1300 level encountering quartz 2½ feet in width and assaying from $10 to $12 per ton. Drifts were driven north and south, from the bottom of the winze below the 1300 level, in ore. A drift was driven northeast, from the Hale & Norcross mine, on the 1450 level and many crosscuts were driven east and west from this drift. Crosscuts were driven on both the 1700 and 1900 levels and the old E Street tunnel was reopened.

During the year, approximately 100 tons of ore assaying $16 per ton were produced daily from the 300, 400, 500, 600, 750, 800, 900 and 1300 levels, some of the ore being produced from the old stope fills on the 800 and 900 foot levels.

Recorded production 1891: 26,914 tons, $327,992; average per ton $12.19.

During 1892, and 1893, a joint Gould & Curry crosscut was driven west on the Sutro tunnel level and fair grade ore was encountered on the 1500 level. A drift was driven north on the 1100 level. A crosscut was driven east on the 1050 level cutting low grade quartz, at a point 45 feet from the shaft. During the two years approximately 75 tons of ore assaying $22 per ton were produced daily from the 500, 750, 950, 1100, 1400, 1450 and 1500 foot levels.

Recorded production 1892: 28,365 tons, $421,219; average per ton $14.85.

Recorded production 1893: 7,665 tons, $121,289; average per ton $15.82.

During 1894, many crosscuts were driven east and west from the north drift on the 1100 level encountering low grade material. Drifts were driven northeast and south on the 1100 level encountering fair grade ore in the latter. Some ore was produced from a drift driven north from an east crosscut on this level. Drifts were driven north and southeast on the 1050 level, the latter encountering some ore. A crosscut was driven east on the 1050 level, from a point 35 feet south of the stopes, cutting fair ore on which a drift was driven south. A raise was put up above the 1050 level from the west side of the north drift. Many drifts and crosscuts were driven from the old stopes above the 1100 foot level, encountering some ore. A crosscut was driven west on the 1150 level encountering good ore.

During the year, approximately 50 tons of ore assaying $18 per ton were produced daily from the 950, 1000, 1100 and 1150 foot levels.

During 1895 and 1896, a drift was driven north on the 800 foot level encountering spots of ore. Many drifts and crosscuts were driven on the 950 level encountering nothing but low grade material; however, some ore was produced from the stopes above this level. A drift was driven north, from an east crosscut on the 1000 level, in fair ore which was subsequently stoped and a winze was sunk below the level on the ore. A drift was driven south from an east crosscut, on the 1050 level in good ore and a crosscut was driven west from the face of this drift encountering ore assaying $30 per ton.

During 1895, the Brunswick Exploration Company was formed by the Consolidated Virginia and California, Best & Belcher, Gould & Curry, Savage, Hale & Norcross, Chollar and Potosi mining companies to explore the Brunswick Lode located to the east of the Comstock Lode.

By 1896, the tunnel driven north on the Brunswick Lode from a point 75 feet north of the Sutro Tunnel Shaft No. 3, had been extended to the north boundary line of the Savage claim. During the same year, the 750 level was repaired and the winze to the 800 level retimbered. Work on the 800 level revealed quartz and porphyry. Several hundred tons of good ore were stoped on the 850 level. Some lower grade ore was produced from the 950 level stopes. On the same level, the west crosscut from the eighth floor was in low grade; and "spots of ore" were found in the north prospect drift.

During the year 1897, on the main lode, work was being performed on the 500, 750 and 850 levels. The main west crosscut from the shaft and the north drift from the west crosscut on the 500 level were reopened and repaired. A north drift starting from a point 60 feet from the shaft in the main west crosscut on the 750 level was driven 120 feet into porphyry containing quartz stringers. Five feet back from the face of the worth drift, a west crosscut was started. When out 62 feet, the west crosscut entered porphyry with quartz stringers. Some ore was obtained from the main south drift of the 850 level. A winze was being sunk from the level at the south end of the main drift. From a point 105 feet south of the east crosscut No. 3 on the main south drift, east and west crosscuts No. 4 were started in low grade quartz. The east crosscut was in porphyry 15 feet beyond the starting point; while the west crosscut passed through low grade quartz into porphyry and quartz at some point between 32 feet and 63 feet from its origin. The Savage Mine continued to cooperate in the joint exploration of the Brunswick Lode through Shaft No. 1. The work was performed on Hale & Norcross ground.

During 1898, work was in progress on the north lateral of the 500 level on the main lode. On the Brunswick Lode, the north drift on the 130 level was advanced 294 feet into low grade porphyry and quartz. The north drift on the 600 level off Shaft No. 1 was out 488 feet in low grade stringers of quartz.

There are no records of any work being performed on the Savage claim during the years 1899 and 1900.

In 1901, the south drift on the 425 level was opened.

For the period 1902, 1903, 1904 and 1905, no work is recorded as being done on the Savage Claim. The Savage mine did some work cleaning the Ward Shaft in 1905.

During 1906, the Sutro Tunnel was cleaned out 357 feet beyond the south lateral. A south drift was driven 86 feet in low grade material.

In 1907, operations were conducted from the Sutro Tunnel level. A west crosscut was driven 53 feet on the level; a raise was put up 54 feet in low grade ore; and a north drift was driven from the top of the raise encountering $10 to $17.50 ore when out 52 feet. From the same point in the raise, an east crosscut was driven in clay and quartz; and a southeast drift was driven from the raise and was reported to be in "better ore" at a point 31 feet out.

During 1908, the workings were localized about the raise from the Sutro Tunnel. A northwest drift started from the top of the raise was extended 132 feet in porphyry and clay. At a point ca. 78 feet out, the northwest drift is reported to have cut 6 feet of quartz assaying $5.60 per ton. From a point 50 feet in the north drift, east and west crosscuts were driven. The east crosscut was driven 48 feet, being discontinued in porphyry, clay and quartz. The west crosscut was driven 112 feet passing through clay, quartz, porphyry with quartz stringers and finally entering hard porphyry.

In 1909 and 1910, work continued from the Sutro Tunnel level. Exploration in the north drift from the raise encountered low grade stringers assaying $3 to $4 per ton. A raise was put up 56 feet passing through 10 feet of ore assaying $19.50 per ton. In the latter year, the grade of the ore in the raise was low.

Recorded production 1909: 672 tons, $1,700; average per ton $25.29.

A winze was started on the 1750 level of the Gould & Curry claim as a joint operation with the Best & Belcher and Gould & Curry mines in 1911. The joint work continued into 1912.

In 1913, the D Street tunnel was reopened to the old stopes. A few tons of $13 to $20 ore was produced from the old fills. Exploration of the fills continued in 1914, the grade of the ore varying between $4 and $11.95 per ton.

In 1915, no data was found.

In 1916, work was resumed in the west drift below the top of the raise from the Sutro Tunnel.

No records found for the period from 1917 to 1920.

About August 1920, work was resumed on the 1600 level and a northwest drift was started 160 feet west of the Savage junction.

In 1921, a southwest crosscut was driven from the A Street tunnel into clay and quartz. The northwest drift on the 1600 level was out 94 feet in low grade ore. Two raises were put up from the northwest drift. One was in fair ore at 29 feet and the other in low grade ore at 27 feet above the level.

In 1922, a crosscut was driven from the 1600 level to the Mint shaft. A diamond drill hole was started from the Mint shaft and extended for a total distance of 850 feet. Seams of quartz and porphyry were out at 661 feet, and the last 13 feet of the hole was in low grade porphyry.

During 1923, the south branch of the Sutro tunnel was repaired and exploration of the Garfield lode commenced. At the same time, some development work was done on the 162, 237 and 387 levels.

Work was in progress during 1924 on the 732, 882 and the Sutro tunnel levels. A raise was driven from the 882 level to the 732 level. On the 882 level, north and south drifts were driven 241 feet and 405 feet respectively. A winze was sunk on the Garfield Lode from the Sutro Tunnel exposing 8 feet of favorable quartz.

A pump was installed at the Garfield Lode workings and further exploration of the lode by diamond drilling was undertaken.

In 1926, the winze on the GArfield Lode was sunk to a greater depth. A crosscut was driven from the winze. The diamond drill hole started during the previous year, cut the vein at a depth of 80 feet. Good values were indicated.

Fiscal Production between the years 1863 to 1909 inclusive:

Total tons - 608,994

Gross Value - $18,356,034.33

Average Value per ton - $30.14

This includes production from 1863 to June 30 1880, as reported by G. F. Becker, page 10, "Geology of the Comstock."

This estimate does not include the production made by the Comstock Merger Mines Inc., or that by the Arizona Comstock Mining Co. due to the impossibility of proper allocation of production to individual claims.

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No. 43

THE HISTORY OF THE COMSTOCK MINES

SCORPION

The Scorpion claim, located in 1859, is approximately 1030 feet east from the old Sierra Nevada shaft, or just north of the Union Shaft.

An 850 foot tunnel was driven in 1864 to cut the ledge at a depth of 300 feet below the surface. Two veins were exposed by the tunnel, one four feet and the other six feet wide, from which samples assaying from $15 to $20 per ton were obtained. Under the existing conditions, the ore was considered too low grade to be mined and milled at a profit. For that reason, work on the claim was discontinued.

In 1872, the Scorpion Company resumed work by re-opening the old tunnel. At that time, the ledge was reported to be 20 feet wide. Upon mining and milling the ore, it was found to yield from $8 to $14 per ton. The bullion was mainly gold.

A shaft having three compartments 4 feet by 5 feet in the clear, was started in 1874. By 1880, the shaft had been sunk to the 440 level. Drifting and crosscutting on the various levels from the shaft failed to expose ore.

The shaft was extended to the 500 level in 1883. This level was explored by north and south drifts and east crosscuts, some ore being found in the latter. All operations were suspended upon depletion of the ore.

Exploration was again resumed in 1889 with the cooperation of the company then operating in the Sierra Nevada claim. Between 1889 and 1892, the 900 level from the Union shaft was extended 850 feet north into the Scorpion claim. When it was evident that further work was useless, operations were suspended in 1893.

During the period from 1924 to 1926, another unsuccessful attempt was made to explore the Scorpion claim from the Sutro tunnel level.

STATE OF NEVADA

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Bureau of Mines

MACKAY SCHOOL OF MINES
RENO, NEVADA

BOX C, UNIVERSITY STATION

No. 47

THE HISTORY OF THE COMSTOCK MINES

SEGREGATED BELCHER

The Segregated Belcher claim between the Overman and the Belcher, was staked in 1859 having 160 feet along the Comstock Lode.

No work was done on the claim until 1862 when the Segregated Belcher Co., having 6400 shares, started a two compartment shaft. By 1865, the shaft had been sunk to a depth of 530 feet below the surface. Drifts were driven north and south on the 226, 400 and 500 levels and good ore was encountered on all three levels. A small but steady production was maintained from these upper levels until 1871.

Production reported by G. F. Becker, page 10, "Geology of the Comstock" as follows:

	Tons	Gross Value	Value Per Ton
1867 to 1871	4,961.5	$101,466.81	$20.44

From 1872 to 1880 exploration of the lode at greater depths was carried on from the Belcher mine. Drifts were driven south through the claim on the 1345, 1545, 1645, 1900 and 2160 levels in a fruitless search for ore and all work on the claim was suspended

During 1887, the mine was reopened and a drift was driven south, from the Belcher mine into the claim on the 1300 level. The following year a raise was put up above the 1300 level and a drift was driven south in low grade ore from a point 60 feet up the raise.

During 1889 and 1890, drifts were driven south from the Belcher mine into the claim on the 850, 1000 and 1100 levels. Crosscuts were driven east and west on the 850 level. A drift was driven north from a west crosscut on the 850 level and a raise was put up above the level from the same crosscut. The south drift on the 1000 level encountered quartz assaying from $5 to $15 per ton. A raise was put up above the 1000 level and a crosscut was driven east from the raise in a fruitless search for a commercial

body of ore. The south drift on the 1100 level encountered 4 feet of low grade quartz. Crosscuts were driven east and west on the 1100 level encountering fair ore in the west crosscuts. A raise was put up above the 1100 level encountering good ore 23 feet above the level. A winze was sunk below the 1300 level but no ore was found.

During 1891, 1892 and 1893, a south drift was driven from the Belcher Mine into the claim on the 600 level. A crosscut was driven west on the level and a second drift was driven south from the crosscut. A drift was driven north from the raise above the 1100 level encountering bunches of ore assaying from $20 to $30 per ton. A drift was driven south from the Belcher Mine into the claim on the 1200 level and crosscuts were driven west on the 1300 level encountering small bunches of ore in the latter.

During 1894, 1895 and 1896, drifts were driven south from the Belcher Mine into the claim on the 200 and 500 levels. A raise was put up from the main south drift on the 1100 level encountering streaks of quartz assaying from $18 to $20 per ton, 17 feet above the level. A raise was put up on the 1200 level and a drift was driven south from the raise on the 1150 level encountering 2 feet of quartz assaying from $20 to $28 per ton. Crosscuts were driven east and west on the 1500 level and a raise was put up above the level on ore.

Recorded production 1894: 183 tons, $2,111; average per ton $11.54.

During 1895 and 1896, approximately 15 tons of ore assaying $17 to $30 per ton were produced weekly from the mine.

Recorded production 1895: 509 tons, $7,499; average per ton $14.73.

Recorded production 1896: 858 tons, $11,449; average per ton $13.341

No work was reported for the period between 1897 and 1902 inclusive although a few hundred tons of ore were produced.

Recorded production 1897: 135 tons, $1748; average per ton $12.95.

Recorded production 1898: 102 tons, $1,275; average per ton $12.50

In 1903, the east crosscut on the 1100 level was cleaned out.

In 1904, the work of cleaning up the 1100 level was resumed. In April of the same year, work was commenced on the "1400 level north drift, 1200 Overman". The "1400 level" refers to the 1400 level in the Crown Point and Belcher Mines, while the "1200 level" refers to the 1200 level off the Overman Shaft. Apparently the work was started from the Overman shaft and driven northward to affect a connection with the so-called 1400 level. In the future description of that work in this mine, reference to the level will be as the "1400", while the same level in the Overman will be the "1200". The first 58 feet of the drift passed through quartz assaying from $6 to $9 per ton. A little east and west crosscutting was started during this period.

From 1906 to 1908, joint work was continued on the 1400 level in the form of east and west crosscutting and north and south drifting. In the latter part of 1907, the north drift was in low grade quartz and porphyry and a west crosscut had passed through porphyry containing bunches of low grade.

During the period from 1909 to 1913 inclusive, more extensive crosscutting was progressing on the 1400 level. The joint east crosscut from the northeast lateral was driven more than 854 feet and then suspended. Seams of quartz were cut at 108, 171 and 422 feet, and veins at 672 and 729 feet in the crosscut. A west crosscut was driven more than 250 feet in porphyry. This work failed to expose any ore.

The United Comstock Mining Company's operation extended through this claim (1926)

Total production between the years 1867 to 1898 inclusive:

Total Tons - 6,748.50

Gross Value - $118,049.81

Average Value Per Ton - $17.49

Includes production reported by G. F. Becker, "Geology of the Comstock", page 10.

STATE OF NEVADA

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MACKAY SCHOOL OF MINES
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BOX C, UNIVERSITY STATION

THE HISTORY OF THE COMSTOCK MINES

SIERRA NEVADA

The Sierra Nevada claim on the north end of the Lode was staked in 1859 having 2657 feet along the Comstock Lode to the north of the Union.

Work was first started on the claim in 1859 when a tunnel was driven 500 feet from Cedar Ravine to cut the lode at a depth of 200 feet below the surface. The lode, at the point of intersection, was found to be 130 feet wide. The vein matter consisted of porphyry and large bodies of quartz containing some very rich streaks of ore. A drift was driven 160 feet to the south encountering an abundance of low grade ore assaying from $10 to $15 per ton. A winze was sunk for 90 feet below the tunnel level, 120 feet south of the main crosscut tunnel, being in low grade ore the entire distance.

A three compartment shaft was started in 1861, and was sunk to a depth of 410 feet below the surface where it cut the footwall of the lode. The shaft compartments were each four feet square in the clear. The shaft was located 480 feet up the hill from the portal of the tunnel. A 120 horse power horizontal steam engine having a four foot stroke furnished power for the large 14-inch pump that was being used. From the bottom of the shaft, a crosscut was driven 450 feet east cutting the hanging wall of the lode after being driven 280 feet. A drift was driven 120 feet south and another 520 feet north and numerous crosscuts from these drifts developed a large amount of low grade ore.

In 1862, some placer miners staked out claims on the decomposed outcrops of the claim and immediately started placer operations. The Sierra Nevada Company immediately brought suit, but the placer miners were able to excavate a hole about 100 feet in circumference and 20 feet deep before a raise from the Sierra Nevada

workings stopped them. The decomposed outcrop averaged $16 per ton.

In 1864, a new two compartment shaft was started 480 feet east of the old shaft and by 1866 it had been sunk to a depth of 510 feet below the surface. A crosscut was driven west on the 200 and another on the 500 level the latter encountering ore assaying $11.39 per ton.

The compartment of the new shaft were each 4½ feet by 5½ feet in the clear. A 25 horse power steam engine was used to drive the hoists and large tubs were used to extract the dirt and water. As the hoisting equipment was found to be too small, the equipment from the old shaft was installed at the new shaft.

By 1868, the new shaft had been sunk to a depth of 620 feet below the surface where a drift was driven 520 feet to the south and another was driven 1280 feet to the north developing a large body of low grade ore. A milling of 400 tons of ore from the 620 foot level was made. The ore yielded $17 per ton and the expense of the mining and milling was $17.50 per ton. By 1869, the shaft had been sunk to a depth of 750 feet below the surface where the vein was again crosscut encountering low grade ore. Discouraged with the developments on the lower levels, the company started a thorough search for ore in the old upper workings.

In the course of prospecting the old Sierra Nevada tunnel, ore containing free gold was encountered near the surface which could be mined and milled at a low cost. In 1869, the company mined and milled 18,000 tons of this surface ore which yielded $8.93 per ton. The mining cost was $1.92 per ton, crushing costs $3.30 per ton and the other expenses $0.77 per ton giving a profit of $2.94 per ton.

During 1870, ore was found in the old upper workings assaying as high as $150 per ton, but the majority of the profits of the company were derived from the large body of surface ore assaying $12 per ton and costing only $4.50 per ton to mine and mill.

From 1869 to 1874 inclusive, the old upper workings produced from 45 to 65 tons of ore per day, assaying from $10 to $12 per ton, and the company was able to show a profit during these years.

In 1874, a raise was put through from the old Sierra Nevada tunnel to the decomposed vein material on the surface and hydraulic mining operations were carried on. The gold saving sluice boxes were in the tunnel and the decomposed vein material was washed down the raise. In October of the same year, while prospecting in the north drift of the Sierra Nevada tunnel, a new vein of white quartz was found assaying $60 per ton, the principal values being gold.

Due to the discovery of the bonanza in the Consolidated Virginia and California claims, it was decided to sink a new three compartment shaft, near the center of the claim and 1700 feet to the east of the outcrop, to explore the lode at greater depths. By November, 1875, the new shaft had been sunk to a depth of 1000 feet below the surface where a crosscut was driven west to the vein. By March, 1876, the shaft had been sunk to a depth of 1500 feet below the surface where it cut the lode. A drift was driven 1650 feet south and another 1100 feet north on the 1500 foot level. The drifts were in vein material assaying from a trace to $10 per ton but no commercial body of ore was found.

The shaft was sunk to a depth of 1700 feet below the surface where a drift was driven 1400 feet south and another 580 feet north. A double winze was sunk from the south drift on the 1700 to the 2300 foot level at a point 200 feet north of the end of the drift. The first 300 feet of the winze was sunk through heavy swelling ground making the winze very expensive to maintain. Below the 2000 feet level, the incline winze encountered excellent ore and as it was sunk deeper, bunches of high grade ore assaying as high as $100 per ton were encountered. A third compartment was sunk on the north side of the winze to facilitate mining of the ore. On the 2150 foot level, a crosscut was started and it immediately broke into 4 feet of ore assaying $300 per ton.

On May 14, 1878, the stock of the Sierra Nevada mine was selling for $2.90 per share and on November 2, 1878 the stock was selling for $200 per share. The stock had tumbled to $60 per share by November 21 of the same year.

In February 1879, the main incline winze from the 1700 had been sunk to the 2300 foot level and in March of the same year, the 1700 level was connected with the Union shaft. By April, the incline winze was down to a depth of 2414 feet below the surface and the bottom was in hard compact quartz and was making 95,000 gallons of water every 24 hours. By May, the mine was producing 65 tons of ore per day from stopes on the 2200 level. A drift was driven south on the 2300 level to connect with the Union shaft and was in excellent ore all the way to the Union line. A crosscut was driven east on the 2200 level for 233[illegible]feet where it encountered a large flow of water and was discontinued. A diamond drill was employed to prospect 350 feet north of the 2200 foot level station but no ore was cut. A crosscut was driven 98 feet west on the 2300 level in low grade ore. A drift was driven north on the 2400 level for 20 feet where it encountered a large flow of water and was discontinued.

In 1879, ore and waste hoisted from the mine totaled 24,000 tons and drifts and crosscuts driven in the mine totaled 3,008 feet. The ore body partially developed during the year extended from the 2100 to the 2400 foot level.

Recorded production 1879; 4,083 tons, $190,054; average per ton $46.54.

In 1880, the east crosscut on the 2300 level was driven 69 feet, the last eight feet being in "fair grade" ore. The north drift on the 2400 level was driven 292 feet, the last 20 feet being quartz giving low assays. A crosscut on the 2300 level, which was located 500 feet north of the incline, in being driven 70 feet east cut three veins of mill ore the largest being five feet wide and averaging $55 per ton. A winze was sunk from the 2400 level passing through 85 feet of ore and was discontinued after it had reached the 2500 foot level where extreme temperatures were encountered. Drifts were driven north and south on the 2500 level, the north

drift encountering nothing but stringers of quartz and the south drift connecting with the Union shaft. Drifts were driven north and south on the 2300 level the south drift encountering an ore body 35 feet long. A raise was put up on the ore for 60 feet at which point the orebody pinched. An incline raise was put up from the 2300 level to connect with the bottom of the vertical shaft on the 1700 foot level.

Recorded production 1880: 1,640 tons, $63,177; average per ton $38.52.

Production reported by G. F. Becker "Geology of the Comstock", Period 1868 to June 30, 1880 - Tons - 119,660; gross value $1,035,363.16; value per ton $8.64.

During 1881, the north drift on the 2500 level was driven ahead. A sublevel drift was driven south between the 2400 and the 2500 levels encountering a small body of ore from which a small production was made. The north drift on the 2300 level was driven ahead encountering some ore at a distance of 900 feet north of the joint Union incline winze. The joint Union winze was sunk to a depth of 2760 feet below the surface encountering some ore a short distance below the 2700 level. A drift was driven south on the 2700 level to connect with the Union shaft.

Recorded production 1881: 6,079 tons, $195,214; average per ton $32.11.

During 1882 and 1883, the 3100 level of the mine was prospected by driving a drift north from the joint Ophir-Mexican winze, the drift encountering streaks of ore. The joint Union winze was sunk to connect with the 3100 level, encountering bunches of rich gold ore a short distance below the 3000 level. Drifts were driven north on both the 2700 and 2900 levels and a winze was sunk from the north drift on the 2500 to the 2700 level to facilitate the ventilation of the mine. A joint Union crosscut was driven west on the 2900 level cutting two streaks of ore assaying from $10 to $60 per ton. A second joint Union crosscut was driven west on the 3000 foot level encountering 90 feet of vein material assaying from $2 to $60 per ton, one streak of ore in the vein being 7 feet wide and assaying $20 per ton.

During 1884, the northeast drift on the 3100 level was driven ahead

encountering some rich streaks of ore. The joint union winze was sunk to the 3300 foot level and a drift was driven north on this level. Many diamond drill holes on the 3300 foot level failed to cut any ore but encountered much water, and work below the 2700 level was suspended.

During 1885, and 1886, the north drift on the 2500 level was driven ahead and a drift was driven 1819 feet north from the old Sierra Nevada shaft on the 520 foot level. At a point 1800 feet north of the shaft, a crosscut was driven west 170 feet and from its end a second drift was driven north for 548 feet. Several crosscuts were driven east and west from this second drift and from a west crosscut near the end of the drift, a third drift was driven north encountering streaks of ore. While the work in the old shaft was bein prosecuted, prospecting work was carried on in the old Sacramento workings and in the old hydraulic tunnel on Cedar Hill, some ore being produced from the latter.

During 1887, 1888 and 1889, a drift was driven southwest from a point 124 feet north of the old Sierra Nevada shaft on the 520 level for a distance of1760 feet. Many crosscuts were driven east and west from this southwest crosscut, and a second drift was driven south 556 feet from the main east crosscut in a fruitless search for ore.

During 1890, 1891 and 1892, a drift was driven southwest and another northwest on the 630 level. At a point 571 feet northwest of the shaft a crosscut was driven west for a distance of 1535 feet but no ore was found. A joint crosscut was driven with the Union Company for a distance of 2712 feet west from the Union shaft on the 900 level. The old Kenosha tunnel cutting the lode under the old open cut was repaired and a drift was driven north for a distance of 823 feet in a fruitless search for ore.

During 1893 and 1894, a tunnel, called the Intermediate, was driven 500 feet west under the old hydraulic workings on Cedar Hill. A drift was driven south for 680 feet at a point 360 feet from the portal of the tunnel and a crosscut was

driven west at a point 600 feet south of the Intermediate tunnel. A drift was driven northeast at a point 385 feet from the portal of the tunnel but no commercial ore was found. A drift was driven north into the Sierra Nevada claim on the 900 level from a point 1520 feet west of the Union shaft in the joint Union west crosscut and a joint crosscut was driven east from this drift near the south boundary line of the claim. A second east crosscut was driven east at a point 450 feet north of the main west crosscut.

The old Peytona tunnel, driven under the old hydraulic workings and above the Intermediate tunnel, was repaired during 1895. A drift was driven southwest and another north from a point 120 feet west of the portal of the tunnel.

During 1895 and 1896, several crosscuts and one raise were driven from the 900 level. One crosscut, East Crosscut 7, cut 96 feet of quartz of a low grade. The raise was driven up 186 feet. The North Lateral Drift was extended by the joint efforts of the Sierra Nevada Mine and Mexican Mine. Prospecting to the west from the Layton Tunnel and on the 450 and 520 levels through the old Sierra Nevada shaft did not reveal commercial ore.

In the following year, 1897, exploration to the west from the Layton Tunnel continued. A west crosscut from the west drift of that level was extended 390 feet in porphyry. From East Crosscut No. 2 on the 900 level, the raise mentioned above had attained a vertical height of more than 190 feet. From the raise at a point 190 feet above the 900 level, a North Lateral Drift was driven in porphyry containing quartz.

Recorded production 1897: 156 tons, $3,966; average per ton $25.42.

The policy of prospecting by drifting and crosscutting from the workings on the 900 level was continued during the years, 1898 and 1899. The main 900 North Lateral drift had been opened for 724 feet. The north drift from the raise was continue a distance of 214 feet north of the raise. West crosscuts No. 7 and No. 8 were started and during the year 1900, were extended to a total distance in excess of

254 and 165 feet respectively. The north lateral from the raise as well as the crosscuts failed to expose commercial ore, and thus during the latter part of 1900 work on the 900 level was stopped. Work on the 1600 level, consisting of cleaning up, commenced in December of that year. It is to be noted that during the year 1898, some ore was found as a result of prospecting in the near surface tunnels.

Recorded production 1898: 1,474 tons, $58,452; average per ton $39.66.

For the following four years, most of the acitivity in the mine was confined to the 1600 level, although some work was performed on the 220 level during the year of 1901. By the end on January 1901, 920 feet of the west drift of the 1600 level had been cleaned; and by the end of June of the same year, 1370 feet of the Joint West Drift had been opened. In 1902, some work was done on the North Drift from the Sutro Tunnel. During the same year, the Main West Drift on the 1600 level was cleaned for 1250 feet. A joint crosscut was driven from the Main West Drift at a point 765 feet from the shaft, for a distance of 247 feet. The major work for the year 1904 consisted of driving the North Lateral and the Joint East Drift on the 1600 level. In the early part of February 1904, the North Lateral had been driven out 403 feet and the Joint East Drift 1020 feet. During the remainder of 1904, the amount of development work decreased and attention given to mine and shaft repairs.

In 1905, work commenced jointly with the Mexican Mine on the 2000 level. An east drift was driven 1373 feet, crossing the south claim line and entering the Mexican and Union claims. Many crosscuts and drifts tributary to the east drift were driven withing the boundaries of the latter claims. Work of a similar nature from the east drift of the 2000 level continued through 1906, 1907, 1908, 1909 and 1910. In the latter year, plans were made to sink a winze below the 2000 level to jointly prospect the east veins for the benefit of the Sierra Nevada, Mexican and Union mines.

By 1912, the winze had been sunk 672 feet below the 2000 level. In the last half of that year, an extensive development campaign was well underway on the new block of ground and continued with slight interruption through the ensuing years 1913, 1914, 1915, 1916, 1917, 1918 and 1919. During the latter year, attention was given to the 2000 level and the Northwest drift driven 512 feet through porphyry and quartz. By February 1920, the Northwest Drift had been extended an additional 133 feet, for a total distance of 645 feet. For the remaining portion of 1920, a West Crosscut from the North Drift was driven 319 feet. The last 54 feet of the crosscut was reported to have exposed quartz and porphyry. That was evidently too low grade for mining, as interest was from the workings between the 2000 and 2500 levels, tributary to the winze.

Recorded production 1915: 988 tons, $12,860; average per ton $13.02.

Recorded production 1916: 1,845 tons, $22,623; average per ton $12.26.

Recorded production 1917: 627 tons, $6,631; average per ton $10,575.

Recorded production 1918: 465 tons, $5,716; average per ton $12.29.

Work on the Layton Tunnel commenced during August, 1920 and was extended to include additional prospecting of the surface workings for the first quarter of 1921. By the middle of the year, a tunnel 150 feet below the Layton Tunnel had been opened 435 feet; by December, it had been opened for more than 1000 feet. A south drift was started from the tunnel at the 1000 foot point.

In the following year, the south drift was extended more than 220 feet, at which point a raise was put for exploration purposes. A north drift was run from the tunnel opposite the south drift and carried out a few feet.

In 1923, repairs were made to the 1629 level in preparation for future work. Crosscutting to the west and drifting to the northwest and some raising comprised the work for the remainder of the year.

During the first part of 1924, some east and west crosscutting was done on the 1420 level. In June of that year, joint work was started from the 1629 level or Sutro Tunnel level for the purpose of prospecting the Scorpion. That work continued through 1925 and 1926.

Total production between the years 1868 to 1933 inclusive:

Total tons - 197,623

Gross Value - $1,618,947.16

Average value per ton - $8.19

STATE OF NEVADA

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BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
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THE HISTORY OF THE COMSTOCK MINES

SILVER HILL

The present Silver Hill claim is made up of the original Silver Hill, Waller's Defeat, Lucerne, St. Louis and Echo claims near the Hartford and Justice properties. These claims were all staked in 1859 along the Silver City branch of the Comstock near the Lode. All of these claims had an early production from ore bodies found near the surface. In 1872, the Silver Hill Company acquired the other four claims and started a three compartment shaft to explore the lode at depth.

By 1873, the shaft had been sunk to a depth of 360 feet below the surface. A crosscut was driven east on the 140 foot level cutting 17 feet of ore assaying $26 per ton. Drifts were run north and south on the 260 and 360 foot levels encountering ore.

A steady production of ore was maintained from the upper levels of the mine and by 1877, the shaft had been sunk to a depth of 800 feet below the surface changing from vertical to an incline at a depth of 444 feet. Drifts were driven north and south in ore on the 444, 544, and 650 levels. The drifts on the 444 level encountered ore assaying from $32 to $60 per ton and the south drift on the 650 level encountered ore assaying from $14 to $40 per ton.

1878
During/the shaft was sunk to a depth of 1100 feet below the surface. Drifts were driven north and south on the 800 and 900 levels encountering low grade vein material containing occasional bunches of high grade ore.

During 1879 and 1880 the shaft was sunk to a depth of 1300 feet below the surface. Drifts were driven north on the 1100 and 1300 levels encountering low grade vein material and bunches of ore assaying from $13.57 to $80.85 per ton on the 1300 level. A winze was sunk below the 1300 level encountering quartz, clay, manganese and a large flow of hot water.

Recorded production 1879: 552 tons, $4,508; average per ton $8.17.

Total production 1873 - 1879 Inclusive:

Tons - 13,346

Gross Value - $140,657.17

Average value per ton - $10.53 ("Geology of the Comstock Lode", G. F. Becker, Page 10)

From 1881 to 1889 inclusive, prospecting work was prosecuted on the upper levels of the mine, but very little commercial ore was found.

During 1891, 1892 and 1893, a drift was driven northwest on the 334 level and a crosscut was driven northeast from the drift at a point 430 feet from the shaft. A drift was driven south from the Justice shaft, into the claim, on the 490 level but no ore was found and work on the claim was suspended in 1894.

Recorded production 1900: 380 tons, $9,595; average per ton $25.25

Recorded production 1901: 2911 tons $31,523; average per ton $10.83

Recorded production 1902: 11,523 tons, $74,022; average per ton $6.42.

Recorded production 1903: 7903 tons, $69,791; average per ton $8.83.

Recorded production 1904: 16,033 tons, $76,931; average per ton $4.80.

Recorded production 1905: 16,175 tons, $111,720; average per ton $6.91.

Recorded production 1906: 21,863 tons; $105,084; average per ton $4.81.

Recorded production 1907; 1046 tons; $11,072; average per ton $10.59.

Recorded production 1908: 1439 tons, $10,008; average per ton $6.95.

Recorded production 1909: 1357 tons, $10,244; average per ton $7.55.

Recorded production 1910: 790 tons, $4,876; average per ton $6.05

Recorded production 1911: 1559 tons, $10,376; average per ton $6.66.

Recorded production: 1912:1144 tons, $4,516; average per ton $3.95.

Recorded production: 1918: 1620 tons, $6,028; average per ton $37.20

Recorded production:1922: 1120 tons, $7,381; average per ton $6.59.

Recorded production 1923: 250 tons, $3,732; average per ton $14.93.

Recorded production 1924: 200 tons, $1,733; average per ton $8.67.

Recorded production 1927: 172 tons, $4,914; average per ton $28.57.

Recorded production 1928: 2206 tons, $20,394; average per ton $9.24

Recorded production 1934: (Lease) 2145 tons, $26,357; average per ton $12.29.

Recorded production 1934: (part) 4253 tons, $27,104

Recorded production 1935: 11,496 tons, $112,212; average per ton $9.76.

Recorded production 1936: (Par.14,702) tons, $48,130

Recorded production 1936: (Lease) 1437 tons, $24,002; average per ton $16.70

Recorded production 1936: (Lease) 2752 tons, $22,539; average per ton $8.19.

Recorded production 1936: (Lease) 1621 tons, $17,502; average per ton $10.80.

Recorded production 1937: - tons, $6,270

Recorded production 1937: 13,933 tons, $49,111, average per ton $3.52.

Recorded production 1938: 17,158 tons, $9,439; average per ton $0.55

Recorded production 1938: 31,126 tons, $160,481; average per ton $5.16.

Recorded production 1939: 45,995 tons, $13,197; average per ton $0.28

Recorded production 1939: 30,044 tons, $189,597; average per ton $6.31.

STATE OF NEVADA

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No. 47

THE HISTORY OF THE COMSTOCK MINES

ST. JOHNS

The St. Johns claim was located on the Brunswick Lode, in what is now included within the southern half of the Sutro Tunnel Grant. During 1872, many thousand of tons of low grade ore were quarried from the surface of the claim. The Sutro Tunnel cut the Brunswick lode in the St. John claim at a depth of 1300 feet below the surface. A south drift and supporting crosscut driven on the Sutro Tunnel level indicated the ledge to be 50 feet wide. Samples taken from the ledge at that point, indicated the ore to have a value of from $4 to $5 per ton.

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BOX C, UNIVERSITY STATION

No. 48

THE HISTORY OF THE COMSTOCK MINES

SUCCOR

The Succor claim was located in 1859 on the Silver City branch of the Comstock Lode north of the Silver Hill and east of the Justice.

Some small orebodies were found near the surface on the claim. A mill, consisting of 15 - 600 pound stamps, was erected in 1863 to treat the ore. Unfortunately the known ore reserves were quickly exhausted and by 1864, the mill was treating custom ore. The mine was shut down in 1865 due to the depression in the district and the reluctance of the stockholders to pay the assessments.

Upon resuming work in 1871, the Succor Company began to sink a three compartment shaft. While sinking the shaft, a small and erratic production of ore was made from the old surface workings. That ore was reported to have yielded $20 per ton. The shaft was sunk to the 1250 level by 1880. Subsequent north and south drifts driven from the shaft on the 550, 900, 1050, 1100 and 1150 levels failed to find ore. It was reopened in 1895 for a short time.

Production recorded by G. F. Becker, page 10, "Geology of the Comstock":

	Tons	Gross Value	Value per ton
1871 to 1873	16,200	$162,440.51	$10.03

Recorded production 1895: 1807 tons, $38,987; average per ton $21.57.

Total production between the years 1871 to 1895 inclusive:

Total Tons-18,007

Gross Value - $201,427.51

Av. Value per ton - $11.19

Includes production reported by G. F. Becker, page 10, "Geology of the Comstock".

STATE OF NEVADA

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No. 49

BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
RENO, NEVADA

THE HISTORY OF THE COMSTOCK MINES

SUTRO

The Sutro claim located in 1859 on Cedar Hill, is adjacent to the Utah Claim on the south and west side of the latter. The first ore discovered on the claim, near the summit of Cedar Hill, was quickly extracted.

From 1860 to 1863, a west crosscut tunnel was driven 750 feet to cut the vein at a depth of 500 feet below the surface. On the tunnel level, the vein was found to be large and to consist mainly of quartz which contained some bunches of rich ore.

Work on the claim ceased in 1865 due to the general depression existing in the camp, and the stockholders' reluctance to pay assessments.

Upon resuming work in 1873, a shaft was sunk to a depth of 100 feet, cutting a quartz vein. That vein was found to be 5 feet wide, and to yield samples assaying between $12 and $100 per ton. Drifting on the 100 level failed to find commercial ore.

Between 1875 and 1877, a new west crosscut tunnel was started at a lower elevation, cutting the vein at a depth of 900 feet below the surface. At that point, the vein consisted of quartz stringers. Drifts and crosscuts driven on that level also failed to find commercial ore.

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MACKAY SCHOOL OF MINES
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No. 50

THE HISTORY OF THE COMSTOCK MINES

UNCLE SAM & TROJAN

The present Trojan claim resulted from the consolidation of several claims located in 1859.

The Baltic Company in 1860, performed the first exploration work on the claim by driving several tunnels acrossthe vein. The Uncle Sam Company purchased the interests of the Baltic Company in 1863. A two compartment shaft, compartments 4.5 feet by 4 feet in the clear, was then sunk to explore the claim at depth. A large vein was encountered at a depth of 185 feet. North and south drifts driven on the 180 level exposed streaks of good ore in a low grade vein filling. In the latter part of 1863, the horse whim was replaced by a 60 horsepower hoist engine. The mine was shut down due to the depression in 1865.

The new three compartment shaft started in 1867 was sunk to a depth of 406 feet by 1870. North and south drifts driven from the shaft on the 226,336 and 406 levels are reported to have encountered "rich ore" which in places was 16 feet wide. Between 1870 and 1872, a steady production was maintained from the known ore reserves. Upon the depletion of the ore reserves, the mine was shut down and the equipment moved to the Baltimore claim.

The original claims, the Uncle Sam being the outstanding claim, became delinquent and were relocated as the Trojan claim in 1875. The Trojan Company purchased all titles relating to the older claim in order to avoid future litigation.

In 1875, the Trojan Company repaired the Uncle Sam shaft in preparation for further exploration. A west crosscut driven on the 70 foot level, for the purpose of connecting with the old incline shaft (Trojan?), encountered 4 feet of good ore. While a winze was being sunk from the 70 level to the 180 level, the ore was found to become 8 feet wide and assay $60 per ton.

Ore was exposed in the drifts driven north and south on the 180 level during 1876. A winze was sunk on the ore extending below the 180 level, while stoping was in progress above the level.

The north and south drifts driven on the 336 level and the winzes sunk from the north and south drifts from that level, during 1877, were in ore. Within the same time, the north and south drifts on the 226 level were extended. Some ore, assaying as much as $35 per ton, was found in the south drift.

Recorded production 1877: 3003 tons, $33,842; average per ton $11.27.

While good ore was being produced from the upper levels in 1878, extensions to the north and south drifts on the 400 level exposed ore assaying from $10 to $72 per ton.

Recorded production: 1878: 6946 tons, $69,931; average per ton $10.07.

The west crosscut, driven from the 300 level north drift at a point 287 feet from the shaft, encountered 12 feet of ore assaying from $7 to $9 per ton. Upon extending the north drift on the 336 level, ore assaying from $5 to $21 per ton was found. East and west crosscuts were driven from a point in a raise, 53 feet above the 336 level. The west crosscut exposed 12 feet of quartz assaying $11 per ton; while the east crosscut quartz assayed from $15 to $23 per ton with width not mentioned. A south drift, driven from the end of the west crosscut on the 226 level, passed through quartz assaying from $10 to $14 per ton.

Recorded production 1879: 2861 tons, $40,619; average per ton $14.20.

Total production between the years 1877 to 1879 inclusive:

Total Tons - 12,810

Gross Value - $144,392

Average Value per ton - $11.27

STATE OF NEVADA

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BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 51

THE HISTORY OF THE COMSTOCK MINES

THE UNION

The original Union claim was staked in 1859 having 302 feet along the Comstock Lode between the Mexican and the Sierra Nevada. The claim as it is today includes the original 302 feet as well as 270 feet acquired from the North Ophir claim which was adjacent the Union claim on the south.

Work was first started on the Union claim in 1860 when two crosscut tunnels, the longest being 1000 feet, were driven westward into the hill. Both tunnels passed over the outcrop of the vein. No further work was done on the claim until 1868 when it was decided to sink a three compartment shaft located 2400 feet east of the outcrop.

While sinking the shaft, the company carried on prospecting work through the 1300 foot level of the Ophir shaft. A drift was driven from the south end line of the claim north along the foot-wall of the vein on the 1300 foot level. No ore was encountered and a crosscut was driven to the hanging wall of the vein and another drift was driven north. By March 1873, this second drift was in 210 feet and had encountered from 18 to 20 feet of ore assaying from $10 to $15 per ton. In 1875, a winze was sunk from the 1300 to the 1465 foot level on which drifts and crosscuts were driven encountering low grade ore 32 feet wide.

In 1878, the shaft was sunk to the 1600 foot level and a crosscut was driven to cut the vein 680 feet to the west and a drift was driven 525 feet to the south on the vein. Near the south line, a joint east crosscut was driven 478 feet with the Mexican Company. The two companies also sank a joint winze to the 2000 foot level. The Union Company drove a drift north on the 1600 level but found no ore.

By 1879, the shaft had been sunk to the 2000 foot level and a drift had been driven 470 feet to the south all in barren vein material. It was decided this year to connect the Mexican and Sierra Nevada mines with the shaft and to hoist all of the ore from these three mines through the one shaft.

As the Sierra Nevada Company had followed ore into the Union claim on the 2300 foot level, it was desirable that the shaft be sunk to that level as fast as possible. While one crew was sinking the shaft, another crew was sinking a winze from the 1700 foot level of the Sierra Nevada mine; another crew was sinking a winze from the 2000 foot level of the Ophir mine and still another crew was raising from the 2300 foot level of the Union mine. By August 1879, the shaft had reached the 2300 foot level. By November of the same year, the shaft had been sunk to a depth of 2400 feet below the surface where a drift was driven north to connect with the Sierra Nevada winze.

A new Cornish pump was installed to handle the water encountered on the lower levels of the mine. The pump was the largest in the world and cost $410,000. The pump engine was a direct acting compound condencing steam engine having two inclined cylinders. The initial cylinder was 65 inches in diameter and the expansion cylinder was 100 inches in diameter. The engine had an 8½ foot stroke and imparted a ten foot stroke to the pump. The engine was capable of operating a double line of 14 inch plungers that would raise 2,000,000 gallons of water per day. The total weight of the wood in the pump rod was 52 tons. It was necessary to add another compartment to the upper 100 feet of the shaft to insure the pump rod free motion.

A drift was driven north on the 2300 level to cut the rich body of ore followed by the Sierra Nevada Company into the Union claim and another drift was driven south to connect with the joint Mexican winze. A joint Mexican crosscut was driven 300 feet east on this level.

Recorded production 1879: 5201 tons, $277,284, average per ton $53.31.

During 1880, the Union shaft was sunk to a depth of 2560 feet below the surface. The drift south on the 1600 level and the drift north on the 2000 level were connected with the shaft, and two winzes were sunk from the 2400 to the 2500 level encountering low grade ore. A drift was driven northeast on the 2500 foot level to connect with the joint Sierra Nevada incline winze from the 2400 level. The north drift on the 2500 level encountered good ore and stoping operations were commenced. A winze was sunk from the 2500 to the 2600 level encountering streaks of good ore.

During the fiscal year ending June 30, 1880, the mine produced 30,191 tons of ore yielding $39.15 per ton or 81% of the assay value of the ore. All the ore produced during the year was mined from the 2300 and 2400 levels near the north boundary line of the claim.

Recorded production 1880: 26,669 tons, $946,760, average per ton $35.50.

During 1881, a joint Sierra Nevada winze was sunk from the 2600 level to a depth of 2760 feet below the surface encountering some ore a short distance below the 2700 level. A drift was driven south on the 2700 level to connect with the Union shaft which had been sunk to this depth. Many drill holes and crosscuts driven from this south drift failed to cut a commercial body of ore.

During 1882, and 1883, the 3100 foot level of the mine was prospected by driving a drift north from the joint Ophir-Mexican winze, the drift encountering streaks of ore. The joint Sierra Nevada winze was sunk to connect with the 3100 level encountering bunches of rich gold ore a short distance below the 3000 level. Drifts driven on the 2600 and 2700 levels encountered streaks of ore. Two joint crosscuts were driven on the 2900 level one near the south line of the claim with the Mexican company and the other near the north end of the claim with the Sierra Nevada Company. The joint Sierra Nevada crosscut driven to the west cut two streaks of ore assaying from $10 to $60 per ton. A second joint Sierra Nevada crosscut was driven west on the 3000 foot level encountering 90 feet of vein material assaying from $2 to $60 per ton, one streak of ore in the vein being 7 feet wide and assaying $20 per ton.

21

Recorded production 1882: 10,744 tons, $318,292; average per ton $29.63.

Recorded production 1883: 1,164 tons, $20,821; average per ton $17.89.

During the fiscal year ending June 30, 1883, the mine produced 3780 tons of ore yielding $27.02 per ton or 80% of the assay value. Most of the ore was mined from the 2500 foot level near the north end line of the claim.

During 1884, the joint Sierra Nevada winze was sunk below the 3300 foot level where a diamond drill hole encountered a great flow of water and work below the 2700 foot level was suspended.

During 1885, and 1886, crosscuts were driven on the 2700 level and a drift was driven north on the 500, 700 and 1300 foot levels from the Ophir shaft in a fruitless search for a commercial body of ore.

During 1887, 1888, 1889 and 1890, two joint drifts were driven with the Mexican Company north from the Ophir shaft, one on the 1300 and the other on the 1465 foot level. Many crosscuts were driven east and west on both the 1300 and 1465 foot levels in a fruitless search for ore.

During 1891, 1892, 1893 and 1894, a joint Sierra Nevada crosscut was driven 2712 feet west on the 900 foot level. Drifts were driven north and south on the 900 foot level from a point 1570 feet west of the shaft the north drift being driven to the north boundary line and the south drift being driven to the south boundary line of the claim.

During 1894, 1895 and 1896, a joint crosscut was driven with the Sierra Nevada Company from the north drift on the 900 foot level near the north boundary line of the claim. A second drift was driven south on the 900 foot level from a point 1620 feet west of the Union shaft and a raise was put up for 115 feet above the level but no ore was found.

The joint work commenced in the preceeding years on the 900 level, was continued during 1897 and consisted mainly in driving east-west crosscuts, in extending the north lateral from the 900 level, and in extending the north lateral from the raise above the 900 level.

In 1898, 1899 and 1900, work was continued on the 900 level, and in the north drift off the raise from the 900 level, and by additional raising. An east XC from the south drift was extended. The west crosscut from the south drift was driven out, cutting porphyry and gypsum. The raise from the 900 level was extended to a point 266 feet above the level, exposing quartz seams assaying $0.75 to $1.25 per ton. A second raise from the east crosscut off the north drift was put up 78 feet The vein material exposed in the raise assayed $2.07 per ton. The north lateral from the long raise was in porphyry at a point 294 feet north from the raise.

Jointly with the Sierra Nevada and Mexican Mines, cleaning up of the 1600 level north drift from the Ophir-Sutro Tunnel connection was underway in 1901. During the years 1902, 1903, 1904 and 1905, operations were concentrated on the 1600 level. A crosscut was driven 360 feet from the Union shaft and the 1600 South Lateral was extended 484 feet jointly with the above-mentioned mines. During that time, some joint repairs were made in the Union shaft.

During 1906 and 1907, joint operations with the Sierra Nevada and Mexican mines were continued on the 2000 level. In that time, the "East Drift" was extended 1393 feet and some crosscutting from the main drift completed. During 1908, the joint Sierra Nevada- Mexican Northwest drift was started at a point on the "East"drift 630 feet from the station. By February 1909, the northwest drift had been extended 534 feet. The first 320 feet of the drift passed through clay, porphyry and quartz stringers, while the remainder was in hard porphyry. At a point 850 feet east from the station (2000 level) on the "East" Drift, a south drift was started in hard porphyty and driven in the same for a distance of 906 feet.

Two west crosscuts were driven from the South Drift, one attaining a final length of 405 feet. The face was in porphyry.

During 1910, drifting and east-west crosscutting on the 2000 level were continued. An east crosscut was run out 156 feet and discontinued, the face being in hard porphyry. A south drift was started in the 405 foot west crosscut discontinued during the previous year. From that south drift, another west crosscut was driven 149 feet to the diorite, there discontinued. A second north drift was driven from the East Drift at a point 950 feet from the shaft for a distance of 254 feet in porphyry. At the end of the East drift, preparations were made to sink a joint three-compartment winze for the purpose of exploring the East Vein at greater depths.

During 1911, the sinking of the three compartment winze 672 feet below the 2000 level was the most important piece of work completed. At a point 218 feet below the 2000 level, quartz streaks having a low assay value were encountered. At a depth of 405 feet hard porphyry with streaks of quartz was found. The 2400 level was established and a west crosscut driven to expose 29 feet of porphyry and quartz stringers. Although the assay value of the vein material as a whole was low, some ore having an assay value of $15.60 per ton was saved. A north drift on the 2400 level along the Mexican line for a distance of 142 feet produced some ore having a value of between $7.22 and $11.36 per ton. The 2500 level was established. From it, a north drift and an east crosscut were run. Forty feet out on the north drift, an old east crosscut was encountered. For the year, this drift was driven 138 feet, crediting the work with the production of some $8.70 ore. The east crosscut produced some ore of a value ranging between $5.72 and $10 per ton.

In 1912, the 2100, 2200 and 2300 levels were established. The 2300 N., 2400 N. and 2500 N. stopes were opened, and from them ore of the following grades, $70.00, $16.72, to $23.73 and $26.67 were extracted in the order noted. Some

ore from the will floor of the 2500 level was reported to have assayed $19.84 per ton. Additional prospecting was done on the 2000 level in the form of drifting and crosscutting. The Patton crosscut was driven for the purpose of contributing more data for a geological survey of the mine. The 2000 level south drift was extended into fractured porphyry. The Main East crosscut was extended 293 feet, encountering diorite. Air raises were driven from the 2100 and 2300 levels. A west crosscut was driven from the 2100 airway. The north drift of the 2200 level was driven into fractured quartz assaying $4.00 per ton. The 2500 level north drift was extended to the Sierra Nevada boundary line, passing through some low grade quartz. A west crosscut was driven from the north drift, cutting streaks of quartz of fair assay value.

In January of 1913, the water was pumped from the three compartment winze below the 2500 level. At that time, the winze had been extended to the 2620 foot level. During the year, several hundred tons were produced. In the case of one month, 789 tons at $14.36 per ton came from the 2400 level; and 526 tons at $47.47 per ton from the 2500 level.

In 1914, the 2650 level was established and considerable crosscutting and drifting on the level was completed in the following year. During that time, ore was bein extracted from the stopes between the 2000 and 2500 levels. It was noted during March of 1914 that the Mexican Mill was recovering 91% of the assay value of the ore. At the end of the last mentioned year, the west crosscut from the 2650 level had been driven 320 feet into porphyry with quartz streaks.

By August of 1915, the west crosscut had been extended 725 feet. At a point 567 feet in the crosscut, 18 inches of quartz and porphyry assaying $15 to $41 per ton was cut. Again at 625 and 645 feet in the west crosscut, some ore assaying $13.65 and $10.26 per ton was obtained. A north drift from the west crosscut at a point 423 feet from the winze was started on a 12 to 15 inch vein assaying between $10 and $23 per ton. Seventy feet in, the north drift passed into porphyry with quartz stringers of quartz. At a distance of 275 feet from the south boundary,

the north drift was in quartz, seven to 12 feet wide assaying $4.00 to $14.00 per ton. Some drifting was done south of the station on ore reported to assay $23.85 per ton.

Within the same period, the work on the 2500 level consisted of extending the west crosscut, repairing and retimbering as well as driving a raise from the 2500 level to the 2450 level, which was followed by stoping of ore. An east crosscut from the raise was in $20 ore; the north drift was in $35 ore; and in the south drift some $65 ore was found.

Recorded production 1915: 3,105 tons, $62,800, average per ton $20.23.

From December 15th, 1915 to May 1, 1916, bullion valued at $191,412 was produced. The 2700 level north drift, from the Mexican winze to the joint Union-Sierra Nevada 2500-2900 winze, and 350 feet of the north drift from the south boundary were cleaned out and repaired. The 2700 level south drift was reopened. The north drift from the west crosscut was driven 61 feet in porphyry and quartz. The 2500-2900 joint Sierra Nevada-Mexican winze was reopened and repaired. The 2600 level on the winze was opened and an east crosscut was driven from that station. Stoping of ore from the 2400 and 2500 levels continued through the year 1916. The stopes off the 2400 level yielded a considerable tonnage varying in value between $13.21 and $71.05 per ton. The stopes off the 2500 level likewise yielded ore, but not in the same quantity as those above the 2400 level. The grade of ore from the 2500 level was of more uniform value, varying from between $15 and $18 per ton. On the 2400 level, the east crosscut from the station was opened up for a distance of 230 feet; and the south east drift extended 297 feet. The 2300 southeast drift from the east crosscut was reppened, for a distance of 100 feet. On the same level, a west crosscut from the station was driven 111 feet and broke into an old stope. An east crosscut from the same level was driven a few feet in porphyry and quartz.

Recorded production 1916: 14,144 tons, $328,750; average per ton $23.43.

During the year of 1917, work was carried on the 2300, 2400, 2500, 2600

and 2700 levels, consisting of drifting, crosscutting, sinking and stoping. A distance of 484 feet of the main south drift on the 2000 level was cleaned and repaired where necessary. On the 2300 level, a portion of the south drift was cleaned: a south drift from East Crosscut No. 1 was driven in porphyry. East Crosscut No. 2 was extended in porphyry and from it a southeast drift driven in quartz and porphyry. From the "Southeast drift from East Crosscut No. 2", a north drift was driven 137 feet, yielding some fair assays at a point 95 feet in. A crosscut, "Southeast Fork from the North Drift from the Southeast drift from East Crosscut No. 2" was driven 147 feet to the hanging wall, then turned and extended 43 feet along the hanging wall, yielding a few tons of $8.37 and $9.92 ore. From East Crosscut No. 3, the Southeast Drift was reopened and repaired for 133 feet to expose 18 to 24 inches of ore and permit the extraction of a few tons running $16.36 per ton. From the end of the Southeast Drift from East Crosscut No. 2, an east crosscut was driven through porphyry and quartz and at a point 52 feet in the crosscut, a north drift was started from which a few tons of $7.14 ore were obtained. The westcrosscut from the south drift was extended exposing 15 to 28 feet of clay from which 47 tons of $21 ore was saved.

Activities on the 2400 level for 1917 were mainly limited to the operations of stopes 1, 2, 3, 4 and 5. The East Crosscut from the South Drift was extended 297 feet. A chute was cut at a point 260 feet in the crosscut and stoping commenced on good ore. A south drift from the crosscut was driven on the vein.

In the same year, a considerable tonnage of ore was produced from the stopes and crosscuts on the 2500 level. The grade of the ore varying between $9.12 and $23 per ton.

On the 2600 level, the joint Sierra Nevada- Mexican East Crosscut was driven ahead. At a point 244 feet in the crosscut, samples were obtained assaying from $5 to $86 per ton. A small tonnage of ore ranging in value from $22.82 to $54.30 per ton was extracted from the level. The south drift from the east crosscut was driven ahead to connect with the winze from the 2500 level.

During 1917, some repairs were made on the 2700 station; the Southeast drift was retimbered; and the old West Crosscut cleaned out for a distance of 676 feet from the winze. The West Crosscut from the 2500-2900 Winze was driven in 326 feet and the old north drift from it, partially retimbered. A connection was made with the North Drift of the 2700 level and the West Crosscut from the 2500-2900 Winze at the point mentioned above. The vein was sampled and at a point 6 feet north of the junction of the north drift and the crosscut, a winze was sunk on ore. It is reported that 18 tons of ore assaying $45.65 per ton were produced and that good ore was in the bottom. Two centrifugal pumps were installed at the 2700 Station.

Recorded production 1917: 11,501 tons, $227,521; average per ton $19.78.

During 1918, the 1600, 2300, 2400, 2500 and 2600 level were being worked. Operations on the 1600 level were commenced in May, consisting of drifting south 132 feet in porphyry; drifting north 232 feet in porphyry, and driving a raise from the Southeast Drift from which some $24.99 ore was extracted.

On the 2300 level, the Southeast Fork from East Crosscut No. 1 was advanced, cutting porphyry with streaks of quartz and the hanging wall. A drift was run along the hanging wall from which some ore was developed. It is reported, the crosscut was driven 149 feet through the vein and 16 feet into the hanging wall. Samples from an 8 to 10 foot section indicated values from $8.95 to $13.39 per ton. A three-foot section on the hanging wall indicated ore ranging in value from $86.52 to $186.89 per ton. An 80-foot section of the crosscut was found to be low grade ore. Stopes 2, 4, and 5 yielded ore having an assay value between $29.87 and $49.36 per ton; while some ore as low as $6.32 per ton was taken from stope No. 3. The main lateral was extended 98 feet through streaks assaying from $12.41 to $297.17 per ton. A quantity of that material was mined, having a value of $54.43 per ton. By September, very little work was being done on the level.

Operations on the 2400 level were gradually decreasing and apparently by November, stopped. During the first four months of the year, ore was produced from stopes No. 1, 2, 3, 4 and 5 ranging in value from $6.74 to $44.26 per ton. A raise was driven from the East Crosscut from the South Drift from which some $23.70 to $25.46 ore was extracted.

In January, a raise from the 2500 level to the 2400 level from a point 340 feet in the East Crosscut No. 3 was completed. Samples from the raise indicated values from $6.50 to $78.10 per ton. During the remainder of the year, a considerable tonnage was produced from that section of the mine ranging in value from $8.99 to $30.36 per ton. Some ore was extracted from the Main Lateral workings which had a value between $20.14 and $49.58 per ton.

The deepest workings operating in the mine during the year 1918 were on the 2600 level. The south drift from the East crosscut was driven, with the first 82 feet in low grade quartz. That was followed by quartz and porphyry from which several hundred tons of ore of a value between $15.84 and $22.24 per ton were extracted. A raise was put up from the Southeast Drift from the East Crosscut from which some $8.99 ore was extracted. A Southwest drift was started on the vein, and extended 21 feet. The face was in low grade quartz.

Recorded production 1918: 13,919 tons; $272,317; average per ton $19.56.

During January 1919, a little ore was obtained from the 2500 level. The 2600 level was being stripped. For the remainder of the year and 1920, work consisted of driving three east crosscuts and extending the South drift. Most of this work was in porphyry, with one exception, quartz seams being reported in the east crosscut driven from a point 152 feet in the south drift.

For the year 1921, a crosscut was driven on the 1629 level toward the "Comstock Lode". At a point 785 feet in the crosscut, a Southwest drift was started. In the following year, 1922, work on the crosscut continued. The South Drift was advanced to 109 feet; a North drift was driven; and a raise put up from the North Drift. An East Crosscut and a South Drift were driven from the raise.

During 1923, work continued on the 1629 level. A south drift was driven from a point 232 feet up the raise. The main southwest drift was driven ahead; from it, a southeast drift and a west crosscut were driven.

In 1924, apparently no work was carried on below the 1420 level. At the end of the year, a little work had been started on the north drift of the 1300 level. The work on the 1420 level consisted of driving an east crosscut from the main south drift, driving the southwest drift, raising from the southwest drift, and driving an east crosscut from the raise.

In 1925, a west crosscut was started on the 1300 level. The raise for the North drift on the 1629 level was advanced to a point 294 feet above the level.

Total production between the years 1879 to 1918 inclusive:

Total Tons - 86,447

Gross Value - $2,454,545

Average value per ton - $28.39

G. F. Becker's report covers period 1879 to 1900 June 30.

STATE OF NEVADA

JAY A. CARPENTER, DIRECTOR
A. F. COUCH, SECRETARY

Bureau of Mines

BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 52

THE HISTORY OF THE COMSTOCK MINES

UTAH

The Utah claim was located, in 1859, to include 1000 feet along the northern extension of the Comstock Lode, to the north of the Sierra Nevada.

Work on the claim commenced in 1863. A 400 foot tunnel was driven to cut the lode at a depth of 80 feet below the surface. The lode was found to be 165 feet wide and to contain some streaks of quartz that assayed $11 per ton.

A three compartment shaft, started at a point 100 feet east from the outcrop of the lode, encountered the footwall at a depth of 280 feet. The shaft was not sunk into the footwall due to the hardness of the rock and difficult hand drilling. The shaft was lined with 4" by 8" planks, and each compartment was 4 feet by 6 feet in the clear. Water was femoved from the workings with a 12-inch pump having a 6 foot stroke. A 90 horse-power horizontal steam engine, having a 4.5 foot stroke, supplied power through friction gearing to the two hoists. The hoists were equipped with a 4.5 foot cable reel.

Drifts were driven 100 and 300 feet north and south respectively from the bottom of the shaft. A west crosscut (?) was also driven through 140 feet of lode material. The best ore, assaying from $10 to $12 per ton, was found in a small chimney east from the shaft. The unproductive exploration work had cost the investors $160,000. The mine was shut down in March of 1865 due in part to the depression and mainly to the stock-holders' reluctance to contribute more money.

After the discovery of the Crown Point-Belcher bonanza in 1872, a new shaft was started about 600 feet east from the old shaft, in the center of the claim. North and south drifts and a west crosscut were driven from the shaft on the 300 level. Upon completing that exploration work, operations were suspended in 1873.

Following the discovery of the "big bonanza" in the California and Consolidated Virginia claims, the shaft was sunk to the 1150 level, cutting the lode. A 744 foot south drift, 568 foot north drift and a 236 foot northeast crosscut were driven on the 1150 level. During 1878, a winze was sunk from the 1150 level to the 1350 level. A north and a south drift, 234 feet and 885 feet long respectively, were driven from the winze. The south drift completed a connection with the Sierra Nevada mine and improved the ventilation. Frequent crosscuts were driven on the 1350 level to explore the vein. During that time, 4480 feet of new development work had been completed through the winze in an unsuccessful search for ore.

In 1881, the shaft was sunk from the 1150 level to the 2500 level, becoming an incline shaft below the 1150 level. Drifts and crosscuts were driven south and east on the 1750, 2150 and 2500 levels encountering no ore. A large flow of water was developed on the 2500 level in 1882.

After unsuccessfully exploring the 400, 700 and 1950 levels with drifts and crosscuts, work in the claim was suspended in 1885.

Upon reopening the mine in 1892, the 700 level was re-explored. The operation was unsuccessful, and again the mine was shut down.

As the result of a discovery made in the Gold Hill section of the lode in 1897, all the surface tunnels were re-examined and some drifting and crosscutting done on those levels.

STATE OF NEVADA

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Bureau of Mines

BOX C, UNIVERSITY STATION

MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 53

THE HISTORY OF THE COMSTOCK MINES

WARD

The Ward claim was located in 1860 south of and adjoining the claim held by the Julia Company and to the east of the Imperial. Only sufficient work was performed during the years immediately following the location to hold the claim.

The holdings of the Ward Company were increased by 400 feet, upon the completion of a transaction with the Julia Company in 1876. A four compartment shaft was started at a point 1450 feet southeast from the Julia shaft.

By 1880, the shaft had been sunk to a depth of 2200 feet, and north and south drifts driven on the 800 and 1050 levels in an unsuccessful search for ore. A west crosscut was also driven from the 2200 level to connect with the 2450 level of the Bullion mine. As a result of the failure to find ore, operation were suspended in 1881.

The mine was reopened in 1889. During the period from 1889 to 1894, several crosscuts and drifts were driven from the shaft on the 850 and 1800 levels in an unsuccessful search for ore. A north drift and a northwest drift were driven jointly on the 850 and 1800 levels by the Bullion and Potosi companies. The Alpha and Exhhequer companies drove a west crosscut from the shaft on the 1800 level. An east crosscut was driven 958 feet from the shaft on the same level. A west crosscut was driven into the Julia claim, and a southwest drift 1310 feet from the shaft, also on the 1800 level. Work on the claim was again suspended in 1895.

The Ward shaft was repaired to the Sutro Tunnel level between 1902 and 1904. A sinking pump, driven by an electric motor, was installed in June, 1905. By May 1906, the pump was lowered to the 2100 level. By the end of that year, the shaft had been repaired to a depth of 2444 feet.

By July 1907, the Ward shaft had been opened to the 2577 level and timbered to the 2512 level.

The 2330, 2450 and 2520 levels were explored by drifts and crosscuts. In 1908, the station on the 2475 level was completed. Additional work was done on the station of the 2450 level in preparation to completing a connection with the Hale & Norcross and Savage mines.

In 1910, the Yellow Jacket, Crown Point and Belcher mines agreed to pay a portion of the cost of pumping water through the Ward shaft. In 1912, it was noticed that the pumping through the Ward shaft had lowered the water in the Yellow Jacket mine. During the same year, the Bullion claim was explored on the 2000, 2100 and 2450 levels from the Ward shaft.

STATE OF NEVADA

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MACKAY SCHOOL OF MINES
RENO, NEVADA

BOX C, UNIVERSITY STATION

No. 54

THE HISTORY OF THE COMSTOCK MINES

WEST BELCHER

The West Belcher claim was located in 1859, west of the Crown Point and Belcher claims. Due to the lack of sufficient capital, the origiaal owners performed very little work during the years immediately following the location of the claim.

After the discovery of the "big Bonanza" in the California and the Consolidated Virginia claims (1875), the West Belcher Company was organized and began exploring the claim.

An incline shaft, sunk on the ledge, encountered "rich ore" at a depth of 55 feet. While sinking was in progress, the vein was cut at a depth of 100 feet by a tunnel. The vein was 15 feet wide at that point. A north drift driven on the vein to connect with the incline shaft, encountered ore assaying from $50 to $60 per ton.

While ore was being extracted from the workings above the tunnel level, the portion of the vein below that level was being explored from the old Overman shaft on the 226, 300 and 400 levels. The ore found on the 226 and 300 levels assayed from $50 to $90 per ton and that on the 400 level was low grade.

The mine was shut down in 1877 after the small orebodies had been exhausted.

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MACKAY SCHOOL OF MINES
RENO, NEVADA

Box C, University Station

No. 55

THE HISTORY OF THE COMSTOCK MINES

WEST CONSOLIDATED VIRGINIA

The West Consolidated Virginia claim, located in 1859, consisted of a strip of land along the west boundary of the Ophir, California and Consolidated Virginia claims.

During the years immediately following the location, very little work was done on the claims lying west of the Comstock Lode. Although some good ore was found on the surface of the Cole and Santa Rita claims, no important production was made until 1874. In that year, ore valued at several hundred thousand dollars was produced from the most easterly ledge on the Cloe claim. A shaft was started to explore the region but was soon abandoned due to the large amount of water encountered. A tunnel, which had been started to crosscut the region, was suspended for the same reason. Upon the suspension of mining operations, the water developed in the workings was sold to Virginia City.

In 1893, the West Consolidated Virginia Company retimbered the Consolidated Virginia shaft to the 1100 level, and reopened the west crosscuts on the 800 and 1100 levels. The old 800 level west crosscut was found to have cut the West Consolidated Virginia vein at a point 612 feet from the shaft. Drifts were driven north and south along the hanging wall of the vein. Due to the large flow of water, it was considered impossible to crosscut the vein on the 800 level. A west crosscut was driven from the north drift from the main west crosscut on the 1100 level, exposing a few small stringers but no commercial ore. Work was again suspended on the claim in 1895.

In 1909, an incline raise was driven from the 350 level. In the following year some additional prospecting was done on the 350 level.

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MACKAY SCHOOL OF MINES
RENO, NEVADA

No. 5.6

THE HISTORY OF THE COMSTOCK MINES

YELLOW JACKET

The Yellow Jacket claim was staked in 1859 having 957 feet along the Comstock Lode. It lies between the Kentuck and the Imperial.

The first work was done on the claim in 1860, when a contract was let to sink an incline shaft, the contractors to receive 1400 tons of the ore they found. The shaft was sunk to a depth of 170 feet below the surface where drifts and crosscuts were driven in a fruitless search for ore.

In 1862, the Yellow Jacket Company started a three compartment shaft on the north end of the claim. Ore was encountered at a depth of 150 feet below the surface and by 1864, an ore body 200 feet long, 150 feet deep and 25 feet wide had been mined out leaving large bodies of low grade on each end of the excavation.

A new four compartment shaft was started on the south end of the claim in 1864. The three hoisting compartments of the new shaft were each four feet by five feet and the pump compartment was five feet square in the clear. The shaft was equipped with an 80 horsepower steam engine and was sunk at the rate of 4½ feet per day. The pump used in the shaft discharged into the Gold Hill tunnel.

The old shaft was equipped with a 20 horsepower steam engine and by the end of 1864 had been sunk to a depth of 350 feet below the surface, the vein material being 300 feet wide averaging "fair" ore in places. During the fiscal year ending June 30, 186 this portion of the mine yielded 83 tons of ore per day yielding $37.50 per ton. During 1866, the new shaft was sunk to a depth of 360 feet below the surface and a crosscut driven at this depth showed the vein material to be 350 feet wide having bunches of rich ore.

The old shaft was sunk to a depth of 535 feet below the surface and develop-

ment work at this depth encountered a fine body of ore yielding $33.53 per ton. The cost for milling the ore at the Empire mill was $11.18 per ton and the cost of transporting the ore to the mill was $3.87 per ton.

During 1867 and 1868, the new shaft was sunk to a depth of 900 feet below the surface and ore was found on the 290, 360, 425, 800 and 900 levels. The old shaft was sunk to a depth of 600 feet below the surface also encountering ore. Ore was mined from the upper levels of both shafts and during the fiscal year ending June 30, 1868, the mine yielded 24,719 tons of ore yielding $19.50 per ton.

Development work on the 800 and 900 levels encountered a large body of excellent ore 16 feet wide. The good ore from the 800 and 900 levels was mixed with the low grade ore from the upper levels of the old shaft thus prolonging the life of the mine. On April 7, 1869, fire broke out on the 800 level and was extinguished by sealing the mine and forcing steam down into the lower levels. Three weeks after the fire broke out, the company was again hoisting ore through the shaft.

During 1870, the new shaft was sunk to a depth of 1020 feet and the old shaft was sunk to a depth of 800 feet below the surface. A body of ore 30 feet wide was found on the 1020 level. A drift was driven north on the 1100 level, from the Crown Point mine, encountering bundhes of ore.

During 1871, the new shaft was sunk to a depth of 1154 feet below the surface changing from vertical to an incline of 45 degrees at a depth of 1100 feet. A drift driven north on the 1100 level encountered an orebody 14 feet wide assaying $30 per ton. A steady production of ore was maintained from the 800, 900 and 1000 levels and during the fiscal year ending June 30, 1871, the mine yielded 59,875 tons of ore yielding $31.49 per ton. The cost of mining the ore was $22.65 per ton.

From 1872 to 1875 inclusive, the incline shaft was sunk to a depth of 1840 feet below the surface. Drifts were driven north and south on the 1300, 1400, 1500, 1540, 1740 and 1840 levels. Many crosscuts driven on these levels failed to develop a profitable ore body; although, bunches of good ore were found on the 1300 level in a drift driven north to connect with the Imperial mine. A winze was sunk from the 1540 to the 1940 level and the 1740 level was connected with the Imperial mine.

Recorded production 1875: 761 tons, $12,176, average per ton $16.00.

During 1876, drifts were driven north and south on the 1940 level from the winze that was sunk below the 1540 level. Winzes were sunk from both the north and south drifts on the 1940 level to the 2040 level encountering "fair" ore. A crosscut driven on the 2040 level showed the vein to be 410 feet wide and containing stringers of ore assaying from $10 to $400 per ton.

Recorded production 1876: 865 tons, $11,668; average per ton $13.52.

Production reported by G. F. Becker, page 10, "Geology of the Comstock", as follows:

	Tons	Gross Value	Value per ton
1864 to 1876 Incl.	443,747	$12,998,170.82	$29.29

A new three compartment shaft was started to facilitate the exploration of the lower levels of the mine. The new shaft was located at a point 2600 feet east of the old workings and was to cut the lode at a depth of 3000 feet below the surface. The two hoisting compartments of the shaft were each 5 feet by 6½ feet and the pump compartment was 6½ feet by 7½ feet in the clear. The shaft was timbered with 14-inch square timbers.

During 1877, the north and south winzes below the 1940 level were sunk to a depth of 2300 feet below the surface and drifts were driven north and south on both the 2200 and 2300 levels. The north drift on the 2200 level was driven to connect with the Imperial mine encountering a large body of quartz assaying from $8 to $10 per ton.

During 1878 and 1879, a winze was sunk from the 2000 level to a depth of 2400 feet below the surface where a drift was driven north to connect with the Imperial mine. A winze was sunk from the 2400 level to a depth of 2700 feet below the surface and drifts were driven north and south on both the 2500 and 2700 levels in a fruitless search for ore. The new shaft was sunk to a depth of 2700 feet below the surface and crosscuts were driven west to connect with the workings on the 2280 and the 2700 levels. The temperature on the 2700 level dropped from 120 to 80 degrees after the connection was made.

During 1880, the shaft was sunk to a depth of 3025 feet below the surface. A diamond drill was employed to drill down from the bottom of the shaft and hot water, having a temperature of 170 degrees, was encountered after drilling 70 feet. Drifts were driven north and south on the 2700 and 2828 levels. An incline winze was sunk from the north drift on the 2700 to the 2828 level and a crosscut was driven east on the 3000 level to cut the lode at that depth. In November of 1880, the pump rod in the shaft broke and the mine was flooded to the 2400 level.

The broken pump rod was repaired, and in 1881, the mine was connected with the Sutro Tunnel on the 1513 level. The incline winze from the 2700 level was sunk to a depth of 3000 feet below the surface and a second winze was sunk from the 2500 to the 2700 level to facilitate the ventilation in the lower levels of the mine. A diamond drill hole was drilled east on the 2828 level cutting 80 feet of low grade ore. Drifts were driven north and south on the 3000 level, the north drift connecting with the incline winze from the 2700 level.

During 1882, the lower levels of the mine were flooded by a large flow of water cut on the 2800 level of the Exchequer mine. While waiting in vain for arrangements to be made for pumping out the lower levels of the mines in the Gold Hill section, the old stopes above the 1130 level were reopened through the old Winters or south shaft.

Recorded production 1882: 5,493 tons, $88,045; average per ton $16.03.

During the fiscal year ending June 30, 1883, the mine yielded 25,463 tons of ore yielding an average of $17.32 per ton. The ore was produced from the fill in the old stopes and from new ore bodies developed in the walls of the old stopes on the 190, 360, 452, 640 and 730 levels.

Recorded production 1883: 29,558 tons, $445,107; average per ton $15.06.

From 1884 to 1887, a large amount of low grade ore was produced from the upper levels of the mine above the 1650 level most of the ore being mined from above the 1300 level. The ore produced, varying from 100 to 200 tons per day, was obtained by sorting the old stope fills and the ore found in the walls of the old stopes.

Recorded production 1884: 54,726 tons, $784,652; average per ton $14.34.

Recorded production 1885: 55,021 tons, $668,360; average per ton $12.15.

Recordéd production 1886: 57,610 tons, $630,603; average per ton $10.95.

During 1887 and 1888, a crosscut was driven on the 1100 level to connect with the new shaft and approximately 175 tons of ore assaying $30 per ton were produced daily from the 1100, 1200, 1300 and 1400 levels of the mine.

Recorded production 1887: 44,885 tons, $384,308; average per ton $8.56.

Recorded production 1888: 28,618 tons,$211,671; average per ton $7.39.

From 1889 to 1893, inclusive, exploration work was prosecuted on all the levels from the 360 to the 1100 levels encountering good ore on the 360 level. A crosscut was driven 900 feet west on the 500 level and new drifts were driven north on both the 800 and 900 levels in a fruitless search for ore. Some good ore was encountered in a raise put up above the 1100 level. During this period, from 25 to 100 tons of ore assaying from $18 to $35 per ton were produced daily from the mine.

Recorded production 1889: 23,592 tons,$363,527; average per ton $15.41.

Recorded production 1890: 18,984 tons,$264,541; average per ton $13.93.

Recorded production 1891: 21,404 tons,$172,440; average per ton $8.06.

Recorded production 1892: 8,053 tons,$98,702; average per ton $12.26.

Recorded production 1893: 6,429 tons; $70,115; average per ton $10.91.

In 1894, major operations had been suspended in the mine.

Recorded production 1894: 1,229 tons, $14,511; average per ton $11.81.

No work was reported for the period from 1895 to 1907.

Recorded production 1895: 263 tons,$ 1,659; average per ton $6.30.

Recorded production 1896: 170 tons, $676; average per ton $3.98.

Recorded production 1898: 160 tons, $2,132; average per ton $13.32.

From the reports relating to the Imperial and Challenge-Confidence Mines, north drifts were driven from the Yellow Jacket Shaft on the 900 and 1000 levels during the years 1903, 1904, 1905 and 1906.

Recorded production 1903: 500 tons, $2,382; average per ton $4.76.

In 1907, the 900 south drift was extended to connect with the raise from the 1100 level. In making the connection, the drift passed through low grade ore and filled stopes. Some of the old fill was saved for ore. The raise from the 1100 level encountered good ore, while the raise from the 1000 level was in low grade to the 900 level.

Considerable ore was obtained from the dumps, the surface tunnel, the 900, 1000 and 1100 levels during 1908. Steps were taken to open the incline below the 1100 level.

Recorded production 1908: 15,633 tons, $39,442; average per ton $2.52.

During 1909, a large tonnage of low grade ore was produced from the 100, 300, 1100 and 1200 levels. The larger part of the ore came from the 1100 and 1200 levels.

Recorded production 1909: 33,463 tons, $83,090; average per ton $2.48.

In 1910, work was carried on through a surface tunnel, the 1100, 1200, 1300 and 1400 levels in the Yellow Jacket mine. Several thousand tons of the Yellow Jacket dump, a large tonnage of low grade ore coming from the 1100, 1200, 1300 and 1400 levels and the surface tunnel of the Yellow Jacket mine together with several hundred tons of Crown Point and Belcher ore were milled during the year. The incline below the 1100 level was opened for a distance of 486 feet. Part of the pumping costs at the Ward Shaft were carried by the mine.

Recorded production 1910: 58,151 tons, $70,786; average per ton $1.21.

In 1911, ore was obtained from the Crown Point mine, the Belcher mine and the Yellow Jacket dump. In October, the water was standing 39 feet below the 1400 level.

Recorded production 1911: 22,257 tons, $28,517; average per ton $1.28.

Repairs were made in 1912 to the surface tunnel, and shaft; the west cross-cut and south drift No. 3 on the 1100 level were driven ahead; and several hundred tons of ore were milled from the dump and the surface tunnel.

Recorded production 1912: 21,033 tons, $31,162; average per ton $1.48.

In 1913, repairs were made on the 900 level and some drifting done on the 1100 level. The glory hole was opened and put on production. In addition, ore was obtained from the surface tunnel, dump and the Crown Point and Belcher mines.

Recorded production 1913: 16,278 tons, $18.601; average per ton $1.14.

Ore was obtained from the dump, surface tunnel, 1100 level, the Crown Point and Belcher mines in 1914. 23,942 tons were milled for the year as follows: Crown Point 6,678 tons, Belcher, 2,924 tons, and 14,342 from the Yellow Jacket. The water was reported to be below the 1600 level in April.

Recorded production 1914: 27,695 tons, $42,084; average per ton $1.52.

In 1915, the Crown Point, Belcher and Yellow Jacket mines were consolidated under the management of the Jacket-Crown Point-Belcher Mines Company. Work was conducted on the 1200, 1300, 1500 and 1600 levels apparently in the Crown Point and Belcher claims. The major portion of the ore came from the 1200, 1300 and 1600 levels and the dump. During the year, the water was held below the 1600 level.

Recorded production 1915: 2,476 tons, $12,439; average per ton $5.02.

In 1916 ,Work was performed on the 300, 1100, 1400 and 1600 levels, apparently on the Crown Point and Belcher claims. The main production of ore coming from those levels and the dump.

In 1917, 1918 and 1919, work was confined to the surface tunnel and the 300 level in the Yellow Jacket claim. Prospecting for and development of ore was accomplished by drifting, crosscutting, raising and sinking. In some cases, a fair grade of ore was found, but in general, the major portion was low grade ore.

Recorded production 1918: 419 tons, $1,980; average per ton $4.73.

Recorded production 1919: 23 tons, $184; average per ton $8.00.

In 1920, some ore was being produced from the surface tunnel on the Yellow Jacket Claim.

Total production between the years 1864 to 1919 inclusive:

Total tons - 997,870

Gross Value - $17,529,886.82

Average value per ton - $17.57

This includes G. F. Becker's reported production, but not that of the United Comstock or the Comstock Merger Mines.

Under Comstock Merger as Jacket, Crown Point, Belcher - not in total for mine:

Recorded production 1915: 35,956 tons, $41,872; average per ton $1.16.

Recorded production 1917: 5,692 tons, $[illegible],511; average per ton $.86.

Recorded production 1918: 7,631 tons, $9,272; average per ton $1.22.

Recorded production 1919: 356 tons, $3,825; average per ton $10.74.

Recorded production 1920: 452 tons, $3,498; average per ton $7.74.