

TN
423
C2F3

UC-NRLF



B 4 267 246

FACTS AND STATISTICS

RELATING TO THE

EDMONTON, GOLD MINE,

GRASS VALLEY,

NEVADA COUNTY, CALIFORNIA.



BOSTON:

WRIGHT & POTTER, PRINTERS, No. 4 SPRING LANE.

1866.

FACTS AND STATISTICS

RELATING TO THE

EDMONTON GOLD MINE,

GRASS VALLEY,

NEVADA COUNTY, CALIFORNIA.

LIBRARY OF
CALIFORNIA

BOSTON:

WRIGHT & POTTER, PRINTERS, No. 4 SPRING LANE.

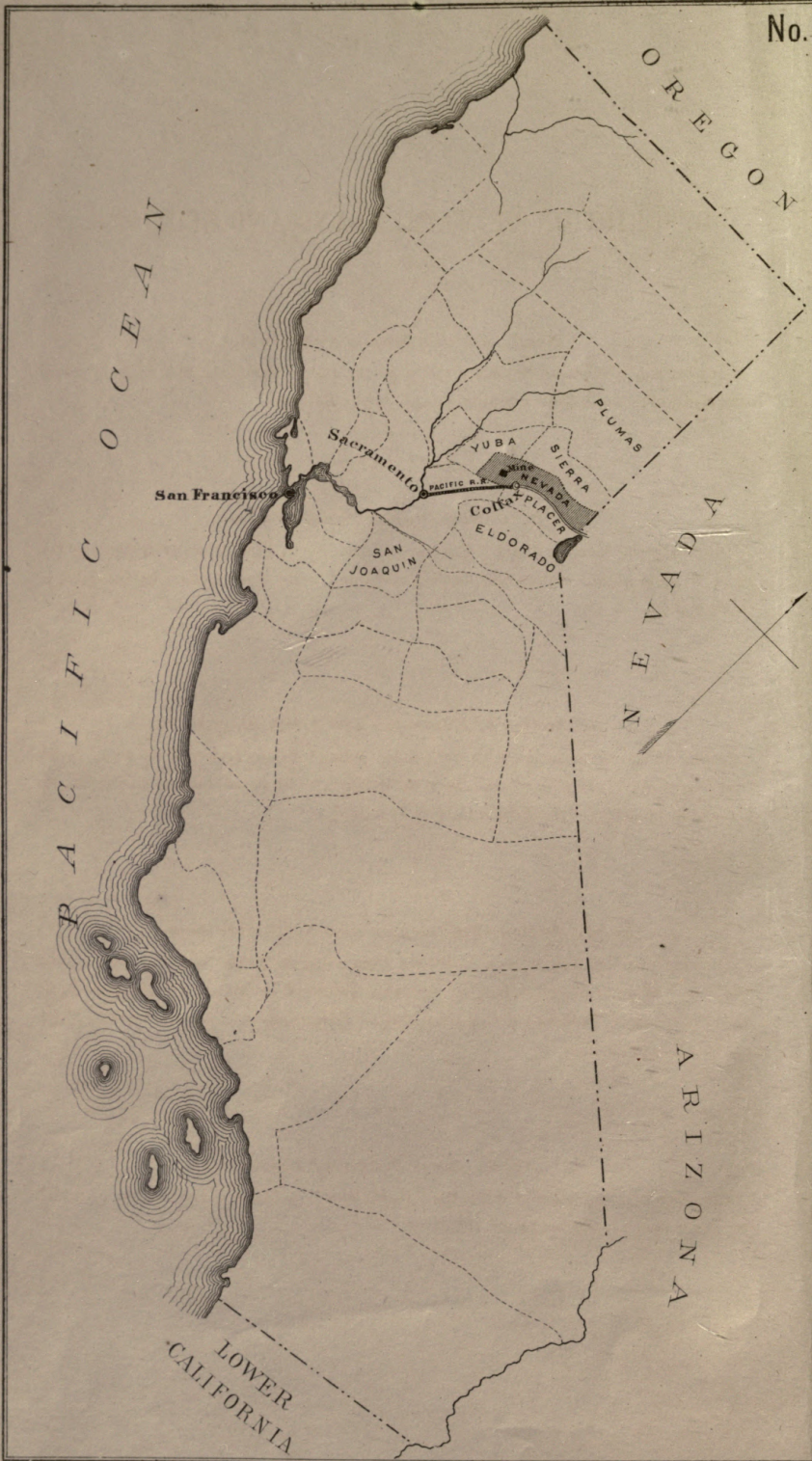
1866.

T.N 423
C2F3

5/4/21

to vnu
AUBURN LAO

430409



PACIFIC OCEAN

OREGON

NEVADA

ARIZONA

San Francisco

Sacramento

YUBA

PLUMAS

SIERRA

COLUSA

PLACER

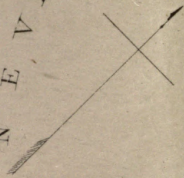
ELDOORADO

SAN JOAQUIN

PACIFIC R. R.

SIERRA NEVADA

LOWER CALIFORNIA



DESCRIPTION OF MAPS, PLANS AND SECTIONS.

No. 1. Outline Map of California.

Showing the relation of Nevada County to the rest of the State, and route of travel from San Francisco to Colfax Station on the Pacific Railroad.

No. 2. Outline Map of Nevada County.

Exhibiting the location of the "Edmonton" and North Star Mines, with some of the principal gold quartz claims near Grass Valley, and route from Colfax, by turnpike, to Grass Valley.

No. 3. Section of Edmonton and North Star Mines.

Incline and working levels, with worked out ground below, and mill above, of North Star Company. Incline down on the vein, 700 feet. Proposed incline and levels for Edmonton property. [See Edwin Caldwell's letter.]

No. 4. Section of Edmonton and North Star Mines.

Showing vein lengthwise, as a board cut from a log shows the inside of the log from which it was cut the entire length; also, plan proposed by Edwin Caldwell, Esq., for working the mine, shown by dotted lines in the "Edmonton," and connecting with North Star levels and incline.

No. 5. Cross Section of Ledge.

Illustrating cross section of mine, the "North Star" incline, and the manner by which the ore is raised to surface in car.

SIERRA COUNTY.

YUBA CO.

NEVADA

AMERICAN COUNTRY

GEORGETOWN

IDAHO

EDMONTON

NORTH STAR

WY. HILL

LOWE JUNCTION

ALLISONS RANCH

BOURTON

NORAMBUONA

Half Creek

Colfax

SACRAMENTO ROAD

TO SACRAMENTO

Marysville Road

GRASS VALLEY

GOLD HILL

MASSACRA

HOWARD HILL

LUCKY

Grass Valley Turnpike

FOREST SPRING RANCH

Half Creek

Sacramento Road

RAIL ROAD

PACIFIC

R

C

A

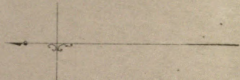
P

C

O

F

The Grass Valley Mining District
from Survey by Messrs
KING & ATWOOD,
Civil Engineers.



COUNTY
OF
NEVADA.

STATEMENTS

RELATING TO

THE EDMONTON GOLD MINE.

MR. SHIVERICK'S STATEMENT.

BOSTON, MASS., July 1st, 1866.

Having recently examined the principal gold mining districts of California with great care, and among many other claims the Edmonton Gold Mine, I will say that this mine is in Grass Valley township, Nevada County, State of California, and in the district called the Grass Valley mining district, which is about one hundred and fifty miles from San Francisco, (see map 1,) being the great centre of the quartz mining region of California, and now universally acknowledged to be by far the richest and most productive gold district on the Pacific coast.

The Edmonton mine is situated about one mile from the thickly settled part of the thriving town of Grass Valley, (see map 2,) and is a continuation or extension of one thousand feet (1,000) on the celebrated North Star ledge. The company have sunk a shaft to the water-level on the vein, which has proved to be rich in gold. Crushing has been done by the company at the Gold Hill Company's mill, and the ore yielded from \$25 to \$50 dollars per ton. The great value, however, of the Edmonton ground is proven by the developments made in the North Star. That company have sunk an inclined shaft near the Edmonton boundary line, following the course of the vein to a depth of 700 feet, and have taken out nearly three millions of dollars, and established the reputation of this property as a first class mine. Letters recently received by me from Grass Valley, say that this mine is now richer than ever, and is paying

regular monthly dividends of \$400 net per share, with a 9-stamp mill running on half time, (that is, twelve hours a day,) while the company have sufficient ore in sight to keep a 20-stamp mill employed, and could readily double the product of their mine.

Mr. Thomas Findlay, formerly treasurer of the State of California, and now a banker at Grass Valley, has stated to me in writing over his own signature, as you will observe, that the net yield of this mine was from seventy thousand to one hundred and twenty thousand dollars (coin) annually.

The veins in Grass Valley district are not large, but exceedingly rich; that of the celebrated Allison Ranch Mine in this district, and situated about one and a half miles from the Edmonton, does not average over two feet in thickness, and yet this mine has divided to its fortunate owners, two of whom reside in the State of Maine, (James O'Donohue and Timothy Field,) over three millions of dollars, and is now richer than ever. The Rocky Bar, Massachusetts Hill and Scadden Flat Mines, situated near the Edmonton, have brought immense wealth to their owners. The Eureka Mine, situated about two miles from the "Edmonton," is paying enormously, having actually yielded, in November last, \$43,000; and since that period the product has been over a thousand dollars per day. During the month of April, the gross product was \$60,000, or \$2,000 per day.

The Hueston, Merrimack, Ophir Hill, Forest Spring, Lucky Company, and many others, are paying dividends which are making their owners rich; and one undeniable fact in regard to these wonderful mines is, that the deeper they are worked the richer they prove.

The advantages of carrying on quartz mining in Grass Valley, are superior to any portion of California. Communication with San Francisco is very easy, being by steamer to Sacramento, and by the Pacific Railroad to Colfax, and then over a fine turnpike road eleven and a half miles to Grass Valley, by the California Stage Company's stages, so that we are within twenty hours of San Francisco; wood is abundant and cheap, plenty of good pure water, so indispensable in crushing. The very best of Cornish miners can be had at \$3.50 per day; the climate is very superior, and mining is carried on without any interruption

for the entire year; freight from San Francisco is not over one and a quarter cents per pound; machinery of the best quality with all the latest improvements can be obtained in San Francisco nearly as cheap as in New York City, as iron is imported direct.

The shipment of gold from Grass Valley amounts to nearly half a million dollars per month, and it is the opinion of those familiar with the developments being made, that it will reach the sum of one million a month within five years. Mr. Dideshemier, a mining engineer of great experience in the mines of Frieburgh, in Germany, and for many years superintendent of the Ophir Silver Mine at Washoe, told me a few days since that he had examined these mines and believed they would yet be worked to a depth of two thousand feet with great profit.

It is my opinion that the Edmonton property is very valuable, and will prove a first class mine; and the developments which can be made in eighteen months, with a vigorous prosecution of the work, will demonstrate its value. This opinion is indorsed by Professor Silliman, who examined it last summer, and by Captain Day, former superintendent of the Savage Mine in Washoe, Mr. Caldwell, superintendent of the Yellow Jacket Mine, and Mr. Northey, a Cornish miner, of great experience in the mines of Grass Valley, for twelve years.

The "Edmonton" being the identical vein upon which the very productive "North Star" mine is situated, should not be looked upon as an undeveloped and unexplored property. Its identity with the "North Star" is clearly established, and no reason exists either in the character of the outcrop or the configuration of the country, why the Edmonton should not yield its millions of gold to its owners, as the North Star has done, and is doing. I am in possession of evidence that the "North Star" mine is under contract of sale for the sum of \$450,000 in gold, (since sold,) the purchasers having deposited the sum of \$10,000 to be forfeited in case the purchase money is not paid within six months.

It may be well for me to call attention to the fact that Mr. George W. Beaver, of Exchange Place, New York, one of the owners of the "Eureka" mine, has examined the "North Star" mine, and expressed the opinion that the great gold producing state of California can boast of but two mines which are superior

to it—the “Allison Ranch” and the “Eureka.” References can be given of New York gentlemen who own largely in these profitable mines, if the following evidence is not entirely satisfactory.

Mr. Thomas Findlay, the banker, of whom I have already spoken, and whose opinion on mines is worthy of entire confidence, stated to me at his bank, in August, 1865, that he once owned in the “Edmonton;” that he believed it to be a good mine; and expressed to me a regret that he had been induced to sell.

Mr. George Roberts, a miner of great experience in Washoe and California, and an old resident of Grass Valley, expressed the opinion that the “Edmonton” was a splendid mine—and that he never knew an instance, in a “Grass Valley” mine, of failure, where the ore paid \$8 to \$10 per ton on the surface.

Mr. Morse, owner of the water-works at Grass Valley, stated to a friend that the location of the “Edmonton” mine was second to none in Grass Valley, and that it might prove a better mine than the “North Star.”

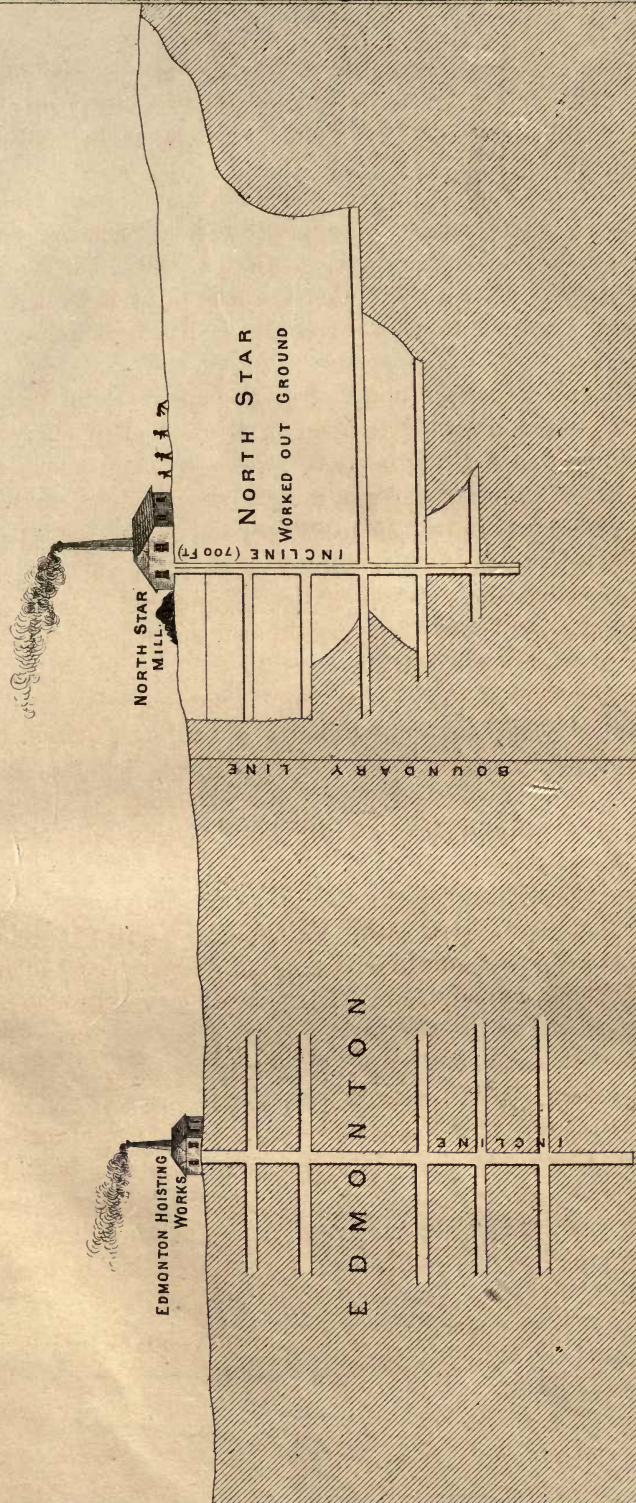
The gross yield of the “North Star” mine, since the erection of its present small mill, was estimated by the “Alta-California” newspaper, in December, 1865, at three million dollars. With the completion of the company’s new 16-stamp mill, now in progress, the monthly product will not probably fall short of fifty thousand dollars.

It may be well perhaps to state, that the purchasers of the “Edmonton” will find in Edwin Caldwell or William D. Johns, Esqrs., both of whom are old miners of large experience, and gentlemen of integrity and energy, (either of whom can be obtained to superintend the prosecution and development of the work,) just such organizing and business capacity as will be needed. These gentlemen can furnish the best of references.

The owners of the “North Star” mine have assured me that for a reasonable rent the “Edmonton” owners can have the privilege of running their levels into the “Edmonton” vein, and taking out the ore through their incline, and hoisting to the surface by their power. (Plan No. 4 illustrates this method of working.)

(Signed,)

N. SHIVERICK.



PROPOSED METHOD OF WORKING EDMONTON INCLINE

LETTER FROM PROFESSOR SILLIMAN,
OF YALE COLLEGE.

NEW HAVEN, CONN., November 25th, 1865.

DEAR SIR:—In answer to your inquiry of the 21st inst., it gives me pleasure to say, that in my opinion, the Edmonton mining claim, in Grass Valley, must be regarded as a very valuable piece of mining ground. The reason for this opinion is, that I know the adjoining claim called the North Star Mine, having examined it in my last visit to Grass Valley, at which time I collected specimens and made note of the condition of this gold mine. I also had access to the books of the bankers where the bullion obtained at this mine is deposited, and can state from this source of knowledge, that the returns were about \$10,000 (ten thousand dollars) monthly; the expenses being stated under \$2,500. The vein on which the North Star Mine is sunk is no doubt the same as that opened on the Edmonton. I recognize the identity from the specimens collected by myself from the North Star, with those in your possession from the Edmonton. I cannot doubt, no miner can doubt, that the exploration of the North Star Mine to a depth of 700 feet on the incline, is also an exploration of the Edmonton, nor that the same character of ores will be extracted from the latter as from the former.

I could go much more into detail respecting the Grass Valley gold mines if you desire it. Suffice it to say at present, that in the opinion of all persons conversant with the facts, Grass Valley is the best gold mining district in California, which is saying a great deal; the returns of bullion, about half a million monthly, however, sustain this statement, as well as the fact that there have been few failures to note in mining enterprises there while the most remarkable cases of success are also found there.

In my opinion it requires only the application of capital and ordinary good management to develop a first class gold mine on the Edmonton claim. If you desire a statement more in detail, I can give it at a time when my other engagements permit.

Yours, respectfully,

B. SILLIMAN.

N. SHIVERICK, Esq., New York.

REPORT FROM PROFESSOR SILLIMAN
ON THE EDMONTON MINE.

NEW HAVEN, CONN., Sept. 18, 1866.

MY DEAR SIR:—It gives me pleasure to respond to your inquiry “if I could say anything favorable of the gold-mining claim known as the ‘Edmonton Ground,’ in Grass Valley, Nevada County, California.” I reply :

First. This claim, (1,000 feet,) is situated in the most prosperous and celebrated gold quartz mining district in California, and probably in the world.

Second. It is the extension of, and immediately adjoining to, the North Star Mine, which Mr. John Arthur Phillips, of London, the well-known mining engineer, assures me, in a private communication, is the best developed and one of the best paying gold mines in Grass Valley, a mine which was lately purchased for an investment by several prominent capitalists of San Francisco, well known to me, for the sum of four hundred and fifty thousand dollars (\$450,000) gold.

The Edmonton ground was secured by its present holders at the suggestion of Mr. Phillips, subsequent to his examination of the North Star Mine a few months since.

Third. I am personally acquainted with this run of mining ground, having examined it in December, 1864. I had access to the books of the bankers where the deposits of the North Star Mine were made. It appeared from the record that the monthly earnings of the mine up to that time had been about \$10,000. It was one of the very small number of mines that had not been worked solely for immediate profit, a large part of the earnings having gone into the development and exploration of the ground. Later, the owners erected a new mill of sixteen stamps, and I learn from the best authority that their present net earnings are from \$18,000 to \$20,000 per month. The ores have increased in value from \$25 to \$40 per ton. The vein averages about two and one-half feet in thickness.

The following notice of this mine is taken from the “Semi-Annual Mining Review,” published in the “Mercantile Gazette” of San Francisco, July 9th, 1866, which is valuable as showing the estimate which is set on this property in commercial circles in California :—

“The North Star, universally conceded to be a mine of extraordinary merit, and undoubtedly one of the most valuable about Grass Valley, has the further advantage of having been developed in a thoroughly scientific and substantial manner. It is opened by a main incline 665 feet long, and having a vertical depth of 250 feet. The vein, which lies quite flat, and varies in thickness from one to six feet, averaging about two and one-half, has been exposed in the lowest level some 425 feet easterly from the main shaft, and 640 feet in the same direction in the next level above, securing for it a very thorough exploration. From these lower levels very little ore has been raised, and between the bottom level and the two levels above—the length and average width of the vein being carefully ascertained by actual measurement—it is thought that 10,000 tons of ore can yet be extracted, worth \$35 per ton; and in the virgin ground, which extends to the surface above these three lower levels, and varying in length from 400 to 600 feet, it is estimated that 20,000 tons may be taken, worth, say, \$28 per ton. In other words, with the developments now made from the bottom of the shaft to the surface, 30,000 tons of ore still remain untouched, valued at over \$900,000. The great wealth of this mine will, however, probably be found in sinking still deeper, inasmuch as the lode has shown a steady improvement as descended upon. For the past five years this claim seems to have been worked with reference to the future, rather than for consideration of immediate benefit. Although dividends have been declared at irregular intervals since 1852, the real prosperity of the mine dates from 1861, and during the past four years a net profit of \$500,000 has been realized, of which sum fully \$125,000 was expended in various improvements,—such as the construction of a drain tunnel half a mile in length, new hoisting and pumping apparatus, and in the erection of a new and very substantial mill, capable of crushing at least 35 tons of ore per day,—leaving \$375,000 for actual dividends. All this was accomplished with a 6-stamp mill running in 1862 and 1863, and since then by one of 9 stamps. The returns for the first five months of the present year reached nearly \$90,000, extracted from some 2,500 tons of ore. The average yield of the rock has been about \$35 per ton for several years past—that more recently crushed running up to nearly \$40. This valuable property, including the new 16-stamp mill, was not long since purchased by several capitalists of this city for \$450,000; but it probably could now be resold for a much larger sum. The working management will remain in former hands, the whole being in charge of Mr. William H. Rodda, for a long time general superintendent.”

Fourth. I have the pleasure of submitting herewith the opinion of John Arthur Phillips, Esq., of London, upon this

property. Fortunately, Mr. Phillips was here when I received your request for an opinion on the Edmonton, and cheerfully consented, at my request, to express his opinion in a letter addressed to myself.

Mr. Phillips stands deservedly high with capitalists in London and elsewhere, many of whom seldom make any important mining adventure without his advice. You are therefore as well fortified as if you had sent Mr. Phillips on a special mission to examine the ground.

Fifth. The Edmonton belongs in the category of developed mines in virtue of the extensive exploration of the immediately adjoining ground on the same vein in the North Star, which has made this vein known to a depth on the slope of over 650 feet, and to a distance within a few feet of the Edmonton line. The vein lies very flat—about 23° —giving a vertical depth of only 250 feet. The water-charges are very light. An incline shaft can be sunk rapidly on the dip of the vein on the Edmonton ground. If it should be deemed wiser, at a later time, to sink a vertical shaft to cut the vein at 300 feet, (giving nearly 800 feet of backs on the vein,) it can be done at a cost of about \$25 to \$30 per foot, this being what other downright shafts in the greenstone have cost in this district. There can be no possible objection to the immediate construction of a mill of ten stamps, capable of crushing 20 to 25 tons of ore daily, since by the time the mill is ready for use, the incline will be down sufficiently to supply ore. This course could not be advised if the vein had not already been proved to so great a depth and extent on the North Star ground.

The ores above 200 feet in depth will not be likely to yield over \$25 per ton of 2,000 pounds in mill, (this having been about the average on the North Star up to that depth.) These poorer ores may advantageously be held in reserve, and the incline driven for the richer ores in depth. But even at \$25 yield the return of the mine will be sufficiently satisfactory. Say the crushing is monthly six hundred (600) tons, the gross yield of which, at \$25, is.

.	\$15,000 00
Monthly charges, say,	5,000 00

Profit,	\$10,000 00
-------------------	-------------

or over 3 per cent. a month on a nominal value of \$300,000,

(gold.) This profit will of course increase with each increment in the value of the ore, without any increase of charges, and at \$40 per ton for ores would be doubled. The cost of the plant will be about as follows :

For a 10-stamp mill complete, say,	\$12,000
hoisting and pumping works,	8,000
sinking and timbering 200 feet of incline, \$25,	5,000
driving 500 feet of levels, \$10,	5,000
superintendence, &c.,	2,500
	<hr/>
Assumed working capital required, (gold,)	\$32,500

This estimate covers buildings and tram-tracks. The mill should be situated on Wolf Creek, a short distance from the mine, where there is ample water, and the ores conveyed to it by a tram-way. Later, a second mill may be erected near the mine when the work under ground has developed sufficient reserves of ores to justify it, at which time the mine may also produce the requisite amount of water to supply milling uses. Otherwise it will be requisite to enlarge the mill on the creek—this as circumstances may determine. A good mill may be put up in Grass Valley at a cost not exceeding \$800 per head of stamps ; but I have added fifty per cent. to that cost to cover numerous contingencies incident to a new enterprise.

The system of amalgamation in use in Grass Valley is the most successful yet adopted in California, and there is no occasion for fear of costly experiments or loss of gold in this direction. The system of concentration for saving sulphurets is capable of important improvements, no doubt. The sulphurets of the North Star are very rich, and are equal to $2\frac{1}{2}$ per cent. of the whole mass of ores. Wood costs in Grass Valley about \$3 per cord ; labor from \$2.50 (ordinary,) to \$4 for skilled labor ; ordinary miners \$3 to \$3.50.

This property is approached by steam-boat to Sacramento, and railroad to Colfax, within ten or twelve miles of the mines. Time from San Francisco, sixteen to eighteen hours.

Being a highly prosperous district, there is no lack of labor, while provisions and supplies of all kinds are abundant and cheap.

The cost of reduction and mining of gold ores in Grass Valley ranges from \$5 to \$15 per ton, the cost increasing as the veins are smaller.

The accompanying map (No. 2,) will give you an idea of the relative position of the Edmonton to the other well known mines in Grass Valley.

Sixth.—The gold product of this district for the six months ending July 1st, is stated, in the mining review for last six months, at (\$3,000,000,) three millions of dollars, the cost of production not exceeding 25 per cent. of the gross product, and in the best cases falling as low as 15 per cent., showing the enormous advantage of gold over silver mining, alike in the cost of the plant and in the expenses of beneficiating the ores. The net saving of the best Nevada silver mines has not exceeded 20 per cent. to 30 per cent. of the gross product, while the greater number have made no profits at all.

Seventh.—Some of the most productive mines in Grass Valley at this time, with their monthly gross product, are as follows:—

The Allison Ranch, producing from . . .	\$40,000 to \$60,000
North Star,	24,000 30,000
Eureka,	50,000 70,000
Massachusetts Hill,	20,000 30,000
Ophir,	30,000 50,000
Norambagua,	18,000 25,000
Union Hill,	25,000 30,000

In all, the gross product falls hardly short of half a million dollars monthly from various sources, there being in all about 25 active mills in this district, which will be increased soon to 30, or in the aggregate 300 head stamps crushing about 15,000 tons of gold quartz monthly, the average yield of which is about \$30, probably somewhat more. Nothing comparable with this can be said of any other gold-producing district in California.

There are numerous single mines in California the annual product of which exceeds the gross product of the whole of Nova Scotia, while a few in Grass Valley produce annually three or four times as much, respectively, as the total product of all the Nova Scotia mines. Such are the Allison Ranch and Eureka Mines.

I might dwell much more at length on the statistics of Grass Valley, a district with which I am particularly familiar; but it is needless to add more at present.

You have in the Edmonton a first-class property, requiring only time, moderate capital and faithful administration, with economy, to render it productive to a highly satisfactory degree.

Yours respectfully,

(Signed,)

B. SILLIMAN.

CHAS. M. WHEATLEY, Esq., 42 *Pine St.*, N. Y.

LETTER FROM JOHN ARTHUR PHILLIPS, Esq.,

MINING ENGINEER, BOND COURT, LONDON.

NEW YORK, September 17, 1866.

MY DEAR SIR:—In reply to your question relative to the Edmonton claim in Grass Valley, California, I am sorry to say that not having brought with me my note-book containing memoranda relating to this property, I can only speak generally on the subject.

The Edmonton is, as you are aware, situated on the continuation of the vein worked in the North Star Mine, and little or nothing has been done with a view to its development. I consider, however, the North Star to be one of the best mining properties in Grass Valley, and some of the levels have, I believe, been extended to within a hundred feet of the Edmonton boundary.*

The North Star proprietors are well known to be making regular returns and to be realizing large profits, and will probably continue to do so for many years. I see no reason why the Edmonton ground, if properly worked, should not afford equally satisfactory results.

I entertain a *very* high opinion of the capability of this location, and believe it to be one of the most desirable mining claims in the whole district.

I am, my dear sir, yours faithfully,

J. ARTHUR PHILLIPS.

Professor B. SILLIMAN, &c., &c.

* Stated by Mr. EDWIN CALDWELL, p. 21, to be thirty feet. See section 3, annexed.

FROM DR. CHARLES T. JACKSON,

GEOLOGIST, MINERALOGIST AND ASSAYER FOR THE STATE OF MASSACHUSETTS.

BOSTON, October 2, 1866.

MR. N. SHIVERICK: *Dear Sir*,—In reply to your application for such information as I can give in relation to Grass Valley (California,) gold mines applicable to the Edmonton property, I would state that during the month of May of last year I visited Grass Valley and examined with care the chief gold mines then opened, and explored the geological and mineralogical character of the country around the gold mines of that region, and am able to give a general opinion with regard to future prospects in gold mining in that vicinity.

Grass Valley is well known in California as the richest and most reliable quartz gold mining district of that State, and the mines now working there have paid larger profits than any of the gold mines of California; the Rocky Bar and Eureka mines being among the most celebrated of those which were in full operation while I was there. The veins yield on an average \$40 per ton of quartz. The Rocky Bar mine yielded at that time 2,000 ounces of gold bullion every steamer day, namely on the third and twenty-third day of each month.

The vein of auriferous quartz is from fourteen inches to three feet wide and runs north-east and south-west, dipping to the south-eastward sixty or seventy degrees. The depth attained when I was at the mine was about 300 feet. One hundred men are employed at the mine and mills.

The Eureka mine owned at that time by Messieurs Fricot & Co., and which has since been sold for half a million dollars, produced from \$16,000 to \$25,000 net profit per month, only 34 miners being employed. The depth attained in the shaft of this mine is 200 feet. Three sets of levels have been driven and three right stopes were working to great profit in the upper level and inverted stopes or grades in the lower level.

The vein is three and a half feet wide and runs S. 80° E. N. 80° W. and dips to the southward 70° or 80°, the rocks of the country being argillaceous slate and diorite.

The average yield of this vein is \$35 per ton, but it varies from this as shown by the returns, thus—\$13, \$45, \$50 and \$70.

The concentrated "tailings," consisting of auriferous pyrites, contain per assay \$300 per ton and yield per chlorine process \$280, the separation of this gold being contracted for by shares.

There are a number of other gold mines worked in Grass Valley, some of which I visited but did not so fully examine as those above named.

I found that this district had originally been worked by placer operations, and hydraulic works, all of which have given way to regular quartz mining, which gives more certain returns.

Grass Valley undoubtedly has many valuable quartz leads, rich in gold, which have not yet been developed and from the survey plot drawn by J. E. Mather, Esq., surveyor and civil engineer for Nevada County which you showed me, I am convinced that the same vein which is worked by the North Star Company passes under the surface of the Edmonton property, the course and dip of the vein showing that it must thus extend, while it has really been traced beyond your boundary line. I can see no reason why the vein may not prove as rich on your property as on that where the vein has been developed and proved by mining.

The above opinions may be of use to you in forming an estimate of the value of the Edmonton property, especially if compared with the other evidence you have shown me.

Wishing you all success in your enterprise,

I am, respectfully,

Your obedient servant,

CHARLES T. JACKSON, M. D.

Geologist, Mineralogist and State Assayer.

LETTER OF EDWARD NORTHEY, ESQ.,

OF GRASS VALLEY, CALIFORNIA.

NEW YORK, June 2d, 1866.

N. SHIVERICK, Esq.: *Dear Sir*,—In reply to your inquiries I would say, that having been a resident of Grass Valley, California, since the year 1852, I am well acquainted with all the leading gold-bearing quartz mines of that section of the country, and that I have been familiar with the “French Lead,” formerly so called, upon which are situated the “Helvetia,” now known as the North Star mine, as well as the “Edmonton” mine, located upon the same vein, and I consider the “North Star” one of the most valuable mining properties in Grass Valley; immense wealth in gold having to my knowledge, been taken from it. The present product of the “North Star,” with a 9-stamp mill, is from \$15,000 to \$17,000 in gold per month. The owners of said mine had recently made a verbal agreement to dispose of it for the sum of \$400,000 in gold, which agreement they subsequently refused to ratify, paying \$15,000 in coin to cancel the contract. [Since sold for \$450,000.]

I know that the “Edmonton” mine is a continuation or extension of the “North Star” vein. It is recorded as such in the records of the Grass Valley mining district, and is proved to be identical with the North Star by actual development. Work has been upon the “North Star” mine within thirty-five feet of the “Edmonton” company’s line, and upon the “Edmonton,” within twenty feet of the “North Star” line. From investigation, I have ascertained that the title to the “Edmonton” property is perfect—the rules and laws governing mining titles in the district having been fully complied with. The “Edmonton” mine consists of 1,000 feet along the course of the vein commencing at the western boundary of the “North Star.” The vein has been found beyond the westerly boundary of the “Edmonton” claim, and from a mining experience of thirty years in Cornwall, England, North Carolina, and California, I believe the “Edmonton” mine will prove of great value when thoroughly developed.

I beg to refer you as to my credibility, to Henry Morgan, Esq., of New York, President of the United States Telegraph Company.

Yours, &c.,

(Signed,)

EDWARD NORTHEY.

LETTER FROM HENRY MORGAN, ESQ.,

PRESIDENT OF THE UNITED STATES TELEGRAPH COMPANY.

JUNE 26th, 1866.

I have been acquainted with Edward Northey, Esq., of Grass Valley, California, for a period of two years, and know him to be a gentleman of sound judgment, and of great experience in all matters connected with mining. I have followed his advice and suggestions in making some investments in mining properties, and the result has increased my confidence in his good judgment and sagacity. By his advice, I purchased for the sum of twenty-six thousand dollars, an interest in the "Hueston Hill Mine," which has proved a very profitable investment. I know of no gentlemen whose opinion concerning mining properties I would accept with greater confidence than his, and none whose statements are worthy of more implicit belief.

(Signed,)

HENRY MORGAN,

N. SHIVERICK, Esq.

117 Broadway, New York.

LETTER OF MINING ENGINEER MELVILLE ATTWOOD.

722 BUSH STREET, SAN FRANCISCO, Sept. 18, 1866.

Mr. N. SHIVERICK: *Dear Sir*,—I am in receipt of your letter of the 16th instant, and in reply to your questions respecting the North Star and Edmonton claims, near Grass Valley, beg to say that I have known the North Star Mine since August, 1852. The Edmonton Mine is a continuation of the same vein westward. I have crushed vein-stone from both claims at the Gold Hill mill, and the yield varied from twenty-five to fifty dollars per ton.

During the time that my foreman, Mr. John White, was a partner in the Edmonton claim, (I believe in 1858,) I made a survey of the mine for the purpose of sinking a boundary shaft between the two claims. The character of the vein-stone going westward was the same, and yielded about the same result in crushing.

I can with confidence recommend the ground to any parties desirous of engaging in quartz mining.

I remain, dear sir, yours truly,

(Signed,)

MELVILLE ATTWOOD.

LETTER FROM MESSRS. A. E. & C. E. TILTON,

MANUFACTURERS OF TILTON AND MCFARLAND'S FIRE AND BURGLAR SAFES, 95 LIBERTY STREET, NEW YORK, AND BANKERS AT PORTLAND, OREGON.

JUNE 11th, 1866.

DEAR SIR:—We take pleasure in testifying in the strongest manner to the high character of Melville Attwood, Esq., the author of the foregoing, for truth and veracity, as well as to his superior skill and judgment, and great practical experience as a mining engineer. We should rely, implicitly, upon his statements concerning any mines upon which he might pass opinion, and should not deem it necessary to go beyond his judgment in any matter involving mining experience or geological knowledge.

Respectfully yours,

(Signed,)

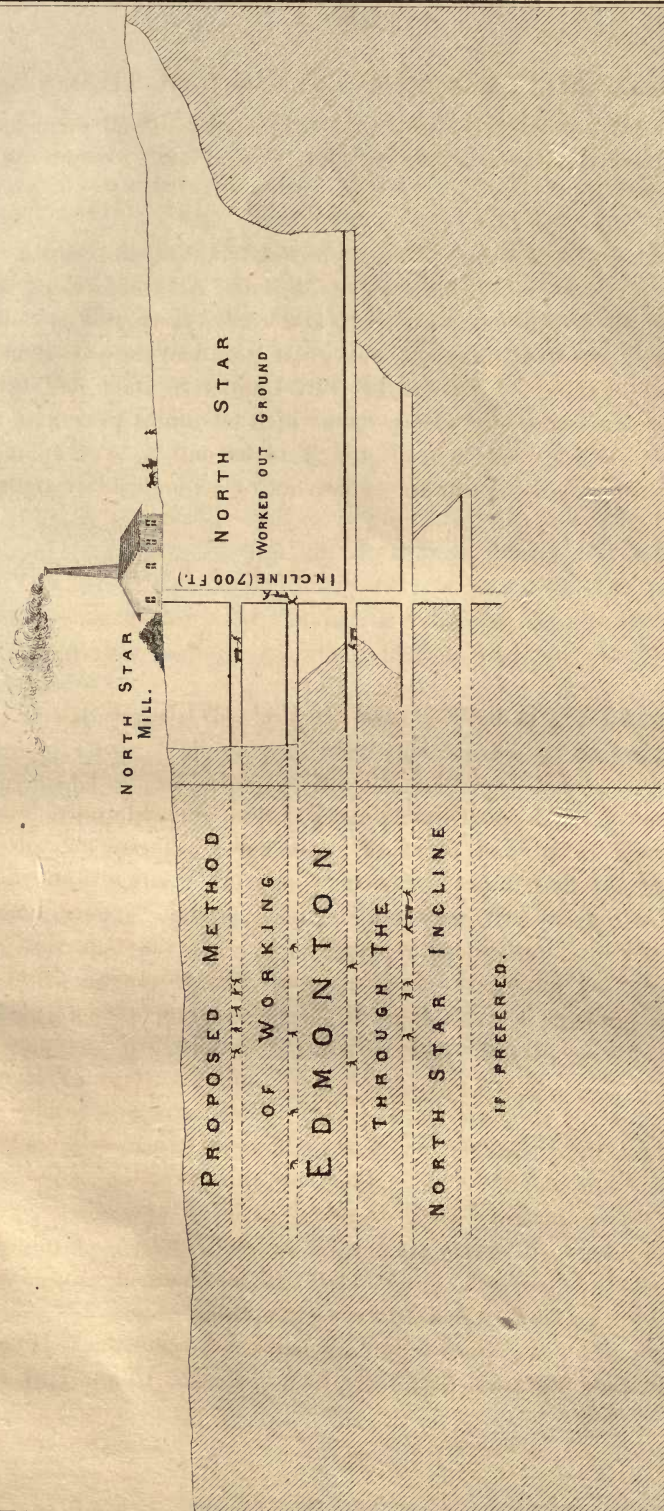
A. E. & C. E. TILTON.

LETTER FROM EDWIN CALDWELL, ESQ.

SAN FRANCISCO, CAL., March 16th, 1866.

DEAR SIR,—A short time since I visited the gold quartz mines of Grass Valley, and must say that the developments both in the old and new mines are truly wonderful. Among the mines long worked, the renowned "Allison Ranch" continues its liberal yield, and indeed is progressing. The average net product of this mine per month is nearly \$50,000, coin. Next in value, perhaps, is the "Ophir Hill," (though the owners of the "Eureka" will not yield the palm to any,) which has paid as high as \$40,000 net per month, with only six stamps; though that probably is above the average. They have now ready for crushing about 4,000 tons of ore which is estimated to contain, say \$40 per ton, \$160,000. They are now erecting a new mill with thirty stamps. The "Eureka" gives an average net yield per month, with twenty stamps, of \$40,000, and pays a monthly dividend of ten per cent. The two last named mines were purchased a few years since for a mere song.

You know the Rocky Bar, Norambagua, Lone Jack, Illinois, North Star, Scadden Flat, Merrimack, Lucky, Union Hill, and



many others. They are all doing well. The "Burdette" mine you also know. The Eastern men who bought it fancied they had made a bad bargain, but they are agreeably disappointed; parties just returned inform me that the rock is yielding on an average \$50 per ton. The Bryant, adjoining, shows a good yield.

Among the most important developments lately is the Ione Mine. Messrs. Curtis, Hunt, and George Hearst (whom you know,) bought it, fully developed it, and have now a first class mine. You also know L. Schloss & Co.; last week they paid \$50,000, coin, for a quarter of the mine.

In regard to all the gold mines of Grass Valley, I am satisfied that wherever the working has been effectively performed, a ledge yielding \$8 to \$10 per ton on the surface, has proved richer in proportion to the depth attained, and has yielded largely. I have investigated the subject thoroughly, and have yet to learn of a single failure of late years, in that locality, where the surface yield was as above stated. As you have been through this mining district inspecting, you well know that I am correct.

The statistics given you by Messrs. Findlay & Delano, bankers of Grass Valley, you may rely upon, as well as those furnished by the owners of the "North Star" mine.

You inquire as to the expense of working the "Edmonton" mine. There are two ways. The first is to erect machinery and sink a shaft and drain for a depth 150 feet through the "North Star" tunnel. To do this, about \$12,000 in coin would suffice—or to have a safe margin, say \$15,000. This would erect machinery, purchase a pump and tubing for 300 feet, and sink the shaft 200 feet, open out ore drifts, and in the meantime be taking out ore for the mill without further outlay. [See Plan 3.]

The second plan would be to arrange with the "North Star" Company to run drifts from their works, [see Plan 4,] which are probably thirty feet off at the nearest point to the "Edmonton" ground, and take out the ore through their incline. This could no doubt be effected at a comparatively small cost. I think five thousand dollars would then, with the proceeds of the ore extracted, be ample for the erection of a mill and machinery. As to the nature of the ore, neither I myself, nor any one who is experienced in the matter, doubt that it is very valuable, the

ledge being a well defined one. The "North Star" Company's mine is yielding so uniformly well, close up to the "Edmonton" line, that the success of the ledge may be considered certain; especially as the surface shaft has developed great richness. Mr. Rodda, superintendent of the "North Star" mine, assured me that their best ore was taken out in close proximity to the "Edmonton" line, and he would have worked quite up to it, had he not been afraid of drawing the water from it.

You deserve success in the East. The property is well worthy the attention of capitalists, and is, in my opinion, a first-class investment.

I have given you fully and frankly, my views respecting this coast, and Grass Valley in particular. My former opinion is more and more confirmed, that no safer, more permanent, or remunerative investment can be obtained in mining interests, than those in Grass Valley.

I will remark in conclusion, that had I not visited this locality and seen for myself, I could not have believed that the mines were so rich and promising as they really are.

Yours, &c.,

(Signed,)

E. CALDWELL.

N. SHIVERICK, Esq.

LETTER FROM E. CALDWELL.

FOREST HILLS, CAL., June 22d, 1866.

Last week I went to San Francisco by way of Grass Valley, and returned that way. You would be agreeably surprised at the changed appearance of the place since you saw it last. There have been hundreds of new buildings put up; and the place has more the appearance of thrift than any town outside of San Francisco that I am acquainted with. Of the mines, I have written so much heretofore, that I will say but little generally now. The "Ophir Hill" has started up its new 30-stamp mill, and the result of the first week of crushing was \$20,000, and that of average rock; the "Eureka" takes out with twenty stamps \$30,000 a month. The "North Star," with nine stamps, over \$20,000 *net* per month. The "Allison Ranch" is as good as ever. The "Ione" is taking out \$800 per day with ten

stamps. The "Union Hill" is now putting up a new mill of twenty stamps. The "Cambridge," close by, have new mill and hoisting works. The "Burdette" have new machinery on the ground and soon will commence to put it up. Professor Fisher, who superintends, told me the result of their crushing was very satisfactory, and their first bar went forward two weeks since to New York. The "North Star Company" start their new mill next week, and they expect to crush enough in thirty days to pay for it. The whole property is under contract for \$450,000 in gold coin. Mr. Rodda told me he would rather they would not take it, and so the Messrs. Coleman say.

Yours, respectfully,

E. CALDWELL.

N. SHIVERICK, Esq.

LETTER OF W. H. RODDA, ESQ.

SECRETARY AND TREASURER OF NORTH STAR QUARTZ MINING COMPANY

GRASS VALLEY, August 20, 1865.

Mr. N. SHIVERICK: *Dear Sir,*—In reply to your inquiry about the yield of the North Star Mine, situated in this town, I give you the following statistics:

Average yield of rock per ton, from 1862 to present time, about	\$30 00
Yield ore per month, 500 tons.	
Gross yield of mine per year,	150,000 00
Giving a net profit of	70,000 00
Income tax for 1863 was assessed at \$3,630 to each twentieth interest.	
Width of vein, average one foot six inches.	
Depth of incline, 700 feet,	
Number of stamps running, 9.	

Yours, &c.,

(Signed,)

W. H. RODDA.

Statistics furnished respecting mines in California, by THOMAS FINDLAY, Esq., banker, and formerly Treasurer of the State of California.

ALLISON RANCH COMPANY have declared three million dollars dividends, and the yield is now larger than ever.

NORTH STAR MINING COMPANY.—The dividends of this company are from seventy to one hundred and twenty thousand dollars in gold, per annum.

EUREKA MINE.—This mine clears about one thousand dollars per day.

MASSACHUSETTS HILL COMPANY.—This mine clears over one thousand dollars per day.

MERRIMACK COMPANY clears with small mill about sixty thousand dollars yearly.

LUCKY MINE yields a profit of from ten to fifteen thousand dollars per month.

There are also the Scadden Flat Mine, producing \$50 to \$200 per ton, and the Hueston Hill from \$100 to \$300 per ton.

Other mines give large dividends, but they are too numerous to mention here.

(Signed,)

THOMAS FINDLAY.

GRASS VALLEY, August 20th, 1865.

LETTER FROM A. DELANO, ESQ.,

BANKER AT GRASS VALLEY.

GRASS VALLEY, September 1, 1865.

N. SHIVERICK, Esq.: *Dear Sir*,—In reply to your inquiries respecting the mines about Grass Valley, I can only give you general information concerning the most prominent.

The ALLISON RANCH LEAD is considered one of the best; has been paying large dividends for years, and continues to do so. The company have grown wealthy through this mine.

The NORTH STAR MINE has been paying dividends for years, and is now worked successfully.

The *continuation* of the North Star, known as the "Edmonton" mine, is not yet fully developed, but is in a good locality,

and I know no reason why the rock is not the same as that of the North Star.

The FOREST SPRING MINE has been working for years. It has yielded forty to fifty dollars per ton, and is now paying better than ever.

The HUESTON is making large dividends on a ledge twelve inches in thickness. The rock yields from sixty to one hundred and ten dollars per ton.

The OPHIR MINE is upon a five or six foot ledge. It produces from thirty to fifty dollars per ton. It has been in operation for many years.

The ROCKY BAR MINE, on Massachusetts Hill, is an old and very valuable mine. It has made its proprietors wealthy, and is now as productive as ever. It is one of the best.

It is impossible to enumerate all the ledges, there being several hundred in the township; but they are generally good, and all the mills at work are doing well.

The Grass Valley mines are considered to be among the *first* in the mining districts of California. An actual inspection of the mining locations of the State will *prove* this satisfactorily. I believe, however, that the fact *is* generally recognized.

I am, respectfully yours,

(Signed,)

A. DELANO, *Banker.*

LAFAYETTE HILL.

[From the Grass Valley Directory, for 1865.]

On the Auburn road, a short distance south of Grass Valley, an immense pile of flinty-looking waste dirt, together with the rattle of machinery, and the appearance of numerous hard-fisted miners, tell the traveller that here are the works of the "North Star Company," on Lafayette Hill. This ledge pronounced by State Geologist Trask, in 1855, one of the best in California, was discovered by a party of men, principally Frenchman, who named their company, the "Helvetia and Lafayette Company." In February, 1860, this mine was purchased by J. C. and Edward Colman, J. C. Pascoe and others, representing twenty shares,

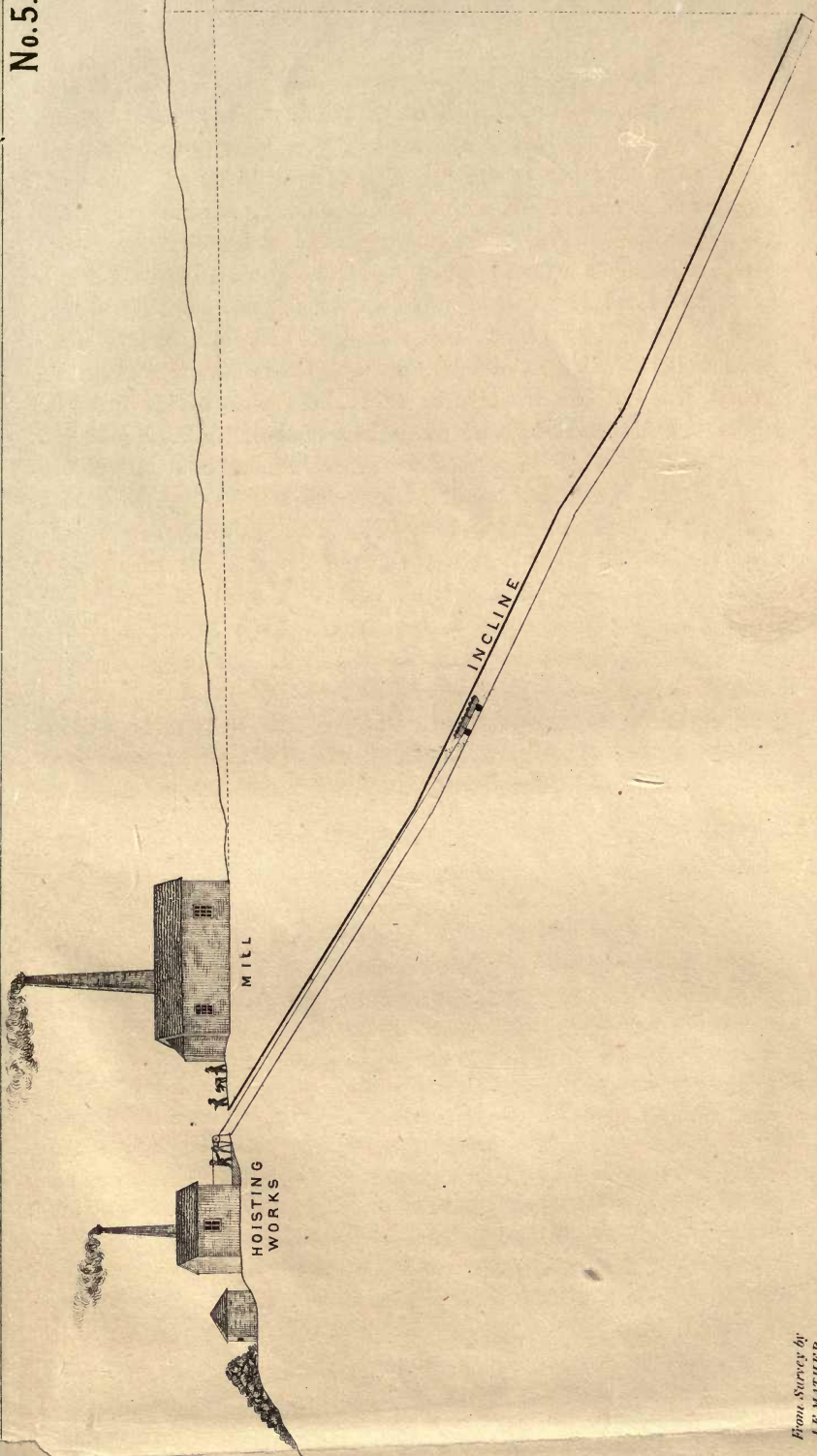
for \$15,000 (just sold for \$450,000.) At the same time the name was changed to the "North Star." A vast amount of work has been performed under the new management. An inclined shaft, seven hundred feet in depth has been sunk, through which the greater portion of the work has been done. During the past five years the "North Star Company" has crushed at the rate of 100 tons of rock per week, or a total of over 26,000 tons. The lowest perpendicular depth attained has been about 300 feet. The mine and mill now give employment to over seventy men, the entire works, which are complete in every department, being superintended by our urbane and competent friend, Wm. H. Rodda. The "North Star" Mine has been paying liberal dividends for years past, and its auriferous wealth seems to be exhaustless. Its management is characterized by promptness and true liberality, and its worthy owners, who are all practical miners, deserve the good fortune which has come to them. Following is a list of the owners of these extensive mining and reduction works: J. C. and Edward Colman, Wm. H. Rodda, Josiah Rodda, John Rodda, Wm. Kitto, Wm. Hoskin, Wm. H. Thomas, James Dods and John Harper.

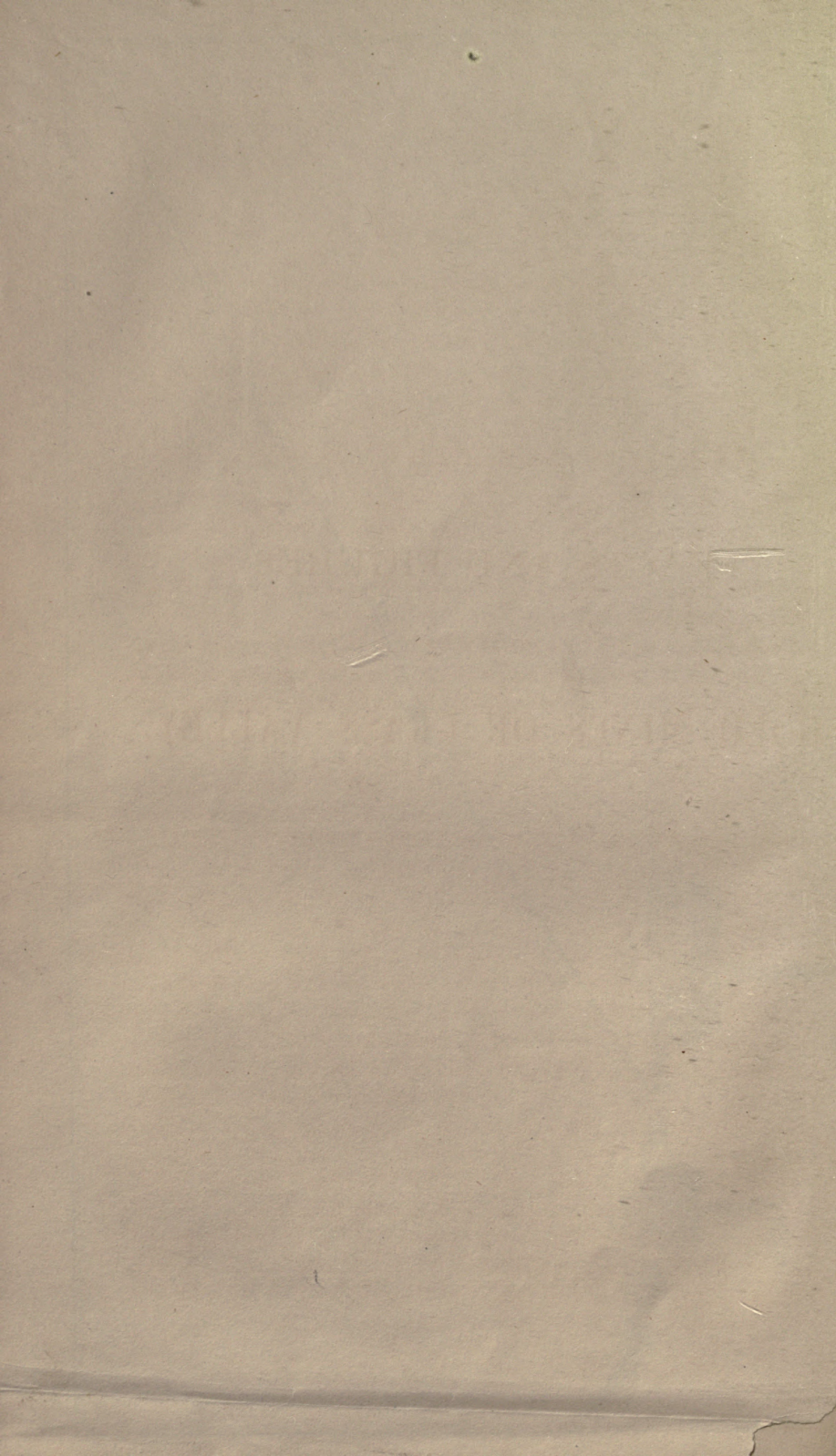
CALIFORNIA MINES.

[From the "San Francisco Evening Bulletin," Sept. 19th, 1866.]

We think the interest taken in the development of California mines is on the increase. Parties are engaging in this branch of industry who have the welfare of the State in view, as well as their own individual advantage. That we have an undeveloped mineral wealth of great magnitude is generally conceded. The following items touching the mining interest have been collated from various sources: The North Star Company's mine near Grass Valley is doing well. This company have 16 stamps running, and have crushed 7,000 tons of rock, averaging \$30 per ton, during the past year. The number of men employed is 140, and the receipts for the year were \$210,000. Besides this, the company have erected the mill they are now running, and greatly improved their property. The Rocky Bar Company are also running 16 stamps, employ 60 men, and have crushed 3,600

tons of rock, yielding \$28 per ton, during the past seven or eight months. The rock in the Heuston Hill Mine has averaged \$100 per ton for the past year. The Eureka and Allison Ranch Mines have also done full as well. These mines are all in Nevada County. The Pine Tree and Josephine Mines, of the Mariposa estate, are reported as turning out rock averaging \$13 and \$16 per ton, with better prospects ahead. Savage declared a dividend of \$50 on the 8th inst. Last Saturday Hale & Norcross paid a dividend of \$75, Yellow Jacket \$50 and Imperial \$8. For the week ending September 8th, Crown Point turned out 661 and Chollar-Potosi 521 tons of ore. Gould & Curry have \$40,000 in the treasury, and there is a prospect of an early dividend. The Walla Walla "Statesman" says that Messrs. Moore & Fogus have disposed of their entire interest in the Morning Star and Oro Fino ledges, together with their quartz-mill, to an English company, through Charles Tilton, a New York banker, for \$1,000,000 in round figures. This is the heaviest quartz operation that has ever been made in the northern country. Notwithstanding the large quantities of bullion furnished by the Pacific coast, it is believed that our mining interest is still in its infancy, and that with proper encouragement given to immigration, the future will show results which at present would hardly find credence.





FACTS AND FIGURES

RELATING TO THE

GOLD MINES OF GRASS VALLEY.

THE GOLD MINES OF GRASS VALLEY.

[From the Grass Valley Directory for 1865.]

Historical Sketch of Grass Valley.

Grass Valley, the wealthiest, most prosperous, and most extensively known of interior towns of California, is situated near the centre of Nevada County, four miles west of the county seat, is thirty-five miles from Marysville, sixty-five miles from our State capital; and upon the completion of the great trans-continental thoroughfare to a point near Illinoistown, in Placer County, which will occur during the present season, our citizens will have easy communication with the Pacific Central Railroad in eleven miles' travel over one of the best turnpike roads in the Sierra Nevada foothills. The town, including Boston Ravine, which, despite corporation limits, is a part and parcel of Grass Valley, contains a population of at least six thousand. The population of Grass Valley Township, including mixed races, will approximate ten thousand. The town is situated, as the name would indicate, in a valley, through which Wolf Creek runs, the principal part of the town being on the west side of the stream.

While quartz has been the chief mining interest of Grass Valley, it is well to remember that our placer, cement, gravel and creek diggings have paid as well, taking the labor into consideration, as similar mines in other portions of California. The Slide, Alta Hill, Woodpecker Ravine, Kate Hayes Hill, Pike Flat, and other mining localities in and about this place, have turned out fabulous amounts of free gold. Several of these old mines, as, for instance, the Alta, No. 1, owned by John Jeffree, John Roberts and Herman Kruse, are now yielding well. This claim has been worked over the old ground with splendid success, and operations are soon to be renewed on it.

Grass Valley Township, the most populous and prosperous of interior districts, contains, aside from its saw-mills, twenty-one quartz mills, or rather nineteen quartz and two cement mills, running two hundred and eight stamps. Of these mills, eight do custom work, the remaining thirteen being engaged in operating for their owners. The number of stamps will in all probability be increased to three hundred during the present year. We already have thirty-eight dividend-paying quartz

mines, (many paying liberally which have no mills, the crushing of their quartz being done by other companies,) to which at least twice the number may be added before 1866, judging from the first-class ledges now being opened. A thorough canvass of the township convinces us that no fewer than twenty-five hundred men are engaged here and in the vicinity in quartz mining, of which number about fifteen hundred are employed by large companies, the remainder being engaged in prospecting for themselves or working ledges without hoisting or pumping machinery. The discoveries of the present season may be safely enumerated by hundreds, many of which now promise to be productive mines for many years to come. More thorough prospecting has been done in Grass Valley Township during this season, and generally with better results, than during any five years from 1851 to 1864.

The town of Grass Valley never presented a more healthful aspect than at the present time. Excitements abroad, which formerly worked most disastrous results to the town's interest, are now powerless against us. Hosts who wandered off to Nevada, Reese River, Humboldt and Boise, in search of wealth too tardy in its advent to them here, have returned to Grass Valley, satisfied with their first love, and content to live here and accumulate fortunes. Eastern and local capital greedily seek investment in our mines, and, while there is no reckless speculation among us, many thousands of dollars have been invested in quartz mines here during the present year.

Grass Valley contains seven churches, nine schools, eight orders, exclusive of religious societies, two daily papers, eight hotels, a Masonic and Odd Fellows' Hall, one of the finest buildings in the State, a good fire department, and innumerable professional men and business houses. The town is in easy communication with all parts of the State; and this suggests to us that a description of "Grass Valley and Illinoistown Turnpike," with which we will conclude this sketch, will now be in place. This road is nearly completed. It intersects the line of the Pacific Railroad at a point not exceeding eleven miles from Grass Valley. The road will be the trunk turnpike of Nevada County and the adjoining country, and will be a first-class highway in every particular. It occupies the natural passes in the mountains, and gradients nowhere exceed ten inches to the rod. It will be macadamized and gravelled throughout, so that it will be smooth as well as solid during the rainy season. The road is abundantly furnished with water stations for the convenience and comfort of the travelling public; and it will be kept sprinkled during the dry season to avoid dust. Its cost when completed will be about sixty thousand dollars. Its proprietors are the Coleman Brothers, Ben. Taylor, Gerry Morgan and J. H. Neff.

[From the San Francisco Bulletin, December, 1865.]

Quartz Mining in California.

Quartz mining in this State, whether viewed as opening a new and extended field for the profitable investment of capital or the useful employment of labor, is rapidly expanding into a most interesting and important pursuit. Already it ranks second among our great industrial interests as a labor-absorbing and wealth-producing agent; the magnificent agricultural capacities of California alone yielding a large tribute in this respect. Unfortunate, like many other great interests, in the earlier stages of its prosecution, it is at last, after years of failure and loss, fast establishing itself as one of the most safe and lucrative branches of business open to legitimate enterprise. With our past experience and the many improvements effected in this province of mining, it may now be engaged in, if not always with a certainty of large profits, at least with as little hazard and, perhaps, as good a prospect of its proving steadily and permanently remunerative, as merchandising, farming or most of the ordinary callings of life. The community generally is not aware how large a proportion of the annual bullion product of this coast has of late years been drawn from this source. Of the fifty millions or more yearly sent from the country fully one-half is derived from the crushings of auriferous quartz—a business that has mostly grown up within the past six or eight years, and so silently that many well-informed persons, remembering only the disasters that attended its inception, still look upon it as the same that some ten or twelve years ago, after a liberal aid from capital, resulted in general failure. And much as quartz mining proper has lately contributed towards making up the sum total of our treasure exports, its quota will hereafter be rapidly increased, until it shall ultimately swell into grand proportions and greatly preponderate over that derived from every other source.

Having myself been one of those identified to some extent with the pioneer efforts towards introducing this branch of business in California, I have ever since felt a lively interest in its progress, noting the same carefully, and visiting, as opportunity offered, the several localities where active operations have been most extensively carried on. Having not long since, among other places of the kind, paid a visit to Grass Valley and Nevada, the great centre of quartz mining in this State, I propose incorporating in a few articles for the "Bulletin," some of the leading facts connected with the working of the mines and mills in that neighborhood, extending the same, perhaps, to one or two other districts located in another quarter of the State.

More than fourteen years have elapsed since our first essays at quartz mining, conducted near the spot where the large and prosperous town of

Grass Valley now stands, we need not say things have greatly changed thereabouts since that date. Then there were not more than a few hundred people within the limits of what constitutes the township of Grass Valley, containing a present population of more than 10,000, yet even at that day quite an excitement was prevailing in regard to quartz mining, several rich ledges of auriferous rock having been discovered the year before on Gold Hill, Massachusetts Hill, and at other points in the vicinity. U. S. Commissioner King in a report made to the Government the preceding year on the mineral resources of California, had expressed the opinion that quartz mining on a vast scale could be carried on in this State with immense profit, supporting this opinion with estimates which, although somewhat extravagant, do not, in the light of recent experience, seem so wholly the result of a disordered fancy as they were supposed to be a few years ago. Taking the facts and calculations of this report as a data, the most sanguine expectations were entertained in regard to the profits of this business, leading many for the time being to forsake the placer diggings, wherein good wages could still be made, and engage in prospecting for, locating and opening quartz veins. And thus it was that early in the spring of '51, the whole neighborhood of Grass Valley swarmed with this class of miners, and the hills about were already full of shafts, sunk, some of them, to the depth of 100 feet or more, and all leading, as was believed, to sure and illimitable wealth. Around the mouths of these shafts were piled up cords of auriferous rock, in much of which free gold was perceptible to the eye, and which, yielding largely on assay as well as under the rude tests of the miner, induced the general belief that it could be milled with great profit. And so, no doubt, it could have been, had the mills first erected for working it possessed the capacity or been supplied with the necessary mechanical appliances, and had those in charge of them been in the slightest degree qualified for the business. As it was, everything was lamentably unfit and insufficient, and the consequences were such as might naturally have been expected from such a state of things. Nearly all the early efforts, as has been stated, were failures; or if a different result was sometimes obtained, it was attributed, like success in a lottery, to chance or good luck, and not to any inherent merit in the mines themselves. A description of the mills erected at that day, would alone, had I time to give a detailed account of them, sufficiently explain why so little was accomplished. Without amalgamators or any other than mechanical means, and these of the simplest kind, for saving the gold, and with batteries that would now hardly be sufficient for crushing cement—the stamps being about the size and shape of a quicksilver flask—it is not strange that but a small amount of rock could be crushed and but a small percentage of the gold saved. At the period spoken of

there were but two quartz mills erected at Grass Valley—the one being a small affair driven by water, and the other a steam mill of considerable capacity, put up by Judge Walsh. A few years later a large addition was made to the number, but during the earlier history of their operations only a small proportion of them met with any marked success. Of late, however, as I will in future attempt to show, this untoward fortune has been reversed; and there is perhaps no branch of business in California meeting with a surer or better reward than quartz mining, not only in the vicinity of Grass Valley, but generally throughout the State.

[From the San Francisco Bulletin, January 10, 1866—Mining Review for 1865.]

Quartz Mining.

The great underlying mining interest of the State of California, and that which is destined to yield a larger wealth than almost any other of our material resources, is the business of quartz mining, which, having been lately aroused from the lethargy into which it had been suffered to relapse upon the partial failure of the inexperienced and ill-directed efforts attending its initiation, is now firmly established as not only one of the most permanent, but steadily and certainly compensating pursuits in the country. Without being able in this connection to go into the details tending to establish the above position and illustrate the proportions to which this business has attained in California—the amount of capital invested in its prosecution, and the profits accruing in individual cases—it may be stated, as a general fact, that more than one-half the gold yield of the State is derived from this source; that \$4,000,000 are annually exported from the county of Nevada, where it is most extensively carried on, and that this class of mines is at the present time in lively demand and rapidly appreciating, numerous heavy sales being effected at constantly advancing prices; and finally, that this is not at all a speculative movement, but one based on the well-ascertained earnings of these mines, continued in some cases through a series of years, and that where purchases are made it is uniformly as a permanent investment, and with a view to continuation of work upon the mine, and generally with more energy than before. There are exceptions to the above, but the condition of nearly all the leading mines of this class, and the noteworthy transactions made come within this rule. The most active localities of quartz mining in this State are in the vicinity of Clear Creek, Tulare County, and in Mariposa, Tuolumne, Amador and Nevada Counties, the business also being prosecuted quite extensively in Butte, Calaveras, Placer, Yuba, Sierra and El Dorado Counties. At

Clear Creek a number of mills have been built during the past year, and though not of large capacity, those in operation are without exception doing remarkably well. The ledges in that vicinity, though small are numerous, and are proving almost uniformly rich in free gold. Wood and water are in good supply and the prospects of the district every way encouraging.

Passing on to Nevada County we come to the seat of the most thoroughly developed mines in the State; and, extent, cost of operating and yield considered, the most valuable, perhaps, that have ever been worked in any country. The returns from certain claims about Grass Valley, steadily kept up through a series of years, surpass anything recorded in the history of mining enterprise, as the following figures, exhibiting the total yield of the mines enumerated, during the period they have been worked, will tend to show: The Allison Ranch Mine, \$4,000,000; the Massachusetts Hill claim, in the aggregate, \$3,000,000; claims upon Gold Hill, \$4,000,000; Norambuagua Mine, \$1,000,000; North Star and others at French Camp, \$4,000,000; Lone Jack, Osborn Hill, Heuston Hill and Eureka Hill, each, \$500,000; Ophir Hill, Merriam and other claims in the vicinity, a total of \$5,000,000—making in all the round sum of \$23,000,000. The yield of the Grass Valley district for the past year is estimated at \$3,100,000, and of the town of Nevada and other portions of the county, \$900,000, and giving as the past yield of Nevada County, \$27,000,000. The net product of Grass Valley has of late been rapidly increasing, and it is thought will exceed \$350,000 per month the coming year, from quartz alone. As instances of remarkable success, it may be stated that the Pacific Company struck a pocket in their ledge not long since, from which they extracted \$17,000 worth of free gold in a few hours. In the claim of Scadden, Cliff & Co., at a depth of 150 feet, a single piece of rock thrown out by a blast was valued at more than \$6,000, the spot from which it was broken being surrounded with similar rich rock. The Ophir Hill Company are raising quantities of rock that is found to pay in the mills at the rate of \$150 per ton. A large crushing recently made from the Shamrock Mine averaged \$50 per ton. The rock from the Allison Ranch Mine averages fully \$100 per ton, a great deal of it running up to twice that sum, and small, selected lots to much more. The Eureka Company, at a depth of 300 feet, have a ledge three feet wide, the entire mass of which yields from \$40 to \$50 per ton, and choice lots two or three times as much; and so we might go on multiplying the examples indefinitely, these being but a few of the many that might be cited, though ample to illustrate the extreme opulence of the mines at that place. As may be supposed, the attention of capitalists has been drawn strongly towards Grass Valley of late, and heavy investments

are being made in these mines. Among other large transactions lately reported, is the sale of the Eureka, one of the most valuable mines in the neighborhood, to a company of Eastern capitalists for the sum of \$400,000. The large and well sustained product of these mines through such a long series of years, and the improvement accompanying their deeper exploration, inspire confidence in them both as a lasting and lucrative field of investment. The small expense attendant on the raising and reduction of the auriferous rock, not only at this place, but throughout California, is another circumstance determining capital to seek investment in this class of properties. The cost of excavating and working this rock, performing the latter in the most approved manner, does not average over \$6 to the ton throughout California, the price varying somewhat with the depth from which it has to be raised, location of works, character of rock, fuel, supply, etc. In the vicinity of Grass Valley, contracts for getting out, hauling and reducing large lots are made at the above figure, the cost being about equally divided between the three branches of labor.

The foregoing are simply business facts, well known in the community where they transpired, while the earnings of the various mines as set forth, were not merely occasional results, obtained for a purpose or by spasmodic efforts, but the steady daily and yearly turn-out, and such as it is believed can be kept up for an indefinite period. The exact number of quartz mills now in the State, their cost and capacities, have not yet been ascertained; but the number of mills approximates 400, with an aggregate of about 2,500 stamps, giving a crushing capacity of an equal number of tons of rock daily. The entire cost of these mills could not have been less than \$4,000,000, and was probably much more.

[From Grass Valley National, October and November, 1865.]

The Precious Metal.

Frank Beatty yesterday showed us at the banking house of Thomas Findlay & Co. some very pretty lumps of gold. One of these was the result of some four days' crushing of rock taken from the croppings of the Merrimac ledge. This lump weighs 109 ounces and are valued at nearly \$1,900. Another bowl contained a large lot of retorted amalgam from the North Star Mine, the yield of last week's working.

Nevada.

A mass of gold weighing 171 ounces and valued at \$3,000, was dug in one week from the Scadden Flat Mine. The Grass Valley "Union," from which the above was clipped, says further: "At the same time we

saw a handsome yellow brick weighing one hundred ounces and valued at \$1,800. This was the proceeds of forty loads of rock taken from the Home Mine, located in Wood's Ravine, on Deer Creek, in which claim, we believe, the Scadden Brothers are also part owners. The gold from this claim is much finer and brings a higher price per ounce than that produced by the mines generally at Grass Valley.

The Ophir.

This claim is becoming fabulously rich, and if it continues in the same streak will have a tendency to carry one back to the Arabian Nights Entertainments, golden eggs, etc. On Saturday last half a ton of rock was taken out, which, at the lowest estimate will yield ten thousand dollars to the ton. A small piece of this rock was shown us yesterday at the banking house of A. Delano, which contained about one hundred and fifty dollars' worth of the precious metal. The company are now engaged in the erection of a 30-stamp mill and other machinery, which will cost, when completed, some fifty thousand dollars, and we are informed that they now have enough rock on the surface to more than pay for all the improvements that are being made.

Our Mines.

The following items have been handed us by A. Delano, Esq. They are interesting, and go far to show how our mines are holding up the the world-wide reputation they have attained: The Ophir has sent in six hundred ounces of gold, valued at \$10,000, the result of eight days' run. The Norambagua mine, located at Forest Spring, has just made a cleaning up. A crushing of sixty-five tons of rock yielded seventy dollars to the ton. They have attained a depth of one hundred and fifty feet, perpendicularly, in this mine. The last crushing at the Heuston Hill Mine paid fifty-eight dollars and fifty cents to the ton. These figures are reliable, and certainly speak well for the mineral interests of Grass Valley.

North Star.

This claim is steadily sending in its weekly returns. Yesterday we saw several large chunks of retorted amalgam at Findlay's Bank, the result of last week's work. The North Star has recently got into a very rich deposit, and the mine is being profitably worked. The exact amount of last week's work we have been unable to learn, as the owners are not partial to a newspaper reputation for their mine. That's the way. Those who have rich mines won't give us items, and as there are no poor mines within ten miles of us, we have to run slow on mining items.

A Fine Brick.

A very handsome gold brick, the result of eighty tons of rock from the Union Hill ledge, was shipped by Findlay & Co. yesterday. The brick is valued at a little more than eighteen hundred dollars, and is a very pretty specimen. This ledge varies from three to seven feet in thickness; hence our readers can judge of the value of the mine from the yield mentioned above.

The Allison Ranch Company shipped to San Francisco, by Wells, Fargo & Co., October 25th, says the Grass Valley "National," \$38,000 in gold, the proceeds of four weeks' work.

[From the San Francisco Mercantile Gazette and Prices Current—Semi-Annual Mining Review, July 1, 1866.]

Quartz Mining.

While the situation of things in the department of placer mining is thus progressive and promising, we find the quartz mining interest of the State to be in a condition still more flourishing and satisfactory—the product of bullion from this source being rapidly on the increase—while the practical difficulties that beset the business in its earlier stages are being successfully vanquished. In fact, quartz-mining in California has now about passed the trying and critical stage which every great industry is apt to encounter at the outset. It has had its day of difficulty and failure, not to say of loss and disaster; results to be imputed to an utter ignorance of the business, coupled with over-sanguine expectations, and, what at this day would seem an unaccountable misapprehension of the most obvious facts on the part of those charged with its conduct. The extent to which these pioneer quartz miners were misled is well exemplified by the fact that they practically adhered to the theory that these veins would only pay near the top, and that they became impoverished as descended upon; whereas subsequent experience proves the reverse to be the rule. But not only in a want of knowledge and experience, and in the troubles inherent to the business itself, were lodged the elements of defeat in the early day; the prices of labor and material were then so much higher than at present, as to almost necessarily prevent the successful working of quartz on a large scale. Machinery, imported from abroad at heavy cost, was often found, after it arrived at its destination in the far interior, to be so little adapted to the uses for which it had been designed as to be wholly worthless; and in this way alone serious inconvenience and loss were occasioned, there being then no foundries in the country capable of supplying the defective parts. And thus this business struggled on through the period of its

early infancy, for it can hardly yet be said to have reached an adolescent state, however it may have succeeded in forcing a recognition as a legitimate pursuit upon the best classes of business men by placing itself in the front rank of the leading industries of the world. Any one desirous of engaging in the business of quartz mining, has now the same means for calculating results as when embarking in the most ordinary kinds of business; since it can scarcely be said to be attended with greater uncertainty or risk than merchandising, manufacturing, or even stock-raising, fruit-growing and farming. The cost of erecting and outfitting a quartz mill can be computed beforehand with as much precision as the cost of a woollen factory, a tannery, or a foundry; nor is there a much greater margin required in estimating the expense of opening and working a mine than in running one of these establishments. Even the average yield of a ledge can generally be arrived at with sufficient closeness for all practical purposes after it has been opened to a point that enables the expert to judge of its peculiar features and the predominating character of the ores. From whatever point of view, then, we may choose to look at it, quartz milling and mining seems a business, when properly conducted, as likely to prove remunerative and safe as any other open to human enterprise; an opinion that even a casual glance at the operations now going on in different parts of California will abundantly substantiate.

THE NORTHERN MINING DISTRICT, comprising Placer, Yuba, Nevada, Sierra, Butte, and Plumas Counties, covers what may justly be considered the balance of the quartz mining region of California, as well as the site of the earliest and most extensive operations yet undertaken in the prosecution of this business. While each of these counties contains a large number of mills and a multitude of ledges, many of them highly prolific and thoroughly developed, Nevada, considered in this connection, has from the first entitled herself to the distinction of being called the "Empire" County of the State. Here we find not only the most thoroughly explored, steady paying, and productive claims in the State, but at the same time the best examples of general success anywhere to be found in this department of mining. But as Nevada in the business of quartz mining may justly be regarded as outranking every other county in the State, so may the district of Grass Valley be accounted the most important locality in Nevada County, since it will produce from this source the present year a sum exceeding \$5,000,000, and will before the season closes contain within its limits about thirty well appointed and in every respect first-class quartz mills, carrying in the aggregate over 300 stamps, and have a capacity for reducing nearly double that number of tons of quartz daily. The magnitude of this interest as displayed at this point will be made the more

manifest if we examine, however briefly, the operations of a few of the leading companies at that place, selecting such as may fairly be considered representative mines.

ALLISON RANCH MINE.—The yield of this mine for the half-year under notice has been \$40,000 per month—a total of \$240,000—more than half of which may be set down as clear profit. This was extracted from some 2,300 tons of ore, the average yield being \$104 per ton. This vein is now being worked at the depth of five hundred feet, at which point it is three feet wide, and exhibits a compact and well concentrated body of ore, uniformly of high grade. This company runs a 12-stamp mill, capable of crushing only about 125 tons per week.

THE NORTH STAR, universally conceded to be a mine of extraordinary merit, and undoubtedly one of the most valuable about Grass Valley, has the further advantage of having been developed in a thoroughly scientific and substantial manner. It is opened by a main incline 665 feet long, and having a vertical depth of 250 feet. The vein, which lies quite flat, and varies in thickness from one to six feet, averaging about two and a half, has been exposed in the lowest level some 425 feet easterly from the main shaft, and 640 feet in the same direction in the next level above, securing for it a very thorough exploration. From these lower levels very little ore has been raised, and between the bottom level and the two levels above, the length and average width of the vein being carefully ascertained by actual measurement, it is thought that 10,000 tons of ore can yet be extracted, worth \$35 per ton, and in the virgin ground, which extends to the surface above these three lower levels, and varying in length from 400 to 600 feet, it is estimated that 20,000 tons may be taken, worth say about \$28 per ton. In other words, with the developments now made from the bottom of the shaft to the surface, 30,000 tons of ore still remain untouched, valued at over \$900,000. The great wealth of this mine will however probably be found in sinking still deeper, inasmuch as the lode has shown a steady improvement as descended upon. For the past five years this claim seems to have been worked with reference to the future, rather than for consideration of immediate benefit. Although dividends have been declared at irregular intervals since 1852, the real prosperity of the mine dates from 1861, and during the past four years a net profit of \$500,000 has been realized, of which sum fully \$125,000 was expended in various improvements, such as the construction of a drain tunnel half a mile in length, new hoisting and pumping apparatus, and in the erection of a new and very substantial mill, capable of crushing at least 35 tons of ore per day, leaving \$375,000 for actual dividends. All this was accomplished with a 6-stamp mill, running in 1862 and 1863, and since then by one of 9 stamps. The returns for the first five

months of the present year reached nearly \$90,000, extracted from some 2,500 tons of ore. The average yield of the rock has been about \$35 per ton for several years past, that more recently crushed running up to nearly \$40. This valuable property, including the new 16-stamp mill, was not long since purchased by several capitalists of this city, for \$450,000, but it probably could now be resold for a much larger sum. The working management will remain in former hands, the whole being in charge of Mr. William H. Rodda, for a long time general superintendent.

EUREKA MINE.—The gross earnings of this mine for the eight months ending May 31st, were \$284,000, their expenses having meantime been \$103,000 leaving a balance in their favor of \$181,000. During the month of June last the product of this mine was \$73,000, besides sulphurets valued at \$2,500, estimated expenses being meantime \$13,000. The average yield of the ore during that month was at the rate of \$65 per ton. The yield during the last three months of 1865, was at the rate of \$33.87 per ton, while the lot crushed during the first five months of the present year gave an average of \$42.67 per ton, showing how uniformly but very materially the ore increased in value as the mine was developed downward. The present lowest level in this mine is 300 feet beneath the surface.

THE OPHIR, another of the rich and promising mines of Grass Valley, is now enriching its owners. The claim is just opened, and the company have just finished one of the most superb mills ever erected in the State, built at a cost of \$125,000. It runs 30 stamps, and has a capacity to reduce over 60 tons of rock daily. The Ione Company possess a ledge of good size and unquestionable richness, which they have lately been subjecting to a rigid exploration. The earnings of their mine, though not yet worked to any great depth, has sufficed during the past few months to pay current expenses and defray the cost of a 10-stamp mill. The Heuston Hill Company, owning a six-inch vein, have been able to divide among themselves \$8,000 per month since January last. The Norambagua, one of the mines of the Forest Spring Company, has been doing well, and at this time is probably in a more promising condition than for several years past. The aggregate production of this claim has exceeded \$1,000,000, and it is thought that regular dividends can be made hereafter, under judicious management. Active operations continue upon Osborn Hill, New York Hill, Massachusetts Hill and Union Hill, and many other claims in this locality are increasing their net earnings. The Kate Hayes Mine, purchased a few months since by parties in this city, is undergoing a vigorous development, and we are informed that recent explorations are regarded with much favor.

Grouped about the above mines are many others equally entitled to notice, and all of which we would speak of in detail if our space would allow. The main facts, however, would not differ widely from those already set forth, going to show the mineral opulence of this district, and the lucrative character of quartz mining where, the conditions being favorable, it is carried on with energy and prudence; for it must not be overlooked that the business as conducted at Grass Valley has, for the most part, been in the hands of men distinguished for these qualities. They did not, as a general thing, grow impatient for mills before they knew whether they would need them or not, nor did they abandon their claims in despair if they failed to find pay rock immediately upon the surface; on the contrary, they applied themselves diligently to labor, sticking to it with a perseverance worthy of all praise until they arrived at definite results. Another good rule was that of guarding against debt, developing the mines no faster than it could be done with their own earnings, all of which resulted in benefit to the owners, and in promoting the ultimate prosperity of the miners themselves.

[From San Francisco Bulletin, November 12, 1865.]

About Grass Valley—The Allison Ranch Mine.

As this is the best paying claim, not only in the vicinity of Grass Valley, but also, perhaps, in the State of California, it is entitled to be first noticed in a description of this class of mines. It is situated on Wolf Creek, about $2\frac{1}{2}$ miles south of the town, and derives its name from one Allison, who formerly owned a ranch, within the limits of which this ground, as well as the works of the company owning it and the hamlet that has sprung up near by, are embraced. This portion of Wolf Creek afforded rich diggings at an early day, the working of which led to the discovery of the ledge in 1853. Not until the autumn of the following year, however, was it opened and its value ascertained. Then two of the owners, Colbert and Stanton, examining the rock, laid bare by the action of the rains, found it full of free gold; whereupon they broke out a ton and a half, which on being crushed yielded several hundred dollars. Still, fearful that the cost of draining the ledge would absorb all the profits, nothing further was done with it till Colbert, taking the advice of a more energetic miner than himself, was induced to sink a shaft, for the drainage of which a water-wheel was erected, and soon took out gold enough to put up the mill owned by this present company. In December, 1855, 62 tons of rock were crushed, producing \$23,000, establishing the great value of the mine,

and tending to a more vigorous prosecution of work upon it. From that period to the present it has been constantly wrought with great but somewhat varying success, with the exception of a few months, four years ago, when it was flooded. The force employed at present is 275 men, the average number employed for the last nine years being about 150. The current expenses during this time have been at the rate of \$15,000 per month—\$500 per day. Over 3,600 cords of wood were consumed last year in running the engines of the company's mill and hoisting works. The product of this mine, always large, is said to be greater at present than ever before; and though I have no means of stating the exact amount of its earnings, very good authority puts it at a sum that would surprise the public.

That the mine is paying enormously may be inferred from the fact that the entire mass of the rock is averaging considerably over \$100 to the ton—much of it yielding from \$500 to \$1,000 per ton. The owners have divided, of clear profits, nearly \$1,000,000 within the past three years, and they had, not long since, that amount of bullion in the San Francisco mint. I am assured by a party who may be supposed to know, that the company's mill, running but ten months the past year, will turn out very little if anything short of \$400,000. The earnings for October last were actually \$40,000; for November, \$50,000. This ledge is not a large one, the average width being hardly two feet, but the rock is not only rich but pays with much uniformity; much of the quartz is decomposed, rendering the crushing easy. The country rock is granite, the ledge having a casing of slate. It pitches at an angle of about 45 degrees, wherefore the middle and main incline, 475 feet long, reaches a perpendicular depth of only about 225 feet, at which point is the fourth and lowest level. The upper level has been worked, running on the vein, 440 feet south and 1,000 feet north; the second 300 south and 700 north, and the third 200 south and 600 north. South of the main incline 150 feet is another, work being at present conducted through the former.

The underground works are in charge of John Ford, who has superintended this department of the mine since 1855, Philip Gadway having had general charge of the mine and mill since the same year. M. S. Reminton has occupied the place of chief engineer for a long time. Several of the original locaters of this valuable property still own in it, though a portion of it is now in the hands of others. John Daniel, one of their number, died at Grass Valley in 1862, bequeathing his interest to his brother William, who was also an original owner, but sold out to James O'Donahue in 1854.

The present proprietors are Michael Colbert, William Daniel and John Fahey, living in Grass Valley, James Stanton of San Francisco,

and James O'Donahue and Timothy Field, residing in the State of Maine. It is needless to say there is none of this stock ever offered for sale at the board of brokers, nor, so far as I know, through any other medium; the owners, probably, not being anxious to sell out, nor even, to all appearance, very solicitous about having their mine attain any special notoriety.

Quite a village has grown up about this mine, the population consisting mostly of workmen employed by the company, and their families. It contains about 300 inhabitants, and supports a private school, having an average attendance of 80 scholars.

[From Mercantile Gazette and Prices Current, (San Francisco,) January 12, 1866.]

The cost of raising ores in California is, on an average, about \$2 per ton. Under favorable circumstances it can be done for less—and *vice versa*. Hauling to the mills costs, as a general thing, about the same, making the expense of delivering ores at the batteries about \$4 per ton. Crushing, where water-power is used, can be effected for from \$2 to \$3 per ton. With steam-power it is a little more expensive. For hoisting purposes steam-engines are used, of a capacity adapted to the necessities of the mine—usually those from 10 to 20-horse power meeting every requirement. Occasionally much more powerful ones are demanded. At some of the mines about Virginia City engines of nearly a 100-horse power have been provided for the hoisting works. The force of hands employed about the mill and mine in like manner varies, some of the large companies requiring several hundred men, while others get along with fifteen or twenty. The Massachusetts Hill Company at Grass Valley keep 300 hands constantly in their employment. The wages paid vary from \$3 to \$4 a day, according to the service performed.

It is impossible to name any average value for the gold-bearing rock of this State. As has been seen, it can be worked with some profit if it yield no more than \$6 to the ton, and a great deal of that class is now being reduced. This, however, is below the general average. Many mills run steadily on rock yielding \$20 and \$30 per ton, while a few crush scarcely any but yields as high as \$60. The average yield of the rich mines at Gold Hill is about \$30 to the ton. The owners of the celebrated Allison Ranch claim at Grass Valley, run a 40-stamp mill steadily on \$70 and \$80 ore—they having crushed some that paid as high as \$10,000 to the ton. The weekly earnings of their mill is between \$10,000 and \$12,000. At a depth of 300 feet they are working a strip of rich rock from two to four feet wide. The Soulsby claim,

near Sonora, has at times yielded equally as well as that of the Allison Ranch Company. From the Fellows claim, also near Grass Valley, two men took out \$100,000 with a hand-mortar in six weeks. The Empire Company, Nevada County, have crushed 26,000 tons of rock, averaging \$40.76 per ton, and giving a gross yield of \$1,043,720—\$300,000 of which has been paid out in dividends, and the balance spent on the mine and in the erection of mills, of which they have two, built at a cost of \$135,000. The cost of working and making improvements has all been defrayed from the proceeds of the mine, no assessments ever having been levied. It is estimated that they have still in their mine \$4,000,000 worth of ore below their lowest level. The Crescent Company, operating in Plumas County, divided for the quarter, ending July 1st, \$50,000, being at the rate of \$100,000 a year net savings earned on a moderate investment. Ten steam mills in Mariposa County, running 22 stamps each, crush 250 tons of \$15 rock per day, producing \$3,800 daily, or about \$1,250,000 per annum. The owners of the Indian Valley ledge, Plumas County, have declined an offer of \$120,000 for it, believing it would yield them 15 per cent. per month on that sum. The Spring Creek Company, Shasta County, have lately been cleaning up \$300 a day with an 8-stamp mill.

[From San Francisco Prices Current, January 12, 1866.]

Grass Valley, California.

We are permitted to publish the following extracts from a private letter addressed to a gentleman of this city by Professor Silliman, in regard to this interesting district:—

“The general reputation of this locality as a gold-mining region, is widely known and well deserved. The gold-bearing veins are there proved, by exploration, to maintain their strength and continuity in depth and extent; the region is, geologically, one of greenstone and syenite, with serpentine on the north. The hills are broad and unbroken by cross-valleys, offering large areas of continuous ground favorable to the operations of the miner. So far as my observations go, in no other district of California or elsewhere, are there so many veins of high value grouped together. Some of the best known and longest worked are the veins on Massachusetts Hill, and at the Allison Ranch, ranging from a few inches to two or three feet in width, but in other parts of this district the veins are from two to three feet to ten feet in thickness. Late observations and explorations have shown that they steadily increase in value as they are opened in depth. Especially is this true of a vein known, generally, as the Eureka, on a hill of the

same name; this vein, which has been traced for over two miles, is now opened on the Eureka claim to a vertical depth of 200 feet. In the shaft lately sunk by Messrs. Fricott & Co., at this depth, I found the vein perfectly well developed with greenstone on the south, or under wall and syenite on the upper wall; this vein being nearly vertical and over three feet thick. It is abundantly charged with sulphurets and shows much free gold. Its value is estimated at from \$80 to \$100 per ton. The value of the sulphurets at their mine are from \$150 to \$200 per ton, and cover, I am informed, the costs of mining and crushing the quartz. Going south of the Eureka, on the course of this lode, are several other claims of great value. Prominent among these is the Burdett, three-fifths of a mile from the end of the Fricott claim. On this part of the vein I obtained many rich specimens filled with plates of gold beautifully crystallized, or forming in some cases a spongy mass in cavities once filled by pyrites now decomposed. In one place the vein on this ground is over ten feet in thickness. The next set of claims (the Union.) carries this system of claims down to Wolf Creek, at a point opposite to which another parallel vein is now being worked successfully by the Luckey Company and the Cambridge Company.

“It is perfectly evident to any one accustomed to view mines that the productive capacity of the quartz lodes in Grass Valley is manifold greater than their present yield; only a small portion of the desirable ground having been opened at all, while there is a large area of ground within the same geological formation, all equally promising, which has never been explored.

“I consider it by far the most inviting field for the profitable use of capital in mining in California, or on this coast. Its immediate future is full of promise for a large and steady increase of gold. Conveniently situated in a beautiful and healthy country, abounding in wood, water and skilled labor, easy of access, it stands unrivalled, in my judgment, as a field for speculation and judicious enterprise.

“Capital, ever sagacious in selecting its fields of occupation, has already discovered the opening, and is fast flowing in to occupy it. Every geological, agricultural and commercial advantage encourage its advance.”

California Mines.

The San Francisco “Bulletin” of Sept. 25th, 1866, gives the following interesting information:—

“We observe in our interior exchanges frequent reports of the sale of quartz lodes, in whole or in part, at cash prices ranging from \$50,000 to \$500,000. As these heavy sales are nearly all made to citizens of our State, who are presumed to be more familiar with practical mining than

Eastern parties, they indicate both a strong confidence in the value of our home veins, and a growing tendency to home investments. Only a few years ago, quartz mining was a feeble interest in California, developed profitably at only a few localities, and eclipsed in general estimation at first by the more easily worked placer mines, next by the famous silver lodes of other regions. The first cash investments made on a large scale were by inexperienced foreigners, to a great extent, who oftener failed than succeeded, discouraging by their failures investment and prospecting by others. There were a few Californians who dared to put a fortune into a quartz lode. Experience and confidence came slowly, mainly through the labors of small associations having but little capital.

“The extent to which the area of the quartz fields in our State has been enlarged since 1860 is hardly realized by the public. Prior to that time the productive quartz belt was popularly thought to be quite narrow, and confined to a few of the central counties. Outside of the most intelligent circles, it was not supposed that we had any vein mines worth working except auriferous quartz. Subsequent explorations have revealed the fact that the field of our vein mines is co-extensive in length and breadth with the great mountain chain of the State; that it embraces, also, to a considerable extent, the lesser mountains that front the ocean, and that it includes a great variety of minerals, but especially gold, silver and copper. The width of the quartz belt in the Sierra Nevada has not been measured nor carefully estimated, but it undoubtedly extends from the outer edge of the foothills to the summit levels, a distance varying from sixty to eighty miles in a direct line; while its length, from the northern to the southern border of the State, is about six hundred miles.

“It is to be regretted that there are no statistics accessible by which to exhibit the number and extent of the lodes that have been discovered and occupied, the number of companies and mills in operation, the amount of capital invested, and the aggregate product in gold and other metals. Such statistics would, I am confident, reveal the quartz interest of California in a most extensive and prosperous condition; and it is a great fault in our legislation that no adequate method for obtaining them has been devised. But we learn enough from the rapid multiplication of districts, from the frequently published yields in gold and copper especially, and from the repeated sales of lodes at high figures to our own citizens, to know that vein mining in our State is rapidly taking precedence of placer mining, and establishing itself as a permanent, legitimate, safe and remunerative industry. Indeed, trade and mining now go almost hand in hand, for we observe that many of the heaviest investments in California quartz are made by citizens of San Francisco,

who, after many losses and deceptions elsewhere, are turning with new faith and energy to the development of mineral resources at home.

“We expect our home mines will continue to increase in favor, and account it a fortunate circumstance that their management is mainly in the hands of an experienced class of our own citizens, whose past success has been earned here, and whose continued success will promote most directly the welfare of the communities in which they have cast their lot and invested their means.”

[From San Francisco American Flag, January, 1866.]

NEVADA, December 23, 1865.

EDITOR AMERICAN FLAG:—Not seeing anything of late in your paper about matters and things in this section, I place the following at your service:—

Taken altogether, we are enjoying a season of general prosperity, and the prospects of Nevada County were never better than at present. Quartz mining is looking up mightily hereabouts, and the danger is that in the excitement that seems to be coming on the business will run into a speculative type and be overdone; as yet it is in a healthy condition, and with the experience men have had, nothing but the most culpable mismanagement can prevent it growing into a general and splendid success. If the exact figures could be given of the profits realized by some of the companies here and about Grass Valley, they would startle outsiders. But it is not only in the business of mining that our people are doing well, but also in farming, lumbering and many other callings. Of the one thousand square miles of which this county consists, over one-half is accounted mineral land, a great deal of it being at the same time suitable for farming, gardening and fruit-growing purposes. The agricultural and mineral land extends over nearly the whole county, being so mixed up that it is difficult to separate them. With the exception of the eastern portion, where it strikes into the Sierra Nevada, the great part of this county may be considered suitable for farming, the entire surface, both in the main Sierra and in the foothills, being covered with grand forests of pine, oak, spruce, cedar and other trees. Every style of mining is carried on here, some of them very extensively. Thus we have still the original placer diggings worked by Chinamen with the sluice and rocker, river works, hydraulic washings, in some places very extensive, the gravel beds, sought after by tunnels and other modes of deep excavation, and often paying immensely; the cement deposits, crushed with stamps after the manner of quartz, and pretty generally with good results; and, finally, the auriferous quartz itself existing in quantities without limit and now being reduced with a

profit that threatens to bring on a healthy excitement. Besides gold and silver mines—for it must be remembered the famous Excelsior District is in this county—we have here great numbers of copper lodes, many of which, though but little opened, work upon them having been choked off by the quartz furor, show fair signs of productiveness, and will no doubt some day help materially to swell the metallic exports of Nevada. When the branch railroad now talked of, connecting this place with Colfax, shall be completed, facilitating the sending away of these ores, the copper mines will offer such inducements as will unquestionably lead to their thorough development.

As to the matter of farming, the prospect never was so promising for good crops in this section as at present. A great deal of grain has been sown, and it is everywhere looking fine—the color healthy and the blade vigorous. Some years ago it was thought only the alluvial soil, such as is found in the little valleys and along the margin of water-courses was fit for cultivation, and all efforts in this line were restricted to them. More recent experience, however, has shown this to be a mistake, and the red uplands are now being planted as well, and with early sowing and favorable seasons for rain, they are quite as sure of a crop as the heavier black lands; while for the vine and most kinds of fruits, where sufficient moisture can be secured, they are even better. Instead, then, of the little garden-like patches of former days, we now see great fields, some of them containing hundreds of acres, sown with grain, mostly barley, this being a more certain crop and selling up in the mountains where it is required for horse feed, for nearly as much as wheat.

Another thing our farmers have learned is the importance of early seeding, and hence no time is lost, once the soil is sufficiently softened by the first rains, in getting the ground broken up and planted; some of our farmers are doing still better, preparing it for early sowing by summer following.

The lumber trade of this region is by no means an insignificant business, and with railroads, like copper, lumber will likely become an article of large export. There are now running in this country between fifty and sixty saw-mills, cutting over forty million feet of lumber every year. About half of these are driven by steam and the rest by water.

But large as are her other resources, Nevada's main dependence is on her quartz mines, which, taken all together, far excel those in any other part of California, if not also any section of the Pacific Coast. Without being exactly posted as to the number of mills in the county, I should put it at not much less than one hundred, with a capacity for crushing, perhaps, a million tons of ore yearly, the product of which can scarcely be less than ten or twelve million dollars. And yet the business is just begun—as it were only in its infancy. What it

will be a few years hence can be guessed when we consider that most of the ledges opened are all the while getting better—that is, yielding richer rock and more of it, as they are descended upon—while the processes for saving the gold are constantly being rendered more effective, and the cost of reduction is growing less. While there are in this vicinity a great many valuable quartz lodes, some of which are being worked with large profits, the most marked success has heretofore been attained in the mines about Grass Valley, the yield of the Allison Ranch claim, two and a half miles below that town, going ahead of anything before known in the history of mining. What the gross product of this mine has been I do not know, but it is said the six owners have divided amongst them something like \$300,000 annually for several years past from its net earnings. Some make the figures much higher, and this is by no means the only mine in that locality that is affording its owners a princely revenue. According to a report, several other companies are doing nearly as well, though less is said about them because they have to divide their earnings among a greater number of owners. Of the operations of a few of the most lucky I will speak briefly, giving some figures. To enumerate all the companies that are doing moderately well, would be a work analogous to compiling a directory, so great is the number.

The Ophir Hill claim, one mile east of Grass Valley, located in 1850 and worked most of the time since with comparative small outlay, has yielded a gross product of over one million dollars. The mine, which changed hands a little over one year ago, is now being worked vigorously, and is said to pay better than ever. The rock yields over forty dollars to the ton, besides a large quantity of sulphurets, which sell to parties engaged in concentrating them, for sixty dollars per ton. This company alone employ about forty hands. One thousand tons of quartz taken from the claim of Rush & Laton on Madison Hill, adjoining Ophir Hill on the south, yielded \$80,000—more than half of which was clear profit. From the Heuston Hill Mine, next to the above, many thousand tons of quartz have been raised, the average yield of which is said to have surpassed that of the Allison Ranch Mine. The company employ a large force of men, and are conducting their affairs with energy and success. The Osborn Hill ledge, an early location, situate two miles east of the town, has long been worked and given up fabulous amounts of gold. A fine mill has been erected upon it, and a tunnel over 2,000 feet long has been carried into the lode. For the amount expended upon it this mine is paying largely, and there is little doubt but it is one of the most valuable in the State. Of the operations of the Merrimac Company, a little further east, I could learn nothing definite, but they are understood to be coining money. The Noram-

bagua, another live company, whose claim is situated on Wolf Creek, some three miles south of Grass Valley, employ nearly one hundred men and are pushing their work with industry. The average yield of their work for the past year has been over \$60 per ton—it running from \$50 to \$100. They have large accumulations of tailings that are considered valuable. As I intend to continue these notices of the mines in this section, I will end for the present with a few particulars respecting the Eureka, one of the biggest and best mines here. It was taken up at a very early day, and has since frequently changed hands, being now owned by a company of large means, who are working it with a system and thoroughness that indicate their confidence in it as a permanent investment. A large sum of money has been laid out in the erection of a first-class mill and hoisting works and development of the mine, which, for several years past, has been producing equal to almost anything else about Grass Valley. The vein is as rich as the best, and much larger than the average, giving evidence of a wealth and permanency that not many others over in this rich district can boast. It has in its several transfers commanded large sums, and it is said that the present owners have been offered half a million dollars for their interest. When we consider how small a portion of this mine has been worked out, and how extraordinary have been the results thus far obtained, it would seem as if a million dollars would be a low price for this splendid property. Like most of the leading claims here, the Eureka grows better and better the deeper it is opened, the rock from the lowest level being much richer than that above. From these few disjointed but thoroughly authentic facts, it will be seen what quartz mining is like, and what sort of a future seems to await it in California.

[From San Francisco News Letter, August 10, 1866.]

California Mines.

UNION HILL.—This mine is now free from water and is showing a fine body of ore. Work will be immediately commenced to sink another level, which will open it 100 feet deeper. A contract has been made for a 20-stamp mill, which will be running in about twenty days. The price paid for the mill, in complete running order, is \$19,000. Messrs. George D. Roberts, of this city, and Thomas Findlay, of Grass Valley, are the largest owners, and have its entire management. Some capitalists from New York are negotiating for its purchase, but the proprietors have such great faith in the value of the mine that they prefer further developing it before offering it for sale.

The Eureka Gold Mining Company, of Grass Valley, divided on Thursday last, for the month of July, the sum of \$30,000 amongst its shareholders. Grass Valley is full of such mines.

[From San Francisco Bulletin, March 30, 1866.]

Quartz Mining.

Gold quartz mining in California is only just fairly inaugurated. A greater degree of success attends this branch of industry than ever before. Along the chain of mining towns, from Columbia to Yreka, ledges have been opened which yield all the way from \$100 to \$1,000 a ton. In some instances the stock is never on the market, and nothing of that kind is ever issued.

It is not a rare thing to hear, in a private way, of recent locations of gold quartz in this State which yield from \$100 to \$200 to the ton. In every such instance the certainty of permanent success is ten to one in favor of gold mines over the best silver mining in the country.

Shipment of Treasure.

Notwithstanding the spell of hard weather we have recently had, the shipment of treasure by our bankers for the past week will reach some seventy-five thousand dollars, an increase of about twenty thousand dollars over the average shipments for the past four months. This does not include any returns from the principal mines either.

Professor Melville Attwood, in the "Alta California," of July 1, 1866, gives a geological report on the mines of Owen's Valley, situated south of Grass Valley, and in the course of his report remarks: "With respect to the treatment of the auriferous quartz, I consider the miners of Grass Valley to have had the most experience, and their simple mode of treatment to be preferred to all others. They use no pans or any apparatus that might strictly be called an amalgamator. The largest and richest mines there, and, indeed, in the State, viz.: Allison's Ranch, Watt's, Rocky Bar, North Star, and Hueston Hill, use at their mills the old blanket trays, and do not put any mercury into their mortars."

The "Transcript" says: The Spring Hill Mining Company, Captain Day, superintendent, struck very rich rock on Friday last. The company has been at work about eight months, and expended about \$60,000. On the surface are several ledges running parallel, and it was supposed that these would come together below the surface. We understand their drift reached these united ledges on Friday night, and that the rock taken out is as rich as any in the county.

[From New York Tribune's San Francisco despatch, dated June 29, 1866.]

“There is an increased disposition among San Francisco capitalists to invest in California mines. Three claims in Nevada County are reported sold, amounting in the aggregate to \$830,000.”

The Nevada “Gazette” says that the average yield of the Allison Ranch Mine, for the first half of the present calendar year, has been \$40,000 per month, or \$240,000 for the six months. This was extracted from 2,300 tons of rock, being an average of about \$104 per ton. The vein is now being worked at a depth of 500 feet from the surface. The Nevada “Transcript” learns that a twentieth interest in the Eureka Mine, near Grass Valley, has been sold at \$43,000. This is equal to \$860,000 for the mine, which one year ago was sold for \$400,000. The Company are now reported to be getting out about \$70,000 per month. An exchange says that one great advantage in working mines in this State over other localities, is the comparatively little cost here of mining and reducing ores. An instance is cited where a mine in Nevada last year paid on an average \$22.27 per ton to mine and work its ores, while in this State the cost of mining and reducing ores is said to be from \$4 to \$8 per ton, \$5.50 being the average. Hence, gold ore here, yielding \$10 per ton, can be worked with profit, while silver ore in Nevada, yielding \$20 per ton, is worked at a loss, if these figures are correct.

[From Evening Bulletin, September 19, 1866.]

Quartz as an Element of Prosperity.

Following the comparative exhaustion of the placer mines a few years ago, there began a period of decline in all the mining counties, which was hastened by the exodus to new gold fields abroad. This decline has been arrested in several instances by the increased attention given to quartz mining—a branch which gives to a community greater stability and diversifies its industries. Nevada County furnishes a most striking example of the value of quartz as an element of genuine prosperity. A few years ago, when placer mining was the leading interest in the county, the taxable wealth did not exceed \$3,000,000—although even then Nevada could boast of the rich quartz mines of Grass Valley. The people left by thousands for Washoe and British Columbia, and discouragement and gloom pervaded every circle of business. Since then increased attention has been given to the development of the quartz mines. As results of this, we learn from the local press that the taxable property of Nevada County is this year assessed at about \$5,000,000

—the increase for the last year alone being nearly \$500,000; the public debt has been reduced to a bagatelle; and the metallic product is estimated at from \$9,000,000 to \$12,000,000. If the population has not increased, it has acquired stability, while the principal towns rank among the foremost in the State for permanence and good order, and for the excellence of their society and public institutions. But it should be remembered that quartz mining in Nevada County has not been speculative. Its quartz stocks have not figured on 'Change, or in the telegrams to the Eastern press. Its auriferous veins have been quietly worked by small companies of practical men, generally unincorporated, who have trusted to the products of their mills for profits on their outlay. They have had no showy offices with Brussels carpet and walnut or mahogany furniture, no \$10,000 superintendents, no legal counsellors retained at princely fees. Better than these, they have had good veins, energy, prudent management, and the determination to make the rock itself their banker. What is true of Nevada County is true in a lesser degree of several other districts in California, where quartz is coming in as an element of new and permanent prosperity. Managed by those who have practical experience, and who will practise economy, it is destined to take rank among the fixed and legitimate resources of the State, especially since the wisdom of Congress has furnished a mode by which the owners of vein mines can cheaply obtain the security of titles in fee.

Those persons satisfied with the mass of evidence presented herewith, and desiring to invest, should lose no time in making their subscription to

who is authorized to receive subscriptions and furnish all necessary information to those interested.

GENERAL

GENERAL LIBRARY - U.C. BERKELEY



8000865924

