ONE DOLLAR PER COPY.

BODIE

AND

ESMERALDA

BEING

An Account of the Revival of Affairs in Two Singularly Interesting and Important Mining Districts, Including Something of their Past History, and the Gist of the Reports of Profs. Benj. Silliman and Wm. P. Blake, the late J. Ross Browne, and State Mineralogists R. H. Stretch and H. R. Whitehill—Also, Detailed Description of Mines most Developed, Tunnels, Mills, etc.—Also, General Resources of Mono and Esmeralda Counties—With Maps and Illustrations.

BY JOS. WASSON.

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GENERAL CONTENTS.

ACCOUNT OF THE IMPORTANT REVIVAL

OF

MINING INTERESTS

IN

Bodie and Esmeralda

DISTRICTS.

INTRODUCTORY.

Retrospective and Prospective.

The progress made in mining for the precious metals during the past eighteen or twenty years (speaking of quartz or vein mining, of course) is so striking, that it recalls the remark of a favorite author, concerning the old Goths and Vandals--that they discussed every subject twice: once drunk, that their debates might not lack vigor, and once sober, that they might not want discretion. Speculating in mining stocks is quite a different matter from real mining, and no doubt the wildest excitements will be repeated over and over again; but it cannot be in the nature of things that the reckless disregard of all systematic exploration, so characteristic of vein mining in its earlier stages, will ever be repeated on this coast; such a wild use of means and general bad management, pure and simple. The raids of the bar-

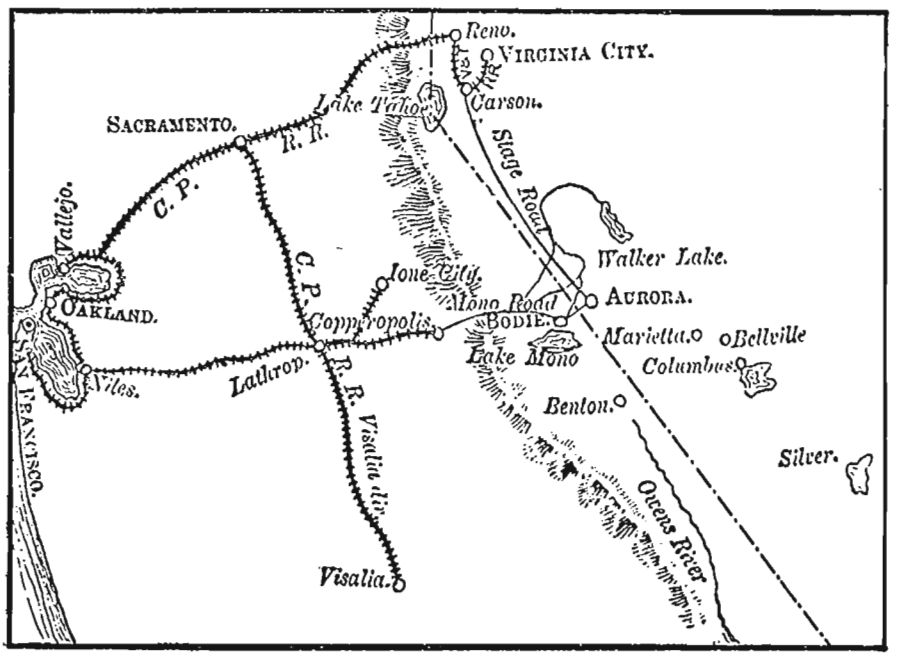
barians during the dark ages, were no more bloodthirsty or benighted in character than the continual "rush" in quest of "new diggings," and the accompanying operations as to development. It was little better than a drunken orgie of rapacity, ignorance and extravagance. There being no longer new worlds to conquer, there is a comparative settling down to the best methods of realizing something from the discoveries already made. A successful soldier, having removed all barriers to prospecting, there is no longer any faith placed in the stories of the early emigrants on northern routes, or of the Jesuits of the southern borders; mining everywhere has become a question of money, muscle and intelligence. The occasional reports of rough life in the Black Hills, sound like the echoes of an almost forgotten past. Doubtless new discoveries will yet be made, but the day of wild adventure is over. The advantage of railroad extensions cannot be overestimated in connection with pushing the discovery of new districts, and their subsequent development. It enables prospectors, wherever there are no mills, to ship ores long distances for purposes of testing and for sale; the advantages of travel, transportation of supplies, etc., are of course self-evident. The invention of nitro-glycerine and its various ramifications have also taken place, and served to revolutionize mining. The substantial monopoly of mining interests on the Comstock, however, is compelling men of means, and who are disposed to invest in such enterprises, to look elsewhere. Probably no more striking instance of this fact can be found outside of the two districts treated of in the following publication. Even that able and jealous guardian of Washoe interests—the *Enterprise* of Virginia, Nev.—in an editorial of date February 10, 1878, speaking of "Outside Camps," in a constrained manner, says: "There seems to be "an impression that there is a drawing away from Comstock "shares, and a disposition to search for outside mines. * * "Turning south, Aurora has wakened from the lethargy of "years, and ten thousand eyes are turned toward that dis- "trict and its neighboring district of Bodie."

Object of Publication.

Almost a genèration has passed since these districts were a leading theme on change, and but a limited number of the California people of to-day retain anything more than a vague recollection of the "Esmeralda" excitement—some, of course, to their sorrow; but few can be found who will not readily admit that they themselves were more to blame than the mines in question. No two districts are at the same time so important and less rightly understood. The object of this publication is to present just sufficient of the leading outlines and details of the past and present history and affairs of two of the most interesting districts in the annals of mining, as to enable the reader, in one or two hour's time, to obtain a substantial and intelligent impression thereof. The disconnected reports of the newspaper press fail to supply this want. Aside from the labor incident to a personal inspection of all the leading mines mentioned herewith, during the past two months, there has been much vexatious experi ence involved in hunting up old residents and harmonizng accounts—the few written and printed records obtainable being as disconnected and unsatisfactory as the verbal recitals of events. The gentleman who walked four miles before breakfast in quest of a spirituous appetizer, and came in contact with a temperance house, was no more disgusted than the writer, after being referred to such and such a person—an old pioneer—as the embodiment of wished-for data, and going out of the way to find him, only to learn that he could scarcely name the year in which he came to the country. However, there was a general disposition to assist, and as the latest phase of affairs is mostly sought for, it will be safe to let the past reconcile itself, at least to some extent, as to dates, incidents, and what not.

GEOGRAPHICAL LOCATION AND DISTANCES.

The accompanying map will assist the reader concerning the relative position of the districts described. Bodie is in Mono County, Cal.; Esmeralda in the county of that name in Nevada; the boundary line separating the two States pass-



ing about midway between the two districts. Distance from Carson (where travel is transferred from car to stage coach) to Bodie, *via* Aurora, 110 miles; fare, $15. From San Francisco to Bodie, $36; time, 36 hours. From the junction, five miles north of Aurora, stages leave for Marietta (45 miles), Bellville, Columbus, Silver Peak, and other places of interest in Esmeralda County, within a radius distant from Aurora of from 75 to 125 miles. Roads generally good, with corresponding accommodations.

EARLY HISTORY OF BODIE.

First Discovery.

The rapid exhaustion of placer deposits of gold on the western slope of the Sierras was followed by new discoveries on the eastern, among which those of Monoville, in 1857, were not the least conspicuous. The Chinese are yet engaged in working over the old ground. From this point, the discoverer of placer deposits of value in Bodie District extended the line of exploration eastward, in July, 1859. His name was W. S. Body; his birthplace, Poughkeepsie, N. Y. The first claims located and worked were in Taylor Gulch, on the east side of Silver Hill. Scarcity of water with which to successfully wash the rich deposits led to prospecting for quartz, and in August, according to one authority—perhaps as good as any—the first claim was designated the Montauk, now known as the Goodshaw, immediately above the placer line on that side of the dividing ridge. The first claims were recorded in Mono District. The date of the organization of the district, however, was July 10, 1860, Jeremiah Tucker being chosen Recorder.

A Hard Fate.

In the meantime (during March, 1860) the discoverer of the district lost his life. While returning from Monoville, in company with E. S. (*alias* "Black") Taylor, he got belated and overtaken by a severe snow-storm, lost his way, and perished. It is related that he became too much exhausted to proceed further, and that Taylor carried him some distance, but finding the burden too heavy, wrapped a blanket around the man and left him. Taylor came on to their cabin to obtain something to eat, after which he wandered about all night in a vain search for his companion. The body of the unfortunate man was not found until in May following, when it was buried on the west side of the black ridge southwest of the present town. The site of the old cabin is become as frequently located as some of the quartz

claims. It is apparently as much pleasure for the oldest inhabitant of Bodie to move that old den around in memory as it was for the old line Whig of 1840 to cart around the cabin of old Tippecanoe. Taylor's fate was more melancholy than that of his companion; the Indians killed and scalped him the same year, at Hot Springs, north of the town of Benton. His skull was afterwards passed around as an interesting relic of the times.

First Records, Organization, etc.

The records of the district, as organized on the date named, spell the name of the discoverer with a "y." Subsequent orthography has tended to convert the Knickerbocker Dutchman into a Frenchman, and so it will doubtless remain. The meeting of miners organizing the district, was presided over by E. Green, A. D. Allen, Secretary. The section defining the boundaries, reads as follows:

ART. I.—This district shall be known and designated as Body District, and shall extend in each direction from the Body claim, north, south, east and west, five miles.

The first records made in accordance, were transfers from Mono, where E. F. Mitchell was Recorder. Recorder Tucker puts down, July 19, himself and others for "eleven claims of 250 feet each, on the Tucker quartz vein." Also four claims "on the first north extension," for E. Green & Co., July 3, and "a spring as a water privilege in the Taylor Gulch," July 19. The Tucker tunnel was run by the combined claimants on the east side of the ridge, followed by the Taylor tunnel from the western side, more for the purpose of discovering blind ledges than extracting ore. Locations crept along northward, until on July 1, 1861, O. G. Leach, E. Donahue and L. H. Dearborn discovered the Bunker Hill mine (now Standard), well up on Bodie Bluff. They sold out for $6,500 each, to Jas. Stark (the late actor), and John W. Tucker (the well-known jeweler), both of whom entered upon mining in Aurora and Bodie, with more zeal than discretion. Stark converted his San Jose opera house into a

quartz mill. Dearborn, Donahue and S. S. Tilton discovered the San Antonio mine (now Bechtel), in 1862, and sold to Stark and Judge F. K. Bechtel—the latter also having previously given Esmeralda district an extensive prospecting.

New Combinations.

A want of capital soon became pressing, and a consolidation of claims, and incorporation of companies containing outside men and means, was resorted to. A nicely engraved stock certificate, dated March 9, 1863, shows the signature of Leland Stanford (then Governor of the State) as President, and F. K. Bechtel as Secretary of the "Bodie Bluff Consolidated Mining Co.," incorporated January 26; 11,100 shares, $1,110,000. A fine picture of the Bluff, with the names of a score of mines thereon, and the Isabella tunnel sticking well out in front, adorns the document. This work of art also failed to produce dividends, and another shuffle of the cards ensued.

Grand Consolidation.

In the fall of '63, the following companies came together and organized one big institution, that could not fail to do the business of all concerned: Out of Bodie Consolidated, Bodie Con. No. 2, Isabella, Tioga and Rio Vista, with 38,100 feet, mill sites, tunnel rights, buildings, etc., the Empire Company of New York was formed (date of incorporation, July 6, 1864) with an ordinary capital of $10,000,000, and the modest privilege of increasing it to fifty millions. It was organized under a law of 1848, providing against the assessment of stock—a feature that would be popular to-day, if it had half a chance. Of course with so many shares, and such a powerful promoter to assist as Trenor W. Park, enough could not fail to be "placed" for a good working capital. (It has been variously estimated at from $300,000 to half a million.) That it was all spent, no one doubts. Actor Stark came out as advance agent, and started up operations on the

upper circle—from where the applause generally first comes. The rocky crests of Bodie Bluff are dotted with the relics of theatrical mining in past times, by the population in general.

Science to the Rescue.

In the meantime, Prof. Wm. P. Blake, a well-known mineralogist of this coast (now East in Government employ), was enlisted in the cause of the Empire, his report being dated at San Francisco, Nov. 28, 1863. Next came Prof. Benj. Silliman, of Yale College, eminent in geology, chemistry and mineralogy, as was Benjamin S., senior (who died Aug. 24, 1864, with something more than national fame). Silliman's report on Bodie is dated at Carson, Nev., April 25, 1864. This was followed by one from the late J. Ross Browne, dated San Francisco, Nov. 20, '64. Subsequently, and for Harper's Magazine for August, 1865, Browne reproduced his notes in a racy form, with sketches by pencil. (Also, in the September number, immediately following, Browne has an interesting account of his trip to Mono Lake.) After all said and done, however, the Empire did not succeed, except in the useless expenditure of money. The Fogus mill at Aurora was purchased for $45,000, increased from 12 to 16 stamps, erected under the north end of Bodie Bluff in a fine brick building, and after ten years of general idleness, was knocked down for taxes for $450. Silliman got general and particular "fits," but through the revival of things at Bodie, has reason to congratulate himself, which he does in a letter printed in the Bodie *Standard* of December 26, 1877. He says: "I have always stoutly maintained "that outside of the Comstock, there was no mining district "in California or Nevada, known to me, that presented so "many elements of a great future as Bodie." He further said that "neither the years of neglect of the district by miners," nor "the vilest personal abuse" visited upon him, moved him to change his opinion.

Additional Set-Backs.

During these ups and downs on a larger scale, there were individual and other struggles worthy of more or less attention in this connection. Judge Bechtel kept his old San Antonio property separate from all corporate complications. Jack Biderman, who was at first interested with Stanford, discovered the Homestake mine (now in the Bulwer group), and the Gregory mill at Aurora was erected at the western base of the Bluff, under High Peak, for the purpose of working the ore. The battery-mortar was a wooden trough with an iron bottom, with nothing much to prevent both the qnicksilver and gold from running around the country at pleasure. The rock was so rich, however, that much money was obtained nevertheless. Gov. Blasdell gave it a trial in '68, and finally moved the mill to Rocklin, in Esmeralda County, Nev. Bechtel never quite despaired, though the small wooden structure in the name of a two-stamp quartz mill, run at times by water power, which he succeeded in erecting in Sunshine Valley, between Bodie and Aurora, is fairly an existing monument to the "last run of shad." He enlisted Jas. Stark's brother and widow in this little enterprise, but in the end (through the incorporation of the Bechtel Co. last fall) brought them out more than even, and they are grateful for it. Biderman was provided for by Stanford to some extent; he kept the railroad refreshment stand at Sacramento, death, however, getting the better of him two years ago.

The New Deal.

As already stated, the Empire Co's property changed hands in 1875, through the assistance of the Sheriff—that is, such of it as belonged to the mill. Work not being kept up throughout the district generally, the mining ground became subject to re-location, which has been universal since the success of the Standard Co. The Syndicate Co. secured a U. S. Patent for a large section of Bodie Bluff, put new pans in the mill, and proceeded to business. Matters moved along

without exciting special attention, until the following year, when the old Bunker Hill loomed up as one of the very best gold mines in the world, affording good milling ore enough for several mills, the Syndicate securing in that way a handsome working capital. There is a stoutish colored man, of years about 50 in the shade, who resides in Aurora. His name is Wm. O'Hara—a suggestive one. For some time he was owner of the original Standard, by means of a mortgage of $3,000. It went begging for $1,500. Three thousand tons (the first milled) of this ore, crushed at Luffkin's Aurora Mill at one time, yielded $42 per ton. Some water power arastras on Rough Creek, several miles west of Bodie, enabled the few people who held on by their eyebrows to keep up appearances of active life in the district, finally turning the tide. At this juncture it will be in place to speak at length of the

TOPOGRAPHICAL AND GEOLOGICAL FORMATION.

Ross Browne's Trip and Talk.

Under the above head, it will be proper to reproduce such portions of the reports heretofore alluded to as will best serve the purpose in question, introducing the subject with some extracts from Browne's magazine article of August, 1865, as follows, carrying the reader through the grand canyon, from Aurora to Bodie Bluff:

"On a fine morning in September, we set forth on our expedition. The rugged cliffs along the road cropped out at every turn like grim old castles of feudal times, and there were frowning fortresses of solid rock that seemed ready to belch forth murderous streams of fire upon the head of any enemy that might approach. I was particularly struck with the rugged grandeur of the scenery in the neighborhood of Fogus' quartz mill" [since worked into the Empire—now Syndicate mill]. * * "We stopped a while at the foot of the grade to visit the magnificent quartz mills of the Real del Monte [torn to pieces, a part doing duty in the Standard at Bodie] and Antelope mining companies, of which I had heard much since my arrival at Aurora. Both of these mills are built of brick on the same plan, and in the Gothic style of

architecture. Nothing finer in point of symmetrical proportion, beauty and finish of the machinery, and capacity for reducing ores by crushing and amalgamation, exists on the eastern slopes of the Sierras. I had little expected to find in this out-of-the-way part of the world such splendid monuments of enterprise. The Real del Monte contains a battery of 30 stamps and 36 Wheeler pans and other machinery in proportion; the Antelope a somewhat smaller number of stamps and pans. Steam is the motive power, and the machinery works with the neatness and perfection of clock-work. Passing several other mills, as we proceeded up the canyon, one of which was burned a few days after [the Durand], we entered a singularly wild and rugged pass in the mountains, where it seemed as if the earth had been rent asunder by some convulsion of nature for the express purpose of letting people through. It reminded me of the Almannajau in Iceland, which was evidently produced by the contraction of the lava as it cooled and dried. Whatever way it happened, the road thus formed is a great convenience to the traveling public.

VIEWS FROM BODIE BLUFF.

A good road is now open to Mono Lake, the nearest part of which lies about fourteen miles from Bodie. A view of the lake from the eastern side of the bluff, presents one of the finest specimens of scenic grandeur to be found in the whole range of the Sierra Nevadas. Mountain after mountain rolls off in the distance, like the waves of an angry sea. Perpetual snow covers the highest peaks of the Sierras. Dark forests of pine stand in bold outline on the inferior ranges, and vast chasms and rocky canyons open out upon the shores of the lake, which lies dead and still, apparently within a stone's throw of the beholder. Circling deposits of alkali and drifts of wood mark the plains that lie on the eastern shore of the lake, showing that in by-gone centuries it covered a vast extent of country, from which it has now receded. * * The lake is eighteen miles in length by ten or twelve miles in width. On the western side are distinct water-marks, showing that in former years it attained an elevation of 800 to 1000 feet above its present level. This would indicate a superficial area of such vast magnitude, that it must have resembled a great inland sea. On the eastern side is a gap or depression in the hills, through which it must have flowed, covering an immense area of the great Walker river basin. It is not improbable it was once a continuous sea to Walker's lake. The beach is strewn with beautiful specimens of boracic and alkaline incrustations. Weeds, twigs, stones, and even dead birds, are covered by this peculiar coating, and present the appearance of coral formations. Some specimens that I picked up are photographed in all the minuteness and delicacy of their details. Almost every conceivable variety of form

may be found among these incrustations. White columns and elaborate facades, like those of the ruined temples of Greece, stand on the desert shore to the north. Archways and doors and embattlements are represented with astonishing fidelity."

In the September ('65) number of Harper's, Browne continues his trip to Bodie, with an account of a visit to Mono Lake, wherein this additional bit of word-painting occurs, in connection with a visit to a ranch near the lake:

"A soft, delicious air, fragrant with the odors of wild flowers and new-made hay, made it a luxury to breathe. High to the right, tipped by the glowing rays of the sun, towered the snow-capped peaks of the Sierra Nevadas. In the west and south, grand and solitary—monarchs among the mountain kings—stood Castle Peak and Mt. Dana, as if in sublime scorn of the puny civilization which encircles their feet. These mighty potentates of the wilderness, according to the geological survey of Prof. Whitney, reach the altitude of 13,000 and 13,500 feet respectively. Still higher mountains have been found to the southward," etc.

Mt. Lyell is pointed out from Bodie Bluff. Altogether, Mr. B.'s pen-picture is no exaggeration of the magnitude of this Mono County view, which, for natural variety and grandeur, pure and simple, surpasses that obtained from Mt. Riga, in Switzerland, and is a fitting theme for the greatest of living landscape painters.

Silliman's Report

Is both comprehensive and exhaustive of the entire subject. He speaks of Bodie as "the loftiest inhabited district in the United States," which is doubtless true, though it does not seem to be, the country round about having a corresponding altitude. The district is the outlying portion of the watershed of the Walker and Owens rivers. The mineral belt is in length two and one-half miles (north and south), and three-fourths of a mile in width, the prominent outlines being formed by Bodie Bluff, Silver and Queen Bee Hills—the latter hill describing the southern, as Bodie Bluff the northern, limits of the district. Silliman's geological description is chiefly confined to the main bluff, and is as follows:

"Bodie mountain, forming the point of central interest in this district, is an isolated mass of trachytic porphyry, having white crystals of a feldspathic mineral implanted in a lavender colored paste; the weathered surfaces of this rock present red colored masses, completely unlike the fresh fracture of the undecomposed rocks, and resembling, in general aspect, the other varieties of porphyritic rocks found in the adjacent districts. Many facts point to the conclusion that this whole region has been at some not very remote geological period, the center of great eruptive or volcanic energy. In Mono lake, distant about 12 miles from Bodie Bluff, the ancient fires still exist, as is evidenced by the escaping jets of hot vapor, and numerous boiling fountains which still occupy the islands in the center of the lake; while in Aurora and Table Mountain, above Sunshine Valley, are preserved ancient lavas in well characterized columnar basalt and volcanic scoria.

AN ISLAND OF ERUPTIVE ROCKS.

A close inspection of the character of the rocks in adjacent districts leads to the conclusion that Bodie Mt. is an island of eruptive rocks, clearly distinguished from the character of the surrounding region. * * The whole surface is covered with debris, resulting from the decomposition of the rocks; the porphyry, in its decomposition, having furnished an ochraceous earth, in which are seams, abundantly, fragments of quartz, jasper, chalcedony, and other vein stones, derived from the breaking up of the crests of the mineral lodes, which intersect the mountain in a general course north, 20 to 30 degrees east, while the ridge or backbone of the mountain bears about north, 35 degs. east. The eye experienced in the gold-bearing drift recognizes at once, in the aspects of the sides of this mountain, the probability of the existence there of profitable placer deposits of gold. The placer washings on the lower slopes of Bodie, near Bunker Hill shaft, have paid as high as two to three ounces per day to the hand."

The report speaks of a project to force the water of Cottonwood creek, three miles distant, to an elevation of 700 feet, for the purpose of washing those mountain sides, and at the same time laying bare unexposed lodes. Steam power is doing the latter, however, by means of shafts, tunnels, etc. Doubtless, the rich surface diggings will yet be utilized in some manner.

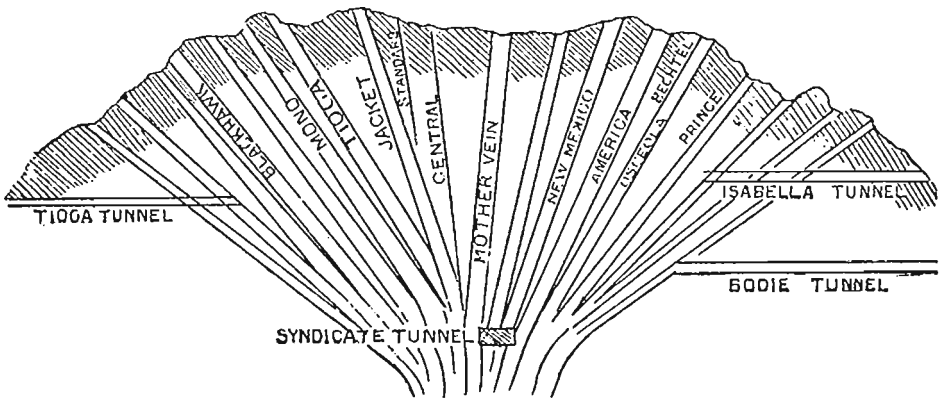
DIP OF VEINS TO A COMMON CENTER.

The author proceeds to describe in detail the "large number" of mineral veins "having a general parallelism with

each other," mentioning sixteen in particular, "all exposed more or less by shafts or tunnels," and adds:

"It appears that all veins upon the east of the Veta Madre (mother vein), possess a dip toward the west, while those on the west dip toward the east. The angle of inclination at which these various lodes dip towards a central cylindrical axis, is such as to lead to the conclusion that some of them, at least, will intersect the Veta Madre at no great depth from the surface—certainly at a point above the level of the proposed tunnel, which has been set to be driven nearly at right angles to the supposed course of the lodes. It is observed that the angles of inclination were obtained from only a limited number of veins; the greatest depth in any case being 180 feet. The angle of inclination, or dip, diminishes with depth, and it is not improbable that all will point more rapidly toward the central axis in proportion as they are explored."

The accompanying diagram or transverse section is intended to give the reader a distinct, clearly defined impression as to the peculiar manner in which the mineral lodes are placed in Bodie Bluff; in short, they extend throughout the entire length of the district in precisely the same strikingly singular manner.



IDEAL OR CROSS SECTION—THE "VETA MADRE."

The north end of Bodie Mt. is supposed to be cut in two, as if it were a potato, exposing the end of the series of veins to a depth of say 700 feet below the surface of the crest. The tunnel alluded to is the present Bodie adit, and the Syndicate is being driven parallel to the series and about midway. As no cross-cutting has been done, the mother

vein is still an unknown quantity, with the chances never so great as to the soundness of the theory. The words "Standard" and "Bechtel" are inserted in the diagram at points on the line of certain veins already exposed at the north end. The lodes as explored in the Bulwer ground are nearly vertical as to position. Probably no district in the history of mining possesses such a singularly interesting and perfect formation, and one which is certain to induce capital, industry and intelligence to go to extreme lengths in the cause of development.

A SECONDARY FORMATION.

Owing, probably, to the limited amount of development made, Silliman makes no allusion to a curious feature of the central portion of the district, and pertaining to Silver Hill. Here is found a great white "horse," as it were, in which there is obtained ore that assays well and chiefly in silver; the entire series of veins aforesaid, however, passing by and around this whitish formation, and nearing each other toward Queen Bee Hill, where everything is chiefly gold bearing. The lodes passing by this egg-shaped island, it must be borne in mind, carry, as if by sympathy, a large per cent. of silver, as, for instance, the Red Cloud, Goodshaw, etc., on the east side in particular. It is the opinion of a leading miner in Bodie that the whole geological structure, north and south, was riven asunder—the eastern half being pushed over; that the original pitch of all the veins was in that direction (a favorite idea of miners anyhow, whether sound or not); and that a chasm was made and afterwards filled by sedimentary action, which accounts for the whitish formation in question. Curiosity will be interested in the final solution of these conundrums; it may require much or only little practical exploration.

MOTHER VEIN INDICATIONS.

Silliman claims to have discovered traces of one great mother lode; alludes to the surface indications as being

eighty feet wide and two miles in length, and composed of disintegrated bowlders strewn along the crest; that "surface pits" show "a mineralogical character entirely unlike other lodes." These bowlders being of "blue and white chalcedony, containing red and yellow jasper, chrystalized quartz in geodes," etc.; "all these minerals found in angular fragments, cemented in a silicious paste." "The comminuted fragments form a gravelly stream on the summit of the hill, resembling the shingle on a sea beach, only being angular instead of rounded." It certainly forms an interesting study.

PECULIARITIES OF VEIN MATTER.

Silliman speaks of certain peculiarities of the Bodie Bluff veins; that they are all hard at the surface, consisting of "unchrystaline, chalcedonic quartz, sterile of metal, and unpromising for mining exploration. At a pretty uniform depth they generally lose these characteristics, become softer, fissile, friable," etc. The greater depths reached under the new order of development confirms this—the ores being so decomposed and soft as to be easily extracted with the pick; in fact, shoveled out, as in many places in the Standard mine. He speaks of "magnetic iron being pretty uniformly found." Later and more successful experiments in reducing the ore quite agree that this was a leading cause of failure on the part of amalgamators in early times—they amalgamated the iron, and let the "flour gold," a peculiar characteristic of the district, float off in slums created by the "lavender colored paste."

CONCLUSIONS.

After alluding to the ease with which the ores can be extracted and reduced—the absence of sulphurets, dryness of the mines, etc., the Professor says it is obvious that Bodie is "one of the most valuable mining districts in the United States," and concludes his report with the following words of wisdom, so generally disregarded in those days:

"The success of this, as of all other mining enterprises, granting that the metallic value sought exists in the mountain, depends on the fidelity with which those in charge of the enterprise adhere to the principle of keeping the work of exploration well in advance of the work of extraction. The neglect of this principle has been the rock upon which many valuable enterprises have been wrecked; and no mine, however rich, can long maintain itself without the constant investment of a liberal portion of its reserve funds in new works of exploration. Thus can the evil day be foreseen and provided for. With this reservation, I regard the property as good beyond a peradventure."

Prof. Blake's Report.

Wm. P. Blake, educated at the Sheffield School of Mining, has reported professionally upon all the leading districts of the coast, including Alaska; also, upon the resources of Japan, for that government. His remarks upon Bodie are very brief, but no less significant. "In structure," he says, the veins are peculiar and favorable for richness in gold. They are all alike, as it were, and doubtless had the same origin." He also confines his observations to Bodie Bluff, which, he says, is "favorably shaped for cheap development." To quote:

"The quartz, instead of being a solid, homogeneous mass, is found in thin layers or coats, one over the other, like sheets of paper or paste board, with irregular thin seams or openings between. This structure, with peculiarities, indicates that the veins were deposited gradually in the fissures by thermal springs, similar to those now existing along the base of the Sierras, as at Steamboat, etc. Such an origin would necessitate the continuance of the veins to a very great depth, and indicate a very constant and uniform deposit of gold. The gold is not confined to one layer alone, but is generally spread or dispersed. When a mass of it is crushed and washed, it shows richer than the surface indicates."

The report adds that it is clear how the veins were formed, and that it is "interesting to science." "Doubtless there will be 'shoots' or 'chimneys,' but the gold is generally evenly distributed." The deeper workings sustain this view. On the surface the "layers" noted are called by the miners, "ribbon" quartz. Deeper in the workings, the vein matter as a rule may be described as composed of slabs of marble of two or three inches in thickness, set down in the fissures edgewise, and left to oxydize and decompose.

Ross Browne's Report.

Browne was not an expert by profession, but he saw so much of mines and mining that his opinions were so respected that he was employed for two or three years in reporting for the general government—two of his volumes being anything but dry reading to-day. After speaking of the number of shafts visited in Bodie, he says he "found the veins of nearly uniform thickness; that is to say, varying from two to five feet, in gold and silver bearing quartz, with clear and well defined casings. I was particularly struck with the perfect and definite character of the veins. They are characterized by great regularity, and do not run into pockets, or suffer those interruptions from 'horses,' which have rendered so many mines, apparently rich, unprofitable." Browne then uses the hand mortar, and mentions results from mills as "an average of $35 to $45 per ton;" but in a foot note subsequently says several crushings yielded upwards of $60 per ton, and then makes use of the following suggestively significant language:

"The yield as actually demonstrated is probably not so high as Eastern capitalists may consider desirable. For speculative purposes it is certainly much lower than the average of ores offered for sale in New York; but, so far as my experience goes, I regard this as a favorable indication. Here are statements of fact, upon which no question can exist. Those interested in the stock have at least the satisfaction of knowing exactly what they possess, and upon what basis to found their calculations of future profit."

REGULARITY OF VALUES, ETC.

He says "the Bodie District is particularly free" from the objection of "specimen ores, that assay from $1,500 to $2,000 per ton." To quote:

"None of the ores are specially rich, but precious metals are diffused throughout the veins with a degree of regularity which I have rarely, if ever, seen equalled in any other district. Indeed, I made a calculation of the results that ought to be obtained from 1,000 tons of ore, taken from one of those lodes, assuming the usual cubic measurement, and found that it tallied exactly with the yield as subsequently obtained."

Modern workings are not inconsistent with these estimates. He further says that "there was not a single lode in Bodie Bluff range" that did not yield "a better quality of ore at thirty feet than at the surface," and that the best ores have been taken out at a depth of 175 feet, "and several were profitably worked at a depth of 200 feet." "Their undiminished width and value at that point" left no question as to their permanency. In conclusion, he speaks *á la* Silliman:

"Private parties, I am confident, could make a handsome and permanent income from these mines. The Tioga, New Mexico, or Isabella ledges alone would be a sufficient source of income for any ordinary well managed mining company. The result, therefore, lies in your hands. You can make this enterprise a success or a failure. There is no lack of material either way."

Other Professionals, Experts, etc.

In concluding this extensive but interesting reference to professional reports on Bodie, it is in place to note a few of the slights the district received from time to time in that way. Chief of those who threw cold water in that direction, was Prof. J. D. Whitney, for years in the pay of the State as geologist, and now engaged, somewhere East, on a work to be entitled "Economic Geology." He is doubtless an able man, but possessed of peculiarities of temper or what not, that unfit him for so responsible a position as he held at the time of his visit to Bodie Bluff (July 24, 1870). Whether he was piqued at Silliman and Blake, or both, as the story goes, and thought it was a good opportunity to get even (the Bodie mines were then almost at a standstill), is immaterial, perhaps. His position demanded that he at least should give the district a respectful attention, considering that he was on the ground. On the other hand, he concluded his observations in about fifteen minutes' time altogether, and with an imperious wave of the hand, as it were, almost defied any one to show him "a particle of gold that ever came out of Bodie." (These are the words he made use of.) He even went so far as to hint that the mines had been "salted"—the exceeding fine gold being inserted in the ores by means of

a shot-gun! It is true that the opportunities for visiting the mines were not so good as before or since, but there was palpably no sort of occasion for such a studied contempt for any portion of California's golden soil, to say nothing of the men who have rendered its every foot conspicuous in the eyes of the world at large. Prof. Whitney, having given Bodie the cold shoulder in his State reports, could not do better than to give place in his new individual publication to the report of the bullion production of the Standard mine. There are several "particles" of gold coming from Bodie outside of that mine, as well.

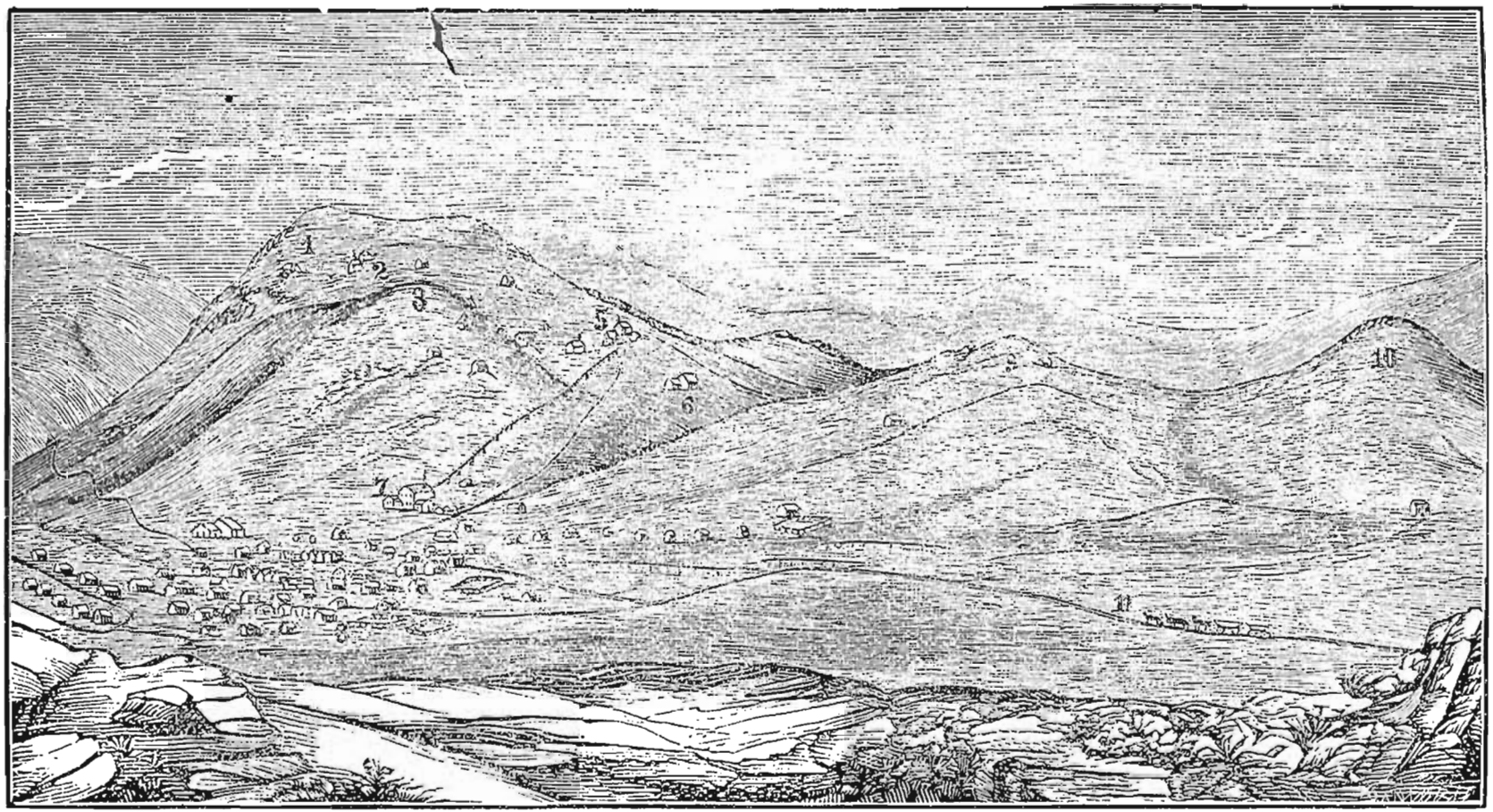
COMFORTING REFLECTIONS.

Whitney, however, will not be alone in his discomfiture. Names and dates could be given, of how a well-known mining Superintendent, now in central Nevada (a would-be expert, by the way), was sent to report on the Bunker Hill-Standard, when it was under mortgage and offered for sale at $1500. He reported the property as valueless. Still another gentleman of "well-known ability," etc., was so shocked by the first glance at Bodie Bluff, that he refused to leave his buggy, turning round and proceeding back to Aurora and out of the "blarsted country."

THE NEW TOWN OF BODIE.

The Site, Style of Buildings, etc.

The winter following the commencement of the extensive operations of the Standard company (1876–7), was comparatively mild, and business men generally began to turn their attention to Bodie district. The new mill then building soon suggested a remapping and construction of a town. The site selected is a pretty one, and stretches along the western base of the Bluff from the narrowing valley north, and extending along the more open country south—a grassy flat between the sloping hills. There is room in which a large city could be built with but little expense as to grading. The sketch giving a side and partially birds-eye view of the town,



1. Bodie Bluff.
2. Bechtel Hoisting Works.
3. High Peak.
4. McClinton Hoisting Works.
5. Standard Hoisting Works.
6. Bodie Hoisting Works.
7. Standard Mill.
8. Town of Bodie.
9. Silver Hill.
10. Queen Bee Hill.
11. Bridgeport Road.

Bluff, and leading hoisting-works, was taken from a high, black cliff of rocks one and one-half miles southwest of the town, from which point High Peak (so prominent when directly under it) sinks into a small protuberance upon the main bluff. There is scarcely a shrub of timber left, if any ever existed, which gives a rather unsheltered look to the situation, but less so than is seen in many other mining towns east of the Sierras. Excellent water from springs and wells pertaining, in town, is obtained sufficient as yet for ordinary uses. One large central spring—a rallying point of early times—is chiefly absorbed by the Standard mill. In connection with this spring an historic cabin existed on the site of Gilson & Barber's store—said to have been Body and Taylor's, and also where the original miners' meeting was held organizing the district. But these accounts must reconcile themselves, along with a variety of others encountered during the preparation of these pages. To return to the building of the present town. A wooden structure was moved over from Aurora, in which the express and Post offices and Smith's store were located. Towards spring and summer building assumed a brisk phase, and toward winter of last year it began to present the aspect of a rush, and everybody was more or less inconvenienced by the scarcity of lumber, to say nothing of high prices. Timbering for the mines was in the same market, and wood for fuel also, but nothing serious ensued. It is a wooden town, and in itself contains about 250 structures; some very presentable ones. About the mines proper there are about one hundred additional habitations and shelters of one kind and another. Last winter, moreover, was a pretty severe one, though the mail and express were delivered regularly—no day failing to get through each way. The U. S. Land Office has been moved from Independence, Inyo county, to Bodie. The following extract from Ross Browne's magazine article, Aug. '65, may be in place:

"Although the altitude is greater than that of any other inhabited town within the limits of the United States, and only surpassed by that of Quito, in South America, the climate is exceedingly healthy—

never too warm in summer and rarely rigorous in winter. During the past winter (1863-4) the snow did not remain on the ground more than a day or two at a time; and there was a period of two months without snow, rain, or unpleasant weather of any kind. This, at an altitude of 9,000 feet, is remarkable."

Its Progress and Wants.

Should the town continue to grow indefinitely as in the recent past and at present, the question of a more extensive water supply will force itself upon the people, and the creeks several miles distant may become dividend paying mines of themselves. Bodie has had a conservative and useful help in the *Standard* newspaper, the pioneer journal of Mono County, published by Frank Kenyon. It was started as a weekly, October 10, 1877; a tri-weekly edition was issued on the 11th inst. A daily is in order, as it would supply several thousand people with telegraphic news 24 hours in advance of present capabilities. The completion of the new telegraph connecting at Genoa, *via* Bridgeport, with the world at large, occurred as per following first news dispatch:

"Bodie (Cal.), May 7.—Bodie sends greeting and proclaims to the mining world that her gold mines are the most wonderful yet discovered."

With these necessary adjuncts, Bodie can be relied upon to fight its way as to outside influences, in addition to an occasional skirmish more sanguinary than a war of words. The early history of Bodie was strangely peaceful; according to tradition, no life was lost in personal encounters in the district previous to last fall, when a street duel occurred wherein the two principals were shot to death. Since then other sallies with sidearms have occurred with serious results, but as a general thing the town is not an unruly one. Possibly an absence of such scenes in early days was a bar to the "luck" otherwise supposed to attend mining communities. About 400 men are employed in and about the mines, who receive $4 per day, the entire population being in the

neighborhood of 2,000.* If no reaction takes place, Bodie will soon have a bank, theater, church, and the usual jealous eye upon the county seat, perhaps. A public school building is a necessity now, the material therefor having arrived to a very perceptible degree—of course, by immigration, children in arms included. According to the "oldest inhabitant," the first child born in the district was in 1865, to the wife of Robert Horner.

Social Characteristics.

This domestic reminiscence suggests some direct reference to the social status of the Bodie of to-day, as compared with that of the original and much smaller town. Without becoming sentimental, it is to be regretted that the modern town-builders did not give us a Silliman avenue, a boulevard de Ross Browne, and a rue Bechtel, instead of the stereotyped "Main" street, to say nothing of the so-called "Maiden Lane," parallel therewith, but in the background. But miners will be miners, first, last, and all the time—their Sunday amusements modifying in character according to the number of women and children, churches and Sunday schools, etc. Browne, in Harper's for September, '65, devotes much space to a description of a fight between a badger and a dozen dogs, gotten up one Sunday in Bodie for his special entertainment. They made so much of him that a street was named after him—no vestige of which remains, of course. Suffice it, the badger whipped the dogs and had to be killed with clubs. After Browne's arrival in Bodie, he was taken to "the Judge's cabin," he having "some ten or a dozen men employed, who lived in a frame shanty close by a fine spring of water, surrounded by the most luxuriant network garden of sage brush, weeds, wild fl x, and other nat-

* The Standard Co. employ about 75; the Bechtel, 40; Syndicate, 30; McClinton, 20; Red Cloud, same number; and the Bodie, Bulwer, Belvidere, etc., 15 to 20; the Black Hawk and others, 10, and a score of mines from 5 to 10. This and the employment given to teamsters, wood-cutters, exclusive of clerks, etc., about town, will make the estimate good.

ural products of the earth, which seemed to rejoice in the prolific soil of this region." He thus concludes:

"These jolly miners were the happiest set of bachelors imaginable, had neither chick nor child, that I know of, to trouble them; cooked their own food; did their own washing; mended their own clothes; made their own beds; and on Sundays cut their own hair, greased their own boots, and brushed their own coats, thus proving by the most direct positive evidence that woman is an unnecessary and expensive institution, and ought to be abolished by law. I have always maintained, and do still contend, that the constant interference, the despotic sway, the exactions and caprices of the female sex ought no longer to be tolerated, and it is with a glow of pride and triumph that I introduce this striking example of the ability of men to live in a state of perfect exemption from all these trials and tribulations. True, I must admit that the honest miners of Bodie spent a great deal of their leisure time in reading yellow-covered novels and writing love-letters; but that was probably only a clever device to fortify themselves against the insidious approaches of the enemy."

This clever take-off will apply to a thousand "honest miners" to where there were a hundred at the time it was written. It is the old story ever repeating itself. Much racy matter in that connection, however, must give way to the dry details of mining, an essential feature of this publication.

BODIE ORGANIZATIONS.

STANDARD—Incorporated April 11, 1877; capital stock, $5,000,000; number of shares, 50,000. Officers—Daniel Cook (President), John F. Boyd (Vice-President), Monroe Thompson, John Skae, R. N. Graves, Wm. Willis (Secretary) and Nevada Bank, Treasurer. Wm. Irwin, Superintendent. Office, Nevada Block.

SYNDICATE—October, 1875; capital, $5,000,000; shares, 50,000. Chas. N. Fish (President), Geo. W. Hopkins, Thos. G. Taylor, H. M. Yerrington (Treasurer), Robt. N. Graves, and Jacob Stadtfeld, Jr. (Secretary.) Warren Rose, Superintendent. Office, 419 California street, San Francisco.

BECHTEL—Sep. 21, 1877; capital, $6,000,000; shares, 60,000. Wm. M. Stewart (President), Wm. M. Lent, B. B. Miner, W. B. Carr, F. K. Bechtel, Wm. H. Lent (Secretary), and Bank of California, Treasurer. S. Moore, Superintendent. Office, Nevada Block.

MCCLINTON—Nov. 3, 1877; capital, $6,000,000; shares, 60,000. Geo. S. Dodge (President and Treasurer), S. Heydenfeldt, Sr., J. Miller, E. B. Pond, A. W. Rose, Jr., and Wm. H. Lent (Secretary). Edward Clarke, Superintendent. Office, Nevada Block.

BULWER—June 29, 1877; capital, $6,000,000; shares, 60,000. Daniel Cook (President), John F. Boyd (Vice-President), Monroe Thompson, H. G. Blasdell and Wm. Willis (Secretary). Nevada Bank, Treasurer. Wm. Irwin, Superintendent. Office, Nevada Block.

BODIE—August 22, 1877; capital, $5,000,000; shares, 50,000. C. A Burgess (President), Lewis Teese, Jr., Geo. B. McAnenny, Jos. Clarke, Chas. E. Scott and Wm. H. Lent (Secretary). Wm. Irwin, Superintendent. Office, Nevada Block.

SUMMIT—Nov. 19, 1877; capital, $5,000,000; shares, 50,000. C. B. Burgess (President), J. M. Classen, B. B. Miner, Wm. M. Lent, Chas. E. Scott and Wm. H. Lent (Secretary). Wm. Irwin, Superintendent. Bank of California, Treasurer.

BELVIDERE—Nov. 1, 1877; capital, $6,000,000; shares, 50,000. N. K. Masten (President), R. N. Graves, J. P. Martin, A. J. Ralston, H. M. Yerrington, Andrew Baird (Secretary). Bank of California, Treasurer. Porter Holmes, Superintendent. Office, 304 California street.

TIOGA CONSOLIDATED (Composed of Tioga South and Central)—March 14, 1878; capital, $6,000,000; shares, 100,000. A. J. Ralston (President), John F. Boyd, R. N. Graves, Wm. M. Stewart, Y. M. Louay and Wm. H. Lent (Secretary). Bank of California, Treasurer. Warren Rose, Superintendent. Office, Nevada Block.

BLACKHAWK—Oct. 3, 1877; capital, $5,000,000; shares, 50,000. P. J. White (President), Coll Deane, Wm. M. Lent, C. W. Kellogg, Thos. R. Hayes and B. S. Kellogg (Secretary). S. B. Ferguson, Superintendent. Office, 204 Montgomery street.

SOUTH STANDARD—Sept. 1877; capltal, $5,000,000; shares, 50,000. W. L. Palmer (President), Israel W. Knox, C. C. Stevenson, C. H. Golding and C. A. Sankey (Secretary). Office, Stevenson Building.

RED CLOUD—Oct. 5, 1877; capital, $5,000,000; shares, 50,000. Geo. C. Wickware (President), Wm. H. Osgood, Chas. V. Fish, Annis Merrill, H. G. Blasdell, and Joel F. Lightner (Secretary). S. W. Blasdell, Superintendent. Office, Nevada Block.

GOODSHAW—Jan. 12, 1878; capital, $10,000,000; shares, 100,000. D. F. Verdenal (President), F. Taglibue, Geo. Story, J. M. Wilde, J. W. Harker, and A. F. Main (Secretary). H. C. Callahan, Superintendent. Office, 309 California street.

RICHER—April 8, 1878; capital, $5,000,000; shares, 50,000. S. W. Wadsworth (President), D. Coughonoar, W. G. Bridge, F. Warnkee, John A. Lytle, and W. H. Allen (Secretary). F. Warnkee, Superintendent. Office, 419 California street.

AURORA TUNNEL—Jan. 28, 1878; capital, $6,000,000; shares, 60,000. R. N. Graves (President), N. K. Masten, A. J. Ralston, H. M. Yerrington, W. E. Hale, and Andrew Baird (Secretary). Porter Holmes, Superintendent. Office, 304 California street.

WHITE CLOUD—Capital, $6,000,000; shares, 60,000. C. N. Fish (President), W. H. Osgood, Geo. C. Pratt, Geo. C. Wickware, Annis Merrill, and G. C. Pratt (Secretary). S. W. Blasdell, Superintendent. Office, Nevada Block.

SPAULDING—Nov. 17, 1877; capital, $10,000,000; shares, 100,000. Wm. A. Searles (President), J. Berolzhime (Secretary), A. F. Bryant, W. A. Searles, L. Slessinger, Geo. E. Carter, and J. Berolzhime. A. F. Bryant, Superintendent. Office, 117 Battery street.

BODIE TUNNEL—Nov. 12, 1877; capital, $10,000,000; shares, 100,000. Josiah Belden (President). G. F. Bowman (Secretary), J. A. Robinson (Treasurer), Frank Taglibue, and Geo. Daly. Office, 202 Sansome street.

SITTING BULL—March 9, 1878; capital, $6,000,000; shares, 60,000, Wm. M. Stewart (President), Wm. M. Lent, W. B. Carr, F. Taglibue, and W. H. Lent (Secretary). Henry Phillips, Superintendent. Office. Nevada Block.

MAY BELLE—Feb. 1, 1878; capital, $6,000,000; shares, 60,000. Wm. M. Stewart (President), Wm. F. Herrin, Wm. B. Carr, H. I. Thornton, R. C. Hooker, and Geo. C. Gorham, Jr. (Secretary). R. J. McPhee, Superintendent.

CONCORDIA—Feb. 4, 1878; capital, $6,000,000; shares, 60,000. Wm. M. Stewart (President), Frank Taglibue, F. K. Bechtel, Wm. F. Herrin, Geo. C. Gorham, Jr. (Secretary).

NOONDAY—March 6, 1878; capital, $6,000,000; shares, 60,000. Wm. M. Stewart (President), Wm. B. Carr, F. K. Bechtel, F. Taglibue, Wm. F. Herrin, and Geo. C. Gorham, Jr. (Secretary).

BOOKER—Capital, $10,000,000; shares, 100,000. John Neate, F. Horner, H. Williams, S. M. Booker, and J. P. Fouse.

NOTE.—The accompanying map is partly from actual surveys, and partly approximate in its locations of claims, etc. New companies will be formed, new locations made, and changes of names will take place, but a large number are established. [The Tioga Consolidated, for instance, is a claim created, since the map was engraved, out of certain ground hereinafter described.] Daily changes are taking place, of course, in the measurements of shafts, drifts, etc., but the general extent and character of work done is sufficiently set forth to render the publication valuable for ready reference.

DETAILED DESCRIPTION OF MINES.

The Standard.

The many changes of fortune and ownership of the old Bunker-Hill-Bullion property have been already outlined; hence, the description herewith will be confined to details of workings under the present proprietorship. In 1874, the ground became the property of Louis Lockberg and Peter Eshington—two Scandinavians. Owing to the loose manner in which the work had been timbered, a cave took place, exposing a rich chamber of ore. During two seasons subsequently, the proprietors realized handsomely from crushings made in the arastras, and raised the price of the mine to $75,000. Experts or agents of capitalists continued to report adversely, until in September, 1876, Geo. Story brought a bond of the property to Seth and Dan. Cook, who now own control of the mine. At their instance, John F. Boyd (also a large owner) proceeded to make an examination. He quickly saw that it was at least a safe investment. The price paid was $67,500. The work of extracting ore from the old

incline shaft was begun, and by the first of April, 1878, the Syndicate had commenced the reduction of near 10,000 tons. The company set about the erection of a 20-stamp mill of their own, using part of the machinery of the Del Monte, of Aurora memory. A tramway, with a wire cable near half a mile in length, costing $9,500, connecting the mill and hoisting works, was constructed. This is best described as an endless chain. It moves as regularly as a clock, its fifty black iron buckets (each holding 120 lbs., in all three tons) presenting the appearance of as many huge insects counter-marching, so to speak, up and down the mountain side, at an altitude of twenty feet from the ground. It has supplied the mill, and only running one-fourth of the time. Six additional pans having just been put in operation, increase the demands upon the tramway—increasing the capacity of the mill from 50 to 75 tons per twenty four hours. The saving of horse flesh and feed, wear and tear of wagons; the certainty of regular ore supply, no matter what the weather may be, combine to make this so-called railway a favorite institution. Out of the crushings of ore at the Syndicate mill the company realized a sufficient sum to pay for the mine, erect their own mill and the tramway, lay in supplies worth $40,000, and declare a dividend of one dollar per share, at the end of the first year's operations. The regular monthly dividend of a like amount has been since disbursed, with more than two years of such disbursements plainly in sight.

BULLION PRODUCTION.

Following is a statement of results produced at the Syndicate mill from April 18, 1877, to December 3, 1877:

Gross tons	8,050	
Net tons		7,204
Average assay in gold	$59 82	
Average assay in silver	3 55	$63 67
Bullion produced in gold	409,724 02	
Bullion produced in silver	18,594 18	428,318 20
Average yield per ton, gold	56 87	
Average yield per ton, silver	2 58	59 45
Percentage obtained, gold	95	
Percentage obtained, silver	.72 7-10	

At Standard mill from July 20th to December 31st, 1877:

Gross tons	5,865	
Net tons		5,254
Average assay in gold	$60 07	
Average assay in silver	3 45	$63 52
Bullion produced in gold	307,603 61	
Bullion produced in silver	14,297 57	321,901 18
Average yield per ton, gold	58 55	
Average yield per ton, silver	2 72	61 27
Percentage obtained, gold	.97 4-10	
Percentage obtained, silver	.78 8-10	

RECAPITULATION.

Gross tons	13,915	
Net tons		12,458
Bullion produced in gold	$717,327 63	
Bullion produced in silver	32,891 75	750,219 38
Average yield per ton, gold	57 88	
Average yield per ton, silver	2 65	60 23

The amount of bullion produced up to April 1, 1878, was valued at $1,002,160, showing an increase in the total of $257,941 during the first three months of this year, and from the one mill.

DEVELOPMENT, SIZE OF VEIN, ETC.

The company have a U. S. patent for ground of the Bunker Hill and West Bullion claims, 1,500 feet in length by from 800 to 1,200 feet in width. The mine is at present opened and worked by means of an incline shaft, on the line of the lode, to a depth of 850 feet. The dip of the vein to the west is at an average of 78 degrees. Drifts were run as follows: On the 200 level, south 400; on the 300, south 464 and north 487; on the 450, south 750, north 144; on the 550, south 350, north 60; on the 650, north 186—when visited the middle of April. Work has been progressing rapidly at various points since. The greatest length of ore body exposed is over 900 feet, located on the 450 level, above which the ore is chiefly obtained to run the mill. An estimate of the ore in sight, worth over $60 per ton, is 50,000 tons. Below the 650, no development is made beyond the mere incline shaft, which

shows a continuous vein of the usual width. In view of the rapid construction of the new shaft, 650 feet west of the old one, the incline will be eventually abandoned, so far as the general working of the mine is concerned. The Standard lode is rarely less than three, mostly five and six, frequently nine and ten, and occasionally fifteen, feet in width; the walls are uniformly perfectly defined—clean as to casings throughout, and therefore unlike many prominent mines, showing the wall on one side regular, but directly opposite, the other broken up. The ore is very soft, decomposed, and easily extracted; in crushing, the fall of the stamp is short, else the wear of shoes and dies would be considerable. There is an extremely fine clay in the vein matter, which also carries gold and creates a slum which must be managed carefully in the mill. Jas. M. Dawley, who has been amalgamator at both the Syndicate and Standard mills, has succeeded, first and last, in working the ore so close that the tailings do not assay above $1.50 per ton. Everything is put through the pans, but few chemicals are used, and the waste of quicksilver is but nominal. It costs to mine and mill the ore, $15 per ton; its average value, $62 per ton; the bullion is worth $10 to $12 per ounce. [The real cost of extraction and reduction of ore is perhaps one-fourth less, considering all the general expenditures of the company in the way of advance development and improvements. In view of the fact that it cost thirty—even sixty—dollars at Aurora custom mills for simple reduction of ores alone, this is significant enough as to the progress in mining!] The company have a supply of wood prepared sufficient to carry on all the works for two years, besides a large amount secured in addition.

THE NEW SHAFT.

Perhaps the most important enterprise, both for the future operation of the Standard mine and the final exploration of Bodie Bluff, is the new first-class vertical shaft. It is a three-compartment (two 4x4½, and one for pump, 4½x5), perfectly timbered, at present over 400 feet in depth, with work

progressing as rapidly as steam can push it. It was begun Dec. 1, 1877. Its location is so central with respect to the whole system of lodes, that crosscuts and drifts from the proposed 1500 level of this shaft, will be looked forward to with the most intense interest by all concerned in the future of the district. It has already cut through four ledges, having a slight dip west; No. 1, at 112 feet depth; 2d, at 187; 3d, 262 and 4th at 320. But it is the "mother vein" theory that makes this shaft stand out so essentially conspicuous, and the more the question is agitated, the more it looms up and overshadows all others in general and particular importance. The extreme dryness of the Bodie mines is well illustrated through the Standard works. Thers is some water in the incline shaft, but none as yet in the new shaft, though the company have made every provision for pumping.

The Syndicate.

Though the Standard Company must have the credit of originating and giving positive direction and impetus to affairs under the new regime in Bodie, the Syndicate was a prior organization. The company's ground consists of two patents 600 x 1,500 feet each, about 40 acres in all, including more than a dozen veins partially developed; also, millsite of 160 acres. They have special confidence in seven—the Isabella, Osceola, and New Mexico, dipping east; the Tioga, Red Bird, Orion, and others, pitching west. But two or three of the old works were in a safe condition to visit. Seven hundred feet of the Osceola was inspected by tunnel on line of ledge, which is from three to five feet wide, ore milling upwards of $30; 2,500 tons milled at Aurora averaged $40. The Bechtel is presumed to be the same lode south. The Isabella has a reputation for richness of ore; has shaft and tunnel. The New Mexico exposes ore 3 to 4 feet wide, a distance of 400 feet, and has milled as high as $50 per ton; 100 tons produced a $4,100 brick at Aurora. The Red Bird (200 feet east of main tunnel) milled in early days $110 per ton; has a shaft 60 feet. The Tioga has an ore body

3 feet in width and over 300 feet in length, that will mill, as estimated, $45. Work is progressing in the main Tioga tunnel, with cross-cuts and winzes, with satisfactory prospects. The new main tunnel, however, is the leading feature of this company's explorations. Ground was broken June 12, 1877, and it was expected to cut the Bechtel ground in one year, which they will perhaps succeed in doing. It is now extended over 1,500 feet; short cross-cuts at 1,000 feet. It is a fine piece of work, roomy, and adapted for supplying a great want with all the mines of the Bluff which it may reach. It runs parallel with and midway of the system, as best described by the diagram on page fourteen; cross-cutting from this tunnel (when 2,000 feet in the Bluff) will mean something, its depth from the surface being 700 feet. It is in hard porphyry, Hercules powder coming into general play. The old 16-stamp mill, first improved with new pans, has just been reconstructed as to the battery, making it about as good as new, and of 20-stamp capacity. It served the Standard Co. a good purpose as a custom mill last year, and what with that and a large crushing from the Bechtel last winter, the Syndicate Co. have been enabled to push exploration without assessment. It will doubtless do additional custom work, a mill of that kind being very much needed. Ultimately the company must have ore of their own sufficient to run more than one such mill at a profit. The mill is situated at the mouth of the main tunnel, at the base and extreme north end of Bodie bluff. This company have two years' supply of wood secured; their plan of operations will require years to carry out. They have altogether a great mining property; in short, as Ross Browne said years ago, "the Tioga, New Mexico or Isabella alone would be a suffi-"cient source of income for any ordinarily well managed "mining company."

The Bechtel.

The old San Antonio lode, upon which the Bechtel company are extensively and successfully exploring, is doubtless the extension south of the Osceola with an eastern pitch.

The company's ground is 1000 feet in length by 600 in width. A shaft 130 feet in depth was sunk when the present company began operations, Nov. 6, 1877. It has been continued to a depth of nearly 500 feet, with corresponding drifts, winzes, etc. On the 170 foot level, drifts are run—north, 290, and 70 south. On the 250 level, north 170, and 165 south. On 350 level, drifts north 82, and 102 south. In the south drifts, a winze connects the 250 and 350 levels, and shows a vein two and one-half to three feet of good ore. A large body of rich ore taken from the south 250, gave the mine a high reputation in the stock market last winter. At a low estimate, there are 15,000 tons of good milling ore exposed, which will produce from $30 to $40 per ton. Steam hoisting works are a feature of the property, which will probably include a mill at no distant day. The Syndicate mill is expected to resume the reduction of Bechtel ore; over $40,000 in bullion being produced at this mill from said ore, previous to its shutting down last winter. The bottom of the shaft, as per latest advices, gave no signs of failure; and though the lode may vary in size, as all do, it is safe to say the Bechtel is a true fissure vein, if any exist on the Bluff, and that it will be worked at a profit indefinitely. An important feature of the Bechtel property, is a stock dividend, through an adjustment of interests in connection with the Tioga Consolidated ground, including the Standard north. The ground is surveyed and U. S. patent applied for.

[Since the foregoing was written, announcement was made that the Sherman mill (15 stamps), of Silver City, Nev., will be moved to Bodie at once and erected, on a contract with the Bechtel Co., by J. C. Kalmus. This will prove of timely assistance to the entire district.]

The McClinton.

This ground partly joins the Bechtel on the south, is 800 feet in length and as wide. (Patent applied for.) A whole group of veins, of more or less size and richness, go to make up a valuable property. Steam hoisting works over a 300

foot, double compartment shaft, well timbered, are substantial evidence of the company's faith in the same. One of the notable veins, years ago, was the "Jayhawk," one of the McClinton group of seven or eight. The ore was exceptionally rich, and "jayhawking" it was a profitable business. Ore from this lode milled at Aurora from $135, to $525 per ton. Judge McClinton held on to and worked this ground for ten years previous to the organization of the company, which as yet are doing but little in the way of extraction of ore, but are confining operations to an excellent plan of exploration. Crosscuts, 50 and 60 feet east and west from the lower level, are progressing; also drifts, 100 feet north and south. The Eshington vein, one of the series, and presumed to be the south extension of the Bechtel, is exposed 3 feet in width. The west crosscut will test the continuance of the Watson, Tiger, Jayhawk and others, all of which pitch to the east, and crop out prominently about High Peak. The Jayhawk is found two feet wide and rich on the 300 level, and it will be singular indeed if the company do not among all these rich, well defined lodes, develop ore within a very few months sufficient to employ a mill of their own.

The Belvidere.

This ground is south of and adjoining the McClinton, is 1,500 feet in length, 300 in width, and also contains several lodes of historical interest. (Patent applied for.) The old Washington was specially a favorite, ore from which milled $200 or $300 per ton. It is probably the Eshington south. The Savage and Yellow Jacket were also considered good veins, and all three were explored by tunnels, winzes, etc. A main tunnel was run 280 feet; that on the Washington, 160; on the Savage, 175. Doubtless there are many tons of valuable ore yet exposed, but the present company confine their operations to a main shaft 200 feet, with over 100 feet of cross-cuts, with conspicuous showing of vein and vein matter, dipping east. It is the intention to erect steam hoisting works, and sink a new shaft for final operations; a whim is used at present, and good progress is making.

The Bulwer.

This ground lies eastward and alongside of the Belvidere, and contains the old Homestake lode, for which the mill was erected, made a failure of by Brewster, and was finally moved by Gov. Blasdell to Rocklin. The claim is 1,500 feet in length and 200 in width. (Surveyed and patent applied for.) The old Stonewall lode west and Potosi east of the Homestake, are part of the Bulwer ground. A shaft was sunk on the Homestake 144 feet, and continued by the present company to 200, with drifts south and north about 200 feet respectively. The Homestake lode split up at bottom of old shaft. From $100,000 to $200,000 was obtained from this lode, according to old accounts; some make it $300,000. At all events, there is one good vein exposed below; in the south drift it opens out at one point 10 and 12 feet in width. Its general width, of 2½ to 3 feet. It is evident that all have come together. Incline of Bulwer lodes east is very slight, showing a very central location with respect to the entire east and west series and mother vein. A whim is employed to hoist with. Work began Sept. 16, and it has evidently been as speedy as systematic. Connection with the new Standard shaft is a main feature of the future plan of development and ore extraction. Latest and trustworthy advices place the amount of superior milling ore in sight as sufficient to employ twenty stamps indefinitely.

The Bodie.

Some locations and prospect holes south of and adjoining the Standard ground, were designated as the "Lucky Jack." The great amount of debris tumbled down there seemed to make "blind" work of it all, prior to the present company's systematic labors. Steam hoisting works, of capacity to sink 600, have assisted in sinking a shaft 250 feet, w th a west crosscut of 350, and passing an excellent looking 2½ foot lode, 306 feet west from the shaft; work was begun last August. In the south drift, on this vein (285 feet), it widens

out to four feet, and with the proposed winze, 150 feet from crosscut, and 150 deep, the prospects for a large body of valuable ore are most flattering. The lodes dip west of course. An upraise will connect a north drift with a south drift in the main Standard. It is safe to place the Bodie on the list of future paying mines. The claim is 1500x600 in extent. (Patent applied for.)

The Summit.

East of and adjoining the Standard, the Summit company have a valuable claim, 1500x400 in dimensions, containing one lode with an incline shaft 130 feet in depth, on line of vein, which pitches west. At 100 feet, the lode widens out to 6 feet, and is uniformly large and well defined. Forty tons of the ore milled at Aurora $70 per ton. It promises to develop a superior quality and quantity of ore. The work of exploration, however, is entirely out of sight, being a crosscut from the 450 level of the Standard mine, and 65 feet north of the incline shaft, out of which all ore and dead work of both are extracted. This crosscut is in hard blasting, a distance of 500 feet, and must soon cut the lodes.

The Black Hawk.

A claim 1500 feet in length, and partly lapping alongside of the Syndicate, on the northeast portion of the Bluff. It was opened first by an old tunnel. The present company began work in October, with a substantial whim, and a double car incline shaft, that is altogether a fine piece of machinery. The incline is at a depth of 250 feet, and well timbered. There are four veins, varying in width from 1½ to 2½ feet, and all apparently gradually coming together. They pitch west; the incline shaft on the line of one, being at an angle of 50 deg. Good milling ore in considerable quantities is being extracted and hauled to the Mono mill.

The Tioga Consolidated.

Bounded by the Standard, Syndicate, Bechtel and Black Hawk ground, is that above named, and is probably 700x600

in extent. There is a shaft 200 feet deep, with some cross-cuttings. In the west cross-cut, at a depth of 100 feet from the surface, a vein of very rich decomposed ore (that which will mill $200 per ton) has been passed; it is doubtless the main Standard north, and destined to quite maintain the reputation thereof. [Reference is already made of the stock dividend to the Bechtel.]

The Pacific.

Judge McClinton has been developing a very promising piece of ground, called Pacific No. 1 and 2, the former being the south extension of the old Jayhawk. A shaft 45 feet deep was sunk and a long cut made, showing two and three feet of ledge, the ore, near McClinton company's line, having milled (20 tons at Aurora) over $200 per ton. Ore from No. 2 vein milled $35 to $60. A tunnel, 180 feet, is run on the latter, and a crosscut is projected into No. 1, cutting it at 40 feet lower than it was ever worked. The Pacific is a valuable property, there being already exposed ore worth many thousands of dollars.

The Red Cloud.

Leaving the main Bluff, and proceeding south to Silver Hill, there is a new formation; the tests of ore showing a rapid change from gold to silver. The bullion produced from the Red Cloud was rated at about $5 per oz. The Red Cloud ground is 1500x600 feet in extent, and located on the northeastern slope of said hill, at the base of which, in Taylor's gulch, very rich placers are claimed. (Patent applied for.) The present company have confined their operations chiefly to systematic development, though a large quantity of good milling ore could be readily extracted. Has a shaft 250 feet in depth, with drifts, crosscuts, etc., in good shape, besides steam hoisting works and comfortable quarters. The new shaft is 110 feet west of the incline sunk on the line of the discovery claim by the original owners, who, from a chamber 25 south, quickly realized a handsome sum. The

ledge was nine feet wide. On the 126 foot level, in the new shaft, there is a drift north 85, and one south 70 feet, exposing a vein four or five feet in width of good milling ore. In south drift, the ledge is 12 feet in width at one point. The lode is generally well defined. Cross-cutting is also progressing in the lower level; is over 90 feet east. The lode dips west to a depth of 150 feet, where it seems to straighten up as if the whole formation were assuming an eastward inclination. The work of ore extraction above the 126 level is —as per latest advices—already begun, and doubtless the Red Cloud will give a good account of itself before the summer is over. The main shaft is also being sunk over 100 feet deeper. Ex-Governor Blasdell of Nevada is the leading spirit of the Red Cloud Company.

The May Belle.

This was the old Baltimore-American, adjoining the Red Cloud north. Has four shafts—two 60, a third 100, and the fourth 140 feet deep, and some cross-cuts. A great amount of vein matter is exposed, carrying both gold and silver. It is a big prospect, and a whim has just been erected for the purpose of deeper development, under the auspices of ex-Senator Stewart.

The Goodshaw.

West of this, and adjoining the Bodie Co.'s ground, is said to be the oldest quartz location in the district—old man Bodie himself being one of the locators, calling it the "Montauk." Be that as it may, the vein is a large one, three feet as a rule, with three shafts 30, 40 and 60 feet deep. The ore assays high in both silver and gold, and now that work is being pushed with vigor, this old ground may prove second in importance to none in the district.

The Spaulding.

This company have 3,000 feet of ground, including the old Gov. Booth and Sundown claims on west side of district.

An incline shaft on line of the Booth, to a depth of near 200 feet, shows a vein well defined three feet in width, the ore assaying on the average $200 per ton, of which there is enough on the dump to make a good mill test of. The ground is surveyed for patent, and the work of development going ahead undelayed, and with better than average prospects for becoming a paying mine. Steam hoisting works are to be erected soon. Eastern people are considerably interested in the Spaulding, the name of the incorporation being that of a resident of Boston, Mass.

The Booker.

The old Bullwhacker lode is in this neighborhood, with a shaft of about same depth, showing a three foot vein, assaying well; corporate name as above.

The Noonday.

Also in same locality, with eighty foot shaft; extensive cross-cut and work progressing, by ex-Senator Stewart and others.

The Richer.

Going south to a new discovery in a new part of the district, as it were, and the above claim is reached at the southern base of Queen Bee Hill. Locations had been made and considerable work done farther north and pertaining to this Hill, but none at so low a level and with such exceeding rich prospects anywhere as the Richter (incorporated as the "Richer.") The old Queen Bee (now Gov. Hayes) is a large vein, six feet in width, but the ore is of a rather low grade as far as developed in an 80-foot shaft. The discovery in question was made by A. M. Richter—a German of decidedly cosmopolitan habits; a successful prospector in South Africa, Australia, British Columbia and elsewhere on the Pacific Coast. He was looking for placers last December among the willows around a spring, and run on to this deposit of vein matter, which rapidly assumed the phase of a

large and well defined lode. A tunnel 70 feet was run, showing a ledge of decomposed ore and rich clay, seven to eleven feet wide in places, not much unlike the Standard, assaying from $100 to $1,000 per ton. The company is composed of some experienced men, with means to carry out a substantial system of exploration, and build a mill if necessary. This discovery gives promise of developing into a regular "mother vein" mine, and may even solve that interesting problem for Bodie District. Prospecting is naturally brisk all about Queen Bee Hill, and curiosity will increase indefinitely. Systematic development has but barely begun. New steam hoisting-works, with capacity to sink 600 feet (in all, considering the lower altitude, 1200 below Mt. Bodie summit) have been contracted for. Messrs. Coughonaur, Warnkee, Lytle and Wadsworth are experienced and successful miners, with means and determination to go to the bottom of their big prospect under Queen Bee Hill.

South Standard.

This claim is about in the center of the whitish formation spoken of in connection with Silliman's report. It would be a good thing, perhaps, for the district, if a very deep shaft were sunk at this point. The present one is only 200 feet as yet, but is a good piece of work, with cross-cuts, and veins of quartz are found that assay well in silver. The dump—the whole formation—looks much like Comstock ore. The work is progressing under the auspices of Virginia parties—Col. C. C. Stevenson and others.

Aurora Tunnel.

This is now an important enterprise, more of the nature of an extensive cross-cut under the surface, for the purpose of discovering and locating blind lodes pertaining to the backbone between Bodie Bluff and Silver Hill. The claim is 3,000 feet in length, and extends across the entire series of lodes in the district. It has entered the ridge from the east side near 1,000 feet; an air shaft is cut through from

above, and at 500 feet from the mouth a winze 100 feet deep is sunk. Several locations of vein matter have been made, and some very auspicious indications noted for further exploration. At 765 feet from the mouth, 15 feet of vein matter—a solid character, and of sufficient richness to justify a thorough system of development—is located. Enough is already demonstrated to characterize the Aurora tunnel as a leading and permanent enterprise.

The Bodie Tunnel.

This old work—mentioned by Prof. Silliman—has temporarily suspended operations, owing to a financial hitch, which will probably be, as it should, remedied at no distant day. About 480 feet of the solid part has been completed, with about as much more remaining to do ere it cuts across the Bechtel series at a depth of 600 feet from the surface, penetrating the very heart of Bodie Bluff in a transverse manner. When work was first begun on this enterprise—17 years ago—it cost $20 per foot; now it can be done for $8. The advantage this tunnel would be, both for prospecting veins, draining and extracting ore at all seasons, cannot be overestimated. Besides, the company own a valuable mill site at its mouth, including living springs.

The Bulwer Tunnel.

The Bulwer Co. are rapidly extending a tunnel from the west side of the bluff, for the purpose of cutting their ground at a depth of 400 feet. It will pass through the Pacific and Belvidere claims, and must be of invaluable service to all concerned. This tunnel is now extended over 700 feet. It will connect at a corresponding depth with the cross-cut putting west from the new Standard shaft.

Last, but not Least.

There are a score of claims upon which work enough has been done to warrant more than a mere mention, but want of space forbids. It is intended to resume work upon the

Sitting Bull, a 3-foot vein just west of the Bechtel, with a 60-foot shaft. Also, on the Ida, east of the Black Hawk and Summit; it has a shaft eighty feet in depth. There are the Requiza, Addenda, Brooklyn, Linden, De Facto, Moonlight, Concordia, Enright, Atlee, Old Dan, and others; some having a fair amount of work done, and more or less doing at intervals, with at least average prospects.

Mono Mill.

This is the old Humphreys mill of Silver City, recently moved to and rebuilt about four miles below Bodie, by Col. C. C. Stevenson and others. It has four stamps, with capacity for eight, and has begun to crush ore from the Black Hawk mine. It is a timely enterprise.

Mono Lumber Co.

In accordance with a well matured, far reaching plan of development and operations in Bodie, and to guard against high prices of lumber, timber, and fuel, the Messrs. Cook, Yerrington, Haynie, and Graves, have secured a valuable timber tract just south of Mono Lake, with water privileges for operating flumes, and sooner or later will float their own lumber, etc., down to and across the lake, from where there is a good road to Bodie.

Conclusions.

The crudeness and extravagance incident to mining years ago in Bodie and elsewhere, are conspicuous here for their absence under the new dispensation of affairs, and with the present excellent system of exploration carried to its legitimate conclusion, a new and greatly enlarged history of Bodie may be required. Wood, timber and lumber were at the maximum figure during the past six months. Hereafter, all these materials will be as reasonable as to price as at any point east of the Sierras.

It must be borne in mind that, outside of the Standard, development of the Bodie mines has but fairly commenced,

and definite results cannot be expected for at least one year to come. Perhaps an overplus of population—a sort of rush—has been a damage to all other business, for the time being. Time will adjust these matters. There seems nothing to prevent the employment at a profit of half a dozen twenty-stamp mills in Bodie district before the close of 1878.

EARLY HISTORY OF ESMERALDA.

First Discovery.

"Comrades," shouted suddenly one of the young knaves on the window seat, "la Esmeralda!" * * "But I wish Satan would scourge me if I know what they mean with this word Esmeralda! What is the word—is it Egyptian?"

One year subsequent to the Bodie discovery, Jas. M. Braly, J. M Cory, and E. R. Hicks extended explorations a few miles further east. In the summer of 1860, Braly and Cory (from the Santa Clara Valley), after glancing at the surface croppings and workings on the Comstock, procceded to the Mono country; from thence, accompanied by Hicks (a part Cherokee Indian), they made a detour eastward toward Walker Lake, swinging round south and west to the immediate neighborhood of the mines in question. South of Walker Lake, there is a prominent mountain bearing Cory's name. It has been related that Hicks brought into camp the first specimen of Esmeralda quartz, picked up while hunting rabbits. Mr. Braly, in a letter dated at San Jose, April 23d, gives the following version, which puts the whole matter in a nutshell:

"We camped near the race track [a grassy flat at the head of Willow Gulch], Aug. 21, 1860, late in the evening, having left Cory's Peak that morning. Next morning (Aug. 22,) we moved camp to near where the brewery now stands [a secluded spot at the head of Esmeralda Gulch]; finding good grass and water, we stopped for the purpose of resting a day or two. After turning our animals loose, I went over the hill across the main Esmeralda lode, and found the first silver ore discovered, on the Winnemucca lode, at a point where we subsequently set the center stake of our claim on that lode. The next ore was found by Mr. Cory, the same afternoon, near the south end of the croppings on the Esme-

ralda lode. This we considered the most important prospect for a mine, after finding ore in some veins of minor importance. We posted notices of location on four claims, the 25th of August: the Esmeralda, Winnemucca, Cape and La Plata. We then went to Monoville for supplies and returned about the last of the month, about fifteen men accompanying us, when we organized the district, adopted mining laws and elected a Recorder. 'Then the trouble commenced.'"

First Records.

"At a meeting of the miners of Esmeralda district, held at Braly, Cory and Hicks' camp, Aug. 30, 1860, Dr. E. F. Mitchell was chosen President, and Jas. M. Braly Secretary," and a code of laws containing twenty sections (including a resolution to have the proceedings published in the *Territorial Enterprise*, Virginia), adopted, beginning as follows:

SECTION I.—This district shall be called Esmeralda district, and shall be bounded as follows: A line commencing at a point five miles north of the discovery claim on the Esmeralda lode, running east five miles; thence north ten miles; thence west ten miles; thence south ten miles; thence five miles to the place of beginning.

Then follows a description of the first location (the Esmeralda, made five days previous), with the names of Josiah Belden, Dr. Benj. Cory, J. C. Braly and Dr. G. Monckton, in addition to those of the discoverers. The Real del Monte claim on Last Chance Hill, was located Aug. 31, by J. E. Clayton, L. McKinstry and A. D. Allen. By Oct. 25, 357 claims were recorded. Mr. Braly (the first Recorder) realized handsomely from the office.*

*It is proper to add that the discoverers of Esmeralda district were not so unfortunate as such men generally are—Braly and Cory returning to Santa Clara county, Cal., with over $30,000 each, and being prudent men, realized on that again. Hicks started for Arkansas with over $10 000, but it is not known whether he benefited farther; in short, he has never been heard of since. Probably the most melancholy fate of any successful operator in Aurora, was that of Alex. Gamble (of San Francisco), who became a millionaire out of del Monte and other operations, but who is now perhaps worse than bankrupt—seemingly broken spirited. He was once principal of a leading college in Maine, but the school kept there was tame enough as compared with his more recent inculcations on Last Chance Hill.

A town called Esmeralda was staked off at the original camp (the brewery site), but the drift of discovery north soon resulted in centering the population at the junction of the three ravines created by Silver, Middle and Last Chance Hills, where Aurora grew into prominence. The name of "Esmeralda" was a pet one with Mr. Cory, and was obtained from Victor Hugo's novel, entitled "The Hunchback of Notre Dame," in chapter 6 of which the gay dancing girl (the heroine) is brought upon the scene. The Esmeralda excitement was a wild dance of death or disappointment to thousands; any piece of paper having the word printed on it commanding high figures for a year or two, and being as valueless, comparatively, as Confederate scrip by the spring of 1865. In the first constitutional convention of Nevada, a member from Esmeralda insisted upon naming "the battle born State," after that of his favorite county.

Progress of Affairs.

Although exceedingly rich prospects were obtained on a score of claims, and work of an unsystematic character was performed on hundreds, no particular excitement was created until the fall and winter of '62-3, when the Wide West bonanza was discovered. The first mill, however, was erected in the spring of '61 by Edmund Green. It was located in the ravine, just below the rich claims on Last Chance Hill. Mr. G. was Superintendent of the Wide West, and speaks of the ore chamber as wide enough to "turn a wagon and horses in." The ore chutes of the Wide West, Johnson, Chihuahua, Pond, and del Monte, covering an extent of ground over 1200 feet in length, were all of a character as to richness and size, and out of them the bulk of the bullion was produced. A dozen other claims contributed more or less to the total bullion production, as the Utah, Ural, Garibaldi, Young America, Live Yankee, Empire, etc. Middle Hill, next south, was comparatively untouched, though evidently the most solid formation for deep exploration in the district. Silver Hill, the most southern point of interest, is about as much broken up on the surface as Last Chance,

yet much work, after a kind, was performed; the Antelope claim producing a great deal of bullion. Mining those days on the part of every one, as a rule, consisted of exhausting the surface deposits, regardless of what might be below a certain level. The Esmeralda people appeared to be a sort of lost tribe, considering the rich ore as manna fallen from above, and after "gobbling everything in sight," getting "out of the wilderness" as soon as possible. By the spring of 1864, no less than seventeen quartz mills were erected in the district, ten of them being in operation; the Wide West, new del Monte, and Antelope mills costing in all more than half a million dollars. Excepting the last named, and two small affairs, all of those seventeen structures, many of which were costly, are missing; the machinery being carried off to other districts. In 1868, the Union mill in Aurora was torn to pieces simply for the purpose of securing the large quantity of rich amalgam wasted around the battery and pans, so reckless and extravagant had things been carried on in early days. Doubtless several millions of dollars floated off down the creek toward East Walker river. Rock that would not mill at least $75 per ton, was cast aside, and no doubt many thousands of tons of ore that would pay well to mill, lie around loose yet, though the crevice miners, the "coasters," have culled things pretty closely. For several years subsequent to the great excitement, the old rich ore chambers constituted a sort of empty sugar barrel, out of which, like street boys, they obtained many a sweet toothful. John Neidy, present district Recorder, a man of good judgment, was a large operator in this way, realizing in the course of three or four years, over $75,000. This coyote work has left most of the old shafts, drifts and tunnels, such as they were, in a state of confusion worse confounded. They were started everywhere and have ended nowhere.

Total Bullion Product.

It has been the most vexatious and difficult matter to get a satisfactory statement of the products of the Esmeralda mines, first and last, and as yet only an approximate esti-

mate can be given. Much was stolen or carried off, of which no definite account ever can be given. Direct inquiry at Wells, Fargo & Co.'s office in San Francisco elicited the information that all records of the kind were destroyed prior to 1870. In reply to letter on this subject, J. S. Jameson, presiding Judge of the District Court of Esmeralda County, and who was formerly in the express office at Aurora, says (Aurora, May 5):

"I was in the office over five years, and made all the reports, but I have forgotten the exact figures. I have no recollection of the amount sent by each company respectively. My recollection is, however, that in the year 1864, between $7,000,000 and $8,000,000 were forwarded from the office here, and that about $12,000,000 altogether was sent away prior to the year 1869."

The assay office of Krous & Reese, at Aurora, according to the best recollection of Mr. Reese, who resides in San Francisco, handled about half a million per month for a period of about eighteen months in succession. [His old books are still in existence, but at present inaccessible.] These are perfectly trustworthy accounts so far as they go, but will not have the weight that exact figures, dates, etc., would. In answer to a letter written to J. M. Dormer, editor of the *Herald*, at Aurora, requesting him to search the records there, he says (under date of April 30):

"I enclose you the following table compiled from the books of the old express company. I think it contains only such gold bullion and dust as was shipped by Wells, Fargo & Co., without insurance, for the receipt book is not to be found here, and this table only appears to cover part of the bullion product of the camp. In the same books from which this summary was taken, I find 60,000 lbs. of bullion with no marked value; the weight is all that is given.

Shipped in 1861	$43,417 28
" " 1862	173,148 82
" " 1863	546,019 16
" " 1864	952,023 29
" " 1865	237,185 23
" " 1866	158,162 77
" " 1867	130,656 89
" " 1868	98,188 88
" " 1869	27,116 50
Total	$2,365,918 82

For the present, these figures must suffice for correct data. When Mr. Reese gets at his books again, something more definite will be obtained, so far as a single assay office was concerned; there being others engaged in the business at Aurora during the period in question.

Cause of the Decline.

On this head, Judge Jameson also writes:

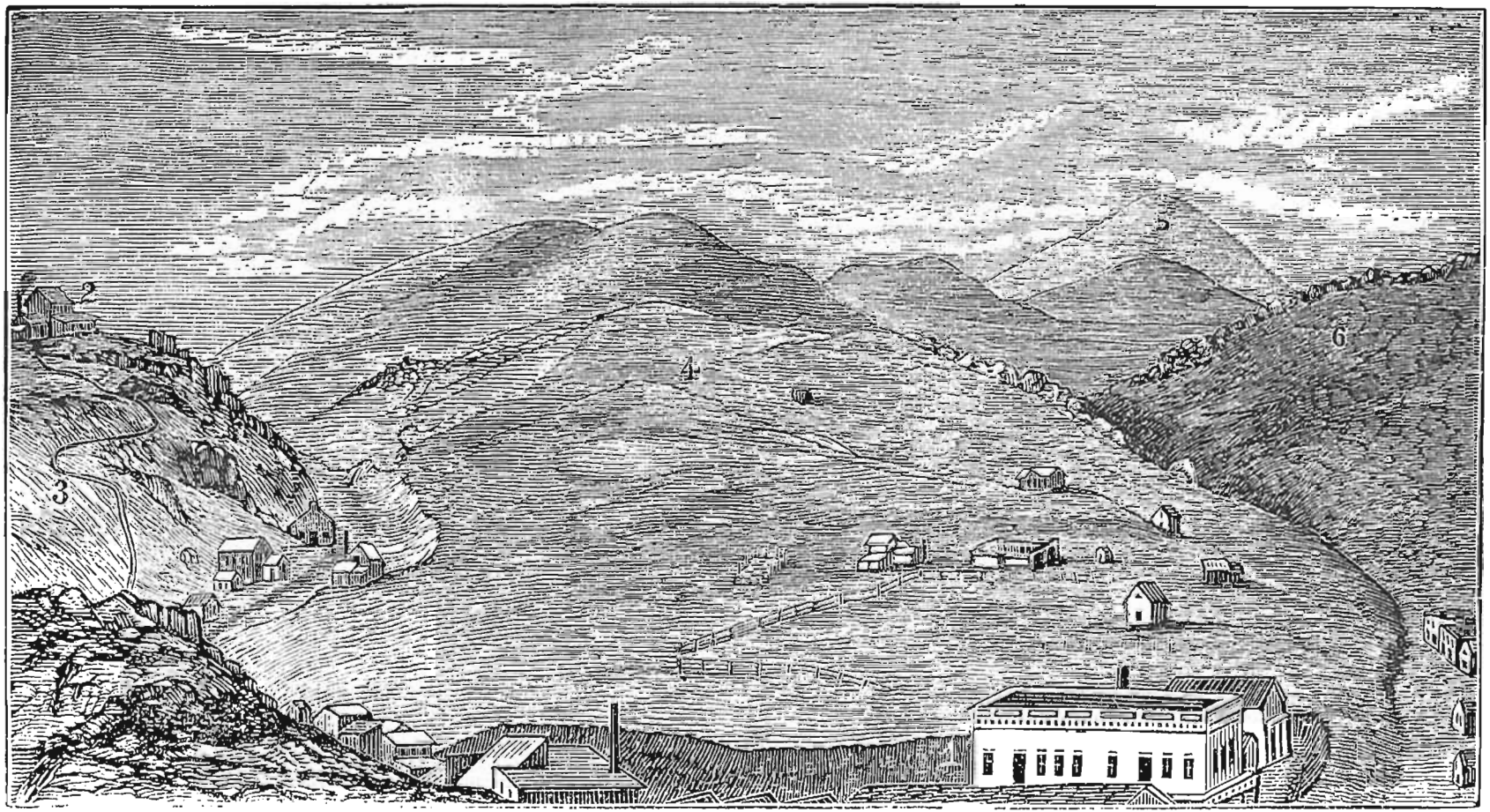
"My idea of the cause of the decline of the district, and I believe the generally received opinion is, that just at the time (1864-5) the rich surface deposits became exhausted there was a great and general decline in all mining shares, and this, together with a great amount of litigation in regard to conflicting titles, caused stockholders in the various companies to refuse to pay or furnish the money necessary to prospect the mines to any great depth below where the surface deposits had given out."

In other words, the surface deposits on the Comstock were exhausted, the shares dropping in value after the manner of Wide West and del Monte, which were at one time selling at $500 and upwards. [The law suits between the Wide West and Johnson claimants; the del Monte and Pond; the Antelope and Young America, etc., forming a history of themselves. It cost the del Monte about half a million for lawyers and shot-gun men. The labor performed on Last Chance Hill presents to-day much the appearance of a military redoubt, or series of intrenchments, where hand-to-hand fighting took place] It became a question with the late W. C. Ralston, the boldest of operators, of abandoning either the Comstock or Esmeralda mines. It was decided, at least, to sink deep under Mt. Davidson, and Mt. Braly, with its surrounding treasure hills, was left a solitary sentinel, as it were, over the most interesting ruins in the history of mining. Ralston, however, never gave up the idea of thoroughly prospecting Esmeralda district, and especially Last Chance Hill, and to that end started up the old Juniata works at the extreme eastern base of Humboldt and Martinez Hills; first, in 1872, and again in 1874. But this work was of a fitful character, not in a favorable locality, and on the occasion of his death, was entirely stopped. The Bank of California fell heir to all of the leading mills and mines, and out of this it may yet regain its former prestige.

THE AURORA OF TO-DAY.

The Old and the New.

The town-site is high (8,000 feet), Mt. Braly in the background (10,000 feet); the climate healthful. At one time Aurora had a population estimated at from six to ten thousand, containing many substantial and presentable brick buildings. About a dozen of the latter yet remain, and being in particular demand. [Buildings that were sold for taxes one year ago, now being valued at from $10,000 to $12,000 apiece.] After 14 years of neglect, the locusts are returning, and with a view of remaining indefinitely. So much depends upon the working of the new del Monte, however, that speculation on that point is useless. Hundreds of wooden buildings were consumed as common fuel, a few of the very first and most worthless yet standing, affording a curious mixture altogether. "Mark Twain's cabin" is becoming somewhat mythical; the stories about him, however, grow apace. Incidents of the blood and thunder order, enough to fill a volume, could be related of early days, before and after the State line was established, when criminals had a roving commission. September 16, '63, Aurora was found to be upwards of three miles inside the State (or Territory) of Nevada, instead of in California, as previously supposed. Notwithstanding, a duel was fought in October following, the attempts of the respective Sheriffs of Esmeralda and Mono counties to prevent, practically seconding it. The editor of the *Times* was duly wounded and honor was satisfied. Those were war times, locally and generally. The pioneer journal —the Esmeralda *Star*—was first issued on brown wrapping paper (May 7, 1862), no one caring to father its high-sounding political platitudes, there being no name at its head as editor or proprietor. Evidently a "court-house clique" existed at Aurora then, as there probably has since. For ten years, the county seat, Post and express offices, two or three stores and as many saloons, constituted (as Tyndall might say) the protoplastic "power and potency of every form of life" in and about Aurora. The *Star* of Feb. 13, '64, contains



1. Court House and Herald Office.
2. New Real del Monte Hoisting Works.
3. Last Chance Hill.
4. Middle Hill.
5. Mt. Hicks.
6. Silver Hill.

a double-page account of the hanging of four men (Daly, Buckley, Masterson and McDonald) for the murder of W. R. Johnson, a packer. So long as the roughs slew each other, no one interfered, but on this occasion the people arose and smote them—the stampede of the "fighters," as the story goes, seeming to carry the "luck" of the mines with it. When telegraphic connection was made with Aurora (June, 1863), "cipher" dispatches were not in vogue, and operators took advantage of information—"points on stocks" passing over the wires—one named Williams making considerable money, but finally getting sent to State's prison. The Aurora wire dragged on the ground—a skip rope for the coyotes—for years, ultimately being taken up and made to connect Austin and Belmont. The Bodie wire (constructed by Hon. J. W. Haines of Genoa) will doubtless be extended to Aurora at once, and should they "strike it rich" in the del Monte, the Esmeralda *Herald* (started as a weekly, Oct. 13, 1877, by Frank Kenyon) may be converted into a daily ere the close of the present year. Aurora at one time had two daily and one tri-weekly newspapers, and stranger things may happen again.

THE NEW REAL DEL MONTE.

Origin and Organization.

The success of the Bodie mines under new and enlightened management, led to the selection, by practically the same parties, of a portion of ground out of the Juniata and Last Chance patents, for a new deep shaft and system of exploration. The segregated ground is in extent 1000 feet square. The company was incorporated Oct. 15, 1877, with a capital of $5,000,000; 50,000 shares. Officers—H. M. Yerrington (President), N. K. Masten, R. N. Graves, Daniel Cook and A. J. Ralston. Andrew Baird, Secretary. Geo. Daly, Superintendent. Office, 304 California street. The Juniata company had secured a large and important tract of ground, covered by U. S. patent. The company was incorporated Feb. 27, 1872; capital, $5,000,000; 50,000 shares. J. D. Fry

(President), A. K. P. Harmon, A. J. Ralston, Wm. Sharon and J. H. Dobinson. Same Secretary and office as del Monte. All work, however, is centred on the new del Monte. The syndicate is a strong one, including Mackay and Fair, Sharon, Mills, the Cooks, Yerrington, Capt. Haynie, Baldwin, Boyd, Judge Belden and others. Surely, here should be obtained a good working capital for at least one deep shaft, with ample drifts and cross-cuts. The stock is not quoted in the market.

The New Works.

Mr. Daly is making a fine piece of work of the new shaft, which is a first-class three-compartment; two 4x6 for hoisting, and one 4x5 for pump. (Ground was broken, Dec. 5.) The engine, running a double reel, is of capacity to sink 1500 feet. Everything is under good cover and in good shape. The shaft near 400 feet in depth. A station has been established at 300 feet, where the shaft passes through a six foot body of quartz that assays well. Cages are ordered, and preparations making to drift and crosscut. Over thirty men are employed—three eight-hour shifts in the shaft. The formation is porphyritic and generally compact, requiring constant use of powder. As yet, all the water encountered is carried up with the rock. A pump will be ready, however, for all ordinary emergencies, and nothing but an earthquake or volcano will be likely to interrupt the carrying out of a programme whereby Last Chance Hill, at least, will be as thoroughly and systematically explored as any like extent of mining ground in the world. The past history as to bullion production of Esmeralda alone justifies it; the natural formation sanctions it, and there seems to be a fatality about the two districts in question that makes it a proper thing to do on general principles.

OTHER MINING MATTERS.

It is a part of the Real del Monte programme to thoroughly overhaul the Antelope mill, and be ready for any developments. The company have two years' supply of wood

secured. Relocations under the U. S. laws have been going on for years, of late very brisk. Patents have been obtained for a number of claims in addition to the Juniata—as the Antelope, Esmeralda, Lady Jane, Utah, Cortez, Sonora, Garibaldi and others. Work is expected to resume on the Antelope and Seminole, by individual owners.

GEOLOGICAL FORMATION AND OPINIONS.

Government Official Reports.

The following summary of Esmeralda District is found in the report for 1866 of R. H. Stretch, an able, careful observer of matters geological, and who was State Mineralogist of Nevada at the time:

The mines of Esmeralda are found in a bluish gray porphyry at the base of Mount Braly, the quartz veins disappearing when the basalt and other rocks by which the porphyry is surrounded are reached. The greater portion of the locations are included in an area three miles north and south, by two in width, and lie chiefly south and east of the town of Aurora.

The majority of the veins have a course nearly coincident with magnetic north, and traverse a series of hills, commencing at the south with Silver Hill, and running across St. Mary's, Middle, Last Chance, Martinez, and Humboldt Hills, to the north end of the belt, the principal locations being in Silver, Middle, and Last Chance Hills.

The veins have a quartz gangue; vary greatly in width, from one or two, up to many feet; and may be classed under what are frequently denominated "pocket veins," or such as have the ore concentrated in bunches with barren ground between. This circumstance has operated powerfully to their disadvantage; the loss of the ore when a pocket or chamber was worked out, creating an unnecessary amount of alarm. The dip of the lodes is to the east, varying from nearly flat to vertical. It must not be supposed from the immense number of locations, that there is a corresponding number of veins—many of the locations being on the same lode, in different portions of its extent, and others having no more foundation than a boulder, or a small slide detached from some vein located higher up the hill. If carefully and economically managed, the mines of Aurora may yet occupy a good position among the almost countless districts of the State.

In Ross Browne's report to the Federal Government, 1867, the following statement is found, concerning Esmeralda:

"It is the opinion of geologists that most of those disturbances are confined to the first few hundred feet beneath the surface, and that below that point these ledges, which promised so well, and some of which really were so rich above, will again be found regular, compact, and most likely highly metalliferous."

The old workings on Last Chance Hill were seldom over 125 feet, most of the bullion being obtained at 90 or less. The present State mineralogist of Nevada, Mr. H. R. Whitehill, a very capable and conscientious official, among other things, in a letter recently said: "I have always thought well of Last Chance Hill, and am somewhat surprised that work should have been abandoned for so long."

Conclusion.

Middle Hill, the more central and solid formation of this great mineral belt, gives surface evidence of three great fissures striking across in a northeast and southwest direction. The gigantic Esmeralda lode comes in from a due south course, striking the great Winnemucca croppings on Silver Hill (see sketch) at almost right angles, as if the former were the main ledge of the district, all the rest being branches thereof, broken and twisted out of their original place. At all events, the entire belt is a most wonderful showing of quartz, alongside of which the original Comstock was insignificant. The Esmeralda ores are free milling, and contain both gold and silver, the bullion being worth from $5 to $7 per oz. So rich were those of early days that pilfering was a leading business, a hand-mortar going night and day in every cabin—so says the oldest inhabitant. Many thousands of tons were milled that produced several thousand dollars per ton. From the old Esmeralda lode, rich ores by the ton were blasted off the weathered sides and crest, many feet above the surface, and the old del Monte produced rich fruit in like manner. It only remains to get at the roots of the Esmeralda district, according to the belief of every one interested, to realize after the manner of California and Con. Virginia.

ESMERALDA COUNTY MINES IN GENERAL.

In the outlying ranges of Esmeralda county, there are many valuable mining interests under different stages of development, aside from the almost wonderful deposits of salt, soda, borax and sulphur as found in marshes and other forms. Salt and soda are chemicals generally used in the reduction of ores, and much is saved by these local supplies in the way of transportation, to the mines of Mono, Inyo and Esmeralda counties.

The Endowment Mine.

By stage from the junction north of Aurora, it is 45 miles to Marietta, on the Bellville and Columbus road. At present, Marietta is the most thriving community in that section of country, having a population of near 500, owing to the extensive work of development, and great promise of the Endowment mine, which came into possession of the present company over one year ago, the date of incorporation being May 2, 1877; number of shares, 100,000; capital, $10,000,000, with the following officers: Thos. Cole (President), G. W. Grayson, W. B. Crane, R. Webber and C. W. Crane (Secretary). Webber, Superintendent. The main office of the company is in the Safe Deposit building, San Francisco.

The mine is located about 3½ miles northerly from the town of Marietta. The formation of the district is porphyritic, with igneous or burned indications at intervals. The Endowment lode strikes northwest and southeast, with a dip to the southwest, and is in a good position for development, which was begun by means of a tunnel on the line of the vein. The character of the vein matter is decomposed, and on the surface was free milling, realizing, however, about 20 per cent. of carbonate of lead, some galena, and sulphurets and oxides of iron. The width of vein matter is from five to 75 feet, the pay ore being from one to five feet. The value of the ore ranges from $50 to $125 per ton in silver. About

2500 tons (raw) were reduced in a five-stamp mill, the bullion produced being worth $95,000. Owing to the character of the ore changing from carbonate of lead to sulphurets, a change of treatment was decided upon, and the mill shut down the last of April, for the purpose of enlarging it to ten stamps and the addition of White's roasting furnaces. It is expected that the new works will be ready for operation by July 1, when 25 tons per 24 hours will be reduced.

PLAN AND PROGRESS OF DEVELOPMENT.

In the meantime, the work of development goes on apace, some 40 men being employed. The plan of exploration is as follows: The tunnel is in a distance of about 500 feet, at that point connecting with an air shaft 200 feet from the surface. A hoisting engine is also stationed at that point in the tunnel, from where a winze, or continuation of said shaft, is sunk 200 feet lower still—in all 400 in depth. Another winze is sunk 135 feet deep, at a point 50 feet from the mouth of the tunnel, and between the two winzes (the distance being 300 feet) there is a continuous connecting drift or level, over 400 feet in length, at a depth of 90 feet below the tunnel. On the third, or lower level (counting the tunnel as one), there is a drift opened south of the main winze, to a length of 250 feet, north 25 feet. Connection will soon be made between the two winzes on the lower level. The two lower levels are 90 feet each in height, exposing a large amount of ore. The ground generally is not extremely hard, though blasting is required and more or less timbering throughout. As yet, no water has been encountered, though the dampness is increasing. Water has to be hauled to supply the engine; otherwise, the facilities for developing the mines at Marietta are favorable, wood being only $7.50 per cord, delivered.

The company are in excellent financial condition, and the prospects for a dividend paying mine are favorable indeed. One of the leading parties in the organization, is G. W. Grayson, successful in the history of the Golden Chariot and Ida Elmore of Owyhee, and the Grand Prize of Tuscarora.

There are other mines in the vicinity of the Endowment,

possessing some little development, and a favorable outlook, as the Centennial (possessing a small mill), Blackhawk, Independent, and others.

The Rising Sun.

At Whisky Flat, 20 miles from Aurora, and near the above named stage road, the Rising Sun is a promising mine, owned by Carson people, Col. A. C. Ellis being at the front. It is incorporated, with 60,000 shares; Jas. Fraser, Prest.; H. L. Tichner, Secretary, and J. T. Griffith, Superintendent. The development consists of an incline shaft, 150 feet, with drifts, showing a fine front ledge, rich in gold and silver. A considerable batch of ore has been hauled to Buckley's mill at Aurora, and a good test will soon be made.

Belleville, New Boston, Columbus, Crystal Peak, etc.

Ten miles east of Marietta is Belleville, a creation of the Northern Belle mine, of no ordinary fame heretofore. It is still shipping some bullion, but at present is not open to visitors. The population of the town is much reduced. New Boston, 15 miles east of Belleville, is a rising place. Rhodes and Wason are erecting a 15 stamp mill there. Columbus is not so prosperous as in times past. Crystal Peak is more active, a new ten-stamp mill and roasting works being erected.

At Rockland, in Washington district, a northern section of Esmeralda county, Gov. Blasdell, A. Garrard and others, are at work with encouraging prospects.

Lake District.

Of new districts—the direct outgrowth of the Bodie revival--Martin, seven miles west, is scarcely more than staked out. Lake district, 70 miles southwest, high in the Sierras, well wooded and watered, is attracting considerable attention and some work is doing. The ledges are very large and said to assay well. Gen. Geo. S. Dodge, largely interested in Bodie, is taking hold of Lake with his usual vigor.

COUNTY AFFAIRS.

Mono.

Outside of mining, there has been a gradually increasing grazing and agricultnral interest in Mono county, Cal., centered chiefly at Bridgeport (formerly Big Meadows), the county seat. The timbered slopes of the Sierras adjacent, give work to several sawmills, now reaping a harvest. The Monoville placer, and Castle Peak quartz interests are no longer matters of general concern; it is not unlikely that the mill erected to work ores from the Dunderberg mine, will be moved to Bodie. Strips of rich alluvial land are cultivated along the streams emptying into Mono Lake, but on the whole, farming is limited and must be throughout this very elevated section of the country; only the hardiest grains and vegetables being produced successfully. Moreover, there is a scarcity of water with which to irrigate. Including the great mine and timber interest, however, there is altogether an inviting opportunity to the end of the creation of very many additional and permanent homes. The population has probably been quite doubled, by reason of the Bodie excitement, and must be about 4000. From 1868 to 1878, the taxable property increased one-third. In 1877, the valuation was $617,320; tax raised, $14,000. Total indebtedness, only $4000. Estimated valuation this year, $1,500,000. The recent Legislature authorized the Board of Supervisors to issue bonds to the amount of $30,000, for the purpose of building a new road from Antelope Valley to Bodie and Benton—a cut-off from Carson to Bodie, of 20 miles, leaving Aurora to the left. At Benton the Comanche mine has been developed into prominence.

Esmeralda.

This is one of the largest counties in Nevada (Aurora being the county seat), containing an area of over 9000 square miles, and not wholly dependent upon its mines, as the Assessor's books show: Approximate No. acres agricultural land, 200,000; grazing, 500,000; timbered, 500,000; mineral,

500,000. Horses, 1800; mules, etc., 550; cattle, 5000; sheep and lambs, 15,000; hogs, 800. Fruit trees, various kinds, 2500; vines, 5000. Butter produced, 1877, 30,000 lbs. Land enclosed, 12,000 acres; cultivated, 15,000; wheat, 1000, bushels, 9000; barley, 2200, bushels, 45,000; oats, 5000, bushels, 9000; potatoes, 200, bushels, 20,000; hay, 8000—10,000 tons; gristmills, 2; quartz, 12; smelters, 2. Number of voters, 742; total population, 3000 and materially increasing. Outstanding indebtedness, $7,877 at end of 1877. Valuation of taxable property, $866,066. Taxes levied and collected; $21,651—over $7000 to State. Mining property is enhanced according to cheapness of supplies. It will be seen that Esmeralda can furnish largely of the staples.

New Routes and Railroads.

In 1864, the Mono wagon road was projected, and by 1868, was made passable. It involved several counties in deeper debt, owing to the decline of business in Bodie and Aurora, rendering the road indefinitely useless. Sonora Pass is a high one, but no doubt the road will be practicable for two-thirds of the year, and will be of special service to the fruit-raisers and farmers appertaining on the western slope of the Sierras, and will divide the passenger traffic to Mono and Esmeralda counties, though it will be found very difficult to compete with the roofed-in, regularly operated Central Pacific, and should the Virginia and Truckee R. R. Co. push their proposed extension into Esmeralda county—as the business would seem to immediately demand—the Mono route could hardly become a favorite, notwithstanding its directness. Should the narrow-guage railroad project, as put forth recently at Stockton, serve to spur up the C. P., or V. & T. people to the importance of improving, if not controlling, the large and growing trade and travel of Mono, Inyo and Esmeralda counties, it will have been timely indeed. At least, it serves to show the deep interest manifested in the revival of business at Bodie and Aurora. Tourists will eventually extend their field of observations—the Big Trees and Yosemite, in connection with the scenery of Mono county, will combine to surpass in interest that of the Yellowstone National Park.

MINING AS A BUSINESS.

Closing Remarks.

This little publication has exceeded the bounds originally prescribed, and owing to the mass of data accumulated, and delays (and final disappointments) concerning statistical matter of importance, it was "dashed off" on the double-quick and given to the printer. Notwithstanding these drawbacks, it is believed to have covered all the leading points aimed to be made. That is, showing conclusively that vast strides have been made in practical mining. Ignorance and extravagance are not necessarily adjuncts of dishonesty. For instance, fifteen years ago, Eastern people especially, spent millions in fine mills, offices, etc., before they had a ton of quartz in view. It was not dishonesty that did these things. The field never was so favorable for legitimate mining. It will be a sure crop, rain or shine, for a century to come—after that "the deluge." In the *Mining and Scientific Press* (a careful analyzer of mining affairs), date May 18th, the practical side of the case is well set forth. The crop for 1878 is estimated at $100,000,000. In the San Francisco *Bulletin* (a leading journal that is neither bull nor bear) of May 10th, even mining stock speculation is shown to have a most favorable balance in its favor, notwithstanding the many crooked "deals." So long as man is born unto trouble as savings banks (those dear friends of the people) fly upward, there will be cases of dishonesty double-distilled, in every business. The *Bulletin* concludes:

"There have been more complaints of deals in stocks during the past year than in any previous year, and at the same time less occasion for such tirades. It is noticed that these growls about 'put up jobs' always come from those who get cinched. When these parties happen to be among the favored few who profit by such speculations, they have no criticisms to make. The perils of operating in the Mining Share market are many, and the profits rare. This ought to be pretty well understood by this time. If people do not wish to add to their wealth rapidly, they should not take such fearful risks. Mining stocks embarrass no one who refrains from investing. Like litigation, it is easier to keep out than it is to get out when once in. The prizes are few, and every one knows it, and yet he expects that he may be one of the few. That expectation will always develop buyers, and the mining share business may therefore be regarded as a permanent occupation. We have watched the market for fifteen years. Many times during this interval, in periods of great depression, there have been those who were seemingly confident that the bottom of the whole business had forever dropped out, but somehow or other, before it was clean gone, elements came into operation giving a new lease of life. So it will probably ever be, at least so long as the present generation lasts, and what may be the experience of future generations in this regard, need not concern us."

Now, let the hollow square of expectants, defined by Pine, California, Montgomery and Leidesdorff streets, take heart; as per the philosophy of Sancho Panza: "Patience and shuffle the cards."

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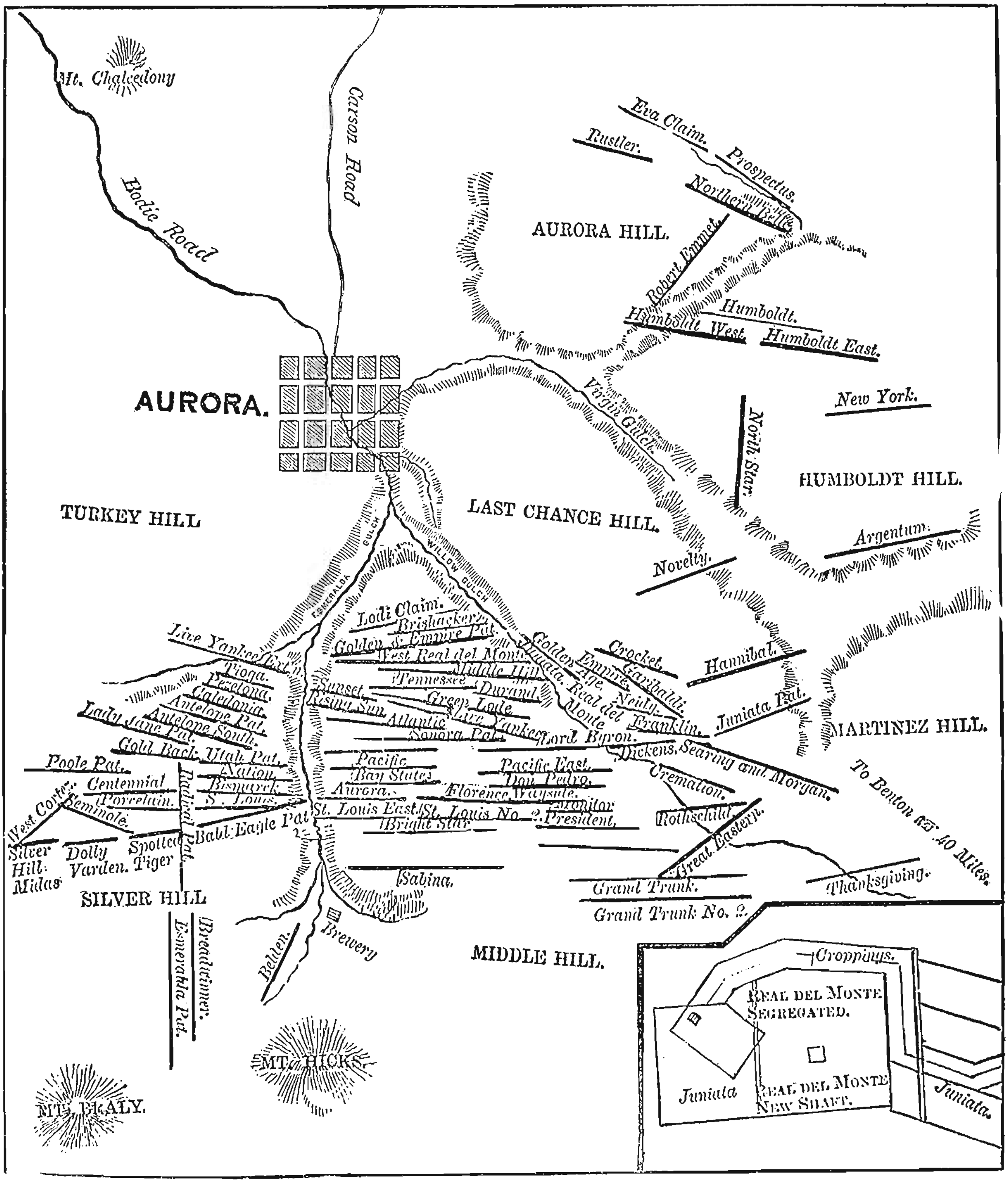
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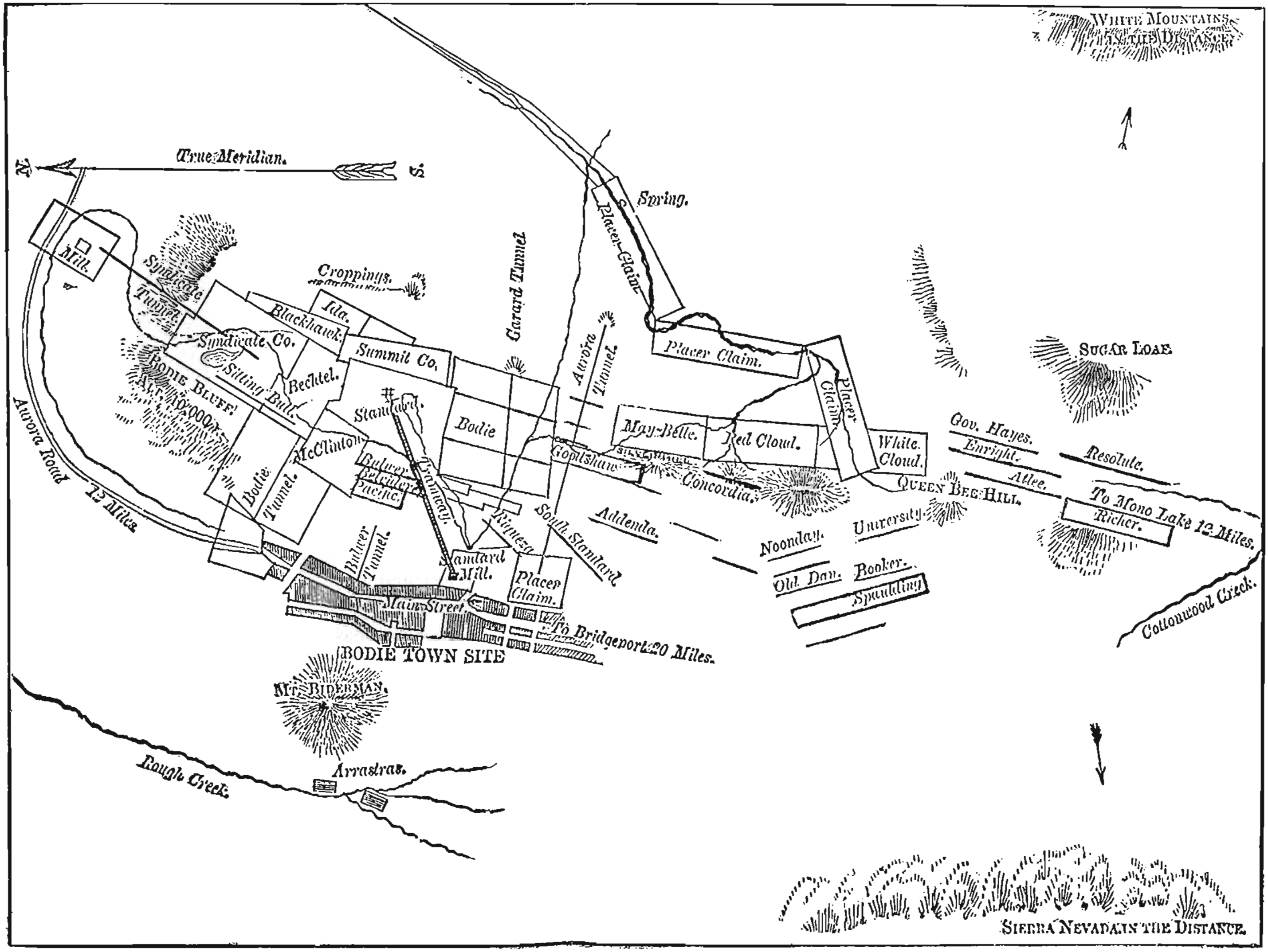
Bodie Road
Carson Road
AURORA.
AURORA HILL.
Eva Claim.
Rustler.
Prospectus.
Northern Belle.
Robert Emmet.
Humboldt.
Humboldt West.
Humboldt East.
New York.
Virgin Gulch.
North Star.
HUMBOLDT HILL.
TURKEY HILL
LAST CHANCE HILL.
Argentum.
Novelty.
ESMERALDA GULCH
WILLOW GULCH
Lodi Claim.
Live Yankee Ext.
Tioga.
Crocket.
Hannibal.
Garibaldi.
Juniata Pat.
MARTINEZ HILL.
Tennessee
Durand.
Sunset.
Rising Sun.
Atlantic.
Sonora Pat.
Lord Byron.
Franklin.
Caledonia.
Antelope Pat.
Antelope South.
Lady Jane Pat.
Gold Back.
Utah Pat.
Poole Pat.
Centennial
Porcelain.
Pacific
Bay State.
Pacific East.
Don Pedro.
Aurora.
Dickens, Searing and Morgan.
Cremation.
To Benton 40 Miles.
West Cortez.
Seminole.
St. Louis East.
St. Louis No. 2.
President.
Bright Star.
Rothschild.
Great Eastern.
Silver Hill.
Midas
Dolly Varden.
Spotted Tiger
Bald Eagle Pat
Radical Pat.
Sabina.
Thanksgiving.
Grand Trunk.
Grand Trunk No. 2.
SILVER HILL
Breadwinner.
Esmeralda Pat.
Belden.
Brewery
MIDDLE HILL.
Croppings.
REAL DEL MONTE SEGREGATED.
Juniata
REAL DEL MONTE NEW SHAFT.
Juniata.
MT. HICKS
MT. HEALY.


White Mountains in the Distance
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Garard Tunnel
Mill.
Syndicate Tunnel.
Syndicate Co.
Blackhawk.
Ida.
Summit Co.
Sitting Bull.
Bechtel.
Bodie Bluff.
Standard.
Bodie
Aurora Tunnel.
Placer Claim.
Placer Claim.
May-Belle.
Red Cloud.
White. Cloud.
Sugar Loaf
Gov. Hayes.
Enright.
Resolute.
Attee.
Queen Bee Hill.
Concordia.
Goodshaw
McClinton.
Bulwer.
Belvidere.
Pacific.
Tramway.
Bodie Tunnel.
Aurora Road 12 Miles.
South Standard.
Addenda.
Noonday.
University.
To Mono Lake 12 Miles.
Richer.
Old Dan.
Booker.
Spaulding.
Bulwer Tunnel.
Standard Mill.
Placer Claim.
Main Street.
To Bridgeport 20 Miles.
Bodie Town Site
Cottonwood Creek.
Mt. Biderman.
Arrastras.
Rough Creek.
Sierra Nevada in the Distance.