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LITTLE PITTSBURG.

The recent decline in the price of Little Pittsburg has been a great blow to the mining industry, and must temporarily check investment in that direction. Since the decline began, it has been impossible to get any thing like reliable information as to the condition of the mine. It is said that Dr. RAYMOND is now upon the property, and will make a report to the management as to its present condition and future prospects; and unquestionably, his views will be made known to the public, be they good or bad. Such being the case, it is folly to discuss the probable merits of the mine at the present time. There appears to be considerable misunderstanding as to the report made by Dr. RAYMOND, and published for the first time by the ENGINEERING AND MINING JOURNAL of June 28th, 1879. By consent of the management, the manuscript report was handed to us for publication, even before it was given to the company. We therefore feel ourselves in a position to state accurately just what Dr. RAYMOND did report. After a discussion of the geological features of the property, he says :

"In attempting to indicate the value of the company's property, aside from its right to mine beyond its side-lines eastward, I shall consider three classes of facts: the actual reserves; the probable value of portions of the ground concerning which there is some evidence, not amounting to thorough exploration; and the chances of value in portions concerning which there is at present little or no evidence. \* \* \* \*"

"In the actual reserves of the New Discovery, I include the blocks of ore fully exposed in the ore-body already mentioned, and the block or portion of the new body, exposed by the last-named cross-cut, and by two drifts at right angles thereto. The result of a careful estimate, based upon the actual dimensions of these standing bodies, and an examination of every exposed face, deductions being made for the proportion of unsalable lean ore ('iron'), and the value of the remainder being calculated upon the average yield of the ore from the drifts and cross-cuts, was, in round numbers, \$1,500,000 smelters' value, for the ore known to exist in this ground. Of this amount, about \$1,100,000 is the estimated value of the reserves of the main ore-body, assumed to be worth 111 ounces silver, and 22 per cent lead. The estimate of quantity of this grade is about 13,000 tons, 9 cubic feet being reckoned to the ton of ore in place (not including the iron-stone); and the price paid by the smelters has been calculated from a comparison of present tariffs and bids for ore, and the improved price of silver, together with an allowance of \$5 per ton for the cheapening of freights as the railroad approaches Leadville during the present season. Of all these items, the miner will get the full benefit, by reason of the sharp competition among the smelters, the aggregate capacity of the smelting-works being from 50 to 100 per cent greater than the supply of ore from the district. The price thus calculated is \$85 per ton.

"The remaining \$400,000 of the estimated reserves is the value put upon the portion of the new ore-body in the long cross-cut above alluded to. This body has been crossed imperfectly in two directions without finding its limits. I felt justified from the appearance of all the exposures in estimating nearly 4000 tons of 'gray carbonate' ore, standing nearly fifteen feet thick, free from iron-stone. The body, however, will, in my judgment, be found to extend into the Vulture and Chrysolite claims; and, since no returns of actual working had been obtained from this particular part of it at the time of my examination, and the assaying of single samples would have been useless, I rated its value in accordance with the experience of the Carboniferous, Chrysolite, and Vulture claims, in which similar ores occur, and with the general experience on Fryer Hill, where the 'gray carbonate sand' is reckoned among the richest varieties of ore.

The estimate of \$100 per ton, smelters' value, seemed fair under the circumstances.

"From this total value of \$1,500,000, thus obtained, the cost of mining and administration only must be deducted. With regard to these items, I need only say that, after analyzing the accounts of the company, and verifying many of the items by reference to pay-rolls and original vouchers, I am satisfied that the statements in the report of Mr. J. C. Wilson, the manager, addressed in May last to Mr. Chaffee, and published in the company's prospectus, are correct. All expenses of mining, timbering, and hauling should not exceed \$8 per ton, if dead-work is judiciously conducted, and unsalable ore is left underground.

"The reserves of the Little Pittsburg and Winnemuck are not so extensive or so completely exposed as those of the New Discovery. The workings are irregular, and the best thing that can be done with them is to complete the process of 'robbing' which the former proprietors began, and abandon that part of the ground. There is still much unworked and unexplored ground in the Little Pittsburg, Winnemuck, and Dives claims, to which, of course, this remark does not apply. I estimate that from the workings in the Little Pittsburg, as they now stand, \$350,000 (less cost of extraction), and from the Winnemuck \$50,000, may be expected. The Dives ground has a shaft, never worked by the present company, and the ore-body, which it is reported to show, is not included among the reserves.

"We have then a total of \$1,900,000 in known ore-bodies. The value of the dumps of low-grade ore (iron-stone, etc.), less cost of sorting and hauling, has to be added to this. Mr. Wilson estimates the amount of this material at 15,000 tons, its assay value at 30 to 75 ounces of silver per ton, and its net value \$20 per ton. While I am aware that he has made sales of various lots at much better prices than this, I do not think the market for ores of this class is a sure one now, or will become so in the near future. They can not be profitably smelted by themselves; they are used on account of the oxide of iron they contain, as a flux for the lead ores; and for this purpose they are metallurgically objectionable by reason of their high percentage of silica. Moreover, they are abundant in the district; and while the smelters keenly compete for the rich ores, there is not likely to be a keen competition for these. The smelters will buy small lots of them here and there, test their behavior in the furnace, and finally buy the least siliceous varieties of those mines which offer them the best bargains. That a considerable value can be realized from the dumps, I readily admit. A large portion of them will yield, by screening, much really good (first-class) ore; and no doubt another portion can be sold at a profit, as Mr. Wilson expects. But I think it unsafe to reckon upon more than \$100,000 as the net value of the present dumps. With regard to the future—that is, the dumps to be produced from the reserves above calculated—I believe my estimate of their value is sufficiently liberal to include all that prudence would at present permit me to allow for what can be in any way realized from the ground described. I consider the total of \$2,000,000, thus reached as the 'value in sight,' to be as fair an appraisal as I can make. \* \* \*"

"In recapitulation of these conclusions, I count the elements of value in the company's property as follows: \$2,000,000 actual reserves; \$1,000,000 probable yield of a certain portion of the New Discovery; the unknown contents of the south two thirds of that claim, and the unknown contents of the Dives triangle, the northern Winnemuck, and the northern Little Pittsburg, or about two thirds of the area of those three claims. That is to say, about one third of the area of all the property will probably yield the \$3,000,000 above referred to, leaving two thirds, of which the value is unknown, and the indications of value are favorable, but not yet definitely developed. To this is to be added the possible occurrence of a profitable layer of ore on the limestone, in those portions of the present workings where the limestone has not been exposed, and where 'horses' of porphyry underlie the upper branch of the ore-vein now worked; and the possible occurrence also in the limestone near the contact, of rich pockets or impregnations, such as the one now worked in the adjoining Vulture claim. Finally, there are the rights of the company under its patents, to work eastward beyond its side-lines. Having explained my view of these, so far as they depend upon the recognition of the ore-deposit as a vein or lode within the meaning of the law, I will only add here, that while the successful establishment before the courts of this interpretation of the facts may increase immensely the value of the company's property, an adverse decision, on the ground that the deposit is not legally a lode, would necessarily make it legally a placer, according to Section 2329 of the Revised Statutes; and this would restrict the company to the ground included by vertical planes drawn through its surface boundaries. In that case, nothing would be lost from the actual and probable and possible assets above described.

"The buildings and machinery are new, in good order, and adequate for the hoisting and handling of 100 tons of ore daily. The underground work done by the present owners is excellent in plan and execution; the system of accounts is complete; and I have no improvements to suggest as to the management of the business, or the plans for the exploration and exploitation entertained for the future. Apart from unforeseen accidents and stoppages, there will be, in my judgment, no difficulty in maintaining the present rate of dividends, \$100,000 per month, so long as the reserves last, and for a further period dependent upon the discoveries made in the ground now unexplored."

From the above report, it will be seen that Dr. RAYMOND was particular in stating that the "actual" reserves were but \$2,000,000, and that the "probable" yield of certain portions of the New Discovery, dependent upon development, would be \$1,000,000. He therefore places an actual value of \$10 per share on the stock, and a speculative value of \$15 per share. According to the reports received from the company, about 80 per cent of the ore reported to be actually in sight has been taken out; and for a mine so badly worked as the Little Pittsburg is stated to have been, there can hardly be any doubt that the remaining 20 per cent will be taken out when the mine is "robbed." All the reports from the mine indicate that but little has been done toward developing the property; and if such is the case, there has been no chance to demonstrate whether the "probable" \$1,000,000 will be found or not.

There has been, however, a vast amount of exaggeration relative to the property, for which, we think, ignorance is not responsible; and it is to be hoped that the person or persons who have been deceiving the public may be exposed and punished for the same.

We call attention to the above facts for the purpose of correcting mis-statements currently circulated for the past two weeks. Dr. RAYMOND will probably speak for himself upon his return.

THE MONROE DOCTRINE AND THE CANAL.

The recent utterances of Mr. HAYES, on what he conceives to be the proper attitude of this government toward any canal that shall be built across the isthmus, will place this country in a very ridiculous attitude, unless we are prepared to enforce the claim to the control of the canal by

a display of authority, should any attempt be made by foreign governments to exercise a "protectorate" over it. For, reasonably interpreted, it means that while this government will not object to any one building the canal, when built, it must be an American canal; for, says Mr. HAYES, "the policy of this country is, a canal under American control."

The procrastinating policy of this country in respect to the canal question, that we have so long complained of, is about bearing its fruit. We have thrown away the golden opportunity of doing ourselves what was not only our right but our duty to do—to protect American commercial interests; and now, when the foreigner's superior management and enterprise threaten to rob us of the prize of whose value we have suddenly become aware, we are forced into the humiliating position of playing "the dog in the manger"—we will not build it ourselves, and threaten any one else who does it that we shall take charge of it, if they do.

LAKE COMO GOLD AND SILVER MINES—A CORRECTION.

EDITOR ENGINEERING AND MINING JOURNAL :

SIR: In a letter published in the issue of March 6th of your estimable journal, the writer, Mr. J. H. McChesney, says that my friend Evernyn and I have examined a property in San Juan, and given an estimate of \$250,000,000 as the value of the ore. I beg to state that I examined only one property in San Juan, and made two reports upon it, one dated December 1st, 1875, and one March 20th, 1878. In the first, I say: "A somewhat accurate and reliable statement of what can be considered in sight, as a basis for calculating the value of the property, is not possible to be made before the upper and lower tunnels now started are nearly completed, and drifts to some extent are run on every lode cut by these tunnels; but, considering what a great amount of ore can be taken out above and so much more below the lower tunnel, I am confident that the owners of the property can, in a short time, work it up to a value of one million of dollars." This is the biggest figure anywhere mentioned in my reports. In the later report of 1878, I came to the conclusion that, at that time, \$300,000 could be invested safely.

You will see that these figures remain considerably below the 250 millions which Mr. McChesney ascribes to me. Mr. Evernyn translated my reports, and gave, besides, his own views, coming to figures but slightly higher than mine. In my report, I pointed out that it would be safe to allow that only one half the quantity of standing crevice matter in the veins will be broken out; the balance to be left as not rich enough, or, if taken out, not producing any profit.

This point Mr. McChesney has overlooked in his calculations. He thinks that the mineral is dispersed through the gangue as evenly as ginger in gingerbread; but it is in reality like the chocolate in a marble cake. We have to cut quite a way into the cake before we reach an irregular streak of chocolate.

DENVER, COLO., March 1.

P. H. VAN DIEST.

DR. RAYMOND'S REPORT ON LITTLE PITTSBURG.

The *Daily Mining News*, after pointing out that Dr. RAYMOND did not report \$5,000,000 of ore reserves in the New Discovery, says:

"At the time the *Daily Mining News* sent out the first warning that the Little Pittsburg reserves were about exhausted, we took the wise precaution to reproduce Dr. RAYMOND'S report. This proved a rallying-ground for frightened investors, and saved all the Leadville stocks from a panic, because it showed that the Little Pittsburg disaster had come, not through reliance upon what experts had said, but through defiance of such testimony. The fact that RAYMOND did not overestimate the Little Pittsburg is of incalculable consequence at this time, inasmuch as it assures investors that there is a class of expert testimony about mines which may be accepted as a safe basis for the investment of money."

The *Leadville Daily Democrat* says:

"Much has lately been said concerning ROSSITER W. RAYMOND'S report on the Little Pittsburg made nearly a year ago. Below will be found some extracts from the report, as recently published in the *Daily Mining News*. It will be found that his estimate placed on the value of the mines at that time was most reasonable, and that results since have fully confirmed him."

PETROLEUM EXPORTS.

The following advance statement from the Chief of the Bureau of Statistics gives the exports of petroleum and petroleum products from the under-mentioned customs-districts of the United States during the month of January, 1880, and the seven months ended the same, as compared with similar exports during the corresponding periods of 1879:

CUSTOMS-DISTRICTS.	CRUDE.		NAPHTHA.		ILLUMINATING.		LUBRICATING.		RESIDUUM.		TOTAL.	
	Gallons.	Dollars.	Gallons.	Doll's.	Gallons.	Dollars.	Gallons.	Doll's.	Gallons.	Doll's.	Gallons.	Dollars.
Boston.....			250	50	436,905	56,555	4,672	1,766			441,827	58,371
New York.....	1,940,078	143,489	697,171	45,089	27,780,314	2,547,581	576,752	102,885	121,716	8,400	31,125,032	2,847,444
Philadelphia.....	127,474	8,286			4,984,867	401,432			156,492	16,034	5,268,833	425,752
Baltimore.....			123,042	7,700	810,296	68,448	4,706	1,000	213,360	14,500	1,151,404	91,648
San Francisco.....			880	308	16,640	3,615					17,520	3,923
New Orleans.....	190	74			172,449	80,386					172,639	80,460
All other districts.....	231,882	18,550	484	79	9,032	1,443			4,200	400	245,598	20,472
Total for January, 1880.....	2,299,624	170,399	821,827	53,226	34,219,503	3,159,460	586,131	105,651	495,768	39,334	38,422,853	3,528,070
Total for January, 1879.....	1,090,041	95,653	1,200,398	105,362	15,720,941	1,646,133	119,778	35,505	293,706	15,149	18,424,864	1,887,802
Total for seven months ended January 31st, 1880.....	18,532,694	1,206,435	14,837,234	959,864	274,127,247	23,153,294	2,399,863	487,747	3,591,420	206,819	313,488,458	26,014,159
Total for seven months ended January 31st, 1879.....	14,595,949	1,242,644	10,745,584	902,784	218,617,660	24,828,074	1,252,630	359,861	1,868,874	120,310	247,080,697	27,453,673

TREASURY DEPARTMENT, BUREAU OF STATISTICS, WASHINGTON, D. C., March 11.

MONTANA MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

On February 3d, the Algonquin mill turned out its first amalgam. Its Howell cylinder is chloridizing at the rate of 40 tons in 24 hours, and working 90 to 96 per cent. The product is so satisfactory that the Alice mine owners intend to place in their mill two duplicate cylinders like those in the Algonquin mill.

Last week, the Alta-Montana Company purchased the Custer mine. This is considered good property, and situated on the Alta Hill, belonging to the company. This purchase gives the company control of 5700 feet of the Alta lode, which is well defined the whole distance. This company has now about 1000 feet of tunnels, half of which is good stopping ground; the average daily output is about 50 tons.

The management of the Bonanza Chief Mining Company has authorized the erection of 15 additional stamps, making 20 in all, upon its property; and, as soon as the weather permits, will proceed to the active development of the mine by running a drain 525 feet, 200 feet of which will be open cut and 325 feet tunnel, 5x6 ft. The company thinks that by working the mine this way, it will obviate the necessity of erecting hoisting works, and yet give plenty of ore.

Work on Lion Hill has been prosecuted more or less the whole winter. The Cleave is now down 280 feet, with two levels on the sides, one east and one west. The west level is run about 80 feet from the mouth of the main incline, and the ore-body in that distance varies from one to eight feet in thickness. The east level is run to surface, about 200 feet, and is used as an air-course. There is a good showing of ore on both sides. At present, there are 200 tons of high-grade ore waiting reduction. The engine-house and ore-house are connected with a complete tramway 525 feet long. The following mines lie in this same district, and each has been worked to a greater or less extent: Trapper, Moffatt & Maynard, Minnie Gaffney, Hecla, Elmorlu, Hidden Treasure, Wall Street, Pride of the West, Oneida, Keokuk, Ariadne, Cleopatra, Silver Quartz, True Fissure Sheet, Alta, Atlantis, Paymaster, Dubuque, Franklin, Avon, Cleave, and the Emma.

Much has been said in regard to the new placer discoveries in the Judith Basin. The following from the *Husbandman* is by far the most reliable account yet given. It says:

"The news from the new mines is flattering in the extreme. James Benson and Jonathan Goon returned from Belt City this week, and, though there but a short time, they bring the most encouraging reports that have yet reached us. They estimate there are fully 100 houses now up and many more building. The houses are of a very substantial character, and indicate that the builders have implicit faith in the mines. Bed-rock had been reached in the upper district, four miles above town, and prospects from 25 cents to \$4 to the pan had been obtained. Every body seemed to be at work in earnest. Twenty-three drains had been started, and some were getting pretty well down. In one Mr. Benson saw a nice prospect washed from the gravel on a shovel. Work was in progress for a distance of nine miles along the gulch; and, from appearances, it looked as if much of the gulch would be developed this winter. Specimens showing free gold were numerous, and the quartz prospectors are as sanguine as the placer miners. Specimens of black galena, assaying 86 ounces to the ton, were also on exhibition. Labor was worth from \$2 to \$3 per day; lumber, \$100 per thousand; flour, \$8 per sack. The new town was building up rapidly, and was being put in good shape. This, in addition to what we have previously published, nearly establishes the belief that Yargo will prove a second Confederate or Alder Gulch, and will, at an early day, be the home of a thousand or more prosperous miners."

It is definitely stated here that the Alice mine, on the representations of Professor Clayton and other experts, has been stocked for \$10,000,000 in New York, and that only a small part of the stock was set apart for sale in this territory. If this is the case, it will be the beginning of a great Eastern boom in Montana mines.

TUBEROSE.

MAINE MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

The excitement in mining matters in this region continues and is on the increase. In this town, the older companies are pursuing the even tenor of their way, and, without making a fuss about it, are accomplishing a good deal of work. The Douglass is looking finely. The first cargo of lumber from St. John for the Douglass mill has been landed at the Falls, a few miles away, and is now hauling to the mine. The Atlantic has reached a depth of 72 feet, and is now cross-cutting for the vein from the bottom of the shaft. The new machinery at the Blue Hill will

JOSEPH NIMMO, JR., Chief of Bureau.

probably be in operation before this is in print; the superintendent, Mr. Cutter, having returned from California.

Mr. Timothy O'Connell has arrived from Nevada to take charge of work on the City of Boston (the property lying between the Atlantic and the Blue Hill). The shaft-house on the Twin Lead is completed, and a horse-whim will soon be at work for hoisting, if indeed it is not already. A shaft is now going down on the Young Hecla. The Favorite Company will soon begin work. Work has already begun on the Trio, which is in the southern part of the town, and some four miles from the village.

A number of other companies have already or will shortly begin operations. A company to be known as the Dirigo Copper Mining Company will probably be organized here within a few days, to work a property on Blue Hill Neck, and close to the Brooklin town-line. As a collateral branch I must mention that the debating society in a neighboring town recently took for a subject the question, "Are Genesis and Geology in Harmony?" This, when nine out of ten in the neighborhood never read a page of geology, while the attainments of the tenth one would consist of the reading of a stray copy of "Steele" or "Hooker."

BLUE HILL, ME., March 15.

DIRIGO.

### THE LITTLE PITTSBURG MUDDLE.

Special Correspondence of the Engineering and Mining Journal.

Of late, this question has been the all-absorbing topic in business and mining circles here. General Bearce, late superintendent and present manager of the Little Pittsburg Consolidated Mining Company, in his interview with a *Chronicle* reporter (published on the evening of the 8th inst.), stated very distinctly that the rich ore-reserves had been nearly all exhausted, and that this result was directly due to the orders he received from the management in New York. He therefore argues that having received orders from New York to furnish regular monthly dividends of \$100,000, it was his duty to obey these orders, although cognizant of the fact, as he must have been, that such a course would ultimately exhaust his ore-reserves if persisted in. Now, it is my opinion that a superintendent of a mining company, of as vast importance to the mining interests of Colorado as the Little Pittsburg Company is, occupies a more responsible position in the eyes of the public than would be inferred by the sentiments uttered by General Bearce in his interview of the 8th inst. If a mining superintendent has to obey all orders, implicitly, that concern the technical management of the mine, then what is he put there for? As a rule, a mining engineer is placed in charge of a company's mines because he is supposed to know more about working the mines than the management, and because he is supposed to be competent to manage and superintend their development in a thoroughly systematic manner. Every thing is left to his judgment, and the output and development are, or ought to be, absolutely in his control. If this was the case, and General Bearce, in his capacity as Superintendent of the Little Pittsburg Company, received orders to take out enough ore from the mines to pay a monthly dividend of one hundred thousand dollars, it was his place to resign, publicly stating his reasons for so doing, knowing, as he did, that such a course would in the end exhaust his reserves and leave his mine stripped. He ought to have resigned, furthermore, because his resignation would show that he did not assent to the policy pursued by the directors of the company, which policy ought to be condemned in the strongest terms, as such methods of mining are calculated to destroy the confidence of outsiders in all mining undertakings. A mining company of as much prominence as the Little Pittsburg Consolidated Mining Company ought to engage solely in legitimate mining, having its ore reserves at least a year in advance of its dividends. It is better far that smaller dividends should be paid in the beginning than that the dividends should be stopped altogether, in order to allow the work of exploration and prospecting to go on. Such mistakes in mining have occurred too often not to be unpardonable at the present day, more especially as the results of such mining revert not only on the perpetrators but also on the whole mining district where they take place. Dividends ought to be paid out of the earnings of the company, leaving a certain sum intact every month for the prosecution of the necessary development, besides having a certain percentage of the earnings set aside to form a reserve fund for emergencies. The stock of a mine managed in this manner will never lack takers, and it will be found, sooner or later, that in mining, as well as in any other business, haste is waste.

And, now, a word about the present state of the mine. Even if the ore-reserves in the mines belonging to the Little Pittsburg Company are nearly exhausted, it does not follow, by any manner of means, that the mines are therefore worthless: such logic would be faulty in the extreme. Any one who has made a study of the geological character of these ore-deposits will agree with me in this. Blanket-lodes are as liable to pinch and have barren intervals as are fissure-lodes, and it would be absurd to presume that the unexplored ground belonging to the company is all barren. On the contrary, I am of the belief that the property of the Little Pittsburg Consolidated Mining Company will eventually again come to the front as a producer; but that does not better in any degree the position of the management on whom this fiasco falls. The sooner mining companies learn enough by experience to put the entire technical management of their mines under the absolute control of their superintendents, the better it will be for the stockholders.

In conclusion, I would say that yesterday's *Chronicle* had an account of an interview with a miner, who worked in the Little Pittsburg mines. This miner stated, in the course of the interview, that the mines were not worked out, and that large ore-reserves had been walled up and hidden from observation; but as this is a conflict of opinion between himself and General Bearce, I prefer the latter as authority, the more especially as a miner's views as to what constitutes an ore-reserve are apt to be rather vague than otherwise.

FRED. M. AMELUNG.

LEADVILLE, COLO., March 11.

MORTALITY IN THE HOOSAC TUNNEL.—TROY, N. Y., March 15.—Albert Marcroo was killed by the explosion of a blast in the Hoosac Tunnel, on Sunday morning. This is the one hundred and ninety-ninth death that has occurred in this tunnel since it was begun, some twenty years ago.

### TINTIC MINING DISTRICT, JUAB COUNTY, UTAH.

By Adolph Heberlein, Mining Engineer.

Seeing that this district has received but very little notice from the press, although all who have been here predict a great and prosperous future for it, I will try to give you some notion of its principal mines and mills, and other little items that may possibly prove of interest to the readers of the *JOURNAL*. The distance from Salt Lake City is about 100 miles south; 70 miles by Utah Southern RR., and 30 miles by stage. It contains three lively mining towns, namely, Diamond, with several stores, post-office, etc.; Silver City,  $2\frac{1}{2}$  miles west from Diamond, with several stores, post-office, and telegraph and express offices; Eureka, 5 miles from Silver City, with several stores, post-office, etc.

This district comprises a number of good and valuable mines. I will, however, mention only four of the most important at present.

The Crismon-Mammoth, gold, silver, and copper mine, is situated about  $2\frac{1}{2}$  miles northerly from Silver City. It has been worked several years for its gold ores only, and the gold extracted by raw amalgamation. The vein is from 3 to 30 feet wide, and contains mostly copper ores, as carbonates and oxides, containing from 5 to 30 per cent of copper and some copper manganese, containing up to 30 per cent of copper and some silver, and quite a percentage of antimonial and arsenical copper, containing a higher amount of silver than the other ores, also free gold quartz, assaying very high. This last ore has only been run so far, first by a five-stamp, and now by a 27-stamp amalgamating mill, and paid the owners handsome profits. All copper ores were stocked up or left in the mine. This mine, as I understand, is now bonded to a California company for \$1,000,000.

Next to the Crismon-Mammoth, on the same vein in a southerly direction, is the British Tintic (Copperopolis) mine, owned by an English company, but not working at present, owing to gross mismanagement several years ago. This mine contains the same character of ores as the Crismon-Mammoth; is an excellent mine, with wide, rich vein, and would no doubt pay well to the stockholders under proper and scientific management.

In a northerly direction from the Crismon-Mammoth, near Eureka City, is the Eureka mine, producing large quantities of argentiferous galena, carbonate of lead, horn-silver, and some carbonates of copper. The richer ores, containing lead ore, are sold to the smelters near Salt Lake City, and the dry or so-called milling ores, with about 30 to 50 ounces of silver and  $\frac{1}{2}$  to 5 per cent copper, stocked, to wait for a suitable and cheap milling process. Of this ore, there are at present several thousand tons on the dump.

These three mines are the most noteworthy in the limestone, and, to all appearances, have a great future.

The next important mine in the granite, about two miles in an easterly direction from Silver City, and about one mile northerly from Diamond, is the Julian Lane mine, owned since 1877 by the Consolidated Julian Lane Silver Mining Company. This mine works on a very wide outcrop of over 100 feet in width, containing several pay-streaks running through the quartz of vein-matter, producing a soft, from light-yellow to dark-brown ore, which necessitates no blasting sometimes carrying considerable quantities of metallic bismuth, and the silver mostly known as bismuth silver, running from 20 ounces to 300 ounces per ton. The milling ore we received at the Ely mill averaged about 90 ounces per ton of silver. This class of ore only has been mined; all the lower grade, assaying from 20 to 30 ounces per ton, has been left in the mine. The product from 1872, when first opened, until 1877, was above \$100,000, up to the time when the present company, under the energetic management of Capt. G. D. Johnson, took hold of it. Since then, up to date, the amount of ore mined has yielded above \$40,000. The mine is opened by nearly 2900 feet of drifts and tunnels, 730 feet of cross-cuts, and 865 feet of shafts, winzes, and raises. The facilities for economic working are excellent, and afford promise that the mine will be in the future, as it has been in the past, a paying investment. All the ore so far obtained was above the tunnel level, and trammed out of the same on a good T-rail tramway, with dump-cars; but as the dips of the several pay-streaks indicate a concentration of the several ore-bodies in the deep, a cheaper and more profitable working for the future may be attained. All these four mines have had as yet no water, or very little, to contend with, and will not need any pumping machinery for years to come.

This district also contains four mills, of which two, the Ely mill and the McIntyre or Crismon-Mammoth mill, with 27 stamps and raw amalgamation, have been running through the past year. The Homansville mill, near Eureka, with Stetefeldt roasting-furnace, 10 stamps, and amalgamating pans, was idle through financial troubles for years. The Copperopolis or British Tintic mill was also idle.

The Ely mill, situated about five miles from the above-named mines, in the Tintic Valley, owned by Hon. S. P. Ely & Brothers, has a capacity of 30 tons per day. It contains a 15-stamp mill, 1 Aiken mechanical roasting-furnace, 1 reverberatory roasting-furnace for base ores, 6 amalgamating pans, and Hunt & Douglass leaching plant for 10 tons capacity. Having these two processes, it is naturally the best mill adapted to treat most of the ores in this district successfully and economically, except the lead ores.

To describe the Hunt & Douglass leaching process I deem not necessary, as enough has been published on it by the patentees and others. Mr. Cameron, of this place, who styles himself an M.E., has written an elaborate article, which has been published in a New York paper and in the *Marquette Mining Journal*, on the process now in use here. I wish to say, however, to prevent any false impressions it might create, that he is entirely incompetent to give any judgment or correct description, unless he copies the pamphlets of the patentees, which has been partly done; and it would have been of more value to his readers, if he had copied the whole of the same. In regard to the figures of cost, etc., as they would appear for the working in our mill, I will only call the attention of the readers to the cost of precipitation, and then they can judge for themselves and have some idea of the value and correctness of the other items. He says, "Iron for precipitation of copper, \$6;" and gives the amount of copper precipitated as 5.940 lbs. This statement shows an entire ignorance of the process, as every body knows that it takes pound for pound of iron to copper in any of the other leaching processes, and about 75 to 90 per cent iron to the amount of copper precipitate obtained

through the Hunt & Douglass process, which would bring up the cost, at two cents per pound of scrap iron, to over \$100. I have had the entire and sole charge of these works for the last year, and can vouch for the correctness of my assertions. Mr. Cameron has had no experience in the application of this process to the ores here, nor has he any knowledge of the chemistry of the same. He is, and has been, an iron-furnace mason all his life, until he worked a few days under me on the roasting-furnace. This is all the experience he has ever had, but tries in his article to make himself conspicuous at the cost of others. In another part of his article, speaking of the proper reduction of the Mammoth-Crismon ores, he gives his valuable opinion thus:

"The conversion of this character and value of ores into their respective metallic conditions by any other process (meaning the H. & D. process) at the same cost is extremely doubtful, and does not come under the range of my knowledge and experience. The next best method would be their reduction into black copper by means of a vertical blast-furnace; the resulting product would contain 50 to 85 per cent copper and 75 to 90 per cent of the gold and silver contained in the ore. This treatment would cost for mining and reduction alone \$30 per ton of ore, and it would be extremely doubtful if 11 per cent copper ores could be converted at that cost. Ores for this mode of treatment ought to contain 15 to 30 cent Cu. The product by this mode of reduction could not be sold except at considerable discount, by being in a crude condition, requiring further treatment for the separation of the metals by the Augustin or Ziervogel process, for the extraction of the silver, and the Plattner or amalgamation for the separation of the gold. The copper would also require refining before it could be made commercially valuable."

All this seems very plausible to the uninitiated, and would not show the least sign of the writer's absolute ignorance of the above-mentioned processes. He gives the combinations of the ores as carbonates and oxides, which, in reality, they are; and therefore contain no or very little sulphur, as I have ascertained by frequent tests. The highest I ever obtained did not exceed  $1\frac{1}{2}$  per cent, and therefore could only be remedied by adding pyrites in smelting, which, however, I found, by my want of them in leaching of the above ores, to be a very scarce commodity, and then only in the shape of arsenical pyrites or mispickel. This want of sulphur in reducing this class of ores, smelted in a vertical blast-furnace, would give a product very little adapted for any of the above-mentioned processes; but perhaps this gentleman may have a modification, a secret of his own on Ziervogel's process, to make sulphates of silver in roasting without sulphur.

I could take many other parts of his elaborate article were it not waste of time and the valuable space of your paper. I will therefore conclude with a comment of the Rose of Tintic Mining Co. (Limited), of which he styles himself a resident director. I am certain that there is no such company in existence. As for the Rose of Tintic mine, I can only say that it is a prospect-hole on a quartz outcrop, and from a sample Mr. Cameron took himself in my presence across the vein, the assay produced only 1.458 ounces silver per ton; and my candid opinion is, that it is not worth the yearly assessment which it requires to keep possession of the same.

I would not have taken any notice of Mr. Cameron's article had it not been republished by the *Marquette Mining Journal*, and knowing that this paper is read a great deal by Eastern capitalists interested in mining and metallurgical processes, who do not know the real circumstances, this article might reflect on myself, as well as Mr. Ely, by its many fallacies concerning the mill.

I hope that this rather long article will find a space in your valuable paper, as it is every body's duty to give only real facts concerning any mine, mining district, and works, to keep up their credit and prosperity.

ELY MILL, Feb. 24.

#### PETROLEUM NOTES.

COMPARATIVE SYNOPSIS OF REPORTS FOR JANUARY AND FEBRUARY, 1879 AND 1880.

42 GALLONS = 1 BARREL.	1880.		1879.	
	Jan. 31 days.	Feb. 29 days.	Jan. 31 days.	Feb. 28 days.
Production for the month.....	1,749,113	1,668,080	1,369,921	1,218,420
Daily average.....	56,423	57,520	44,191	43,515
Stock at the wells.....			233,405	250,922
Iron tank stock.....			5,087,817	5,562,741
Total stock.....	8,797,633	9,073,562	5,321,222	5,813,663
Number of producing wells.....	12,000	12,072	10,480	10,582
"    drilling wells.....	540	535	205	223
"    "    completed.....	320	272	136	132
"    "    dry holes.....	17	16	15	16
Aggregate daily production of new wells.....	4,850	6,097	2,099	2,298
Average.....	15	22 1-5	15 6-10	17 1-10
Number of rigs building.....	569	615	352	381
Total shipments out of the region.....	1,650,469	1,392,151	663,998	702,729

—Stowell's Petroleum Reporter.

**OIL IN GERMANY.**—A special cable dispatch announces that the borings for oil at Hoelle, near Heide, in the northwestern portion of Holstein, have been most successful. A fountain of considerable volume has made its appearance, and is now welling forth and reaching a considerable height. The soil is asphaltic and naphthaloid. Heide is situated near the North Sea, and is about thirty-one miles north-northwest of Glückstadt. The deepest borings already yield four hundredweight of oil per well daily, and as the oil is becoming more and more inflammable as the bore approaches the basin, the discovery of a European Pennsylvania may be pronounced impending. The borings are exclusively in hands of Hamburg and Bremen firms, engaged in the American trade. The present bores yield an average interest of 22 per cent on the capital invested, against 19 per cent realized in America.

A company, with a capital of 1,000,000 marks, has been formed in Bremen, and a similar company is being formed at Berlin. The subject is engrossing the earnest attention of oil merchants in this country, who have hitherto virtually enjoyed a monopoly in the oil traffic.

The London *Grocer* says:

"The new petroleum region has been ascertained to extend from the city of Hanover, where the oil is found in the suburbs of Linden and

Limmer, as far as the Hildesheim Hills to the south and the villages of Oilper Klein Sheppenstett to the east. The whole area comprises about forty square miles, the centers being at Oberg and Oilsburg, and the districts due north and south of these two principal places. Herr Stripelman, a well-known mining engineer, gives it as his opinion that things in Hanover have reached a point exactly similar to what was the situation in America immediately anterior to the discovery of the Pennsylvania wells. A like view is taken in a report by Herr von Ducken, a Hanover mining councilor and government engineer, who has just inspected the Oedessen Works. As might have been expected, steps are being taken for forming a petroleum boring company, to work the newly discovered riches of Hanover. The Pennsylvania rope-boring apparatus now employed is capable of piercing from thirty to forty feet per day, whereas with the old machinery hitherto in use no more than two or three feet could be perforated. The present yield of the Hanoverian wells is at the rate of 10,000 cwt. per annum."

The Titusville *Morning Herald* says:

"During the month ended February 29th, there were completed 268 wells—220 in the upper, and 48 in the lower oil fields—giving a production of 4553 barrels, with an average of 17 barrels per well, while in the preceding month 320 wells were finished, producing 4816 barrels, with an average slightly under the February showing. The number of wells completed in February was 52 less than in January, 6 more than in December, 31 more than in November, well for well with October, 69 more than in September, and 97 less than August, the crack bear month of the petroleum year. Wells drilling February were 585, against 593 in January, 449 in December, 391 in November, 318 in October, 291 in September, and 333 in August. In February, rigs up and building were 648, while in January there were 562, in December 498, in November 490, in October 403, in September 318, in August 332. In February were developed 16 dry holes, against 17 in January, 14 in December, 22 in November, 20 in October, 23 in September, and 11 in August."

#### THE LABOR QUESTION.

**PITTSBURG, PA., March 15.**—The strike of 7000 puddlers begun to-day. It includes those employed from Johnstown to Columbia, and is the most formidable that has occurred for many years. It does not affect Pittsburgh, the manufacturers here having agreed upon a sliding scale for all classes of workmen.

**PITTSBURG, PA., March 17.**—An interstate convention of coal miners assembled here this morning. Pennsylvania, Ohio, Indiana, Iowa, Illinois, and West Virginia are represented, and about 100 delegates have arrived. The principal matters to come before the convention relate to the screen, the store order, and the semi-monthly pay question.

**PITTSBURG, PA., March 18.**—At the National Convention of Bituminous Coal Miners this morning, the Committee on Restrictions presented a resolution that after July 4th, 1880, eight hours shall constitute a day's labor among all coal miners in the United States; also, that each district shall restrict its own output after that date. The Committee on Screens reported that "the system of screening coal before it is weighed is considered an injustice to the miners of bituminous coal, and causes much dissatisfaction, and that all salable coal be weighed before it passes over any screen in all bituminous coal regions of the United States on and after May 1st." A resolution was adopted that miners in the various districts organize themselves under a secret organization, and recommending the Knights of Labor, and where no such organization existed that one be effected immediately. D. R. Jones submitted a resolution that "each State hold a convention on the third Tuesday in January, 1881, to declare a general and simultaneous strike throughout the bituminous coal-fields against the present system of weighing coal."

**CUMBERLAND, MD., March 18.**—All the train men on the coal trains of the Cumberland & Pennsylvania Railroad, running from Cumberland to Piedmont, are on a strike to-day, the first division men joining the strikers this morning to the number of 100. They demand 20 per cent advance, and their action causes about 10,000 miners and laborers to be idle, and puts a stop to the coal trade, as this road at present is the only outlet from the important mines to the canal, which is forced to remain idle at a time when there is a great demand for coal. The Eckhart Mines Branch Railroad trains are running as usual, but they only go to two mines at Claysville belonging to the Consolidation Company. The passenger trains are running as usual to-day from this city to Piedmont, a distance of 33 miles. This strike causes all coal-miners in this region to suspend operations until the strikers and the railroad company come to terms.

**POTTSTOWN, PA., March 15.**—The employes of the Potts Brothers Iron Company, Limited, and a number of the heaters employed by the Pottstown Iron Company, struck for higher wages to-day.

**BUFFALO, N. Y., March 15.**—One hundred and twenty puddlers and a number of rollers at the Union Iron-Works struck this morning for an increase of wages. They receive \$5.50 per ton now, and have struck for \$6.25, claiming that the latter is the uniform price at the other mills throughout the country.

**ALLENTOWN, PA., March 15.**—The employes of Osgood's zinc mines, at Friedensville, in this county, have struck for an increase of 15 cents per day.

**A SCOTCH COAL MINE ON FIRE.**—LONDON, March 15.—Dixon's Colliery, at High Blantyre, near Glasgow, is on fire from a gas explosion. A thousand men are thrown out of employment by the disaster. One death has resulted from the explosion.

**EMIGRATION FROM GERMANY TO THE UNITED STATES.**—Of the 33,327 persons who emigrated from Germany during 1879 by far the greater number came to this country, and two thirds of the whole number were males, according to Prince Bismarck's report. This is a good thing for both countries; for Germans find no better homes outside their own country than they are able to make for themselves here, and no class of citizens is more welcome.—*New York Evening Mail.*

## PROGRESS IN SCIENCE AND THE ARTS.

## Technology

**Technical Notes and Comments.**—From foreign sources, we learn that the French Academy of Sciences has awarded an extraordinary prize of 3000 francs to Dr. William Crookes, in recognition of his distinguished services to science by his studies in molecular physics, and his contribution to our knowledge of the properties of radiant matter.—M. Clamond, a French electrician, is reported in *La Nature* to have devised a thermo-electric pile upon a novel principle, which is capable of yielding electrical currents of considerable tension. A large instrument of this kind has been successfully employed to run several electric lights.—Mr. Lockyer's views, based on spectroscopic observations, of the compound nature of the chemical elements, appear to be steadily gaining ground. The last issue of the *Journal of Science* contains a review of Mr. Lockyer's methods and results, presumably from the pen of its editor, Dr. William Crookes, which, while not giving complete adhesion to Lockyer's views, considers them as probably correct.—The Belgian government is reported to have decided upon the abandonment of wooden railway sleepers, and the adoption, instead, of those of iron, an example which, it is thought, will be largely imitated.—Recent analyses of the anthracite coal of Valois, Switzerland, show a very close resemblance to that of Pennsylvania. Trials with American heaters show that it can replace the Pennsylvania coal. It has also been successfully tried on locomotives.—The American Watch Company, of Waltham, Mass., has just received another order (the third) from the British government for a large number of watches, intended for the use of engineers, conductors, station-masters, and other employes of the state railroads of India. This contract is a notable triumph of which the company has reason to be proud, as it was gained in open competition with foreign manufacturers.—The recent invention of an imitation of stained glass, consisting in applying to the glass to be decorated thin sheets of silk paper, printed with brilliant oil colors, is favorably spoken of as giving admirable results.—An international exhibition of earthenware, chalk, cement, gypsum, and cement industries is announced to be held at Berlin, to open on the 29th of June, 1880, and to continue until the 10th of August following. Herr Paul Loeff is the President of the Committee of Arrangements, and may be addressed at Berlin by intending exhibitors. This same Herr Loeff, by the way, is the inventor of a pottery kiln which he took pains to inform the public in his circulars was not medaled at the Centennial Exhibition.—During the past week, the Congressional Committee on Inter-oceanic Canal has been busy listening to the arguments of De Lesseps, Captain Eads, and others, for and against the several projects that have been presented in this department. Whether any decided action in the premises will be taken is at present uncertain. The present disposition seems to be to regard the project of De Lesseps as a private enterprise, which, at the present time, would not warrant the interference of this government.

## Engineering and Miscellaneous.

**The Tunneling of the Simplon.**—From present indications, the St. Gothard tunnel will not have long to boast the proud distinction of being the most notable work of engineering on the continent of Europe, as the same reasons which called it into existence will most probably give birth to another and even greater rival in the projected tunnel through the Simplon.

The object to be secured by this work is to establish a more direct line of communication between France and Italy than is now afforded by the Mont Cenis route, and thus to retain for France the bulk of the traffic, which, it is feared, will be diverted from the latter route by the more direct St. Gothard route. The Simplon tunnel, if ever completed, would be not less than 12 miles in length, as compared with the 9½ miles of the St. Gothard, and 7½ miles of the Mont Cenis tunnel. The Simplon project is being strongly urged, and its actual undertaking in the near future seems to be quite probable.

**A New Preservative Process,** of very general applicability for preserving plants and animals, has been devised by Herr Wickersheimer, preparator in the Zoötomical Museum of Berlin, and has been deemed of such value that the patent has been purchased by the Prussian government and given to the public. The procedure was presented and described in detail before one of the late meetings of the Academy of Natural Sciences of Philadelphia, where it attracted considerable attention. The following is an abstract of the specification of the inventor: "I prepare a fluid, with which I impregnate the object to be preserved in different ways, according to its nature or the purpose I have in view. The bodies of men and animals preserved by this process retain perfectly their form, color, and suppleness, so that we may take sections from them years afterward, for the purposes of science or of criminal justice. Under its operation, corruption, and the insalubrious odors produced thereby, cease. The muscular tissue presents, on cutting it, a condition like that of a fresh body. Finished preparations of selected parts, as the ligaments, lungs, intestines, etc., preserve their softness and flexibility, and the hollow parts may be even blown out. The parts of bugs, crustaceans, and worms remain movable, without exception. The colors may be made to remain perfect, if it is desired, in animal as well as vegetable bodies. The preserving fluid is prepared as follows: In 3000 grams (45,500 grains) of boiling water, dissolve 100 grams (1550 grains) of alum, 25 grams (387 grains) of common salt, 12 grams (186 grains) of saltpeter, 60 grams (930 grains) of potash, and 10 grams (150 grains) of arsenious acid. To ten quarts of the neutral, colorless, and odorless fluid, add four quarts of glycerine and one quart of methyl alcohol. The process of preservation, which is applicable to the dead bodies of men, dead animals, and vegetables, as well as to single parts of the same, consists, to speak generally, in soaking them and impregnating them with this mixture. If the preparations are to be preserved dry, they are kept in the fluid for from six to twelve days, according to their size, then taken out, and dried in the air. The ligaments of skeletons, the muscles, crustaceans, bugs, etc., will then remain soft and pliable, so that all the natural movements can be produced on them at any time. \* \* \* \* If it is desired to preserve smaller animals, like

lizards and frogs, and vegetables, with their colors unchanged, they should not be dried, but should be kept in the fluid. If bodies of men or beasts are to lie for a considerable time before being used for scientific purposes, it is enough to inject [inject?—Ed.] them with the preservative fluid. For this purpose, I apply, according to the size of the object, one and a half liters (about three pints) of the fluid for a child of two years, and five liters (or quarts) for a grown person. The muscles will appear then, even after the lapse of years, fresh when cut. If the infected [injected?] bodies are kept in the air, they will lose their fresh appearance, and the epidermis will become somewhat brown, but that may be avoided if the body is rubbed on the outside with the fluid, and is then kept shut up in an air-tight case. The last method is recommended in the case of corpses which are to be kept for some time before they are buried, when, instead of having the usual stiff look, the features and color will seem fresh and unchanged, and the bodies will not have a trace of odor. \* \* \* \* The treatment in different cases is governed by circumstances, but the composition of the preserving fluid is always the same."

**An Improved Method of Remaining under Water** for a considerable time—from twenty minutes to an hour—without the incumbrance of the apparatus at present used by divers engaged in sub-aqueous work, is described by Dr. B. W. Richardson, a well-known writer on topics pertaining to sanitary engineering. The method in question does away with the drawbacks and dangers of the present apparatus in common use, by dispensing entirely with the air-tubes and pumps now employed. The new process was exhibited at the "Royal Polytechnic Institute," in London, where it was closely examined by Dr. Richardson, who makes substantially the following report of it in *London Nature*:

The peculiarity of the method consists in the diver's taking a full supply of air-food down with him, which dispenses with pumping, no help being needed, except a signal man and cord. Mr. Fleuss, the inventor, showed the apparatus in operation. He descends into the water in an ordinary diver's dress, consisting of helmet, breast-plate, and common water-tight armings and leggings. On his shoulders he carries a weight of 96 pounds and on his boots 20 pounds.

A light cord is attached to the helmet for signaling to the attendant above. Before the mask is closed and the helmet adjusted, an "ori-nasal mouth-piece," with a breathing-tube of an inch bore proceeding downward, is firmly tied over the mouth and nose.

Dr. Richardson makes the statement that he was witness of, and carefully observed, two experiments, and that the diver assured him that when under water he breathed as freely and easily as when in the air. The duration of these two experiments was respectively twenty minutes and one hour.

The assertions of the diver were confirmed by his appearance and condition at the end of the longest experiment. He moved about on the floor of the tank, picked up coins, and could lie down and get up without difficulty. The exact mode by which breathing is effected, though evidently very simple, is still kept a secret by the inventor; but, whatever it may be, it is manifestly carried on wholly within the apparatus, so completely, in fact, that not even the expired air is visible in the water.

Dr. Richardson concludes that these facts demonstrate that, without any assistance from above, a man without any previous experience in diving can take down with him sufficient oxygen to live there easily for an hour. The diver is reported to have asserted that, but for the cold, he could easily arrange to stay down for four hours. He is also credited with the statement that depth would make no difference as to breathing within the apparatus. Dr. Richardson is quite enthusiastic over the practical possibilities of this invention. He concludes that, if a man can thus take his stock of breathing material with him, and live for hours without external access to air, he may extend the field of his industries and investigations into the deep sea, or into the most rarefied atmospheres, into mines filled with choke-damp, or amid the suffocating smoke of conflagrations, without fear of consequences.

## GENERAL MINING NEWS.

## ARIZONA.

## GLOBE DISTRICT.

From the *Silver Belt* of the 6th inst. we obtain the following: "The contract for sinking 100 feet on the Buffalo mine will be completed the coming week, and another contract for 100 feet more will at once be let, or the work commenced by the superintendent. The vein in this mine has improved from the surface down, and shows seven feet in width at the depth of nearly 100 feet.

"The Emeline mine continues to pan out well. The ledge, 4 feet in width, is strong and well defined at 20 feet in depth, carrying a 12-inch pay-streak of 400 ounces milling ore.

"The Stonewall Company is erecting hoisting and pumping machinery on the Florence mine at McMillen. At the bottom of a 65-foot shaft, they have an 18-inch vein of ore, assaying up in the thousands.

"The Surprise mine, near the Richmond Fasin, is showing a 2½-foot vein of ore with a 12-inch pay-streak at the bottom of a 30-foot shaft."

We condense as follows from the *Citizen* of the 6th inst.:

## HARSHAW DISTRICT.

At the Hermosa mine there are at present employed about 100 men, who are rapidly completing the grading and other work necessary for the placing of the machinery of the new mill, which it is calculated will be done in about thirty days. The mill, when completed, will be run on ore from the Harshaw mine. It is intended to start with twenty stamps, although the crushing capacity of the mill is double that number. The contract price of the same is \$135,000, and when finished, will be one of the finest in the territory. This camp is rapidly advancing in prosperity. The pay-roll now averages about \$2000 a week, there being fully 600 men in the place.

## WASHINGTON DISTRICT.

The Holland mine is being sunk on, and ore from the bottom is richer than above. This is also true of the Belmont, the shaft on which is being pushed on down, the depth now reached being 130 feet, and the ore of increasing good quality.

The El Campo mine is showing up a fine body of ore at the new shaft being sunk on the south end. The Redoubtable, Knickerbocker, and Ada are among the prominent mines of this district, and are showing finely.

In the Washington District, the Enterprise mine, better known as the Pagonia or Mowry, will be started up in a short time by Arizona and California capitalists.

## ARIVACA DISTRICT.

On the Chattacup, the cropping showed a 15-inch vein, which has constantly increased in width, until at a depth of twenty-two feet it has a breadth of four feet. Average assays made from cuttings through the vein give \$232 in silver.

The Modoc, with a two-foot vein, widening below gave assays of \$160 in silver and \$90 gold.

On the Ihex, a shaft has been sunk to a depth of sixty feet, following the vein from the surface, the vein being from two to three in width and giving average assays of \$130.

On the McCafferty property, three miles below the town, the shaft is down 103 feet and the tunnel driven in fifty feet. The ore is high-grade and the vein three feet in width.

## OLD HAT DISTRICT.

The American Flag shaft is down 31 feet, and there is now on the dump ore estimated by mining men to be worth \$12,000.

On the Pioneer, the new shaft is being rapidly pushed ahead, and will, it is calculated, strike the ledge at about 75 feet from the croppings.

The Good Luck, which is parallel to the American Flag, shows a vein of about 4 feet, the ore assaying from \$60 to \$120 per ton.

The Black Bear claim has a shaft down 32 feet, with a 3½-foot vein, the ore assays averaging \$90.

The Bullion, adjoining the last-mentioned mine, has a shaft down 15 feet, assays from which average \$80 per ton.

A mine of sulphur is reported as having been discovered on Lynx Creek.

The *Miner* announces the purchase, by the Silver Prince Mining Company, of the Black Warrior, Tuscumia, and Tuscarora mines, at prices which have not yet been made public. It is the intention of the company to erect, immediately, at the Black Warrior mine, a ten-stamp mill, to run only on rich ore, of which there is great abundance in the mines purchased.

On the Silver Prince, a new discovery has recently been made within three feet of some of the old workings. The ore-vein discovered crops out for 60 feet, is ten inches wide, and has chlorides in with the grass-roots. Average samples taken from this ten-inch vein go from \$800 to \$1300 per ton. Very rich ore has been taken out of what is known as the Big Prince, in the Silver Prince mine.

**TOMBSTONE DISTRICT.**—The Tombstone Mill and Mining Company has been purchased by Philadelphia capitalists, who recently visited the district, and made a thorough examination of the property. New discoveries are constantly being made in the Tough Nut mine, the property of this company. Two mills are now working the ore, and more machinery will soon be added. The other mines of the company require additional machinery to work them successfully, although the prospects are good.

The Mayflower mine, located in one of the best mining neighborhoods in this district, is showing up to a very great advantage since work has been resumed on the shaft.

The Silver Plume is now being sunk to a depth of 100 feet under contract. The Contention mill will begin to crush ore on the 1st.

The owners of the Longfellow and Sunny Side mines have consolidated these two valuable claims, and are pushing work vigorously, with good results.

A special dispatch to the *Daily Mining News*, dated San Francisco, March 16th, says: The Tombstone mine has at last been secured for the Eastern market. Disston, the great millionaire saw manufacturer of Philadelphia, and the Corbin Brothers, New York hardware merchants, have bought the Schieffelin interest for \$2,000,000. Their party will leave at once for New York. The mine is well-known in the East through Gov. Safford and the Corbins, who have been interested in it for a long time. A number of previous efforts to take the control East have failed. New and very extensive ore-bodies are constantly being developed in the Tough Nut, one of the Tombstone mines. Two mills are now working the ore from this mine, and more machinery will soon be added.

The four other mines belonging to the company look well, but the ore from them can not be worked until more machinery is added. Regular monthly dividends of \$50,000 will be resumed May 1st. The company will be reorganized at once under the laws of the State of New York, and the stock made non-assessable.

## CALIFORNIA.

## THE BODIE DISTRICT.

**BELVIDERE.**—The *Standard* says:

"This mine is just now the central point of interest in Bodie District. On the 400-foot level, despite the hardness and unpromising aspect of the country here, the ledge is strong, well defined, and of a good width—about four feet, on an average. South of the shaft is the region where the late discoveries have been made. The ledge has been explored in this direction for a distance of 140 feet, by means of a drift which is being pushed southward as rapidly as possible. For about 15 feet after leaving the shaft, the ledge does not look very well, it being something like four feet wide—about half the vein-matter being ore of a very low grade, and the remainder waste. Abruptly the ore shuts out the waste, becoming solid from wall to wall, and is enormously rich. With scarcely a break, the ore-body continues solid, and from three to five feet wide, from this point to the extreme south end of the drift. For the first 50 feet, it is one of the richest and most regular ore-bodies ever seen in this district. Some of the ore is surpassingly rich, assaying into the thousands. One noticeable feature is the large percentage of silver impregnating the ore, which, in many places is black and heavy with sulphurets. Fifty feet south of the shaft, an upraise has been raised in the ore-body, which maintains its size and richness to the top—about 60 feet from the drift. From the upraise, a drift has been run through the ore to the shaft. This drift is all the way in ore of very high grade, carrying a heavy percentage of silver. The ledge here looks even better than in the drift below, being much wider in places. In one place, the ore has been taken out for a width of six feet, and there is still ore on both sides of the drift. On the east wall is a seam of silver ore, varying from two inches to a foot in width, that is exceedingly rich.

"A few feet south of the upraise, a winze, 20 feet in depth, has been sunk from the four-hundred-level drift in ore of a fine milling grade; from the bottom of this winze, the drift has been continued south more than 80 feet in the ledge, which widens out considerably, and is nearly all ore; the ore here is not nearly so rich as that in the upraise and upper drift, but is of a very good quality—may be even called high grade; it will probably mill on an average \$40 per ton. The ledge in the face of the drift is about five feet wide—mostly all ore; in many places in this drift, the ore-body is fully six feet and upward in width. Stopping it out will be easy work, on account of the great size of the ledge and the freedom of the ore from waste."

**BULWER CONSOLIDATED.**—"The north drift on the Ralston ledge has been advanced since last report 10 feet; total length, 80 feet. The ledge is three feet wide, of good ore. The south drift is in 82 feet; progress for the week, 11 feet. The ledge is 2½ feet wide, of good ore. The north drift on the Stonewall ledge has been run since last report 12 feet; total length, 90 feet from the winze. The ledge in this drift is about two feet wide, of good ore. The stopes continue to look well. Shipments of ore to the Standard-Bulwer mill commenced March 1st."

**HARRINGTON.**—"The winze in the tunnel has reached a depth of 105 feet; entire bottom in vein-matter, and running through it are stringers of ribbon quartz, showing free gold."

**JUPITER.**—"On the 500 level, west cross-cut from main south drift is in 113 feet, and west cross-cut from south drift No. 2 is in 82 feet, both in short, hard ground. The pumping machinery is being rapidly placed in position."

**MCCLENTON.**—"The west cross-cut, 500 level, being run to cut the Sharon, Pacific, and intervening ledges, has been driven 20 feet, passing through seams

and bunches of quartz, and has attained a total distance of 312 feet. On the 675 level, the east cross-cut has been driven 10 feet, making a total distance from the shaft of 93 feet."

## COLORADO.

## BOULDER COUNTY.

"The Hercules," the Georgetown *Miner* says, "is now employing a force of about fifty men, all of whom, with the exception of half a dozen men who are working for the company, are lessees. Stopping and drifting are progressing, the stope carrying a fair streak of ore that mills 235 ounces for one class of ore, the concentrating stuff from the same place running \$45 per ton.

"Two parties of lessees are at work driving in the two adit levels east of the gulch, constituting the upper workings on that side. These are each about 200 feet long. The lower one shows a streak of ore several inches in width in both drift and stope, the ore running 335 ounces for one class of ore.

"West of the gulch, two adit levels are each in a distance of about 500 feet, and work is progressing in both places under lease. Recent mill-runs from the upper one returned nearly 500 ounces of silver per ton for unclassified ore."

**LEBANON MINING COMPANY.**—"The No. 5 lode, in the Lebanon tunnel, is now employing 20 lessees, who are divided up into five parties. The majority is working west of the tunnel, and they are all doing well. There are from one to ten inches of pay in the different stopes, and from two to six inches of solid ore. The last run of ore milled 430 and 220 ounces of silver per ton, according to class."

**LONE TREE.**—"The latest advices from the Lone Tree mine, on Trail Creek, say that a 4-foot vein of milling ore has been uncovered, similar in character to the Freeland ore."

**LUCKY HESPERUS.**—The *Miner* says: "The present work is through the upper junction tunnel, some 450 feet from its mouth. Stopping is also going on above the tunnel level on a good body of rich ore. We have been shown a certificate of a recent mill-run of 4700 pounds of ore out of this lease; the returns are as follows:

"1st class, 1048 ounces silver per ton; 2d class, 495 ounces silver per ton; 3d class, 211 ounces silver per ton."

**MAGNET AND SEQUEL.**—"The upper adit is in 375 feet and the lower one about 250 feet, and a large amount of stopping has been done over them with good results, the ore milling from 100 to 800 ounces, according to class.

"The last run of ore milled 113 ounces, and that is the lowest run they have yet taken out. Five miners are at work."

**MENDOTA.**—The *Courier* says: "In the stope west of the shaft, at a depth of about 100 feet, there is a vein of ore from a foot to eighteen inches in thickness, which is solid. This carries some iron pyrites, a little zinc, and will probably run from 50 to 65 per cent in lead. The ore runs from 30 to 100 ounces in silver, and varies considerably in quality."

**SAGINAW.**—"On the day of discovery, \$125 was taken from the apex of the lode, the ore consisting of fine-grained galena, silver glance, and black sulphurets, and milling 900 ounces of silver per ton. From that point down to a depth of thirty feet, the present depth of the shaft, the streak became thinner, but it is now coming in again, and appears to be of about its former richness. Specimen assays have run up to 1000 ounces of silver per ton. The owners are steadily developing the property."

The Silver Plume mine gives employment to a force of eight men, most of whom are doing development work.

**TROPIC.**—"The third level of this mine was started from the bottom of the main shaft, 60 feet below the second level. The drift started west has an 8-inch vein of solid ore to commence on, and the east one has an 18-inch vein, the value of ore in gold, silver, and copper, dressed into one class, being about \$150 per ton. The work throughout the mine is still chiefly confined to development, there being twenty men employed, who produce from three to four tons daily."

**VULCAN.**—"The work at present going forward on this property is confined to the Egan tunnel, and to a raise which will be carried to the surface, about 200 feet east of the cross-cut. The raise is about 30 feet above the level, and shows a fine body of ore, the whole distance. The shaft that has been sunk from this level shows ore of a good quality scattered through from three to four feet of quartz. It is 90 feet in depth, and shows but one wall of the lode. The Egan tunnel is being straightened and widened for a double track, and this is intended to be the main avenue through which work will be conducted after the connections are made.

"The work is completed for 180 feet, with 125 feet remaining, after which the tunnel will be driven ahead to the Vulcan lode. The ore, dressed into one class, mills from 450 to 600 ounces."

The *Register-Call* says:

"In Sugar Loaf District, Boulder County, there are now seven paying mines which are being steadily worked with more or less profit. Prominent among them is the Silver Ring, which is shipping ore running from \$140 to \$290. Another very promising mine is the Little Charlie, from which ore is being regularly shipped, which sells for \$104 to \$235 per ton. The Cupul produces some high-grade ore, which markets for \$80 to \$100 per ton. The Montezuma, Livingston, and Buttercup are also in pay."

## CLEAR CREEK COUNTY.

"The Dunderberg mine," says the Georgetown *Courier*, "has one hundred and seventy-five men at work."

**EMMA.**—"This property, on Democrat Mountain, still holds its own as the producer of the richest ore in the county at the present time. The last run of ore from Majors & Ross's ground milled 1264 ounces for first-class, and 419 ounces for second class. That from James E. Johnson's ground milled 793 ounces, and George Ross's last lot milled 515 ounces of silver per ton."

## GILPIN COUNTY.

**CALIFORNIA.**—The *Register-Call* of March 11th says: "The product of the California mine, Nevada District, from mill-ore, last week, was 141 ounces of gold, a value of \$2500. This mine is producing a large amount of smelting material, which is piled up in the ore-house alongside of the mine."

**GETTYSBURG.**—"The Gettysburg lode, on Bates Hill, is being worked through two levels, east and west, from the deep shaft at a point 140 feet below the surface. The mill-ore is now yielding an average at the Kimber stamp-mill of six ounces and seven pennyweights gold per cord, and the smelting-ore \$90 per ton."

**HAZELTINE.**—"The Hazeltine Mining Company, whose mine is located in Willis Gulch, Russell District, is shipping about ten tons of first-class ore to the smelters every week. In addition to this output, the product of concentrating ore will average as much more. The latter will be treated at the Humphrey Reduction Works, in Black Hawk."

## LA PLATA COUNTY.

The Leadville *Democrat* says: "Some splendid mineral, in large fissure-veins, has been found in La Plata County, heretofore considered as exclusively a placer and ranching section. The Denver & Rio Grande road will enter La Plata County first of the San Juan group, and with her placers, coal-fields, ranch grounds, and, last, her fissure-veins, a healthy boom and substantial prosperity will certainly follow."

## LAKE COUNTY.

**AMIE.**—The Leadville *Herald* of March 10th says: "Work is prosecuted on three shafts, and an average of forty tons daily mined."

The Catalpa "is regularly raising and shipping small quantities of ore by the use of the whim. The engine-room is completed, the boiler is in position and

will in a day or two be incased in brick, the engine is being placed on its foundation, and in a very short time all will be in readiness for starting the new machinery. In the mean time, the underground development is vigorously pushed."

**CHIEFTAIN.**—"The mine is worked through a tunnel and incline, running toward the east into the hill. Last fall, large quantities of ore were regularly shipped to the smelters, and continued until the heavy falls of snow in the winter. The road leading from the mouth of the incline, where the ore is all taken from the mine, has been entirely closed for several months, and the snow is some five or six feet therein. The tunnel extends into the hill a little south from east, a distance of 310 feet. For 160 feet it runs on a level; from that point, the contact pitches, and is followed at an incline of about twelve degrees for the balance of its length. The incline is being constantly pushed forward as fast as possible, and is extending nearly on a line with the claim and near its center. The tunnel is one of the best timbered about Leadville, and has an iron track for the cars to run upon, extending its entire length."

**CHRYSOLITE.**—"About half the ore coming from the mine is now raised through the Roberts shaft, and in a short time nearly all of it will be brought to the surface through this outlet. By the two cages and the heavy machinery controlling them, from eight hundred to a thousand tons of ore can be raised in a single day. The connection from the Roberts shaft to No. 4 Chrysolite, has now been fully opened, and the ore from the vast workings beyond can be carried in cars to the station of the great shaft. In the drift running east from the Roberts shaft, a fine body of ore is found. Mr. Keyes, the general manager, states he has fifteen inches of what he calls 'Lee ore,' which assays upward of two thousand ounces of silver to the ton. The drift is pushed forward rapidly, none of this rich ore being taken out but what is encountered in the drift. The output of the ore is larger than it has been, and is constantly increasing. The average daily production is now from 140 to 160 tons. In ten days' time, this will be increased to 200 tons. For the month of February, which had twenty-nine days, and five of those Sundays, the shipments of ore amounted to 3671 tons and 1925 pounds of ore; the net proceeds from which amounted to \$235,005. Mr. Keyes says all parts of his great mine are looking better at present than ever before."

**CLIMAX.**—"The consolidation of the Climax and Contract has not yet been effected, but is negotiating in New York. Work has been resumed on shafts one and two, and is also continued on three and four. The daily average production is about twenty tons."

**GLASS-PENDERY.**—"The Glass shaft only is being worked, but the drifts in this expose large amounts of ore, and main levels are being driven both north and south, with connecting cross-cuts. The north level will soon connect with the Penderly workings. The mine is regularly shipping from twenty to thirty tons of ore daily. This is taken entirely from development drifts, as no stoping has been done in the mine."

**IRON.**—"Mr. W. S. Keyes has received full instructions from New York, and taken full possession of the great Iron mine, formerly the property of Stevens & Leiter. The mine has heretofore been worked through a main incline running in on the contact over seven hundred feet, the cars being drawn to the surface by a whim and horse-power. By this means, the hoisting capacity has been greatly limited. Mr. Keyes will at once put up a large engine, enlarge the incline, and put the mine in proper working shape. There is probably a greater amount of developed ground in the Iron mine, and more ore exposed to view, than any in or about Leadville. Nearly two miles of drifts have been extended under the surface, and scarcely any stoping has been done. It is a certainty, therefore, with an active management and proper hoisting facilities, the production of ore will be vastly increased. In addition to the work on the Iron mine proper, mining will be vigorously prosecuted on the Rock claim, which is in the same consolidation. The entire property of Stevens & Leiter, consisting of seven mines, lying contiguous along Iron Hill and crossing California Gulch, has been incorporated into the Iron and Silver Mining Company, of New York State, with a capital of ten millions of dollars, divided into five hundred thousand shares at twenty dollars each. Mr. W. S. Keyes, the general manager of the Chrysolite and Little Chief mining companies, is also the general manager of this new company."

**LITTLE CHIEF.**—"Mr. W. S. Keyes is also the general manager of this property. The shipment from the Little Chief for the month of February amounted to 2584 tons of ore. In addition to this, about 350 tons more were smelted in the works of the company. The net proceeds amount to \$149,634. The average daily production from this mine is from 105 to 110 tons. Mr. Keyes will put up enlarged hoisting-works very soon, when the output will be increased."

**LITTLE GIANT.**—"Since the amicable adjustment of the differences between the Carbonate and Little Giant mines, the latter has been pushing developments and producing a large amount of good ore. About fifteen tons of ore are daily raised to the surface and sent to the smelters."

**LITTLE PITTSBURG.**—"Of this mine the Leadville Herald says: "The fall in the stock of the Little Pittsburg Consolidated Mining Company has been the sensation in mining circles for the past few weeks. The fact having become evident that the mine is regularly shipping large quantities of ore, and the regular dividend having been paid from the 1st to the 15th of March, has given renewed confidence and the stock is again gradually advancing. For the month of February, the shipments of ore amounted to 2108 tons and 1310 pounds of ore. As the Little Pittsburg ships no ore on Sundays, this was a daily average of about eighty-eight tons. This is not quite up to what the shipments have been, but it is not a sufficient falling off to justify such a panic among the stockholders. The ore at present produced is coming from the main shaft or discovery of the New Discovery, from No. 2 on the Pittsburg and No. 3 on the Winnemuck. An engine is being placed on shaft No. 1 of the Pittsburg, where a good body of ore is known to exist, and will be in operation in a few days. Ore will be raised from this shaft during the present week. This shaft is the original discovery shaft of the Pittsburg, and has never been worked except by a windlass; in fact, no work has been done upon it since the working done by Tabor and Rische, the original owners. Every thing at the mine seems progressing as usual, with the exception of the extensive work, now being pushed forward by the general manager, General Bearce. The development work being pushed is as follows: On the shaft on the Dives, the drill has been put in operation at a depth of 128 feet. It is now working well. On shaft No. 6, on the Pittsburg, which is on the line of the Dives, the depth attained is 230 feet. The engine on this shaft broke down a few days ago, and stopped work temporarily. It will be repaired, and work resumed in a few days. Shaft No. 1, on the New Discovery, is in iron at 115 feet, and a drift is being run upon it. It is looking well. The drift running east on the Winnemuck is fifty feet from the Amie line, and is being raised, the workings in the Amie being higher up. The machinery over the discovery shaft of the New Discovery is among the finest in the camp. The cage running up and down the shaft works to perfection, and the ore is easily and cheaply handled."

**LITTLE PRINCE.**—"The developments made in the Little Prince, on Brece Hill, in the past few days, have been very important. At a depth of 243 feet, a drift has been run to the southwest. Two weeks ago, the drift had extended its entire distance through mineral, some of it being of exceedingly high grade. This drift has now been extended a distance of 50 feet. At 45 feet, a solid body of mineral was found, pitching toward the east. This has been followed a distance of 20 feet by a drift running south of east, and a large amount of mineral has been taken out in the past few days. The drift will be extended some distance farther, and then turned toward the north again, to connect with the main shaft. This will leave standing a fine block of ore. The owners of the mine are vigorously pushing the development, and have the promise of one of the finest mines in the camp in a short time. The workings are in excellent shape; the shaft-house, engine, and hoisting-works being among the best to be found. A number of small lots of ore, recently taken out, have been shipped to the smelters, and give good returns. Should a system of stoping and regular min-

ing be now followed, the mine would yield handsomely at present; but it is deemed advisable to first extend the developments to greater length."

**MORNING STAR.**—"The most productive mine yet worked on Carbonate Hill is the Morning Star and Waterloo consolidation. The ore already mined from this property has amounted to over a million of dollars, and the underground workings have been conducted in a most systematic manner; pushing developments constantly ahead and exposing a great deal more mineral than has been taken out. The ore mined, in fact, has been mostly taken from development drifts, and but little stoping has been done. The timbering through the drifts and workings is particularly substantial, and more attention has been paid to keeping the mine itself in good shape than to the surface improvements. The hoisting works, for instance, although good and substantial, are not extensive enough for so important a mine. To this fact it is due that the shipments are not greater, as the hoisting facilities are taxed to their utmost to raise the sixty to seventy tons of ore daily produced. The capabilities of the mine are far beyond this. At no time in the history of the mine has the property looked better than at present, or a greater amount of ore been mined. The extensive levels and drifts are pushed forward as rapidly as can be, still opening out new and large bodies of ore; while the pillars of wealth left standing and already developed, are left undisturbed for the future. Experts have made careful estimates of the amount of reserves already exposed in the mine, and in no case have any of these calculations been below three millions of dollars. During the month of February, the shipments of ore amounted to 1471 tons. During the first part of the month, the shipments, owing to some delays, were smaller than usual; while during the latter part, and so far in the present month, from sixty to seventy tons are daily handled. The recent purchase by the owners of the Morning Star of the Half-Way House, Forsaken, Buckeye Belle, and other claims located down the hill to the north, nearer to Stray Horse Gulch, has added very materially to the territory, and forms, in the entire consolidation, one of the largest, finest, and most productive mining properties about Leadville. These new purchases, or rather the Forsaken and Half-Way House, are also actively worked. During the last month, owing to timbering and repairing these mines, a great deal of ore could not be extracted. From both the new mines, during February, there were shipped 130 tons. The production, at present, averages twelve tons daily. Some very fine ore has been taken from the Half-Way House. One lot of over four tons, shipped last week, netted \$209 to the ton. These properties are being rapidly developed, and will soon add largely to the shipments."

**ROBERT E. LEE.**—"The large addition to the shaft-house on the Robert E. Lee mine is nearly completed. It will make one of the largest and finest shaft-houses about Leadville, and the additional room was absolutely needed to handle the large quantities of ore. The ore, when coming from the mine, is very wet, and driers have been arranged in the building near the shaft. The production of ore from the Lee amounts to about forty tons daily, and this entirely from development drifts. No ore whatever is at present stoped."

**SCOOPER.**—"The Iowa Gulch Mining Company, which has recently come into possession of the Scooper mine, in that district, near Leadville, has begun preliminary work looking to the opening up of the mine in first-class style. When work was suspended in October last, about fifteen tons of good ore were on the dump, in addition to a large amount of low-grade ore, from which can be selected a great deal of milling ore. The shaft is 150 feet deep, but the contact was cut at ninety feet, and from this point a drift extends south twenty-seven feet, and then southwest a short distance, where the large body of rich ore was encountered. The present condition of the mine, after standing idle for nearly five months, is not such as to permit a careful examination. The drift is being straightened and substantially timbered. The long standing has caused several small caves that render it unsafe until secured, which is being done as fast as possible. The bulk of the ore is very large, as is seen on all sides, and the fact that a number of tons of fine ore have been taken out in the past few days in fixing up the drift, gives good promise. Much of the ore is heavy in chlorides of an exceedingly rich quality, while a large body of good grade milling ore also exists. It will probably take thirty days before the mine will be put in proper condition to work to any extent; but after that, there is no reason why it should not put forth large amounts of ore."

#### SAN JUAN AND SOUTHWESTERN COLORADO.

**ALASKA.**—"Stoping has been commenced, and an extra force of men put on sinking and drifting."

**BELLE OF THE WEST.**—"The Silver World says: "The men having the contract on the Belle of the West are taking out large quantities of very fine gray copper and galena ores from the lower level. The pay-streak is 18 inches wide."

**OCEAN WAVE.**—"A very rich strike was made in drift No. 1 of the Ocean Wave last week, it being a 20-inch vein of gray copper."

#### SUMMIT GOLD DISTRICT.

Tunnels of 100 feet each have been run during the past winter on the Ida and the Tunnel lodes, belonging to Judge Bowen. The ore in the Ida is said to be excellent, and the quantity immense. One hundred feet additional have been placed under contract.

Work on the Iowa & Colorado tunnel is pushed by a double shift. Now in 160 feet. One hundred and ninety feet yet to go.

#### DAKOTA.

We take the following items from the *Black Hills Pioneer* of the 6th inst.: "The Father De Smet Company, having shut down in order to add one more Blake rock-crusher, has improved the opportunity by overhauling and making extensive repairs on its mill."

"The Sir Roderick Dhu people have their new hoisting-works about completed. So far, they work to a charm. Several buckets of fine-looking ore were taken up Wednesday."

"Several thousand tons of waste rock took a slide at the Golden Terra mine Tuesday night, covering a portion of the track and doing some other damage; the amount we are unable to state."

"The Florence Silver Mill, at Galena, is pounding away night and day upon \$150 rock. The company contemplates a cessation, beginning next week, to enable it to put in ten additional stamps, roasters, crushers, and other machinery incidental to doubling the capacity of the mill. Two Ingersoll drills will also be introduced in the mine, thereby curtailing the present necessary manual labor three fourths."

"A rich strike is reported on the 75-foot level of the Stand-by mine." "A dispatch to the Salt Lake Tribune, dated Cheyenne, March 8th, says: "Considerable excitement prevails here over reported valuable mineral discoveries near Rawhide Buttes, which are about 140 miles north of Cheyenne. Recent assays made in Denver of surface rock are said to average 125 ounces of silver and \$8 in gold per ton. A regular stampede to the new discoveries on the part of those who can secure transportation is now progressing."

From the *News* we condense as follows: "The Fairview is one of the Hidden Treasure Gulch mines, of the Black Hills District, and one of the first deposit mines that was opened up. Work has been resumed upon it after being closed up for over a year. A new tunnel has been started in about 200 feet from the old workings, and now at a distance of about 80 feet a magnificent body of ore has been discovered that prospects splendidly."

"A vein of silver ore, carrying native silver and black sulphurets has been discovered in the Cora location at Galena. It is said to be fabulously rich, and much excitement exists in the silver metropolis over the discovery."

"The Cora is situated on the large bald hill on the right of Bear Butte Creek, in the vicinity of the Bald Eagle and Smuggler locations."

IDAHO.

We obtain the following from the Avalanche of the 6th inst.:
FRACONIA MINES.—In the Zulu mine, there is now sinking a winze sixty feet north of the tunnel, to connect with a lower level being run upon the ledge, which connection will be made in about five weeks. The vein in the winze is two feet wide of high-grade ore. The shaft upon the Crown Prince is 93 feet deep, with two as fine walls as one sees in any mine. The pay-ore for the first fifty feet will average fully two feet wide, and in the drift run from the bottom of the shaft, will average nearly five feet of good-looking silver ore. From the bottom of the shaft, a cross-drift west six feet opened up the Bismarck—a gold-bearing lode of six feet in width, with well-defined walls—where the work is now being prosecuted in drifting both ways upon the ledge. The quartz is of a lively character, and should mill well.
The Silver Hill has a shaft 58 feet deep sunk upon the lode. The pay-streak, which is very rich ore, averages all the way from four to eight feet in width, with large bodies of what are termed chloride and black sulphurets that assay very high.
In the Monarch, a tunnel has been driven in sixty-five feet upon two well-defined ore-streaks, each about one foot wide, which will probably come together in going ahead. The ore is only of a medium grade, but is getting better as they advance in the mountain, and will soon be good milling ore.

GENERAL NOTES.

At the Black Jack mine, on Florida Mountain, work is being prosecuted under favorable auspices. Nearly 250 tons of ore have recently been shipped to the Ellmore mill for crushing, and there are, or soon will be, 300 tons more of good rock ready for shipment.
The mines on the head of Queen's River, between Atlanta and Banner, are looking well.
The Paymaster mine, in Shaw's Mountain, is running in full blast now. Work had to be suspended for a few days on account of lack of timbers, but the company has plenty now, and work is resumed in the lower tunnel. The ledge has been tapped at the depth of 20 feet by the upper tunnel. At that point it is two and a half feet wide.
The owners of the Rising Sun mine, Shaw's Mountain, are driving the upper tunnel ahead in good ore.

MICHIGAN.

THE COPPER MINES.

AZTEC MINE.—The Ontonagon Miner says:
"A new organization has been formed on this property, and it is now known as the Aztec Copper Company, with 40,000 shares. The company is organized in Boston, and the stock placed in the market there."
FRANKLIN MINE.—The capital stock has been increased to \$1,000,000.
MASS MINE.—The product for the Mass mine for the month of February was 28 tons 1226 pounds.
All of the stopes, drifts, and shafts in the mine are looking remarkably rich in copper, although no very large masses are in sight. The ground opened is well filled with stamp copper.
RIDGE MINE.—The Ridge mine just at this time is showing remarkably rich in copper in the drifts that are being opened for the summer's work. More men are employed, and probably more would be if they were in the county."
PEWABIC MINE.—The Mining Gazette says: "The progress downward of the Pewabic 'bonanza' shaft is a matter of considerable moment just now to the stockholders of the mine, and we are pleased to be able to state that the ground it is going through above the 230 level carries more than an average of copper, while that below the 230 is exceptionally rich in metal.
SENECA MINE.—A special meeting of the stockholders of the Seneca Mining Company has been called for Saturday, March 27th, 1880, at the office of the company, 33 Pine street, New York, for the purpose of considering the question of selling all or a part of the real or personal property of the company. We understand parties stand ready to pay a liberal price for the mine, and put it to work immediately. The examinations of the veins have proved very favorable, and there is no doubt, if the mine were properly equipped, it could be made to pay. Although the vein is not as rich as the Calumet conglomerate, yet as far as it has been opened on the surface, it carries more and heavier copper than any other conglomerate that has been opened except the Calumet."
SCHOOLCRAFT MINE.—The Schoolcraft Mining Company is to be reorganized in Boston at once, and the number of shares increased. Either an assessment will be called, or some of the stock will be put into the treasury for a working capital. This property adjoins the Calumet & Hecla to the north and east, and is well equipped for extensive work. All the former work was done on a conglomerate vein, which was very productive in copper, though not as rich as the Calumet & Hecla. The Osceola amygdaloid stamp lode passes through the property, and work will be at once commenced on it; and as they have a good stretch of the vein, they can open up quite an extensive mine on this alone."
STAR MINE.—The stock of this old mine has found its way into the Boston market, and has been quite an active stock, advancing from \$1 to \$5 in a few weeks. The company will probably be reorganized, and the capital stock increased from 20,000 to 40,000 shares: the increased 20,000 being put into the treasury to be sold for a working capital. The Star, in its early day, was considered one of the most promising mines of Keweenaw County."
TECUMSEH MINE.—The Boston Globe says: "This property adjoins the Osceola, and carries the Calumet & Hecla vein, the Osceola amygdaloid, Allouez conglomerate, and many other well-known belts. The company starts off with \$40,000 in the treasury, and proposes to commence the development of the Calumet & Hecla and Osceola vein immediately. The property has 560 acres of land which gives between 3000 and 4000 feet in length of these veins. On the Osceola, two shafts are being sunk on the main vein, near the Tecumseh line, and they are proving very rich. The distance from the Tecumseh line is only a few rods, and practically, these developments insure the value of this vein on this property. No explorations have been made on the Calumet & Hecla, and, if the work of this company should disclose mineral at any point similar to the Calumet & Hecla mine, there would not be hoops strong enough to hold this stock. It undoubtedly possesses great value on the strength of developments already made close to its line by the Osceola; but with the Calumet & Hecla, Allouez, and other belts there is no estimating the possibilities of this property. There is a present demand for the stock, in advance of its being listed on the board, that bids fair to take every share of the stock offered for sale by the holders of the property. It promises to be the most active stock on the market for 1880. Very large orders, aggregating, it is said, 5000 shares, have been received from Lake Superior, where the greatest confidence is expressed in the success of this new favorite."

MONTANA.

From the Helena Independent we condense as follows:
The Alta-Montana Company's works, at Wickes, began operations Tuesday, the 17th ult. Every thing worked like a charm. On Monday, the 23d ult., the first "weighing up" was had, when, to the astonishment of those who had expected even the greatest things, the result of the six days' run—with a smelter capable of handling only ten tons of ore in 24 hours—was a mass of bullion of the value of \$6700, or over eleven hundred dollars per day, and as only sixty tons of ore were reduced, the yield was more than one hundred dollars per ton. Next week the company intends to start up its twenty-five-ton smelter, when it is expected that it will more than double the yield of the small smelter.

BEAVER CREEK MINING DISTRICT.

In the Sun Rise lode, a tunnel has been run on the line of the lode 104 feet,

which carries them 130 feet vertically below the surface. At this depth, the vein displays six feet of solid quartz, some of which assays as high as \$258 in gold to the ton. Over one hundred tons of ore are on the dump.
The Summit lode is opened by a tunnel 30 feet in length, and shows very flattering prospects.
At the bottom of the 80-foot incline, the Iron Age has widened out to a full five-foot vein, and the Eclipse, at the end of the 75-foot incline, shows the sparkling gold in its somewhat narrower vein. But little work has been done on the Aurora this winter, though enough to determine its rich character.

NEVADA.

The latest official advices are as follows:
OPHIR.—"We have sunk and timbered our main incline 10 feet, making a total depth of 60 feet below the 2500 station. The material passed through is a vein formation showing streaks of quartz and some water. We still continue to extract the usual quantity of ore from our stopes, and our machinery is working well."

UNION CONSOLIDATED.—"We are now extracting 250 tons of ore per day, and the Brunswick and Morgan mills, whose combined capacity equals that amount, are engaged in its reduction. The sump on the Union shaft is cleaned out, and sinking commenced. The pump-rods and column are in place up to the 1600 station, and the foundations for the pumps at that point are now going on."

JULIA CONSOLIDATED.—"No material change in the general character of the ground from previous reports."

CALIFORNIA.—"During the past week, 234 tons of ore have been extracted. The C. & C. shaft has been sunk and timbered 16 feet, and is now 62 feet below the 2200 level. The bottom is in vein material."

CONSOLIDATED VIRGINIA.—"Since last report, 945 tons of ore have been extracted from the 1550 and 1750 levels. On our 2000 level, the joint Best & Belcher east cross-cut has been extended 33 feet through hard, blasting material. This cross-cut is now in 176 feet. On our 2200 level, the joint California cross-cut has been advanced 33 feet through a favorable vein formation carrying streaks of quartz; total length, 126 feet."

HALE & NORCROSS.—"The bottom of the winze is still in quartz and porphyry, and nine feet have been added to its depth since last writing; total depth, 171 feet. Our north cross-cut has been advanced 15 feet and stoped, having come to the west wall. Nothing of value has been discovered. Total length of cross-cut, 264 feet."

NEW MEXICO.

The work of reopening the old Turquoise mine, in the Chalchuitl Mountain, has been steadily progressing since the 1st of January. A shaft has been sunk on the east side of the mountain and another on the west. At the base of each, tunneling from one to the other has been commenced.

The Grant County Herald says that the "contracts for sinking on three of the mines belonging to the Shakespeare Gold and Silver Mining Company are nearly completed, with the exception of the work on the General Jerry Boyle. On this mine, a body of quartz was struck at the depth of fourteen feet. It was but one foot wide when struck; but, upon sinking two feet farther, it widened out to six feet. The quartz is very hard, and assays about sixty ounces to the ton. The shaft on the Mississippi is down forty feet, and that on the New Orleans twenty-six feet."

UTAH.

A correspondent of the Salt Lake Tribune, writing from Bingham under date of March 8th, says:

"The Tiewaukee continues to make her regular monthly shipments. Several car-loads of very fine galena ore were shipped to-day. The mine is looking way up. The Jordan mill has shut down for want of fuel, but will start up as soon as coal can be had to fire up with."

"Stuart No. 2 is silent for the present, but will start up in a short time with renewed vigor."

"Stuart No. 1 continues to grind away, though the same evil, want of coal, prevails. Wood is substituted, but coal must soon arrive or business will cease."

"The Lead mine is holding out still as big as ever. The shaft has reached a depth of 100 feet, and a drift has been run a distance of 100 feet southwest on the vein, going through a fine body of crystallized lead ore the entire distance."

The Silver Reef Miner says:
"A strike of considerable importance has been made during the past week on the 300-foot level of the Barbee mine. Those who ought to know something about it say that it is one of the finest ore-bodies ever uncovered in the district.
"Once more the River Reef comes to the front with a strike in the Duffin, made by chloriders working in the main incline. Assays show \$200 to the ton."

The Hamblin mine, situated between the Yosemite and the Old Telegraph mines, in Bingham Cañon, has let a contract for a 250-foot tunnel, entering the hill between the upper and lower tramways below the Old Telegraph works. It is the design of the company to ultimately push this tunnel through the mountain. The immediate object, however, is to strike the ore-body 600 feet below the lowest workings of the mine, which at present shows fourteen feet of vein-matter, a large percentage of which is pay-ore.

PROPOSALS.

Table with 3 columns: Description of proposal, Date received, and Status/Reference. Includes items like 'For Furnishing and Delivering 6000 cubic yards of Sand', 'For Building Dam for Brockton Water-Works', etc.



**FINANCIAL.**

**Gold and Silver Stocks.**

NEW YORK, Friday Evening, March 19.

There has been a very large business and prices have, as a rule, been well maintained. The recent break in Little Pittsburg has had a very demoralizing effect upon the market; but although many holders have been scared out of their stocks, there seems to be a new element to purchase at fair prices, and there are already evidences of a recovery of confidence.

Although the decline in Little Pittsburg has resulted in considerable loss to the public, it has set it to carefully studying the value of mines, and we think the ultimate result will be to prevent the wholesale disposal of properties at highly overrated values.

The dealings in the Bodie stocks have been as follows:

In Bodie there have been sales amounting to 1565 shares at \$8@7. There were no sales to-day. Standard has been very active and strong, selling to-day up to \$33½, closing at 32½. The sales aggregated 12,403 shares at 29½@33½. On Tuesday, 15 shares of Bechtel sold at \$1.90. Bulwer has been fairly active, and although for a time showing a little weakness, it is to-day stronger than at any time during the week. The sales amount to 1960 shares at \$8¼@9¼. Consolidated Pacific has shown more activity and continued weakness, brought about by an assessment of \$1 per share. The sales amount to 1905 shares at \$3@2. On Monday, there were sales of 300 shares of Goodshaw at \$35@31. South Bodie has had a large business, but has been weak; the sales amount to 12,200 shares at 80@68c. South Bulwer has had the same features as South Bodie, the sales amounting to 15,000 shares at \$1.80@1.25.

The Comstock shares have been quiet and fairly steady. California records 1450 shares sold at \$3.40 @3.30. The sales of Consolidated Virginia aggregate 2940 shares at \$3.65@3.50. Consolidated Imperial has only had a moderate business, the sales amounting to 5900 shares at 53@50c. On Tuesday, 30 shares of Union Consolidated sold at \$37 and an inquiry.

The Tuscarora stocks have been very active. The sales of Belle Isle amount to 5190 shares at \$1.15@1. On Monday, 175 shares of Grand Prize sold at \$1.25. The sales of Independence amount to but 400 shares, at \$1.10@1.00. On Saturday, 100 shares of Martin White sold at 80c. Navajo is without a transaction. Tuscarora has been quite active, although entirely neglected to-day. The range has been 36@47c., with sales of 27,000 shares.

In the miscellaneous San Francisco stocks there has been but a small business. Eureka has advanced from 14½ to 18½, with sales of 243 shares. The cause of this advance is undoubtedly due to the improved prospects of the mine. On Tuesday, 100 shares of Coledonia B. H. sold at \$3. Tip Top has been quite active, but weak; the sales amount to 2135 shares at \$4.75@4.25.

The dealings in stocks on our regular lists have been as follows: On Saturday, 1800 shares of Caribou sold at \$2½. There were no further transactions until to-day, when 600 shares sold at \$3½@3¼. Climax has been quite active and irregular; the sales amounting to 12,330 shares at \$2.25@2.60. Excelsior has been steady at \$20 during the whole week, with sales of 250 shares. Findley has been somewhat neglected, the sales amounting to 2900 shares at 61@65c. Great Eastern has not been so active as it was, and has been weak. The sales amount to 20,900 shares at 45@36c. Green Mountain has had a fair business, and has been a little weak; the sales amount to 5600 shares at \$3.25@3.10. On Saturday, 50 shares of Homestake sold at \$39. Hukill has been both quiet and weak; the sales amount to 7400 shares at \$4@3.20. La Plata has been very quiet, the sales amounting to but 210 shares at \$6¼@6½. Leadville has had a moderate business, and has been a shade weaker. The sales aggregate 9925 shares at \$3.35@2.95. The transactions in Little Pittsburg have continued to be large, and more confidence is expressed by holders of the stock, although the efforts to bear it are just as strong as they have been; the sales amount to 44,015 shares at \$8@11. Moose has sold at \$1.20@1.10, the business amounting to 7950

shares. New York & Colorado has been neglected, the sales amounting to but 600 shares at \$1.65@1.70. Plumas has been quiet and fairly steady; the sales amount to 400 shares at \$1.95@2. Calaveras has had a liberal business with a weakening tendency; the sales aggregate 9300 shares at \$1.85@1.60. Central Arizona has been weak and quiet; in fact, it has been entirely neglected for the past two days; the sales have been 2800 shares at \$9.50@8. King's Mountain records sales of 350 shares at 90c.@1. The Mariposa stocks have been quiet and steady; the sales of Preferred amount to 400 shares at \$4.50@4.25, and of Common 300 shares at \$3. The Quicksilver stocks have been active, and Preferred has shown considerable strength, owing to the impression that the decision in the case between the Preferred and Common stockholders will be decided in favor of the former; the sales aggregate 15,200 shares at \$71@78½. The sales of Common amount to 2225 shares at \$21@17. Rappahannock has been quiet but steady, the sales aggregating 9400 shares at 42@40c. Shamrock has shown considerable activity, the sales amounting to 12,400 shares at \$1@1.20. The sales of South Hite have amounted to 12,350 shares at \$1.70@2.15. Sutro Tunnel has been very active, the sales aggregating 61,915 shares at \$3¼@2½. The sales of Trio amount to 500 shares at 70c. Five hundred shares of Tioga sold to-day at \$2.50.

The dealings in the fancies have been as follows: American Flag, 14,640 shares, at 60@56c.; Buckeye, 57,750, at 57@63c.; Dahlonga, 9300, at 20@18c.; Gold Placer, 103,450, at 71c.@1.10; Lacrosse, 36,000, at 48@56c.; Lucerne, 8900, at 15@18c.

Operators in Maine silver mining shares have been very much exasperated, on account of the sudden and summary action of the Legislature of Maine, in repealing the law, passed last year, exempting mining companies from taxation, thus tending to drive capital out of the State. The Governor of the State signed the bill without being aware of its force; but the representatives of the mining interests have since succeeded in obtaining a hearing on the subject. The result of this is, that a new bill has been drafted, and it will probably pass both branches. The people of Maine are not yet in a position to afford to crush out new enterprises in their State.

The Spring Valley Hydraulic Gold Company is now in possession of its property, and working with full head of water and force of men. Advice received state that the former owners, before delivering up the property, cleared up about \$100,000 of gold for about seventy days' run. The United States Mining Investment Company is now offering for sale a limited number of shares of the Spring Valley Hydraulic Gold Company, which were set aside for working capital, and especially for the completion of the lower tunnel, which is entirely dead-work. The price of the stock is \$11. This is done so that the regular earnings may be applied to dividends.

The following directors were recently elected by the stockholders of Gold Placer: C. R. Mower, W. B. Wheeler, W. A. Kimball, R. C. Ryerson, H. A. Patterson, E. S. Munroe, Sydenham Mills. Edmund S. Munroe was elected President, and W. B. Wheeler, Treasurer. It was resolved to sell at auction 29,000 shares of stock held by the treasury at a price not less than \$1 per share. The stock was offered at the Mining Exchange, and sold at \$1@1.03, buyer 10. The company hopes to secure enough money to carry water on to the property and make it available. It is estimated that it will cost \$60,000 to do this. The par value of the shares will be reduced to \$5, and the number increased 100,000, making a total of 300,000 shares and a capital of \$1,500,000. This is already an overrated property, and it will certainly be highly over-capitalized.

Messrs. Trask & Francis, of No. 70 Broadway, report the current quotations of unlisted stocks as follows:

	Bid.	Off'd		Bid.	Off'd
Amie.....	3.00	3.25	Freeland.....	5.75	
Bassick.....	17.00	19.00	Harshaw.....	22.55	
Breece.....	2.60	2.75	Highland Chief..	20.00	25.00
Bull Domingo..	7.75	8.25	Horn-Silver.....	17.75	18.25
Bald Mountain..	1.75	1.85	Little Chief.....	14.50	15.50
Cherokee.....	1.25	1.50	Penobscot.....	1.25	2.00
Chrysolite.....	29.00	30.00	Silver Cliff.....	6.75	7.00
Dunderberg....	2.75	3.00			

**OFFICIAL LETTERS.**

**Bull Domingo.**—The following telegram has been received at the office of this company: "Main shaft is at the 150-foot level. Commence drifting to-morrow (18th). Are taking out more ore than usual." There are to-day 4000 tons in concentrating pile. Taking out ore rapidly, and working smoothly. Mine looks well. Working in concentrating mill.

**The Hukill.**—The latest reports from the Hukill mine are to the effect that every thing is going on well; 100 tons of the first-class ore which net \$100 per ton have been shipped, and 20 to 25 tons of the second-class are being concentrated daily. The third level looks better than any of the others. Sinking is going on as usual for the next level.

**Little Chief.**—Letter dated 7th reports new strike of superior sand carbonates in north drift, shaft No. 4. Total ore up to 7th shipped 785,880 tons. Telegrams of 14th and 15th state that 266 tons were shipped to smelters. Telegram from the Little Chief mine reports, on 13th, 102 tons shipped on previous day. Remittance of \$30,000 on the 13th.

**Barcelona.**—A dispatch from the superintendent of the Barcelona mine, dated March 13th, says: "Rich strike in 75-foot level."

**South Bulwer.**—A dispatch from the superintendent of the South Bulwer mine, dated March 12th, says: "We have cut strata of good ore in west cross-cut, 550-foot level, which is looking favorable."

**Sir Roderick Dhu.**—The superintendent of this mine telegraphs that he will to-day (17th) begin to run an additional twenty stamps on ore from the mine, thus making a total of eighty stamps now in operation.

**Chrysolite.**—The general manager of this mine, W. S. Keyes, writes under date of March 12th, as under: "There are no noteworthy changes in the mine; the new level is even better, if that be possible. We are still finding good ore as we sink Chrysolite shaft 4; the north drift from this shaft is showing sand carbonate in the bottom, where heretofore we had iron and galena. All stopes and drifts are looking and yielding well. We can considerably increase our productions soon as the new level is further advanced. We shipped 133 tons to smelters to-day. Total, 1691 tons, March 1st to March 12th."

A telegram dated March 17th says: "Nothing new. Shipped 136 tons to smelters to-day."

**Bulwer Consolidated Mining Company.**—A dispatch to the vice-president of this company, dated San Francisco, March 19th, says: "The Bulwer Consolidated Mining Company commenced milling ore through its half of the Standard-Bulwer mill on the 1st inst. Until the mill is in perfect order, it is running on low-grade ore. Bullion shipments to date, \$11,000. The superintendent estimates shipments for this month at \$50,000."

**Winnebago & O. K.**—The superintendent of this company reports that he hopes to be able to hoist ore by April 1st, and from date ship continuously, with a material increase in the quantity of ore by May 1st. The vein in the third level still continues large, and work is advancing in the drift on the second level.

**Standard Consolidated.**—From the superintendent's letter from this mine, dated Bodie, Mono County, Cal., March 7th, we extract as follows: "During the past week, the main shaft has been sunk nine feet, making a total depth of 812 feet; the rock in the bottom is at present very hard; the water-flow remains about the same. There has been no important change in the formation passed through by the cross-cuts, 700-foot level. The different stopes throughout the mine are looking well. In the north drift, 885 foot level, the ledge continues to yield the usual amount of good milling ore. The ledge in the West Standard stopes is four feet of rich ore. In the Gildea stopes, the ledge is five feet wide, and looks well."

At a regular meeting of the Directors of the Caribou Consolidated Company, held on the 15th inst., the following telegram, received from the superintendent, was submitted:

"CARIBOU (via Boulder), COLO., March 13.  
"Brayton Ives, President, 4 Broad street, N. Y.:  
"Shipped three thousand (3000) ounces 9th inst. Will ship five thousand (5000) more Tuesday. Owing to week's stoppage of mill by impassable snow-drifts on road from mine, and violence of mob, which interrupted mining, and also caused unusual expenses, have been unable to ship enough surplus bullion for usual dividend. Both mill and mine now doing finely, but lest similar temporary obstructions should arise hereafter, I strongly recommend the payment of dividends quarterly, instead of monthly. Have injunction against Seven-Thirty mine, and am sinking No. 5 shaft to cut its workings. Lehmer (late owner of Seven-Thirty mine) and Minckler (superintendent of No Name mine) are both bound over to appear for inciting riot. Main

GENERAL MINING STOCKS.

Dividend Paying Mines.

Table listing mining companies with columns for Name and Location, Feet on Vein, Capital Stock, Shares (No., Par Val, Total levied to date, Date and amount per share of last), Dividends (Total paid to date, Last Dividend), Highest and Lowest Prices per Share at which Sales were Made (Mar. 13, 15, 16, 17, 18, 19), and Sales.

Non-Dividend Mines.

Table listing mining companies with columns for Name and Location, Feet on Vein, Capital Stock, Shares (No., Par Val, Total levied to date, Date and amount per share of last), Dividends (Total paid to date, Last Dividend), Highest and Lowest Prices per Share at which Sales were Made (Mar. 13, 15, 16, 17, 18, 19), and Sales.

g. Gold. s. Silver. l. Lead. c. Copper. \* Non-Assessable. † Assessment paid. ‡ Ex dividend. Total Assessments levied to date 63,042,110 Total Dividends paid to date 140,269,665 Total shares sold during the week, 606,871

shaft is going down in ore. Plenty of ore now in mill, and roads open. (Signed) EBEN SMITH, Supt."

After deliberation, it was resolved that the recommendation of Mr. Smith was entitled to much consideration, inasmuch as he is not only the practical manager of the company, but also the owner of over eight thousand shares of its stock; it was further resolved that his suggestion should be adopted; and the secretary was instructed to inform the stockholders of this action.

DIVIDENDS.

The Chrysolite Silver Mining Company announces dividend No. 5 of 2 per cent, equal to \$200,000, payable on the 27th inst.

The Father De Smet has declared its fourth dividend of 30 cents per share. The company has a surplus of about \$130,000 in the treasury.

The Green Mountain Mining Company has declared its ninth dividend of 5 cents per share.

The La Plata Company has declared its regular dividend of 7 1/2 cents per share.

The Empire gold mine, Amador County, Cal., formerly paid dividends regularly. It has recently been reincorporated here, and has announced its ninth dividend of 5c. per share, being the first under the new organization, and the first also for some years past.

The Consolidated Virginia and the California mining companies have passed their dividends for March.

The Eureka Consolidated Mining Company has declared a dividend of 30 cents per share.

The Dunderberg Company is now working 175 men; with this force they are getting the mine in good shape, and expect to announce a dividend in April.

The stoppage at the works at the Ontario is simply occasioned by the lack of facility the company now has of treating its large supply of ores. It is now putting in two new White & Howell furnaces, two rotary drying furnaces, and a large salt-mill, which, when completed, will augment the production of bullion from 30 to 50 per cent. The work will be completed in from three to four weeks, and in the mean time the dividend will be paid with the accustomed regularity.

REVIEW OF THE SAN FRANCISCO MARKET.

It is said that the defeat of the Gorley bill has given fresh life to the San Francisco brokers, and the stock market improved under the news. Certainly some favorable influences are at work; for we have to record, as a rare exception, a generally better market for San Francisco mining stocks. The quotations, however, show that a decided uncertainty still exists as to the future of the "great lode," and all the legislation in the world, with the combined efforts of California street thrown in, would not now bring back the booming days of yore, should the deep levels now so energetically prospected, fail to reach bonanza. A bill has been introduced in the California Legislature by Mr. McDade, for the purpose of procuring and preserving monthly statements of the business and operations of corporations organized or incorporated for the purpose of mining, milling, reducing, or working ores, metals, or minerals. The "boom" has reached the Mormons, as witness the following from the Salt Lake Tribune of March 13th: "This morning at 10.30, stocks will be called at the Salt Lake Mining Exchange by Major Bradley."

Sierra Nevada is well maintained. Active work is going forward in the various portions of this mine, and very encouraging indications are said to be constantly met with.

The operations on the 3000 level of the Belcher mine are creating a great deal of interest, but nothing definite comes to the surface; as yet, all is hope and uncertainty, and the stock declining.

Silver King closed in San Francisco yesterday at \$6 1/2 per share, a decline from recent prices. From the annual report of this company, we learn that the product of the same from May 5th, 1877, to December 31st, 1879, from ore sales, amounted to \$819,144; within this period nine dividends were declared, amounting to \$450,000. The freight bill shows a total of \$67,517. The ore-reserves were stated to amount to over 70,000 tons, which, at \$45 per ton would give a gross product of over \$3,000,000 (rather excessive, we should judge). The president in his report says:

"We feel justified in saying that the prospect of an immediate and continuous payment of dividends is assured. Dividends could be declared from and after February; but in consequence of the large amount of ore now exposed and ready for extraction, and the comparatively limited

SAN FRANCISCO MINING STOCK QUOTATIONS.

Table with columns: NAME OF COMPANY, CLOSING QUOTATIONS (Mar'h 12-18), Opening Mar'h 19.

capacity of the present mill to work the ores, we deem it advisable to immediately add ten stamps to the mill, and a requisite number of concentrators, all of which can be completed and put in operation within sixty days from this date, and interfere but little with the working of the mill now in operation."

Hale & Norcross shows considerable improvement, opening to-day at the best price of the week, namely, \$6 1/2 per share, against \$5 3/4, as quoted a week ago. The annual meeting of this company was held at San Francisco on the 12th inst.; from the secretary, we learn that the receipts aggregated \$346,067, of which about \$320,000 were derived from three assessments. In the item of disbursements, we note payments for mine labor and salaries of \$111,000, for construction \$26,000, and for the Chollar-Norcross-Savage shaft \$32,415.

The Potosi Mining Company stock is very steady, operating to-day at \$4 1/2, the same as in our last. The annual meeting of this company was held at San Francisco on the 12th inst. The expenses for the year ending March 1st aggregated \$149,156. It is said that the March assessment of \$50,000 would give the mine ample funds for present necessities.

Union Consolidated opens at \$37 1/2, the best price of the week. This company is beginning to assume considerable prominence as a bullion producer, the daily output of ore amounting to over 250 tons, while the bullion yield for February aggregated over \$200,000. The winze from the 2400 level of this mine has attained a depth of 25 feet, and is passing through vein material carrying quartz. Some water comes in from this formation, but not enough to interfere with the work. The shaft is 47 feet below the 2400 level. The main south drift, on the 2400 level, is still in a heavy

vein formation, carrying quartz; total length from the Union shaft, 310 feet.

Argenta is weak and lower. The superintendent of this company writes encouragingly of the outlook on the 300 level of this mine.

Ophir shows the best price of the week. It is said that this mine is opening up splendidly on its 2100 level near the Mexican line, the ore assaying \$38 to the ton, and the joint Mexican-Union cross-cut on the same level is also in fine vein material.

The Assessment Record.—The following statement exhibits the assessments levied during the first three months of the present year, as compared with the same periods during 1878 and 1879:

Table with columns: Month (January, February, March), No., Amount.

PHILADELPHIA MINING STOCKS.

The subjoined table shows the opening, highest, lowest, and final sales of all the mining stocks dealt in at the Philadelphia Stock Exchange, and at the Philadelphia Mining Exchange, for the week ending the 17th inst:

Table with columns: Stocks, Opening, Highest, Lowest, Final, Sales Shares.

Copper and Silver Stocks.

Reported by C. H. Smith, Commission Stock Broker No. 15 Congress street, Room 3.

The market for copper stocks the past week has continued to rule dull and inactive, while prices show a marked decline in many of the speculative fancies. The productive mines, owing to the decline in ingot copper, are also lower, and a general dullness seems to pervade the whole market. We are inclined, however, to believe that the depression is but temporary, and that those who buy stocks now, and hold them, will be amply rewarded in the near future.

Calumet & Hecla has held quite steady at the decline of last week, quotations on small sales being 247 1/2 @ 248. Central records sale of 100 shares at 46, at which price it is offered.

Copper Falls dull at 12 3/4 @ 13 1/4, closing 12 1/2 bid.

Franklin has shown more activity, and advanced from the lowest point of last week to 23; but at that price there was considerable stock pressed for sale, which caused a decline to 21 3/4, and closes dull at 21 3/4 @ 21 3/4. Sales 2500 shares for the week.

Quincy has shown more strength than any other stock, and advanced from 36 1/2 to 38 3/4 and 39; buyer 60; closing 37 1/4 @ 38.

Oscuela firm, with small sales at 44 1/4 @ 44 3/4. Pewabic dull, but quite steady, with sales at 61 1/4 @ 62 1/4; closing 61 1/4 @ 62.

The annual report of the Pewabic Mining Company shows that during the year 7,299 tons of rock were stamped, yielding 415,565 pounds of mineral, or 336,519 pounds of ingot copper. The receipts during the year were \$243,901, of which \$62,173 were from sales of copper, \$40,000 from \$2 assessment, \$97,560 from \$10 assessment, \$31,000 from loans, and from custom stamping \$67,222; cash on hand, January 1st, 1879, \$5883. The expenditures were \$100,000 to T. W. Edwards on account of the land purchase; mine agent's drafts, \$43,928; bills payable, \$25,100; other expenses and charges, \$10,332; cash on hand, \$64,540; total \$243,901. The assets are the cash on hand, \$64,540, the unpaid assessment (since paid), \$102,540; copper on hand (since sold), accounts receivable and balance assets at mine, \$13,273; total, \$180,354, against which there is due T. W. Edwards for balance of land purchase, \$175,000, and \$1715 due owners of forfeited stock, leaving, after the payment of all liabilities, the entire property unincumbered and \$3639 in the treasury.

Atlantic, small sales at 247 1/4 @ 25 1/4. Allouez, sales early in the week at 22 @ 23; this afternoon sales at 21 @ 20 1/4. There is very little doing in these two stocks in this market, sales of both only aggregating about 700 shares.

Huron in the early dealings was depressed and sold down to 10; but orders from the lake advanced the price to 11 1/2, subsequently it declined to 10 1/2, and closes dull at 10 1/2 bid. Ridge sold at 7 1/4 @ 8, closing 7 1/2 bid.

COAL STOCKS.

Table of Coal Stocks with columns for Name of Company, Capital Stock, Shares, Par Val, Last Dividend, and Quotations for various dates (March 13, 15, 16, 17, 18, 19).

\*Of the sales of this stock, 58,476 shares were sold at the Philadelphia Stock Exchange, and 31,300 at the New York Stock Exchange. † 107%.

Total Sales..... \$21,331.

BOSTON MINING STOCKS.

Table of Boston Mining Stocks with columns for Name of Company, Shares, Par, and Quotations for various dates (March 12, 13, 15, 16, 17, 18).

s. Copper. s. Silver. \* 2,000,000.

National declined to 5%, sales, and closes weak at 5@ 5 1/2.

Blue Hill, of Me., opened at 10, declined to 9 on the 13th, advanced to 10 1/2, and closes weak at 10 1/2 bid. Of the non-producing mines, Aztec has been most active and price has ruled steady at 1 3/4@1 3/8.

Winthrop, sales at \$1, closing at \$1@1 1/8. Mesnard, sales at 3 1/4@3 3/4, closing at 3@3 1/2. Humboldt, sales at 1 1/4, closing at 1@1 1/8.

The market for this class of stocks has been fairly active, but prices are weak, the tendency being to still lower figures.

Gas Stocks.

NEW YORK, Friday Evening, March 19.

The gas stock market continues dull and strong, with very little doing. Stocks show another advance this week, notably in the instance of the Mutual

Metropolitan, and Manhattan companies. It is very probable than an arrangement will soon be perfected by which two of the larger companies will cooperate against a third.

The following list of companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 24 Broad street, New York.

Table of Companies in New York and Vicinity with columns for Name, Capital Stock, Par, Rate of Dividend, Date of Dividend, Bid, and As'd.

Coal Stocks.

NEW YORK, Friday Evening, March 19.

There has been but a moderate business transacted in the coal stocks during the past week, although the

New York market to-day displays considerable activity, and stronger prices. Delaware & Hudson records sales of but 18,391 shares at prices fluctuating between 82 1/2@84 1/2.

New Jersey Central opened at 87 1/2, declined to 83, and closes to-day at 85@85 1/2; the sales have amounted to 39,565.

Seventy shares of Pennsylvania Coal sold on Tuesday at 20 1/2.

The Philadelphia market has been dull and steady; 29,561 shares of Pennsylvania Railroad have changed hands at 52 1/2@51 1/2.

THE BULLION MARKET.

NEW YORK, Friday Evening, March 19.

The silver market has recovered from its weakness of the date of our last issue, and has advanced a cent an ounce. The cause of the advance in London has not been ascertained, but is presumed to have been a rise in the exchanges on India. It is firm at present quotations.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

Table of Daily Range of Silver in London and New York with columns for Date, London Pence, N.Y. Cents, Date, London Pence, N.Y. Cents.

BULLION SHIPMENTS.

We give below a statement showing the latest published bullion shipments, in addition to those announced in our issue of March 13th:

Table of Bullion Shipments with columns for Date, Location, and Amount.

At Lynx Creek, Arizona, from working placer, a Mexican miner obtained \$333 for 600 wheel-barrow loads of gravel.

The Tombstone and Corbin mills are shipping daily, per the stage, a bar of bullion each, of a total value of near \$400, which comes directly East.

The Spring Valley Gravel mine, Cherokee Flat, Cal., is credited with a \$55,000 gold bar at San Francisco.

The following embraces the principal shipments made from Calistoga, Cal., by rail during the past week: Sulphur Bank Mining Company, 350 flasks of quick-silver.

Napa Consolidated Mining Company, 85 flasks of quick-silver.

The Leadville Smelters.—The production of the smelters at Leadville during the week ended March 7th, is shown in the following statement published in the Leadville Herald of March 9th:

"The amount of bullion sent out for the past week has been unusually small, but the amount on hand has in-





the holiday on the 17th, reducing work at many collieries to two days. The demand continues active for all that is produced, before it reaches tide-water, and the stock on hand is gradually decreasing at the wharves of the companies.

"The course adopted for the next few weeks will influence very much the result for the year. If too much eagerness to rush to full shipments before all that is produced is wanted is avoided, and the anxiety to rush up prices too rapidly curbed down, the year will, no doubt, prove one of prosperity to the coal trade."

"Very few vessels have reached this port since the storm. Orders for shipment are not very plenty yet, and no regular quotation of freight can be given for small vessels; \$1.25 remains the rate to Boston for large vessels."

The production of anthracite coal last week was 342,951 tons, as compared with 344,722 tons the previous week, and 467,081 tons the corresponding week of 1879. The total production from January 1st to March 13th was 3,617,342 tons, as against 3,862,734 tons for the like period of last year, showing an increase this year of 245,392 tons.

**Bituminous.**

The Clearfield miners are still holding out for an advance of wages, and the result is that bituminous coal is quoted at \$6 per ton. No boats have yet left Cumberland on the Chesapeake & Ohio Canal. The tolls on this canal have at last been announced at 51c. per ton of 2240 lbs., from Cumberland to Georgetown, and 4c. wharfage. The outlook is favorable to a very fair demand for bituminous coal as soon as labor, toll, and other questions are solved, and a regular price is established. The willingness shown by the Cumberland mining companies to submit to any and every demand made upon them by men and transportation companies, is likely to make the business far less profitable than it should be.

**PITTSBURG, March 18.**

COAL.—Navigation for deep-laden coal vessels still continuing, business in shipments has been active, and some 1,250,000 bushels (48,000 tons) of coal have been sent down the Ohio within the past week. Empty coal floatage is arriving daily, keeping the collieries pretty well supplied with depositories for mined coal, which enables the miners in a majority of the mines to continue their work without interruption. The wages for mining remain without change—3½ cents a bushel (93 cents a ton). At this rate, some strong, industrious miners make from \$5 to \$6 a day—but the average is \$4, which amounts in a month to \$100. Such wages should be most satisfactory to the employed. With the low price of coal in markets where it is sold, it is quite apparent that the workmen are making as much as the operators. The coal sent from the Kanawha falls into line this season, the prices fixed by the Pittsburg dealers being as low as the operators there deemed advisable to descend. There has been no cutting as yet. Quotations are still continued without change, and may be relied upon as correct; they are verified by daily telegrams from the points named:

**PRICES AT PITTSBURG.**

Wholesale, on board, 5@6 cts. per bushel, \$1.59 per ton Retail, delivered, ... 8@9 " " 2.39

**AT CINCINNATI.**

Wholesale, on board, ... 8 cts. per bushel, \$2.12 per ton Retail, delivered, ... 10 " " 2.65

**AT LOUISVILLE.**

Wholesale, on board, ... 8 cts. per bushel, \$2.12 per ton Retail, delivered, ... 10 " " 2.65

**AT NEW ORLEANS.**

Wholesale, on board, ... 30 cts. per barrel, \$2.90 per ton Retail, delivered, ... 50 " " 4.83

Bushels are rated among dealers here at 76 lbs.—26½ bushels make a ton of 2000 lbs., nearly.

The barrel that rules the coal measurement in New Orleans contains 2 4-7 bushels of 80 lbs. each, making about 200 lbs. Nine and two thirds of these barrels weigh a ton, within a small fraction.

COKE.—The slight depression in the pig-iron market has slackened the demand for coke, the pressure for which is not as earnest as it was last month, though the entire production of the ovens in the Connellsville region—about 40,000 tons a week—is all taken by buyers. Prices stand at present from \$3.25 to \$4 per ton of 2000 lbs. on board cars at the ovens.—American Manufacturer.

COAL.—SAN FRANCISCO, CAL., March 11, 1880.—Supplies are large and free, causing low prices to rule, as will be seen by reference to cargo quotations elsewhere. Arrivals during the week include the following: From Coos Bay, schooner Laura May with 350 tons; Gotama, 250 tons; Henry Buck, from British Columbia, 973 tons; Blue Jacket, 1795 tons Wellington; Empire, 765 tons ditto; Lobo, from Cardiff, brought 716 tons coke. Two cargoes of West Hartley and Scotch Splint are reported for forward delivery from Newcastle, England, and Glasgow at \$7.25@ \$7.50, delivered. At date the best offer made is \$7. The J. B. Bell, from Seattle, has 1120 tons. The Gussie Telfair has 365 tons.—Commercial Herald.

**New York.**

**Retail Prices.**

Per ton of 2000 lbs. Anthracite.

G. & Egg. Stove. Chest. Pittston coal delivered, ... \$4.25 \$4.25 \$4.25 Lack coal delivered below 59th St. 4.50 4.75 4.50

**Wholesale Prices of Bituminous Coal.**

**MANUFACTURING AND STEAM COALS.**

Table listing coal prices for manufacturing and steam use, including locations like Cumberland at G'n & Alexandria, At mines, At Baltimore, At Philadelphia, At South Amboy.

\* F. o. b.

**DOMESTIC GAS COALS.**

Table showing domestic gas coal prices per ton at various ports like Westmoreland and Penn., At Greenwich, Philadelphia, At S. Amboy, etc.

**FOREIGN GAS COALS.**

Table showing foreign gas coal prices from locations like Newcastle at Newcastle-on-Tyne, Liv. House Orrel, Ince Hall Cannel, etc.

**Wholesale Prices of Anthracite Coal Delivery F. o. b. at Tide-Water Shipping Ports, per ton of 2240 lbs.**

Large table listing prices for Wyoming, Lehigh, and Schuylkill coal regions, categorized by lump, steam, grate, egg, stove, and chestnut.

\* Fifty cents per ton additional for delivery at New York.

**STATISTICS OF COAL PRODUCTION.**

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending March 13th, and years from January 1st:

Table comparing coal production statistics for 1880 and 1879, showing tons of 2240 lbs. for various regions like Wyoming, Lehigh, Schuylkill, and Sullivan.

Table showing total same time in 1875, 1876, 1877, 1878, and 1879, comparing production figures.

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Belvidere Delaware Railroad Report for the week, and years ending March 13th:

Table showing coal shipment statistics for the Belvidere Delaware Railroad, comparing weekly, yearly, and annual figures.

The increase in shipments of Cumberland Coal over the Cumberland Branch and Cumberland and Pennsylvania railroads amounts to 159,486 tons, as compared with the corresponding period in 1879.

**The Production of Bituminous Coal** for the week ending March 13th was as follows:

Table showing bituminous coal production for various regions including Cumberland, Barclay, Broad Top, and Pennsylvania.

**The Production of Coke** for the week ending Feb. 14th:

Table showing coke production for various regions including Penn. R.R. (Alleghany), West Penn. R.R., and Pittsburgh.

**FREIGHTS.**

**Coastwise Freights.**

Per ton of 2240 lbs.

Representing the latest actual charters to March 19th, 1880.

Table listing coastwise freight rates for various ports from Philadelphia, Baltimore, and other locations.

\* And discharging. † And discharging and towing. ‡ 3c. per bridge extra. § Alongside. ¶ And towing up and down. † And towing.

CHRYSLITE SILVER MINING COMPANY, Rooms Nos. 51 to 57 Boreel Building, No. 115 Broadway, New York, March 18, 1880.

MAP OF THE MINING CLAIMS ADJOINING LEADVILLE, CALIFORNIA MINING DISTRICT, LAKE COUNTY, COLORADO.

Carefully compiled and drawn from official surveys and records by EDWARD ROLLANDET 1879. THE SCIENTIFIC PUBLISHING COMPANY, P.O. Box 4404, 27 Park Place N. Y.

CARPENTER'S MINING CODE,

A compilation of all the existing mining, water, pre-emption, and homestead laws of the United States and the State of Colorado, mining decisions in the courts and Department of the Interior, articles of incorporation and by-laws for mining companies, comments, forms, etc., etc., by M. B. Carpenter. Price \$1.25. Address THE SCIENTIFIC PUBLISHING COMPANY, P.O. Box 4404, 27 Park Place, N. Y.

THE COAL TRADE JOURNAL.

Published every Wednesday. Established April 21st, 1869. It is the only paper in the United States entirely devoted to the interests of the coal trade. Subscription price, \$2.50 a year. F. E. SAWARD, Editor and Proprietor, 111 Broadway, New York.

WELSH Abernant "Dinas" Fire-Bricks & CEMENT.

Unrivalled for endurance under intense heat. PERCENTAGE OF SILICA, 95-64. All shapes and sizes made to order. Diagrams furnished. A. T. CHUR, Sole Agent for the United States, No. 75 Broadway, New York.

AIR COMPRESSORS CLAYTON STEAM PUMP WORKS

SPRING VALLEY HYDRAULIC GOLD COMPY.

At a meeting of the directors of the Spring Valley Hydraulic Gold Company, held at the office of the company, No. 61 Broadway, the following officers were elected: E. B. Dorsey, President, 61 Broadway, Charles M. Fry, Vice-President and Treasurer, 48 Wall street; Norman S. Walker, Secretary, 61 Broadway. The deeds to the property of the Spring Valley Mining and Irrigating Company and the Cherokee Flat Blue Gravel Company are now in the hands of the Spring Valley Hydraulic Gold Company; the property is being cleaned up, and the yield for the past 90 days is estimated to run over \$100,000.

MAPS.

Any of the following-named Maps can be had by remitting the price by Post-Office Money-Order, or Bank Draft on New York, to the Scientific Publishing Company, P. O. Box 4404, 27 Park Place, New York. Map of Mining Claims adjoining Leadville, California, Mining District, Lake County, Colo. By Edward Rollandet, 1879. Mounted on muslin, \$2.50. In cloth-bound covers, \$2. Map of "Treasure Hill," White Pine County, Nevada. Compiled from Actual Survey, by subscription of the principal Miners and Capitalists of the District. By Wm. H. Hall and E. F. Dickens, with a descriptive Key. \$50. New Sectional Map of Colorado; scale, 13 miles to the inch; size, 24x36 inches, colored by cosmetics. 1880. 75 cents. New Sectional Geological and Mineralogical Map of Colorado, showing the Gold, Silver and Coal Lands, Placer Diggings and general Geology of the State. Printed in 9 colors, 26x36 inches. 1880. \$2.

POCKET MAPS. The following maps contain a printed index, by means of which every place can be located on them as easily as a word can be found in a dictionary:

Table listing various states and territories with corresponding map prices. Includes Alabama, Arizona Territory, Arkansas, California and Nevada, Colorado, etc.

Bound in cloth, 10 cents additional. Maps marked thus \* are also put up in flexible cases without Index; price, 25 cents each.

ADVERTISERS' INDEX.

Table listing various categories of advertisements such as Advertisers' Agencies, Air Compressors, Attorneys and Counselors, Bankers and Brokers, Belting and Rubber, etc., with page numbers.

Table listing various categories of advertisements such as Carbon (Black Diamonds), Chemicals, Copper Dealers, Coal, Coal Economizers, Crushers, Ore, Dividends, Emery Wheels, Engineers and Chemists, Engineers' Instruments, Financial, etc., with page numbers.

Table listing various categories of advertisements such as Fire Brick, Food, Glukodine, Hoisting Machinery, Metal Brokers, Mining Agencies, Mining Companies, Mining Directory, etc., with page numbers.

Table listing various categories of advertisements such as Perforated Metal, Pumps, Purchasing Agent, Railroads and Transportation, Rock Drills, Roofing, Saws, Smelting and Refining Works, Special Notices, Steel Works, Tackle Blocks, Valves, Water Gas, Water-Wheels, Wire Rope, etc., with page numbers.

Table listing various categories of advertisements such as Robt. Atchison Metal Co., Harrington & Oglesby, Cameron A. S., Clayton Steam Pump Works, Crane Brothers Manuf'g Co., etc., with page numbers.